Essays on the impacts of household financial decision making

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Glossary

ANZ	Australian and New Zealand Banking Group
APRA	Australian Prudential Regulation Authority
ATO	Australian Taxation Office
AUD	Australian Dollar
CBD	Central Business District
HAS	Housing Affordability Stress
HILDA	Household, Income and Labour Dynamics in Australia
OECD	Organisation for Economic Co-operation and Development
RB	Rural Bank
RFCS	Rural Financial Counselling Service
ROA	Return on Assets
SAM	Shared Appreciation Mortgage
SIS	Superannuation Industry (Supervision)
SPAA	SMSF Professionals' Association of Australia
SMAE	Small-to-medium sized agricultural enterprise
SME	Small-to-medium sized enterprise
SMSF	Self-managed Superannuation Fund
VIF	Variance Inflation Factor

Declaration

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Abstract

The thesis examines the consequences of household and individual financial decision making in three different areas: mortgages, superannuation and family businesses. The questions posed in each case cannot be tackled using conventional financial databases. I therefore address each case by applying survey methods.

First, I examine the socioeconomic impacts of households choosing to take out shared appreciation mortgages (SAMs). Tax and regulatory barriers have impeded the development and use of SAMs in many mortgage markets. Empirical studies on household impacts stemming from SAMs have therefore also been limited. However, the State Government of South Australia has implemented SAMs as a means of enabling and encouraging low-income homeownership, thereby creating a unique dataset of SAM financed households. I survey this population, finding that SAM borrowers benefit from increased budgetary expenditure on discretionary items following take-up, while simultaneously saving on some non-discretionary items relative to control samples of renters and other homeowners from the general population. Furthermore, SAM homeownership also appears to be associated with increased levels of neighbourhood satisfaction and community involvement for borrowers. The results from this study indicate that SAM financed homeownership leads to changes in household behaviour and deserves further consideration by the housing industry and research community.

Second, I examine the influence of investor knowledge and the cognitive bias which arises from overconfidence on the advice seeking behaviour of investors in self-managed superannuation funds (SMSFs). I trace whether overestimating one's own technical and financial abilities can hinder the willingness to seek advice. I identify a subset of investors

who are not knowledgeable and yet do not seek advice to compensate for this. These investors appear to be overconfident in their ability to manage their SMSF, despite holding under-diversified and less financially sophisticated portfolios when compared to their peers. Given the global rise in investors choosing to manage their own retirement funds and the importance of seeking advice in this context, there are direct policy implications from these findings. They suggest a need to identify and target self-managed retirement investors who display overconfidence since they are the most likely to manage under-performing SMSFs in the longer term.

Third, I examine links between the succession planning decisions, operational management and financial performance of small-to-medium sized agricultural enterprises (SMAEs). I differentiate between written, verbal and other succession arrangements to investigate how each type embeds within the broader operational environment of SMAE households. Further tests are performed to see if differences in financial outcomes can be linked with a particular approach to succession. The results indicate that succession planning decisions are positively associated with the use of written business plans and crop insurance, but that this is only true for SMAEs with professionalised written succession arrangements. This was also the only cohort associated with improved return on assets relative to peer agricultural businesses with alternative succession arrangements in place. Given the critical role of succession in the long-term sustainability of family business households, these results have direct implications for farmers and practitioners advising the private agricultural sector. They suggest that the value in planning succession at least partly lies in the value of going down pathways for professionalization.

1. Introduction

This thesis examines the consequences of financial decision making for households in three arenas. First, I consider mortgage choice. I study a population of households that have financed homeownership through shared appreciation mortgages (SAMs) to trace the budgetary and social impacts they experience following loan take-up. Second, I analyse households which have elected to manage their retirement investments via self-managed superannuation funds (SMSFs). I explore how the financial literacy and overconfidence of household members link with their propensity to seek financial advice, and in turn, how their levels of compliance, portfolio diversification and sophistication vary with their advice-seeking behaviour. Third, I turn my attention to households where the family also owns and manages a small-to-medium sized agricultural enterprise (SMAE). Specifically, I investigate how the approach to succession planning adopted by SMAE households fits with other aspects of their financial management (e.g. insurance, business planning), and subsequently how their financial performance varies with different approaches to succession. The micro-finance perspective adopted in each case necessitates the use of research tools outside of the conventional framework in finance. I therefore address each subsection by using primary data from three customised questionnaire instruments.

This research is motivated by gaps in the growing literature on household finance. In his seminal address to the American Finance Association, Campbell (2006) describes the field as being concerned with the decisions households make, their use of financial instruments as they pursue financial (and other) objectives and the consequences of their choices. The decisions which households are faced with can be individually complex as well as multidimensional. For example, they can be required to understand information and apply knowledge in the fields of debt financing, investment and risk management (Guiso and

Sodini, 2012), while also having to plan over long time horizons (Campbell, 2006). This complexity is further compounded by the influence of behavioural factors, as well as the availability of financial advisors and other external experts who can be used by households wishing to outsource their financial management responsibilities. The potential for agency problems is then a further complication. However, given its relatively young state and the wide range of potential research questions, the literature to date has been porous in addressing the myriad of micro-finance choices made by households along with their subsequent impacts. This is particularly true in the Australian context which forms the focus of this thesis.

Research into each of the micro-finance topics presented here was further motivated by policy objectives at the State and Federal levels of the Australian Government. In some cases, the studies also contributed to forming future policy directives. The first chapter, on shared appreciation mortgages, was considerably supported and funded by HomeStart Finance – a statutory corporation of the State Government of South Australia. The remaining studies were substantially supported by the Australian Research Council through linkage projects with industry partners. Research in the second chapter, on self-managed superannuation funds, was partnered with the SMSF Professionals' Association of Australia. The third chapter, on succession in agricultural household businesses, was supported by Rural Bank and the Australia and New Zealand Banking Group. Below I introduce each chapter in further detail.

1.1 Shared appreciation mortgages

Mortgage decisions are among the most important financial decisions households make (Campbell, 2006). Studies on mortgage choice have typically focussed on the

difference between fixed- and adjustable-rate mortgages (see for example Campbell and Cocco, 2003). This is not surprising given that these are the two dominant options selected by a majority of households using mortgage debt. This has not however, precluded the innovation and use of alternative mortgage products. Most notably, the prevalence of alternative mortgages was brought to the fore during the global financial crisis of 2007–2008. While a significant body of research went into disentangling their role in the crisis from other contributors[1] (Mayer, Pence and Sherlund, 2009; Mian and Sufi, 2009), some have argued in favour of their benefits (Cocco, 2013). In this vein, I contribute to the literature by demonstrating some of the benefits of shared appreciation mortgages (SAMs) for a cohort of Australian borrowers.

I argue that SAMs can realign the traditional incentives of lenders and borrowers in fixed- and adjustable-rate mortgages by substituting future capital gains for interest income. This makes them a potentially innovative solution to housing affordability (and other) crises because they encourage homeownership for households and discourage foreclosure for lenders. Despite this, little is known about their empirical impacts on households. SAMs remain on the fringe of mainstream home lending because their development has been impeded by taxation and regulatory barriers. Owing to this, detailed questions on SAM use are typically either excluded from large scale household finance surveys (as in the Survey of Consumer Finances in the U.S.) or are aggregated with other alternative mortgage products (as in the Survey of Income and Housing in Australia). However, in South Australia the State Government has implemented SAMs as a means of encouraging low-income households to enter into homeownership. I survey the full population of households choosing to enter into SAM financed homeownership to estimate the budgetary and social differences they experience relative to other households from the general population. The results are generally

[1] Such as remuneration incentives which encouraged excessive risk taking, financial innovation through securitisation, incomplete risk management in major financial institutions, excessive leverage and inaccurate credit ratings, among others (Crotty, 2009).

positive, suggesting that SAM financed households benefit from relaxed budgetary constraints on discretionary expenditures and improved social satisfaction following take-up.

1.2 Self-managed superannuation funds

Retirement funds make up a significant portion of the total wealth of households. In the U.S. for example, retirement funds are the second largest asset class (behind real estate) for the wealthiest 70% of households and the third largest for the poorest 30% of households (Guiso et al., 2012). This trend similarly holds for Australia, which as of 2013 also has the third largest national investment in pension funds in the world (OECD, 2014). Since 2009 SMSFs constitute the single largest class of funds under management within the Australian pension sector (APRA, 2012). Despite the size of the Australian SMSF sector, there is a persistent lack of readily available data on funds and little is known about the behaviour of households which participate in it. Strong annual growth rates in new funds and an already large base of individual SMSFs have both contributed to this difficulty.

The broader household finance literature highlights several key findings which relate to households who manage their own retirement funds. One of these results links financial literacy with influencing financial decision making (Lusardi and Mitchell, 2007, 2014). For example, households with lacking literacy in answering simple financial questions appear less likely to plan for their retirement (Lusardi and Mitchell, 2006; Agnew, Bateman and Thorp, 2013). Moreover, in cases where individuals are prompted into retirement planning by their employer, they can still end making suboptimal financial choices because of cognitive behavioural biases (Choi, Laibson, Madrian and Metrick, 2002). In light of the interplay between literacy and behavioural tendencies, researchers argue in favour of financial advice as a potential safeguard against adverse investment and financial decisions (Campbell, 2006;

Guiso et al., 2012). Owing to the fragmented state of the sector and limited availability of data, these relationships have not been explored for SMSFs in Australia.

This thesis addresses this research need by comprehensively surveying a cohort of SMSF investors. Using the resulting dataset, I first examine the influence of investor knowledge and overconfidence on the advice seeking behaviour of households managing their own retirement funds in Australia. I then trace whether seeking advice is related to the financial outcomes of funds in terms of their compliance, diversification and sophistication. Initially, I find that SMSF investors who overestimate their financial abilities are hindered in their willingness to seek advice. Likewise, literate investors also appear less likely to seek advice. The results further suggest that there is a subset of SMSF households with investors who are not financially knowledgeable and yet do not seek advice. These investors are found to exhibit overconfidence in their ability to manage a fund, despite holding under-diversified and less sophisticated retirement portfolios than their peers.

1.3 Small-to-medium sized agricultural enterprises

Private businesses are a further prominent feature of household finances, with many owning significant private business assets (Campbell, 2006; Guiso et al., 2012). The importance of this asset class for such households is underscored by its impact on other asset holdings. For example, Heaton and Lucas (2000) find a negative relationship between the portfolio share allocated to listed equities and household business income. Naturally this implies that business ownership can concentrate household portfolios. Moreover, given that these households usually have a disproportionately large net worth relative to the general population, Campbell (2006) argues that their portfolio tendencies can influence aggregate demand for equities and subsequently equity prices. While this literature suggests that

household businesses play an important role both within and outside of households who allocate assets to them, this thesis focusses only on one of the internal decisions households make with respect to their businesses – the decision to plan succession.

There is a complementary literature on the decisions households make with respect to their businesses and the subsequent financial impacts of those decisions. Wang, Watkins, Harris and Spicer (2004) find empirical support for a positive association between the succession process and business performance in small-to-medium sized enterprises. In contrast, Molly, Laveren and Deloof (2010) highlight a lack of evidence to suggest that firm profitability is affected by the succession process. However, neither of these studies focuses on the performance impacts of different approaches to succession planning prior to the succession process taking place. It remains unclear whether (the degree of professionalization in) succession planning is associated with changes in performance before succession occurs.

I contribute to the household finance literature by exploring this topic in the context of Australian SMAEs. Again, I encounter an absence of databases on agricultural succession. I therefore employ a customised questionnaire to collect data on SMAEs and their approaches to succession planning. Differentiating between written, verbal and other succession arrangements (i.e. in the degree of professionalization), I then investigate how each type embeds within the broader operational environment of agricultural businesses (relative to insurance, derivative use and other business planning). The study concludes by examining whether the return on assets (ROA) achieved by SMAE households can be linked with a particular approach to succession. The results indicate that succession planning decisions are positively associated with the use of written business plans and crop insurance. However, this relationship only holds for farms with professionalised written succession arrangements. Likewise, SMAEs with written succession plans were the only cohort associated with improved ROA.

1.4 Contributions

The contributions of this dissertation to the literature on household finance are twofold. First, the thesis presents results from three novel empirical studies on micro-finance topics which have not previously been explored. In the first of these, the findings suggest that alternative mortgage products such as SAMs are associated with positive changes in household behaviour. In the second study on households self-managing their retirement funds, the results show that there are key interactions between the behavioural characteristics and knowledge of investors, their propensity to seek financial advice and their retirement fund outcomes. Perhaps most importantly, the study also identifies a vulnerable cohort of households that could benefit from financial advice, but nevertheless do not use it. The third study on succession in farm households finds that succession planning decisions are integrated with other financial management decisions and associated with differences in the financial performance of such households. The degree of professionalization in the approach to succession planning is also found to be a critical component.

Second, the thesis focusses on analysing financial questions which cannot be answered via the conventional databases. In each case, industry structure, product adoption and data collection issues make it difficult to compile larger databases to address the specific micro-finance questions posed here. The questionnaire methodology I apply finds a way around this by collecting primary data directly from households. In doing so, and despite the known limitations of this approach, I demonstrate that customised surveys can complement existing research and traditional research methodologies in finance to address questions which may otherwise remain unexplored. Research of this kind has historically comprised less than 4% of the contributions made in finance journals (Baker and Mukherjee, 2007).

The findings also add value from the perspective of practitioners and policy makers. Decisions by the State government of South Australia on their SAM lending program are informed by the empirical impacts documented here. I further argue that the results support private sector lenders to also consider including SAMs in their retail offerings. With respect to households using SMSFs, I highlight the need for regulators to ensure that investors who need financial counselling actually receive it. Not doing so creates a potential future burden on the State having to finance retirement incomes for investors who have depleted their retirement funds through poor investment decisions. Finally, specialist business advisors consulting on succession are encouraged to promote formal, professionalised succession planning arrangements for their clients, since this is the only approach linked with improved financial performance for SMAE households.

The remainder of this thesis is structured as follows. Chapter 2 provides the study of household impacts under SAM financed homeownership. Chapter 3 provides the study of financial advice and portfolio outcomes in households managing their own retirement investments via SMSFs. Chapter 4 provides the study of succession planning and financial performance in SMAE households. Chapter 5 concludes with comments on the significance of the contributions made, limitations and directions for future research.

2. Shared Appreciation Mortgages

2.1 Introduction

Following the 2007 sub-prime lending fallout in the United States, sharp spikes in foreclosure and unemployment rates were followed by a drop in homeownership across many residential real estate markets. Not only was demand dampened, but the available private risk capital for mortgages also significantly diminished. In turn, this partially developed into an affordability crisis where credit was hard to come by, locking out households trying to transition to homeownership. The prevalence of pure mortgage debt as the finance mechanism of choice further exacerbated this problem, leaving few options other than foreclosure for lenders and creating little to no incentive for borrowers to persist with ownership. Aimed at alleviating the situation, some of the succeeding discussion has been directed at examining alternative housing finance programs such as shared appreciation mortgages (Beer, Baker, Wood and Raftery, 2011).

SAMs are essentially hybrid mortgages which are aimed at enabling low to moderate income individuals or families to enter the residential property market. SAM products consist of a combination between a standard loan and an appreciation right in the underlying asset (Shiller and Weiss, 2000). Return on the former component is calculated and received in the (traditional) form of a regular repayment partly consisting of repaid capital, and partly of interest. Return on the latter component is typically received only when the underlying asset is liquidated (Sanders and Slawson, 2005). It is calculated as the percentage of value appreciation[2] in the underlying property which is directly proportional to the original shared

[2] In the case of value depreciation this percentage would be negative.

appreciation component in the SAM. In essence, SAMs are swap contracts exchanging reduced borrowing and repayments for a share in the capital gains on the purchased property.

Regulatory, legal and taxation issues have long hampered the development of SAMs in some markets (Friend, 1982; Caplin, Cunningham and Engler, 2009). In the United States for example, Caplin et al. (2009) note that the incomplete treatment of SAMs under federal income tax law has resulted in punitive net tax costs for lenders (relative to the costs of conventional mortgages). This, coupled with the tax code being largely incoherent with respect to SAMs (Caplin et al., 2009), has created an environment within which the disincentives for lenders issuing SAMs outweigh the benefits. However, in Australia SAMs are both a part of private bank offerings available to clients and a State sponsored means of assisting low-income earners to transition into homeownership. Pinnegar, Easthope, Randolph, Williams, and Yates (2009) provide a robust discussion on existing State sponsored offerings in Australia, noting that the majority are set up specifically to aid low-income households in entering the homeownership market.

Examining the case of SAMs in Australia can provide insight into how they might work in other countries. The effects of the global financial crisis on the Australian housing market are, however, dissimilar to those observed in other developed nations. Housing purchase affordability has remained at near-record lows (both prior to and following the crisis), making it difficult for many to enter the housing market (Yates and Gabriel, 2006; Commonwealth of Australia, 2008; Rowley, Ong and Haffner, 2014). This is particularly relevant given that the sub-prime loan market in Australia has always been extremely small and bank lending restrictions relatively tight. Australia, therefore, provides a good base to examine the use of SAMs as a means of assisting low income households towards homeownership within a regulatory environment with high credit standards and low housing affordability.

To this end, I provide Australian evidence in response to some of the aforementioned issues, as well as additional insights into the impacts of SAM financed homeownership on low income households. These include perspectives on the social perceptions, budgetary expenditure variations and property maintenance attitudes of borrowers. Furthermore, my analysis of budgetary expenditures is segregated into discretionary and non-discretionary items since each class responds differently to external shocks at the household level (Gan, 2010). I examine the issuance of such mortgages to over 700 households consisting of more than 1000 individuals between 2007 and 2010. Anecdotally I find that SAMs are generally taken up by lower income demographics, supporting the initial goal of the product to increase housing affordability for households on the fringe of ownership. Following SAM qualification (and subsequent property purchase) perceptions of financial security are also greatly enhanced for the majority of borrowers.[3] In comparison to a control group from the general population, I observe significantly higher discretionary and home maintenance spending for SAM households, along with savings in some forms of non-discretionary spending.

Capturing these welfare improvements, also lends support to the broader literature on homeownership that show socio-economic gains for homeowners. These may not be apparent during housing market downturns, but are nevertheless well documented. Since upper income neighbourhoods traditionally experience higher homeownership rates, policy and research focus in developed nations has predominantly revolved around encouraging homeownership for low income households as a means of driving social and economic improvement. Previous research, although not unanimous, has found benefits including improved wealth

[3] My results indicate that more than 60% of sampled SAM borrowers feel their home purchase *definitely* provides them with more financial security (with over 30% reporting some lower degree of increased financial security). This outcome may have relevant budget allocation implications, since discretionary spending items are more likely to reflect consumption changes stemming from increased financial security than are non-discretionary categories (Gan, 2010).

creation and socio-political involvement (Diaz and Luengo-Prado, 2012; Manturuk, Lindblad and Quercia, 2009). I show some evidence in support of this general view.

The rest of this chapter is structured as follows. Section 2.2 discusses the background and reviews the existing literature. Section 2.3 discusses the data collection and research methodology employed. In section 2.4 key findings and results are presented, while section 2.5 provides a conclusion to the chapter.

2.2 Background and literature review

Having grown considerably over the past four decades, mortgage debt now represents the largest portion of outstanding private debt in Australia. This increase however, has not been reflected in the national homeownership rate, which has remained stable at around 70% (Bourassa, 1995; Kryger, 2009; Yates, 2012). In the presence of increasing debt, a stable homeownership rate seems indicative of both declining Australian housing affordability (Wood and Ong, 2009) and a decrease in outright homeownership (Flood and Baker, 2010; Yates, 2012). While these deteriorations can be borne by most middle and high income households, the same cannot be said of low income earners. Borrowing constraints such as income and wealth pose a greater hurdle for this demographic.

In a climate of declining affordability, it is not uncommon to see deregulatory policy and relaxed credit standards being used as a means of minimising the impact of borrowing constraints on low income households. For example, during the mid-1980's housing finance deregulation was used in the United Kingdom to support housing affordability and reduce the costs of entering and maintaining homeownership (Dale-Johnson and Gabriel, 1995). In Australia, despite declining affordability, the lending market has remained one of the more regulated in the world (Green and Wachter, 2005). The regulatory framework is geared to

strongly incentivise mortgage insurance whenever a borrower is constrained to less than a 20% down payment (Blood, 2001). Moreover, instead of being treated as a liability for the lender, mortgage contracts in Australia are legally treated as a liability for the borrower.

The regulatory environment and deteriorating affordability in Australia have resulted in a lower income demographic that cannot necessarily tap into standard mortgages. A significant debate has resulted with a number of policy initiatives originating from both Federal and State governments trying to address this. Over a period of several years, initiatives have ranged from offering increased first home-owner grants to State sponsored SAMs. Whitehead and Yates (2007) discuss the role for shared equity products in the context of the Australian market and in particular note that they can serve as a low to no-subsidy mechanism to assist cash constrained households and those worried about housing risk to enter the property ownership market.

In 2007 the State Government of South Australia released the State strategic plan – a document guiding the economic, environmental and cultural priorities of the State. Through HomeStart Finance, a statutory corporation established under the Housing and Urban Development Act (1995), the State Government implemented policy to improve housing affordability (a key economic priority). This resulted in the introduction of the Breakthrough Loan. While the loan is targeted at lower income borrowers, it is also one of the few State sponsored SAMs that do not place a ceiling on borrower income.[4]

Criticisms of SAMs have been predominantly supply side focussed. Shiller et al. (2000) explain that the sharing of risk between borrowers and lenders creates a moral hazard risk providing incentive for the former to neglect property maintenance at the expense of the latter. This result, while relevant for extreme appreciation arrangements (such as the 75%

[4] Pinnegar et al. (2009) provide a comprehensive review of the different SAM stylised products on offer at the time in Australia by various States and Territories.

appreciation share claimed in the Bank of Scotland example cited by Shiller et al., 2000), is less clear for more equitable appreciation partitioning. In the Australian specific context, the issue of moral hazard is also raised by Pinnegar et al. (2009) and Whitehead et al. (2007).

This chapter expands the existing literature by providing an empirical analysis of the demand side socioeconomic impacts of SAMs. In particular, I focus on SAM impacts to borrower spending patterns and perceptions of social wellbeing. Since many of the aforementioned effects accumulate through both the SAM and homeownership, this chapter shares ground with the extant literature on the benefits and costs of homeownership. While the field has had extensive empirical contributions, I only briefly consider some of the more recent publications.[5]

Because homeownership tends to be highly leveraged, it can create substantial rates of return for low income households during bull markets. Burbidge (2000) shows that low income households are able to generate higher rates of return than other classes because of their tendency to have lower initial deposits. Moreover, Sinai and Souleles (2005) add that homeownership can also act as insurance against rental price increases. Importantly, from a social standpoint low income homeownership has been linked with increased community involvement. The literature supports this result because homeownership incentivises community improvement by creating barriers to mobility not found with renters (DiPasquale and Glaeser, 1999; Manturuk et al., 2009). However, empirical studies examining wealth accumulation effects have returned mixed results (Dietz and Haurin, 2003). The subsequent criticism has been that any wealth effects for low income households are timing and location dependent and therefore not a consistent phenomenon (Shlay, 2006). While homeownership can create wealth for low income households in the long term, the major threat for this

[5] Dietz and Haurin (2003) provide a comprehensive interdisciplinary review of the literature on homeownership consequences.

demographic stems from their ability, or lack thereof, to manage housing market volatility (Aaronson, 2000).

Motivated by the various literature streams, I provide an empirical examination into a range of budgetary expenditure and social perception variables for SAM borrowers. At the expenditure type level, my analysis is split into considering discretionary and non-discretionary spending separately because each category has been observed to have varying sensitivity to budget shocks (Gan, 2010). From a social perspective, my findings agree with DiPasquale et al. (1999) and Manturuk et al. (2009), showing that SAM borrowers are significantly more satisfied with their levels of community and neighbourhood involvement than the general population.

2.3 Data and methodology

2.3.1 Data collection

SAMs can be drafted with varying contractual conditions depending on the jurisdiction where they are issued and the lender who issues them (see for example Shiller et al., 2000). HomeStart provides the Breakthrough SAM as an add-on component together with its standard lending products. Breakthrough SAMs are capped at 35% of total value lent and expose the lender to share in both increases and decreases in the value of the underlying property.[6] For decreases in value, the outstanding SAM reduces by a factor of 1 proportional to its initial percentage. In cases of appreciation, the SAM component repayable increases by 1.4 times the initial percentage.

[6] As of 2010, the average Breakthrough SAM is close to 30% of average purchase value. Overall the loan book comprises nearly $170M of outstanding loans.

Currently in South Australia there are 1030 SAM borrowers comprising 705 households. HomeStart Finance provided detailed demographic and financial data on the entire loan population. Given my interest in borrower impacts, this original data was complemented by a survey covering a broad range of social satisfaction, discretionary and non-discretionary spending outcomes. The survey was developed over three stages. At stage one areas of interest were identified and a questionnaire drafted through collaboration between the lender, author and academic advisors. At stage two the draft survey was presented during a pilot workshop to a small sample of current borrowers. Members of the focus group were encouraged to provide their own input prior to seeing the questionnaire so as to avoid potential bias to the topic. The ending stage of development involved collating the inputs from borrowers, the author and the lender. Questionnaire mail out was to the full population of current borrowers.[7] A total of 256 individual households responded to the survey (36.3% response rate).

The final questionnaire consisted of 27 questions split into 3 sections (see Appendix A). The question format included 7 point likert scales, multiple choice questions and open ended numerical questions. In order to update the data provided by the lender, Section 1 of the survey covered demographic topics such as dependents, income, marital status and housing type. Section 2 considered a variety of borrower perceptions related to the SAM. Respondents were asked to demonstrate their level of SAM understanding, product satisfaction and motivations as well as a range of costs and benefits experienced through their living arrangement transition into SAM homeownership. The third section was designed to capture general life satisfaction through likert indicators along with household spending patterns. Additionally, sections 1 and 3 were particularly structured to be compatible with control data from the Household, Income and Labour Dynamics in Australia (HILDA)

[7] Individual anonymity was maintained at all times through HomeStart Finance.

survey. This involved constructing questions with similar topicality as those posed to the general population in order to make comparison between the populations possible.

All control group data was obtained from the HILDA survey. The survey is a longitudinal panel study, sponsored by the Australian Federal Government, covering almost 20,000 individuals from more than 7,000 households across Australia. As well as collecting information on family and labour market dynamics, the HILDA questionnaire also covers a wide variety of social perception and economic questions. In addition to the significant sample size, the HILDA survey collects data from all Australian States and Territories. This enabled the selection of appropriate sub-samples comprised of both recent purchasers and medium-to-long term renters for comparison with the SAM data set.

2.3.2 Descriptive statistics

Table 2.1 presents sample demographic comparisons between SAM holders and the general Australian population (for both individuals and households). The generally homogenous distribution of social welfare funding by the Federal Government to individual States ensures that, unlike other countries, demographic differences among States in Australia are low. In Table 2.1 I present analysis utilising the full Australian panel of the HILDA survey.

SAM households appear significantly different from the broader population in a number of categories. As expected, on aggregate they fall in a lower income bracket than the general population. However, the Breakthrough SAM was never restricted to exclude higher income borrowers.[8] Rather, this effect results from the State Government initiative to promote higher levels of homeownership in South Australia by assisting those on the fringe

[8] In fact, SAMs can potentially be very flexible toward borrower income capacity through adjustments to the appreciation share of total mortgage value. Hence they are not a product restricted to any single income demographic.

of entering the housing market. Likely a possible consequence of the generally lower income band, SAM borrowers are also observed to have smaller homes and exhibit a slight preference for units and apartments over free standing housing.

Table 2.1 Demographic statistics for SAM and HILDA households and individuals

Household Characteristic	SAM Households	HILDA Australian General Population	Difference (S – G)
Income bracket ($ per week)	770 – 959	960 – 1149	N/A
Number of bedrooms	2.9	3.1	-0.2***
Dwelling type distribution (%)			
Free standing house	71.0	76.6	-5.6**
Semi-detached house	10.6	7.9	2.7
Unit or apartment	18.4	14.2	4.2*
Other	0.0	1.2	-1.2*
Personal Characteristic	**SAM Households**	**HILDA Australian General Population**	**Difference (S – G)**
Male (%)	40.6	47.1	-6.5**
Children	1.5	1.7	-0.2*
Age (years)	37.4	44.1	-6.7***
Marital status distribution (%)			
Married	48.4	48.0	0.4
Separated	4.4	3.6	0.8
Divorced	9.9	9.0	0.9
Widowed	0.6	5.4	-4.8***
Committed	13.5	9.6	3.9**
Single	23.2	24.4	-1.2
Mortgage Characteristic	**SAM Households**		
Loan duration[#] (years)			
Average	8.43		
Minimum – maximum	6.20 – 12.78		
Down payment (%)			
Average	7.55		
Minimum – maximum	0.00 – 82.81		
SAM/ Total value lent (%)			
Average	30.09		
Minimum – maximum	6.00 – 35.00		
Property value ($)			
Average	262,235.20		
Minimum – maximum	96,900.00 – 570,000.00		

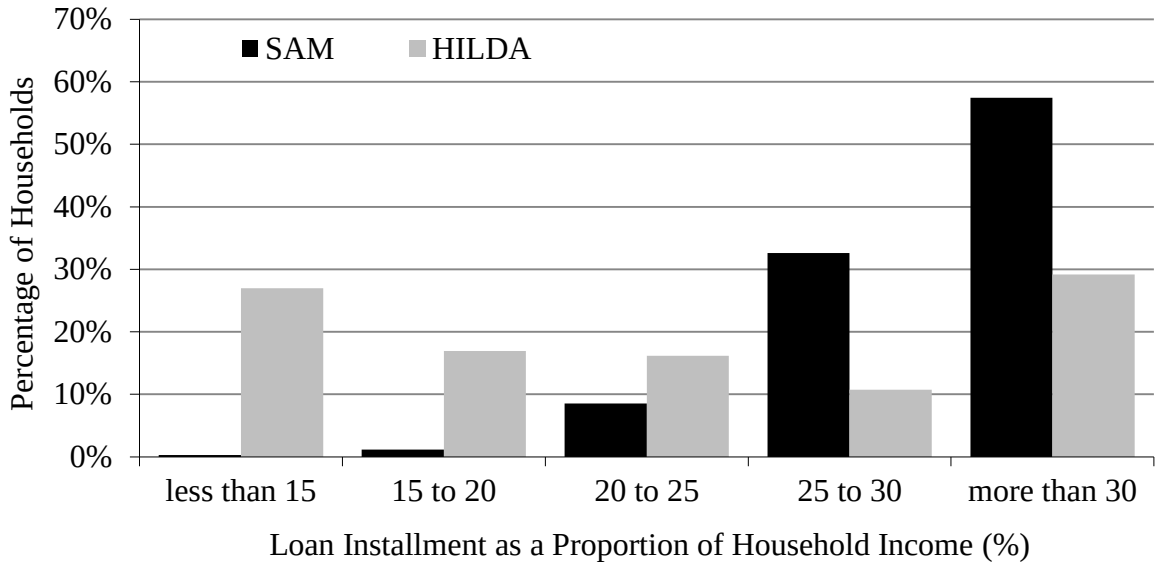
The discount rate for duration calculations is set at 6.85% p.a. as per the standard variable rate (SVR) offered by HomeStart Finance at the time of this research. The total SAM component of each loan is segregated from any interest bearing components for the purposes of calculating duration. The SVR is the applicable interest rate on the interest bearing loan portions for more than 94% of all SAMs issued by HomeStart.

Note: Statistical significance is denoted: *** $p < 0.01$; ** $p < 0.05$; and * $p < 0.10$.

With regard to personal characteristics, SAM individuals appear more likely than the general population to be younger and female, with no meaningful differences in dependants or family structure. In terms of the actual loans, the SAM component of the total value lent was on average approximately 31% in comparison to the maximum provided by the Breakthrough loan being 35%.

On average actual down payments represented about 7.5% of the loan, with the average loan duration being a little over 8 years in length. The average property value was about $262,000 (the median being $240,000) while at the same time the median house price for the greater metropolitan area was $405,000. Taking into account that more units were purchased than free-standing houses, this indicates, as would be expected, that the properties in question are at the lower scale of pricing. Finally, the interest charged on the loans was 307 basis points above the Reserve Bank rate at the time the survey was conducted. The rate was 7.82%, with comparable standard variable rates offered by the four main street banks in Australia varying between 7.67% and 7.86%.

Figure 2.1 Housing affordability stress levels for SAM and HILDA households



Given the discussed aggregate income band for SAM financed households, I describe the subsequent impact on housing affordability stress in Figure 2.1. As suggested by Wood et al. (2009) and Rowley et al. (2014), households are deemed to suffer from housing affordability stress (HAS) if they are using more than 30% of their gross income to cover housing costs.[9] SAM households suffer from HAS at almost twice the rate of other sampled households and experience borderline HAS more than 3 times the HILDA sample rate. The higher incidence of HAS for SAM households is likely due to the Breakthrough loan attracting lower income households. It is worth highlighting that although the figure indicates over half of SAM households are under HAS, there is a clustering effect around the 30% loan instalment to income ratio, such that close to 80% of this cohort have ratios between 30-34%. In other words, although a large proportion of SAM households are sitting on the HAS borderline, there are few instances of where loan to income ratios are substantially beyond 35%, as this would naturally trigger a loan restructuring event by the lender.

Given that 70% of current Breakthrough SAMs have been issued to households who were previously renting, the results indicate these borrowers are most likely not in a good position to take large financial risks as they transition from renting into homeownership. In response to this I use a financial distress measure in my control group of variables when I examine discretionary and non-discretionary spending outcomes.

2.3.3 Methodology

Motivated by the literature on SAMs and homeownership, I aim to provide some empirical evidence on household budget and social perception impacts of SAM financed homeownership. I apply two separate cross-sectional methods estimating differences in four

[9] See Nepal, Tanton and Harding (2010) and Rowley et al. (2014) for discussions on HAS measurement issues and alternatives not considered here.

spending categories and three social perception categories. While a broader examination would be preferred, I note that the particular selection of categories presented here was mostly dictated to me by the available set of comparable HILDA data.

Being a significant financial commitment, homeownership can have extensive household budget impacts. I begin by exploring the impact of SAM financed ownership on four non-housing expense categories. First, expenditure on home renovations is used to examine the incidence of moral hazard for SAM borrowers as discussed by Shiller et al. (2000). If SAM households are neglecting maintenance of their property at the lender's expense, I should observe significant underspending on renovations. Second, I consider a location dependent expense – public transport. SAM borrowers who utilise their purchase to procure property closer to their workplace and other amenities should report reductions in non-discretionary transportation costs. Furthermore, for Australian households tourism and travel have been shown to play a significant role in discretionary spending allocation (Crouch, Oppewal, Huybers, Dolnicar, Louviere and Devinney, 2007, 2008). If housing costs for SAM households are excessive and encroaching on discretionary spending then, because of their 'big ticket item' status, holidays are among the categories most likely to reflect this. The fourth and final item I include is household grocery spending. Expenditure on groceries is a well-established standard of living measure (see for example Broda, Leibtag and Weinstein, 2009) indicating a household's capacity to meet its needs. However, I apply it from an alternative perspective. While grocery expenses might on aggregate differ between SAM borrowers and control group renters, I see no reason why a similar difference should exist when SAM borrowers are compared to owners from the general population. Given this expectation, I use grocery spending as a control category for unobserved effects.

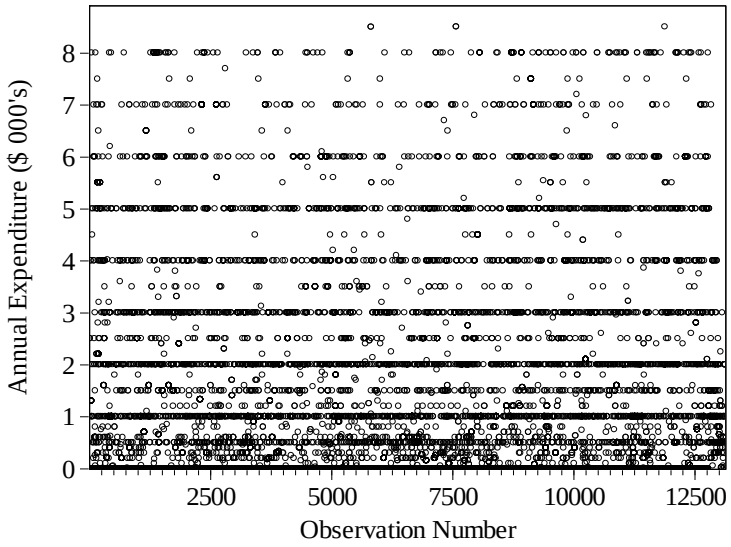
Turning to social perceptions, DiPasquale et al. (1999) motivate me to test for community involvement and neighbourhood satisfaction differences experienced by SAM

borrowers. The barriers to mobility they discuss are relevant for SAM borrowers given the large proportion who were previously renting. In addition to these, I am able to match SAM households with the HILDA data set on health. I test for differences in health perception as a proxy for general social impacts, since there is no reason why SAM borrowers should report dissimilar health perceptions to the control group.

2.3.3.1 Measuring budgetary expenditure outcomes

To examine the various budget impacts on SAM households, I require a methodology which can address some of the common modelling complications created by self-reported survey data.

Figure 2.2 Self–reported annual holiday expenditure



I find regular interval clustering of observations for all self-reported quantitative variables. This is likely the result of a tendency for subjects to round reported values or a general inability to recollect exact values. In addition to this, heteroskedasticity resulting from the irregular incidence of subjects across economic classes is also present in all sub-

samples for financial variables and in some non-financial sets. In particular, the number of subjects reporting spending at the lower end is significantly greater than the number reporting at the higher end for all categories. Finally, I note that all dependent variables are non-negative (left censored). Figure 2.2 shows an example of these data properties for the household holiday spending set. I find major (minor) observation clustering at $1,000 ($500) increments, heteroskedasticity resulting from the relatively large number of subjects who spend little or no money on holidays and censoring to the left of $0.

In order to account for these properties, the estimated models aimed at capturing cross-sectional differences in spending patterns between SAM borrowers and the HILDA general population are based on the following tobit regression specification:

$$y_i^* = x_i'\beta + \sigma\varepsilon_i \qquad \text{(Eq 2.1)}$$

where the observed data y_i result from the following censoring:

$$y_i = \begin{cases} 0 & if \quad y_i^* \le 0 \\ y_i^* & if \quad 0 < y_i^* \le \bar{u} \\ \bar{u} & if \quad \bar{u} < y_i^* \end{cases} \qquad \text{(Eq 2.2)}$$

and where x_i' is a transposed vector of independent variables (including controls), β is a vector of estimated coefficients, σ is a scale parameter, ε_i is the error term and $\bar{u}$ is a variable upper limit.[10]

[10] Both β and σ are estimated by maximising the following log likelihood function:

$$l(\beta,\sigma) = \sum_{i=1}^{N} \log f\left(\frac{y_i - x_i'\beta}{\sigma}\right)\cdot 1(0 < y_i < \bar{u}) + \sum_{i=1}^{N} \log\left(F\left(\frac{0 - x_i'\beta}{\sigma}\right)\right)\cdot 1(y_i = 0) + \sum_{i=1}^{N} \log\left(1 - F\left(\frac{\bar{u} - x_i'\beta}{\sigma}\right)\right)\cdot 1(y_i = \bar{u})$$

This model is used to compare SAM household spending on groceries, renovations, public transport and holidays to household spending in the general HILDA population. This tobit regression procedure has been shown to produce consistent estimates for censored data sets (Amemiya, 1984) and also has the advantage of easily interpretable coefficients. I avoid potential misspecification[11] by calculating non-parametric bootstrap standard errors with 1,000 replications for the estimated coefficients. Bootstrapped standard errors are calculated recursively and do not rely on an assumed underlying distribution for the error term. This helps account for the heteroskedasticity and clustering in the data and subsequent residuals. The standard errors were stable for a variety of replication counts both below and above the quoted 1,000.

2.3.3.2 Measuring social perception outcomes

Both surveys used in this study capture categorical data regarding the social outcomes of respondents using ordered likert scales. The scale extremes represent complete dissatisfaction to the left and complete satisfaction to the right with a neutral midpoint and at least two intermediate levels on either side. This method was used to capture and compare the perceived health, community involvement and neighbourhood satisfaction levels of SAM respondents with the HILDA general population.

I apply ordered dependent variable probit regressions to analyse this data. The model is specified as follows:

[11] That is, I avoid inflating coefficient standard errors by modelling with parametric assumptions about the error distribution while heteroskedasticity and clustering are evident in the underlying data.

$$y_i^* = x_i'\beta + \varepsilon_i \qquad \text{(Eq 2.3)}$$

where x_i' is a transposed vector of independent variables (including controls), β is a vector of estimated coefficients and the ε_i are independent identically distributed random variables with the observed y_i determined from y_i^* using the following rule:

$$y_i = \begin{cases} 0 & if \quad y_i^* \le \gamma_1 \\ 1 & if \quad \gamma_1 < y_i^* \le \gamma_2 \\ 2 & if \quad \gamma_2 < y_i^* \le \gamma_3 \\ \vdots & \vdots \quad\quad \vdots \\ M & if \quad \gamma_M < y_i^* \end{cases} \qquad \text{(Eq 2.4)}$$

and where γ_i are arbitrary cut off points. The probabilities of observing each value of y are then given by:

$$\begin{aligned} &P(y_i = 0|x_i, \beta, \gamma) = F(\gamma_1 - x_i'\beta) \\ &P(y_i = 1|x_i, \beta, \gamma) = F(\gamma_2 - x_i'\beta) - F(\gamma_1 - x_i'\beta) \\ &P(y_i = 2|x_i, \beta, \gamma) = F(\gamma_3 - x_i'\beta) - F(\gamma_2 - x_i'\beta) \\ &\dots \\ &P(y_i = M|x_i, \beta, \gamma) = 1 - F(\gamma_M - x_i'\beta) \end{aligned} \qquad \text{(Eq 2.5)}$$

where F is the cumulative distribution function of ε.[12]

[12] The β coefficients for this model are estimated along with the categorical threshold values γ by maximising the following log likelihood function: $l(\beta,\gamma) = \sum_{i=1}^{N}\sum_{j=0}^{M} \log\left(P(y_i = j|x_i,\beta,\gamma)\right)\cdot 1(y_i = j)$

2.3.3.3 Control variables

All budgetary and social outcomes analyses control for cross-sectional differences in respondents' income, age, gender, State of residence, number of dependents and marital status. In addition to this demographic set I also use a financial distress index to proxy for the level of economic hardship experienced by respondents. The index is created cumulatively from the responses to four questions including: In the past 12 months have you at any time been unable to pay your mortgage/ utility bills; and In the past 12 months have you at any time asked for financial help from your friends or family/ welfare or community organisations.

2.4 Results and discussion

For SAM financed homeownership to be a viable alternative for low income households, and in particular for those faced with affordability issues, it must offer positive outcomes at the household level. If SAMs are benefiting borrowers then I expect to see budgetary and other improvements against renters in the absence of deficiencies against homeowners from the general population. Hence, I evaluate the SAM sample against both non-SAM homeowners and renters from the general population. My sample accommodates both these analyses because 86.5% of current SAM homeowners were formerly tenants.[13] To ensure that I am comparing like with like, I only utilise households in my control group that have a mortgage tenure commensurate with that of the SAM households. In other words, the

[13] Implicitly this means that segregating the sample into those who were formerly tenants and those who were not is of limited use.

cohort will only consist of relatively new borrowers (having held a loan for less than 42 months).[14]

2.4.1 Budgetary impacts for SAM households

My main budgetary results are reported in Tables 2.2 and 2.3, which give estimates of the weekly and annual expenditure levels of SAM borrowers as compared to new home owners and renters from the general population.

Table 2.2 The impact of SAM financed homeownership on household spending against home owners from the general population with similar mortgage tenure

	(1) Renovations (annual)	(2) Pub. Transport (weekly)	(3) Holidays (annual)	(4) Groceries (weekly)
SAM borrower	2904.79***	30.07***	-731.27***	10.39
	(734.60)	(2.70)	(239.88)	(6.50)
Income	12.85***	0.06***	19.07***	0.40***
	(3.45)	(0.01)	(2.66)	(0.06)
Age	-7.56	-0.01	29.02***	-0.18
	(12.93)	(0.04)	(8.12)	(0.15)
Gender	-365.90	-0.55	-666.44***	-16.43***
	(267.49)	(0.80)	(157.72)	(3.45)
Dependent Children	-132.15	-0.11	-288.35***	21.80***
	(111.50)	(0.39)	(67.55)	(1.56)
State	454.14	-2.12**	-628.54***	-14.33***
	(496.11)	(0.87)	(227.56)	(5.01)
Married	-447.60	0.55	900.70	73.71***
	(988.54)	(2.13)	(678.73)	(10.95)
Under Financial Distress	21.43	0.52	-442.52***	-1.06
	(198.01)	(0.50)	(88.74)	(2.26)
Full demographic control set	Yes	Yes	Yes	Yes
Number of households	2684	2558	2625	2816
Wald chi-square probability	0.0000	0.0000	0.0000	0.0000
Bootstrap SE replications	1000	1000	1000	1000

SAM borrower is a dummy variable that is 1 if the respondent has financed their home using a SAM and zero otherwise. Income and Age are quantitative and recorded in thousands of Australian dollars per year and full years of age at surveying respectively. Gender is a dummy that is 1 if male and 0 if female. Dependent Children is a quantitative count. State is a dummy that is 1 if the respondent resides in South Australia and zero otherwise. Married is a dummy that is 1 if the respondent is in a legally registered marriage and zero otherwise. Relationship status dummies were also included for separated without divorce, divorced, committed and single however these are not reported in Tables 2.2-2.4. Financial Distress is a count proxy ranging from 0 to 4 depending on how many affirmative responses were received to the questions: In the past 12 months have you at any time been unable to pay your mortgage/ utility bills; and In the past 12 months have you at any time asked for financial help from your friends or family/ welfare or community organisations. Bootstrap standard errors are stated in parentheses.
Note: Statistical significance is denoted: *** $p < 0.01$; and ** $p < 0.05$.

[14] The median SAM borrower mortgage tenure was 22 months, versus 31 months for the HILDA borrowers that I used in the sample. The maximum loan length was 42 months for SAM borrowers.

As discussed in Section 2.3, expenditure items include household spending on renovations, holidays and groceries as well as individual spending on public transport. Estimation of differences in renovation expenditure between SAM borrowers and renters is not applicable since tenants are not permitted to renovate prior to ownership. The first row in each table represents the estimated difference between the expenditure reported by SAM borrowers and that reported by the counterpart demographic from the control group.

2.4.1.1 Renovations

Controlling for differences in income, I estimate that on average SAM households annually spend $2905 more than other similar non-renting Australian households on renovations. This result is in line with expectations because the lower income bracket observed for SAM borrowers is expected to be associated with cheaper housing on aggregate. In turn, this is likely to result in the purchase of older housing stock, which may require additional maintenance and renovation.[15] Given that 86.5% of the SAM sample comprises of previous tenants, I also observe a qualitative trend of SAM borrowers citing their newfound freedom to modify their home as a primary motivation for renovating. Importantly, and regardless of motive, this seems to indicate that on aggregate SAM borrowers are not foregoing property maintenance at the lender's partial expense. The result indicates they are at least, if not more, willing to look after and improve their property then are other mortgagees and new homeowners. So while there is certainly a moral hazard incentive (Shiller et al., 2000), I find evidence suggesting that it does not necessarily manifest itself as neglect of property.

[15] Observation level build date data was not available through the lender. Instead I rely on the supplementing questionnaire to support this view. Of the responding households, 91.2% indicated they were purchasing an established dwelling, with the remainder being new house and land packages.

2.4.1.2 Public transport

I find highly statistically significant differences between the levels of public transport spending found in SAM borrowers and those found among the control group (Table 2.2 regression 2 and Table 2.3 regression 5). I estimate that on average SAM borrowers spend $26.55 more per week than renters and $30.07 more per week than new home owners on public transport (including taxis).[16] This suggests a generally higher level of reliance on public transport for SAM borrowers which is not reduced through the shift from tenancy into

Table 2.3 The impact of SAM financed homeownership on household spending against renters from the general population

	(5) Pub. Transport (weekly)	(6) Holidays (annual)	(7) Groceries (weekly)	(5A) Pub. Transport (weekly)
SAM borrower	26.55***	496.37***	22.22***	NA
	(2.76)	(127.40)	(7.28)	
Income	0.08***	14.29***	0.32***	-0.16
	(0.02)	(2.00)	(0.06)	(0.13)
Age	-0.22***	11.42***	-0.37**	-0.06
	(0.05)	(4.08)	(0.17)	(0.26)
Gender	-0.43	-545.35***	-8.67**	-0.61
	(1.03)	(83.37)	(3.64)	(4.78)
Dependent Children	0.12	-273.19***	20.34***	4.30**
	(0.52)	(37.70)	(1.95)	(1.83)
State	-0.29	-287.06***	-10.86*	NA
	(1.41)	(101.44)	(6.15)	
Married	-1.77	370.35	62.84***	-18.21
	(2.38)	(276.01)	(13.25)	(13.70)
Under Financial Distress	0.41	-103.99***	-1.62	0.413
	(0.55)	(32.17)	(1.89)	(2.25)
Distance of household from CBD (km)	NA	NA	NA	-0.59***
				(0.18)
Borrower purchased because of:				
(1) Easier access to work & general public transport	NA	NA	NA	-16.39**
				(7.51)
(2) Access to better schools	NA	NA	NA	14.12*
				(7.57)
Full demographic control set	Yes	Yes	Yes	Yes
Number of households	1856	3809	2084	123
Wald chi-square probability	0.0000	0.0000	0.0000	0.0000
Bootstrap SE replications	1000	1000	1000	1000

Bootstrap standard errors are stated in parentheses. Renovation expenditure against renters from the general population is not applicable.
Note: Statistical significance is denoted: *** p < 0.01; ** p < 0.05; and * p < 0.10.

[16] Taxis are included along with other public transport expenditures in order to maintain consistency with the HILDA questionnaire (see Question C3 in Appendix A).

ownership. These results occur in the presence of robust control for differences in income, age and State of residence.

The consistent first order income effects in regressions (2) and (5) indicate that, while relevant, income alone does not account for the observed public transport spending differences. Previous research has shown links between public transport spending and transit-supportive housing finance (Lansdell, Martin and Balakrishnan, 2009) including the possibility of trade-offs materialising between costs of public transport and housing quality (Glaeser, Kahn, and Rappaport, 2008). Motivated by these findings I develop regression (5) further. I estimate a regression solely on the SAM borrower sample, relating the distance each household is to the CBD with how each household answered questions pertaining to their motivations for purchase. Regression 5A in Table 2.3 tabulates the results.

As would be expected, each additional child in the household is estimated to raise public transport expenditure by $4.30 per week. In addition, SAM borrowers who experience easier workplace or public transport access following the purchase of their property on average spend $16.39 per week less, whereas those who move to access better schools following the purchase of their property on average spend $14.12 per week more. Also, each additional kilometre between the household and the CBD reduces expenditure by around 60 cents. I suggest the latter result likely owes to the decline in both the frequency of rides and choice of routes available through public transport in Adelaide as one moves further from the city. Hence, a trade-off materialises between public transport for those living closer to the CBD and private transportation for those living further away. This provides a foundation for future spatial research to clarify these issues.

2.4.1.3 Holidays

In light of strong competition from other items, Crouch et al. (2007) indicate that tourism and travel are a discretionary budget priority for Australians. Hence it is reasonable to expect shifts in discretionary budget allocation to be reflected in this type of recreational expenditure.

I estimate that on average SAM borrowers spend $496 more per year on holidays and recreational trips than renters with comparable demographics. This is in contrast with the analogous estimated deficit for SAM borrowers of $731 per year when compared to other homeowners from the general population. This result suggests that in comparison to renters from the control group (1) SAM financed ownership does not encroach on household discretionary spending and (2) that it shifts the propensity for these households to use their disposable income away from the lower aggregate levels observed for renters toward the higher aggregate levels seen with owners. These results are robust after controlling for consistent and significant differences in the income, age, gender, dependent children, home State and financial stress demographics of the respondents.

The results are also consistent with Gan (2010) who finds that reductions in household precautionary saving, such as formerly renting SAM households no longer saving to overcome the loan deposit borrowing constraint, are linked to higher levels of discretionary expenditure (i.e. SAM borrowers spending more on holidays). Furthermore, this observed increase in holiday expenditure relative to renters is in line with my expectations, since the majority of SAM borrowers reported feeling more financially secure following their property purchase.

2.4.1.4 Groceries

Groceries are included as a general household expenditure item which may reflect SAM ownership impacts not clear in other budgetary categories. As discussed previously, no meaningful differences are expected between SAM homeowners and owners from the general population because grocery expenditure is non-discretionary. Instead, grocery spending acts as a placebo category – controlling for any unexpected outcomes and strengthening the observed discretionary spending results. I estimate that on average SAM financed households spend around $22.22 per week more on groceries than renting households with similar demographic background (Table 2.3 regression 7). Importantly, this is in contrast to there being no statistically significant difference between the expenditure level of SAM borrowers and owners from the general population (Table 2.2 regression 4).

Control estimates indicate that expenditure on groceries is increasing with income and dependent children as well as for married respondents. These results are consistent across both renters and owners and are in line with expectations. It is also estimated that grocery expenditure reduces for males and South Australian residents. While I find no significant age influence for home owners, grocery expenditure seems negatively associated with age for renters.

2.4.2 Social perception outcomes for SAM households

Table 2.4 gives ordered probit estimates of the likert level social perception differences between SAM borrowers and owners from the general population. I restrict my analysis to exclude comparing the perceptions of SAM borrowers to those of other renters because of the dissimilar social incentive structures for each cohort (DiPasquale et al., 1999).

That is, while homeowners are financially, and through lack of mobility, connected to their immediate community, renters are not similarly invested in the wider social environment of their residence.

Social satisfaction items include community involvement, neighbourhood and health satisfaction. The first row represents the estimated difference in likert satisfaction between SAM borrowers and the general population, with controls and diagnostics subsequent.

2.4.2.1 Community involvement satisfaction

I estimate that SAM households are 26.0% more likely to report a higher degree of community involvement satisfaction than the control group of new homeowners (Table 2.4 regression 8). This result is significant at 1% and robust for differences in age, gender, dependents and the presence of financial distress.

Table 2.4 The impact of SAM financed homeownership on borrower social satisfaction

	(8) Community involvement satisfaction	(9) Neighbourhood satisfaction	(10) Health satisfaction
SAM borrower	0.261***	0.250***	0.151
	(0.094)	(0.096)	(0.096)
Income	-0.0008	0.0008	-0.0001
	(0.0005)	(0.0006)	(0.0005)
Age	0.007***	0.005**	-0.007***
	(0.002)	(0.002)	(0.002)
Gender	-0.146***	-0.092**	-0.027
	(0.042)	(0.043)	(0.043)
Dependent Children	0.064***	0.018	0.007
	(0.017)	(0.017)	(0.017)
State	0.065	-0.176**	0.035
	(0.075)	(0.078)	(0.077)
Married	-0.051	0.013	0.280
	(0.169)	(0.174)	(0.169)
Under Financial Distress	-0.114***	-0.112***	-0.197***
	(0.029)	(0.030)	(0.030)
Full demographic control set	Yes	Yes	Yes
Number of respondents	2849	2849	2849
Likelihood-ratio probability	0.0000	0.0000	0.0000

Note: Statistical significance is denoted: *** $p < 0.01$; and ** $p < 0.05$.

I interpret this result as an increased appreciation of becoming invested in the broader interests of the local community since the majority of SAM borrowers in the sample (86.5%) shifted from renting into ownership. This result is theoretically consistent with DiPasquale et al. (1999) who contend that ownership incentivises involvement in local community because it creates barriers to mobility not found with renters. Beyond this, I argue that homeownership creates a link between the quality of the local community environment and the financial interests of the household concerned. Higher quality neighbourhoods are likely to attract increased buyer demand and are therefore generally associated with higher property prices. This should provide further incentive for owners to seek involvement in community matters above that expected from renters. Hence, given the large proportion of previously renting SAM borrowers, the higher estimated probability of community satisfaction for this demographic is likely to be associated with the difference made by entering ownership and the subsequent increased relevance of community to the individual household.

2.4.2.2 Neighbourhood satisfaction

The results indicate that SAM homeowners are an estimated 25% more likely to report a higher level of neighbourhood satisfaction than owners from the general population with similar mortgage tenure (Table 2.4 regression 9). This result is significant at 1% and robust for differences in age, gender, State of residence and the presence of financial distress. SAM borrowers commonly cited improving their neighbourhood as one of the primary reasons for seeking homeownership. This result may also be linked with the higher community involvement satisfaction for SAM borrowers, and in turn the incentive structure discussed by DiPasquale et al. (1999).

2.4.2.3 Health satisfaction

Perceived differences in health satisfaction are estimated as a general proxy for any possible negative personal/social effects stemming from SAM homeownership. After controlling for demographics, I observe no significant difference in the reported health satisfaction levels of SAM borrowers and the control group (Table 2.4 regression 10). However, I do see a significant negative estimated effect for those under financial distress. Overall I fail to link any aggregate health differences between SAM borrowers and the general population to the presence of SAM financed ownership, instead associating them with increases in age and the occurrence of financial hardship.

2.5 Conclusion

Examination of SAMs in the literature has conventionally focussed on the supply side feasibility and consequences of these and related alternative mortgage programs. This chapter complements previous research by first offering insight into some of the common questions relating to SAMs, and secondly by providing an empirical demand side analysis of SAMs. Since most of the demand side effects accrue through the shift into ownership of residential property, this chapter also shares significant ground with the extant literature on the benefits and disadvantages of low income homeownership.

Cross-sectional analysis of aggregate renovation spending indicates that SAM households take on higher property maintenance and improvement costs than the control group. In response to Shiller et al. (2000) and others, these results suggest that while there may be a risk of moral hazard for the borrower, it does not necessarily manifest itself in property neglect for the household. Summary results of South Australian SAMs indicate that lower income renter households looking to transition into homeownership are most likely to embrace this form of finance. These demographic characteristics likely predispose SAM borrowers to (1) purchase older homes and (2) have a greater desire to modify their homes – probably explaining the higher aggregate renovation expenditure.

I estimate that individuals looking to use SAM homeownership to improve their locality are able to reduce their public transport costs by more than 50%. This is important because public transport is a location dependent non-discretionary expense for which SAM borrowers spend significantly more than both renters and owners from the general population. This lends support to the findings of Lansdell et al. (2009), indicating that similarly to transit-supportive home loans, SAMs can result in non-discretionary expenditure benefits for low income households.

The results also show SAM households are more willing to spend on holidays and recreational trips than renters from the control group, in keeping with the general observation that the majority of SAM borrowers feel more financially secure following their home purchase. Moreover, this result is consistent with Gan (2010), who shows discretionary expenditures are sensitive to shifts in household precautionary saving. In this case, SAM households previously saving to overcome their borrowing constraints are seen to exhibit a greater proclivity for discretionary holiday spending subsequent to entering homeownership. Additionally, I find evidence to suggest that SAM borrowers experience significant social benefits related to their entering homeownership. These include increased likelihood to be satisfied with their level of community involvement and an increased likelihood to be satisfied with their neighbourhood.

Much like other alternative mortgages, SAMs align the incentives of borrowers and lenders. This makes them a potentially innovative solution (at least partially) to affordability and other housing crises. Given this potential, and the various findings presented here, I see a strong case for both further research and implementation of SAMs within the housing finance field.

3. Self-managed Superannuation Funds

3.1 Introduction

Motivated by the extant literature which shows that overconfidence can lead to sub-optimal investment decisions for households, the objective of this chapter is to determine whether it also affects the decision to seek advice for investors managing their retirement funds via SMSFs. Specifically, I use a unique survey from a cohort of households with investors who choose to self-direct their own retirement funds. I examine their propensity to seek advice as it relates to their level of understanding on how to manage their portfolios and the level of overconfidence they exude. Given the global switch from defined benefit to defined contribution retirement plans and the subsequent rise in the number of individually managed pension funds (see Poterba, Rauh, Venti and Wise, 2007; Gerrans and Clark, 2013), this chapter raises an important question as to whether those that need advice, actually seek it.

The theoretical framework that examines overconfidence and investment decisions (Barberis and Thaler, 2003; Barber and Odean, 2001; Gort, 2009; Lambert, Bessière and N'Goala, 2012) suggests the ensuing cognitive bias can lead to decision-making that is not necessarily in the interests of the household. Barber et al. (2001) show that overconfidence can encourage excessive trading while Lambert et al. (2012) provide evidence that asset allocation decisions are not uniformly aligned with knowledge and investor risk profiles. With respect to advice, previous research has shown a degree of self-esteem is required to engage in financial planning (Neymotin, 2010) while confidence is also noted as a mediating factor in the relationship between investment knowledge and investing self-efficacy (Forbes and Kara, 2010). The role of financial literacy in the decision to seek advice has also been demonstrated (see Lusardi et al., 2014), but there is a gap in understanding whether

overconfidence, as a factor, can be an overriding inhibitor to seeking advice. Given the established literature which suggests sub-optimal decision-making occurs for investors who demonstrate overconfidence, I hypothesise that overconfidence will be negatively associated with the decision to seek advice, even in cases where the investor is not knowledgeable about how to manage their funds and are clearly in need of advice. I test this hypothesis in the context of Australian households who use SMSFs.

My overall results show that the majority of SMSF investors are more likely to seek advice if they have a low level of understanding in the area. However, there is a sub-set of investors who are not knowledgeable and yet do not seek advice. These investors demonstrate a level of overconfidence in their ability to manage their funds. Furthermore, I find significant portfolio differences between the cohort of investors who seek advice and those who do not. Investors who seek advice have the most diversified portfolios, followed by those who do not but are more knowledgeable in how to manage their funds. Finally, the least diversified SMSF portfolios are from a cohort of investors who neither take advice nor demonstrate financial or technical literacy. This latter group is dominated by overconfident investors. I also find evidence to suggest that investors from advice-seeking households are more likely to have a financially sophisticated portfolio.

From a policy perspective, the results highlight the need to focus on identifying funds where self-assessment of the investor's abilities is not aligned with reality, as it is these funds that are at risk of under-performing in the longer term. In particular, as the preference for self-directed retirement via SMSFs grows, I argue there is a need to ensure that investors who choose to manage their own funds and require advice are targeted and receive it. Not doing so can lead to under-performing portfolios and potentially an additional burden for the State in financing retirement incomes for households who have depleted their own savings through poor investment decisions.

The rest of the chapter is organised as follows. Section 3.2 describes the background to the survey and the literature which motivates my hypotheses for this study. Section 3.3 details how the survey was constructed and the collection method used. I also discuss summary statistics from the resulting dataset. This is followed by Section 3.4 discussing the econometric methods applied to examine the data along with the empirical results. Section 3.5 concludes with a summary outlining policy implications and directions for future research.

3.2 Background and literature review

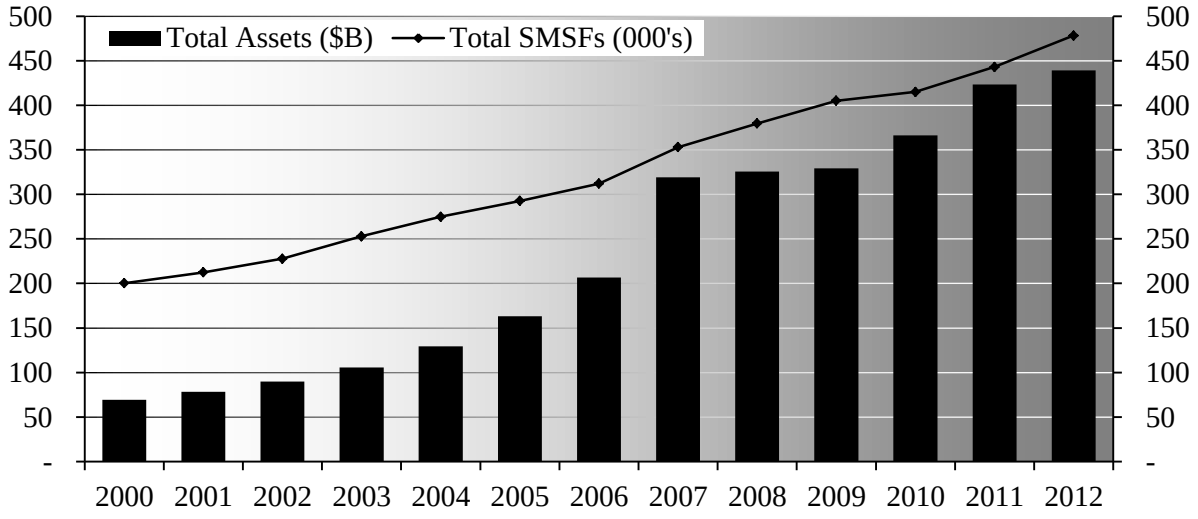
3.2.1 The SMSF sector in Australia

The transition from defined benefit to defined contribution retirement plans has resulted in a global increase in the number of individually managed pension funds (Poterba et al., 2007; Gerrans et al., 2013). This trend is particularly pertinent in Australia, where the retirement fund management industry is increasingly being dominated by SMSFs. SMSFs are the equivalent of self-directed individual retirement accounts in the United States or self-invested personal pensions in the United Kingdom. They contribute close to a third of the total amount of retirement assets in Australia with $439 billion of funds under management as of 2012 (APRA, 2012).[17] The sector is also the fastest growing segment of the pension fund industry, with an annual growth rate close to 8% and over 478,000 funds containing approximately 914,000 investors as of June 2012 (APRA, 2012). Figure 3.1 shows growth in the sector since 2000. A combination of compulsory retirement contribution policies and increased regulatory flexibility in how these contributions can be managed has led to a

[17] The other two Australian superannuation industry sectors that dominate the market are industry and retail funds, both of which are professionally managed.

significant amount of funds moving out of professionally managed retail and industry funds into SMSFs, where households can control every aspect of how their retirement savings are invested.

Figure 3.1 Growth in Australian self-managed superannuation funds



Sources: Commonwealth of Australia (2009) and APRA (2012)

Despite the size and scope of the Australian SMSF sector, there is little available research examining the compliance and financial outcomes of investors against their degree of self-direction and advice-seeking behaviours. This is in part due to the very nature of SMSFs being individualised funds with different reporting standards to professionally managed funds. The result is a limited amount of publicly available information for the cohort. Unlike the prudential regulatory oversight which applies to professionally managed funds through the Australian Prudential Regulation Authority (APRA), SMSFs are regulated by the Australian Taxation Office (ATO) which takes a compliance approach to SMSF regulation. Essentially, the primary regulatory requirement for SMSF households is that their investments and financial reports are compliant with the *Superannuation Industry (Supervision) Act 1993* (SIS Act).

One critical aspect of self-directed retirement that has garnered attention in the media is whether it is appropriate for anyone to set up a SMSF, regardless of their level of competence. In a joint submission to the Australian Securities and Investments Commission two major representative groups for the superannuation industry[18] argued that SMSF investors should be able to demonstrate minimal understanding of the role required and capacity to fulfil it. Furthermore, in a government initiated review of the superannuation industry (the Cooper Review) it was argued that all investors should receive mandatory training. However, the final report specifically ruled this out. This is in part because the SMSF sector as a whole has not necessarily under-performed relative to other sectors in the superannuation industry (see for example Commonwealth of Australia, 2009). In any case, if there are regulatory problems faced by investors they can always seek advice when structuring and managing their investments as part of an SMSF.

3.2.2 Literature review

Seeking advice is therefore potentially one method to overcome a lack of knowledge in the area. Unfortunately, research examining the role of financial advice is also limited. In a review of the financial literacy literature Lusardi et al. (2014) comment that little is known about the impact of financial advice on financial decision-making. Some previous studies suggest counselling can affect subsequent borrower behaviour (Elliehausen, Christopher Lundquist and Staten, 2007) and household decision-making (Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff, 2011). Kramer (2012) also finds differences in the portfolio diversification characteristics of portfolios where advice is sought and those which are self-directed, but not necessarily in risk-adjusted performance. Although from a

[18] The Australian Institute of Superannuation Trustees (AIST) and Industry Super Australia (ISA)

theoretical perspective one may expect financial advice to assist in the financial decision-making process (Hackethal, Haliassos and Jappelli, 2011), conflicts of interest can arise from brokerage payment and other incentive systems set up to favour advice that maximises the advisor's commission (Bergstresser, Chalmers and Tufano, 2009; Inderst and Ottaviani, 2009) rather than what is suitable for the client. Also, advisors may themselves suffer from a bias, fail to de-bias client views, or even exacerbate them (Mullainathan, Noeth and Schoar, 2012). Similar results have also been found outside of the investment industry. Considering the market for insurance, Van Dijk, Bijlsma and Pomp (2008) find that individuals who purchase insurance policies via a broker obtain inferior risk preference-policy matching as well as significantly lower claim payouts than those who purchase directly from the insurer.

From a psychological standpoint there is additionally a self-selection issue surrounding who is likely to seek advice. Hypothetical choice experiments conducted by Hung and Yoong (2010) suggest that investors with lower financial literacy are more likely to utilise advisors. Inderst et al. (2009) highlight unsophisticated clients are less likely to anticipate advisor conflicts of interest, implicitly suggesting they are more likely to be interested in the advice provided. Furthermore, research also shows that dependent on investor personality characteristics, the likelihood of following advice alters. For example, Neymotin (2010) demonstrates that a positive relationship exists between an investor's decision to engage in financial planning and their level of self-esteem.

Theoretically, it is also possible that too much confidence in one's ability can lead to not seeking advice. There is a large amount of experimental cognitive psychological research that examines the relationship between making financial decisions and being overconfident (see Barberis et al., 2003). Overconfident investors tend to collect more information and value it greater than rational agents with evidence that this can lead to unprofitable trading behaviour (Barber et al., 2001). For the Swiss pension plan industry Gort (2009) shows that

overconfidence lends itself to investors preferring active fund styles with the belief their fund will perform better than the average. Partly in line with Lambert et al. (2012), I therefore define overconfidence as the psychological tendency of individuals to overestimate their own knowledge and abilities. Overestimating one's own knowledge and abilities may lead to a reduction in the willingness to seek external advice. This leads me to my core hypothesis – that investor overconfidence reduces the likelihood of seeking financial advice, regardless of investor knowledge and understanding.

Anecdotal evidence from the instrument suggests that Australian investors seek individually managed pension funds in order to gain control over their retirement benefits and that subsequent contributions are motivated in part by the pursuit of tax savings. Domínguez-Barrero and López-Laborda (2007) make similar findings for Spanish pension investors. Therefore, I further hypothesise that the impact of seeking advice will be noticeable in terms of the portfolio characteristics of these funds, and in the case of Australian SMSFs, the probability of being tax compliant as well. Specifically, I evaluate whether the decision to seek advice, moderated by the levels of literacy and overconfidence investors exhibit, has an impact on (i) ATO compliance status; (ii) the level of portfolio diversification, as measured by the breath of their asset allocation; and (iii) the level of investment sophistication, as measured by whether or not they hold derivatives, international assets and/or unlisted trusts.

3.2.3 Compliance, diversification and sophistication

The rationale for examining compliance lies in the fact that non-compliance with the Australian SIS Act can have a substantial impact for ongoing fund viability as well as severe financial penalties following a contravention.

The second measure, capturing the level of diversification, is driven by the literature showing financially illiterate investors are likely to hold less diversified portfolios. Bhandari and Deaves (2008) show that demographic and educational traits of defined contribution retirement plan members in Canada have a direct and significant impact on their asset allocation decisions. Also, using similar measures in the Australian context, Phillips, Cathcart and Teale (2007) provide evidence that SMSFs are generally under-diversified. It will therefore be interesting to see whether their level of diversification does improve if advice is sought. As such, I suspect that the level of diversification is also dependent on whether investors seek financial advice. By examining diversification I am indirectly capturing an aspect of fund performance without specifically focusing on financials. One reason I purposely avoid examining financial performance is that within the SMSF sector personal taxation issues, investment time horizons, and differing levels of investor risk aversion make it difficult to reliably determine performance relative to investor motivations and constraints, other than on an aggregate scale.

Finally, the relationship between investment product use and financial sophistication has been shown by Wang, Keller and Siegrist (2011) to lead to a bias in the perceived riskiness of assets according to the familiarity investors have with such products. I suspect that funds which hold less familiar assets will be either those who are seeking advice or have significant understanding of the products. I choose three asset classes for this analysis: derivatives; international assets; and unlisted trusts. My argument is that derivatives require a more detailed knowledge than other asset classes in order to be understood and used as investment vehicles. The same is true for international assets, as investors would presumably need to relate to more than just developments in the domestic economy. Evaluating unlisted trusts also requires greater effort in information accumulation on behalf of the investor given the absence of publicly available information relative to listed assets.

3.3 Data and methodology

3.3.1 Data collection

The data utilised for this chapter comes from a survey that was created to examine a variety of SMSF issues, including financial performance, corporate governance and fund compliance. The initial design involved several stages of consultation with the major representative body for the SMSF sector, the SMSF Professionals' Association of Australia (SPAA). On the basis of this consultation process, a questionnaire was drafted to gauge member knowledge and attitudes toward SMSF management. Workshops and interviews were held with a pilot group of investors as well as professional advisors to assist in the construction and refinement of the final questionnaire.

The final survey covers a range of financial, compliance, knowledge-based, satisfaction and demographic questions that were specifically designed to encourage investors of non-complying funds to respond, ensuring that responses are dispersed across various fund outcomes. The major disadvantage of the questionnaire is the estimated time it takes to complete it given the nature and volume of the questions (approximately 40 minutes if the respondent has immediate access to their financial reports). In order to therefore ensure a viable number of responses, the survey was widely distributed. To this end the questionnaire was made available online through the Qualtrics® research platform allowing responses from investors across Australia. The survey was publicised through a number of media outlets, including The Australian Financial Review, and by SPAA to its members to capture a large enough audience. Various incentives were offered to participants including prize draw entries and guaranteed gift cards for the successful completion of the survey. The survey was also separately co-branded with two of the largest SMSF service providers in Australia,

SuperConcepts and SuperGuardian, and directly advertised to their members as well. The survey was open for a period of six months and closed at the end of June, 2012. A total of 321 respondents completed the questionnaire, with 93% of these respondents completing the survey on the same day. The full survey is comprised of 20 questions with 96 individual inputs throughout (see Appendix B). A total of 21 of these distinct inputs were used for the analysis presented here, two structured as likert questions[19] with seven categories, six numerical questions requiring the investor to consult their financial reports, seven binary categorical variables on fund and investor status and six demographic questions relating to funds and their members.

3.3.2 Descriptive statistics

Table 3.1 presents summary and comparative statistics of the investors that seek financial advice (18% of the sample) and those that do not (82%) for a number of demographic factors. I define advice seeking investors as those who have sought professional advice in managing their retirement fund for the relevant financial year. I show whether the decision to seek advice is related to an investor's experience with running an SMSF (fund age), the dollar value of the fund (fund size),[20] whether an investor works in a related profession and is therefore knowledgeable of the area (occupation), whether the number of investors' has an impact due to decisions being made by more than one individual (investors per fund), and what phase the fund is in (pension, accumulation or a mixture) as it might

[19] The two 7-point likert scales were used to capture inputs for the measures of investor overconfidence (Confidence1 and Confidence2). The important features of the scales are that the mid-point represents neutral responses and is symmetrically surrounded by three negative categories to the left and three positive categories to the right which are equidistant among themselves and with respect to each other. This creates discrete response data ranging from 0 (most negative) through 3 (neutral) to 6 (most positive).

[20] Respondents were encouraged to consult their annual submissions to the ATO for all financial metrics sought via the questionnaire, including the dollar value of their fund. Data on alternative fund financial metrics (e.g. return and risk profiles) was considered but unavailable via the tax documentation.

relate to the life-cycle effects of the investors, notwithstanding the likely impact fund phase will have on asset allocation decisions among other things. I also include in the table the location of the fund by State. Of these demographic features, only fund size, fund age, fund phase and location dummies seem to differentiate between funds that take advice and those that do not. Specifically, investors who do not seek advice appear to have significantly larger and older funds.

Table 3.1 SMSF descriptive statistics

	Do not seek advice	Seek advice	Difference[#] (DNSA – SA)	Full Sample
Mean investors per fund	1.92	1.88	0.04	1.91
Mean investor age (years)	64.60	65.48	-0.88	64.75
Mean fund age (years)	13.28	9.05	4.23***	12.52
Mean fund size (mil. AUD)	1.26	0.94	0.32**	1.20
State (%)				
New South Wales	24.23	16.67	7.56	22.88
Queensland	13.40	16.67	-3.27	13.98
South Australia	9.79	35.71	-25.92***	14.41
Victoria	46.39	26.19	20.20***	42.80
Other	6.19	4.76	1.43	5.93
Occupation (%)				
Finance professional	15.15	21.21	-6.06	16.16
Other professional	27.27	30.30	-3.03	27.78
Non professional	6.06	9.10	-3.04	6.57
Retiree	51.52	39.39	12.13	49.49
Fund phase (%)				
Accumulation	37.63	27.50	10.13	35.90
Pension	37.63	30.00	7.63	36.32
Both accumulation & pension	24.74	42.50	-17.76**	27.78
Confidence1 (%)	28.87	19.05	9.82	27.12
Confidence2 (average rank)	5.69	3.57	2.12***	5.31
Mean technical literacy (correct responses)	2.77	1.67	1.10***	2.57
Non-compliant funds (%)	14.43	33.33	-18.90**	17.80
Sophisticated funds (%)	37.43	76.19	-38.76***	44.54
Mean fund diversification (asset classes)	2.67	3.43	-0.76***	2.81

Statistical significance for variations between groups is calculated based on the applicable two sample univariate test for differences in mean (assuming unequal variances) or proportion for each category.
Note: Statistical significance is denoted: *** $p < 0.01$; and ** $p < 0.05$.

A cluster of such funds are based in the State of Victoria (by a proportion of 1.77 to 1). Conversely, investors who seek advice are over-represented in the State of South Australia by a factor of 3.65 to 1.

In terms of the demographic features discussed the sample is fairly representative of the general population (APRA, 2012; ATO, 2012). The mean number of investors per fund in the general population is 1.91, equivalent to that of the sample. The general population mean investor age is between 55 and 64 years of age, slightly below that of the sample. Average fund size (by total assets) in the general population was approximately $917,000 as at June 2012 (APRA, 2012). This is slightly below the sampled average of roughly $1,203,000. Geographically, New South Wales and Victoria account for the largest proportion of SMSFs across Australia and these cohorts are also the largest constituents of the surveyed funds. There is, however, an over-representation for South Australia, which is expected given the assistance from SPAA (who are based in South Australia) in distributing the survey. The other main deviation which exists between the SMSF sample and general population relates to the compliance rate of constituent funds. The rate of non-compliant funds within the overall sector is quite small at approximately 2% (ATO, 2012) as compared to 17.8% in the surveyed sample. This result is to be expected as the survey was geared to capture a greater number of non-complying funds in order to provide a sufficiently representative cohort for the statistical analysis.[21]

The demographics constitute a set of control variables to be used in the subsequent regression analysis. While some are specific to the context of this chapter (e.g. fund phase), all others are consistent with the prior literature (Bhandari et al., 2008; Forbes et al., 2010; Van Rooij, Lusardi and Alessie, 2011). The rationale for including both investor- and fund-level demographics is to control for factors which can potentially influence advice seeking

[21] The survey advertising also specifically encouraged investors with previous compliance breaches to respond to the questionnaire.

and investment management behaviours (both at a household level as well as individually for household members). Investor occupation and age proxy for the experience level of the leading fund member (as for example in Van Rooij et al, 2011). Fund size and fund age can also have an impact (see Bhandari et al., 2008) through investment horizon and life-cycle effects.

3.3.3 Key variable constructs

I also attempt to capture differences in the level of technical literacy and overconfidence across the two groups. Since I hypothesise that funds not seeking advice would, a priori, likely consist of investors that are more technically literate in managing SMSFs, I should see a significant difference in the level of technical proficiency between the two groups. Further, I would expect investors that do not seek advice to be confident in their own abilities. However, as previously discussed, overconfidence can also lead to individuals ignoring advice when they would in fact be likely to benefit from it. Therefore a sub-set of responding investors who do not seek advice may consist of not necessarily financially (or technically) literate, but simply overconfident members.

I measure technical literacy through five questions relating to what self-directed retirement funds in Australia are permitted to do (see Question 20, Appendix B). The final question set is industry specific, covering aspects of both regulatory knowledge and financial understanding. The questions are of varying difficulty and were designed through several pilot studies and with assistance from SPAA and professional advisors to ensure a spread of results in terms of the number of questions answered correctly.

The first of these questions tests investor knowledge on the use of leverage to fund asset purchases. Similar to regulations imposed on mutual funds, there are limitations on the

usage of debt within SMSFs. The question requires investors to demonstrate both a degree of technical proficiency with respect to knowing how to remain compliant with the regulation, as well as a degree of financial literacy with respect to using leveraged investments. The second question covers the extent to which fund assets can be used for private purposes. This predominantly relates to the technical literacy of investors, with regulations allowing only for a narrow range of specialised exemptions. The third question concerns the types of transactions which are permitted between a fund and the investor. This is a complicated subject requiring investors to understand a range of regulations for multiple asset classes as well as valuation methods for unlisted assets. The fourth question relates to benefit payments. This is again important for investors from a compliance standpoint, but also requires some understanding of investment life cycle and time horizons. The final question requires investors to demonstrate their understanding with regard to the types of assets which can be held within their portfolios. While there are no restrictions placed on most major asset classes, investors are obliged to avoid certain risky assets as well as to understand asset allocation and portfolio weightings to ensure their compliance with asset regulations.

As is apparent from the above discussion, the measure of investor knowledge is a cross-over between the need for both technical and financial literacy. Aside from the need to understand regulatory compliance issues, SMSFs also must demonstrate an appropriate financial investment plan. As such, although I refer to the measure as technical literacy, it also covers a degree of financial literacy as the questions posed cross-over both technical and financial matters.

Given respondents come from a pool of investors who have chosen to look after their own retirement savings, and as such should have a minimum awareness of the requirements in managing their portfolios, I assume, a priori, that investors with limited technical knowledge are more likely to seek advice. This is indeed what I find. A significant difference

does exist between the two cohorts with investors who do not seek advice, on average, being able to answer more than half of the technical literacy questions correctly (2.77) and investors who seek advice correctly answering less than half of the questions (1.67) (see Table 3.1).

To measure overconfidence I create two variables, Confidence1 and Confidence2, which are estimated independently of each other. Following Busenitz and Barney (1997), Nikiforow (2010) and Lambert et al. (2012) I treat overconfidence as a measure of the tendency for investors to overestimate their own knowledge. The first variable is a dummy variable comparing a respondent's answer to each technical question with a corresponding supplementary question that asks how knowledgeable they think they are for each of the topics covered. The supplementary self-assessment questions for each technical question are selected from Question 10 in Appendix B. The matched overconfidence measures also examine the borrowing, asset use, asset investment, investor-fund transaction and benefit payment permissions applicable to SMSFs under the SIS Act. If an investor self-assesses their technical knowledge as being at least three likert points (representing a 40% differential) better than their actual achievement (in the technical questions) I record a value of 1 by that fund for Confidence1, and zero otherwise. The second overconfidence variable, Confidence2, is determined by asking the question 'Who is in the best position to prevent a possible breach of the SIS Act and regulations?' (see Question 19, Appendix B). Respondents are given a number of choices related to using a range of professional advisors or themselves. Respondents selecting themselves as investor had to record the strength of their conviction via a seven point likert scale. This measure of confidence is therefore related to a person's belief, whether correct or not, that they are the best equipped to ensure regulatory compliance relative to specialists in the field. The full variable list (including controls) with descriptions is provided in Table 3.2.

Table 3.2 Variable list with descriptions and derivations

Variable	Description/ Calculation
Study	
Do not seek advice	Indicator variable for investor control over fund investment decisions (1 if advice is not sought, 0 otherwise)
Non-compliance	Indicator variable for a fund being non-compliant (1 if audit opinion is qualified, 0 otherwise)
Diversification	Count variable for the number of substantial asset classes (out of 9) which have a weighting in the fund
Sophistication	Indicator variable to proxy for the level of investment sophistication (1 if a fund holds derivatives, international equities or unlisted trusts,0 otherwise)
Technical literacy	Count variable to proxy for investor technical understanding based on correct/incorrect responses to 5 technical questions (range from 0 to 5)
Confidence1	Indicator variable to proxy for investor overconfidence. Compares likert self-assessment of regulatory and technical understanding to actual achievement in technical questions (1 if the difference is greater than 3 likert points, 0 otherwise)
Confidence2	Likert variable used as a robustness check for the impact of Confidence1 Based solely on investor self-assessed ability to prevent a regulatory breach (range from 1 to 7)
Do not seek advice and technically literate	Cross-product term that is the multiplication of *Do not seek advice* with *Technical literacy*
Control	
Fund size	Quantitative variable for fund size in AUD total assets
Fund age	Count variable for fund age in whole years
Investor age	Count variable for investor age in whole years
Investors	Count variable for number of fund investors (range from 1 to 4)
Accumulation phase	Indicator variable for fund being exclusively in accumulation phase
Pension phase	Indicator variable for fund being exclusively in pension phase
Retiree	Indicator variable for retired investor
Finance professional	Indicator variable for finance professional investor (i.e. accountant, broker, financial planner, auditor)

Of the two measures, only Confidence2 is significantly different between the two cohorts, indicating investors managing SMSFs that do not take advice are more confident in their own abilities to manage compliance issues relative to anyone else. As the other measure, Confidence1, is insignificant I further investigate why this might be the case by examining the correlations between this measure and technical literacy within each cohort. Table 3.3 shows that Confidence1 and technical literacy are negatively correlated ($r = –0.47$, sig. at 1%), indicating that investors with less technical proficiency are associated with exhibiting greater confidence. In other words, the result suggests the cohort of SMSF investors who do not seek advice consists of investors that are either more technically literate than those who seek advice, or are simply overconfident relative to their peers. I conduct Fisher exact tests on contingency tables to examine if this is the case using Confidence1. I segregate funds that

seek advice and those which do not and investigate the significance of the association between technical literacy and Confidence1 for each cohort. The results indicate that this association is highly significant at the one percent level for investors who do not seek advice, and not significant for investors that do ($p = 0.2025$). The implication is that overconfidence is indeed a defining feature for the cohort of investors who do not take advice and demonstrate low levels of technical knowledge, but not for the cohort that do seek advice. This supports my hypothesis that overconfidence reduces the likelihood of seeking advice.

Table 3.1 also shows the difference in compliance levels, the level of fund diversification (measured as a count of the number of asset classes the fund invests in), and the level of investment sophistication (measured by whether derivatives, foreign holdings or unlisted trusts are part of the SMSF portfolio). Investors that seek advice demonstrate more diversified and sophisticated portfolios. I also note that compliance is statistically different between the two cohorts. However, this may also be an artefact of the dataset I am using as non-compliance rates for both cohorts are well above the national average. Therefore, a more formal regression analysis is necessary to control for any potential bias.

3.4 Results and discussion

3.4.1 Analytical framework

I run probit regressions with Huber-White heteroscedasticity robust standard errors to evaluate the decision to take advice and the subsequent impact it has on compliance, diversification[22] and sophistication. The probit model is most readily interpreted as a latent variable specification for binary data such that:

[22] Fund diversification is modelled using the ordered dependent variable extension of the probit framework.

$$y_i^* = x_i' \beta + \varepsilon_i \qquad \text{(Eq 3.1)}$$

where x_i' is a transposed vector of independent variables (including controls), β is a vector of estimated coefficients and ε_i is a random normally distributed disturbance term. The observed y_i are then determined from y_i^* using the following rule:

$$y_i = \begin{cases} 0 & if \quad y_i^* \leq 0 \\ 1 & if \quad y_i^* > 0 \end{cases} \qquad \text{(Eq 3.2)}$$

The above model implies normality within the random disturbance term of the latent variable specification. Although this is my model of choice I do re-estimate all regressions using both logit and gompit specifications, which assume that the latent errors are distributed according to logistic and type-I extreme value distributions, respectively. The results remain qualitatively the same in terms of the sign and significance of the explanatory variables. I therefore focus my analysis and discussion on the results for the probit regressions.

I make use of the demographic factors previously highlighted in Table 3.1 to generate a control variable set. Panel A in Table 3.3 presents pairwise correlations for these variables with variance inflation factors (VIFs) displayed under Panel B. The table shows little evidence of multicollinearity with the largest absolute pairwise correlation and VIF being 0.70 and 3.71, respectively. These values are for the correlation between an investor's age (item 7 in the table) and whether the fund is in the accumulation phase (item 9), where naturally one would expect a relationship. None of the correlations are above 0.5 for the primary variables of interest (items 1 to 4) relating to my measures of overconfidence, level of technical literacy and whether advice is sought.

Table 3.3 Pairwise correlations and variance inflation factors

		Panel A: Pairwise correlation matrix											
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	Confidence1	–											
(2)	Confidence2	0.04	–										
(3)	Technical literacy	–0.47***	0.31***	–									
(4)	Do not seek advice	0.15**	0.41***	0.24***	–								
(5)	log (Fund size)	–0.10	0.03	0.01	0.05	–							
(6)	Fund age	0.07	0.22***	0.09	0.23***	0.26***	–						
(7)	Investor age	0.06	–0.13*	–0.18**	–0.04	0.35***	0.30***	–					
(8)	Investors	–0.02	0.08	0.12	0.03	0.06	0.07	0.00	–				
(9)	Accumulation phase	0.10	0.16**	0.09	0.07	–0.34***	–0.22***	–0.70***	0.09	–			
(10)	Pension phase	0.11	–0.12*	–0.15**	0.11	0.25***	0.20***	0.58***	–0.15**	–0.58***	–		
(11)	Finance professional	–0.04	0.11	0.15**	–0.04	–0.20***	–0.04	–0.42***	0.18**	0.40***	–0.31***	–	
(12)	Retiree	–0.03	–0.12*	–0.06	0.10	0.28***	0.15**	0.61***	–0.08	–0.61***	0.58***	–0.43***	–
		Panel B: Variance inflation factors											
Minimum VIF		2.17	1.37	1.22	1.18	1.23	1.30	2.31	1.12	2.34	1.85	1.27	1.83
Maximum VIF		2.17	1.37	2.01	1.93	1.55	1.65	3.71	1.46	3.54	2.82	2.47	3.71

Note: Statistical significance is denoted: *** $p < 0.01$; ** $p < 0.05$; and * $p < 0.10$.

3.4.2 The decision to not seek advice

Table 3.4 displays the output from two regressions where the probability of not taking advice is a function of investor technical literacy, overconfidence and the control variable set. I show the results using both measures of overconfidence (Confidence1 and Confidence2). I find that declining levels of technical literacy are associated with a greater likelihood of seeking financial advice irrespective of which overconfidence measure is used (significant at the 1% and 5% levels respectively). I also find overconfidence is statistically significant, at the 1% level, in the decision to not seek advice, providing evidence that overconfidence reduces the likelihood that self-directed retirement investors will seek advice. This finding supports my main hypothesis. The controls also appear to hold the right signs where they are significant. Specifically, fund age, pension phase and being a retiree are all significantly positive (at the 5%, 1% and 5% levels, respectively), suggesting that investors who are at the drawdown stage of the SMSF life cycle are more likely not to seek advice. This is against a backdrop of weaker evidence indicating that overall, increased investor age reduces the likelihood of not seeking advice (significant at 10%). Interestingly, both regressions suggest that a person working in the finance sector is also significantly more likely to seek advice. I consider this due to finance professionals having a better understanding of the complexities involved in managing a fund and therefore also being more appreciative of the value of advice.

Table 3.4 The decision to not seek advice

	(1)	(2)
Confidence1	1.2644***	
	(0.4361)	
Confidence2		0.3615***
		(0.0749)
Technical literacy	0.4032***	0.2224**
	(0.0922)	(0.1050)
Constant	-0.3862	0.8585
	(1.9362)	(2.5837)
log (Fund size)	0.0480	-0.1001
	(0.1250)	(0.1474)
Fund age	0.0859***	0.0679**
	(0.0268)	(0.0270)
Investor age	-0.0347*	-0.0390*
	(0.0191)	(0.0229)
Investors	0.1573	0.1281
	(0.1724)	(0.1870)
Accumulation phase	0.5922	0.8044*
	(0.3708)	(0.4160)
Pension phase	0.4981	1.0762***
	(0.3360)	(0.3529)
Finance professional	-0.6180*	-0.7318*
	(0.3721)	(0.4108)
Retiree	0.6040*	0.7544**
	(0.3431)	(0.3725)
McFadden R^2	29.14%	35.40%
Likelihood ratio prob.	0.0000	0.0000

The above results are generated from probit regressions with Huber-White standard errors where the dependent is the binary *Do not seek advice* variable. The two regressions only differ in the measure of overconfidence used with Confidence2 replacing Confidence1 in model (2).
Standard errors are in parentheses.
Note: Statistical significance is denoted: *** $p < 0.01$; ** $p < 0.05$; and * $p < 0.10$.

3.4.3 Financial outcomes

Table 3.5 summarises the results from examining the relationships between fund compliance, fund diversification and fund sophistication and the advice-seeking behaviours and technical literacy of SMSF investors.[23] For each measure I run two regressions. First I regress these measures on whether the fund seeks advice plus control variables. Second, I repeat the exercise and also include an interaction term for when the investor is both technically literate and does not seek advice.

[23] I also test for the direct and interaction links between investor overconfidence and the fund performance measures in Table 3.5. None of the estimated coefficients returned were statistically significant. The results suggest that variations in the performance outcomes of funds are primarily accounted for by the advice-seeking behaviour and technical literacy of investors. This does not discount, however, the indirect link over-confidence has on performance through its impact on the decision to seek advice (as demonstrated in Table 3.4).

Table 3.5 Performance impact from not seeking advice

	Non-compliance (3)		Diversification (4)		Sophistication (5)	
	Direct	Interaction	Direct	Interaction	Direct	Interaction
Do not seek advice	-0.8306***	-0.4174	-1.2329***	-1.7270***	-1.4126***	-1.9864***
	(0.3001)	(0.3703)	(0.2502)	(0.3248)	(0.3084)	(0.3841)
Do not seek advice and technically literate		-0.1647*		0.1700***		0.2028***
		(0.0927)		(0.0645)		(0.0778)
Constant	0.7238	0.7638			0.6484	0.4227
	(2.2002)	(2.1988)			(1.6492)	(1.6570)
log (Fund size)	-0.0300	-0.0274	0.1858**	0.1918**	0.0391	0.0404
	(0.1230)	(0.1236)	(0.0909)	(0.0893)	(0.1052)	(0.1047)
Fund age	-0.0086	-0.0072	0.0133	0.0112	0.0033	0.0010
	(0.0178)	(0.0177)	(0.0106)	(0.0113)	(0.0147)	(0.0157)
Investor age	-0.0060	-0.0083	-0.0193	-0.0164	-0.0142	-0.0100
	(0.0205)	(0.0214)	(0.0135)	(0.0133)	(0.0159)	(0.0158)
Investors	-0.1981	-0.1729	0.1139	0.0884	0.1471	0.1206
	(0.2351)	(0.2393)	(0.1404)	(0.1438)	(0.1649)	(0.1678)
Accumulation phase	0.6162	0.6186	-0.1461	-0.1185	0.3153	0.3512
	(0.3753)	(0.3841)	(0.2442)	(0.2450)	(0.3105)	(0.3046)
Pension phase	0.0584	0.0143	0.0904	0.1584	0.1368	0.2008
	(0.2860)	(0.2958)	(0.2218)	(0.2245)	(0.2783)	(0.2834)
Finance professional	-1.2718**	-1.2811***	0.3374	0.2903	-0.0108	-0.0820
	(0.4936)	(0.4918)	(0.2439)	(0.2354)	(0.3104)	(0.3068)
Retiree	0.2731	0.3501	0.3179	0.2805	0.5681**	0.5344*
	(0.3291)	(0.3293)	(0.2344)	(0.2313)	(0.2812)	(0.2854)
McFadden/ Pseudo R^2	12.14%	13.86%	7.54%	9.02%	10.60%	13.30%
Likelihood ratio p	0.0118	0.0071	0.0000	0.0000	0.0012	0.0002

Non-compliance (3) and sophistication (5) are both binary dependent variables used to generate the probit regression results presented in the table. Diversification (4) is a count variable and so an ordered dependent variable regression is used instead, not requiring the use of a constant. All regressions are estimated with Huber-White heteroscedasticity robust standard errors.
Standard errors are in parentheses.
Note: Statistical significance is denoted: *** $p < 0.01$; ** $p < 0.05$; and * $p < 0.10$.

I find that the probability of non-compliance is reduced for the cohort that does not seek advice. However, after including the cross-product term in the second regression I notice there is no statistical difference between funds based on whether advice is sought or not, except in the case for the technically literate. Technical literacy seems to be the primary driver of whether a fund is likely to be SIS Act compliant or not. That is, the higher the level of technical literacy, the higher the probability of compliance.

In terms of fund diversification I find that there is a significant difference at the 1% level, between the cohorts. Not seeking advice is associated with significantly less diversified portfolios. Interestingly, in the second regression I still see this result coming through, although technically literate investors who do not seek advice hold relatively more diversified portfolios than those I classify as non-technically literate. I subsequently compare the asset allocations of funds (across three broad asset classes) owned by investors who take advice

against those who do not. While the difference between the portfolios is negligible in terms of their equity distribution (53.9% to 49.4%), I observe that investors who do not take advice are on aggregate overweight by nearly twice as much in cash and fixed income assets (28.5% to 15.3%). Investors who seek advice have a proportionally greater distribution of their wealth in other investment assets (35.3% to 17.6%), which include listed and unlisted trusts, other managed investments, loans made, derivatives and real estate. Seeking advice appears to result in portfolios which are potentially less risk averse (through holding less cash and fixed income) but more diverse in their asset allocations.

Fund investment sophistication also appears to be impacted by the decision to seek advice. I observe a negative impact on fund sophistication for those who do not seek advice, again significant at the 1% level. While not seeking advice leads to a significantly less sophisticated portfolio, investors that are technically literate do hold relatively more sophisticated portfolios than other non-technically literate investors.

3.5 Conclusion

This chapter examines how the literacy and overconfidence levels of self-directed retirement fund investors relate to their advice-seeking behaviour, and in turn how this behaviour ties with the performance of their SMSFs. My results agree with those of Hung et al. (2010) and Inderst et al. (2009) initially suggesting that investors with lower levels of relevant knowledge are more likely to seek advice. I also find that increasingly overconfident investors are less likely to seek advice, with this finding being consistent across two distinct measures of overconfidence for my cohort. These findings agree with my a priori expectations. Collectively they demonstrate that technical and financial literacy act alongside the cognitive bias which can result from overconfidence as two of the key investment profile

components of self-directed retirement investors. While these investors generally appear to acknowledge the need for advice as a mitigating factor for any lack in their own literacy, they also seem susceptible to avoiding advice if they are overly confident in their own abilities.

Knowing that the appetite for advice is associated with changes in literacy and overconfidence, I also examine whether differences in the advice-seeking behaviour of individual investors translate into differences in the performance outcomes of the funds they manage. Initially I find that the probability of non-compliance reduces for investors who do not seek advice. However, after accounting for investors who do not seek advice but are at the same time technically literate, I find no general difference between advice-seekers and others with respect to fund compliance outcomes. Technical literacy appears to be the main driver of whether a fund is likely to be compliant or not. In other words, the absence of advice is associated with a higher probability of compliance only in the presence of increased technical literacy.

I also find that the asset allocations of advice-seeking investors are, on average, both better diversified and more sophisticated than those of investors who do not seek advice. Perhaps most notably, a subset of investors is identified who, despite showing lower levels of technical literacy, also do not seek advice. This group is characterised as having a greater level of confidence in their own abilities relative to what they are able to demonstrate through my technical literacy test. It is this group of individuals that have the lowest levels of portfolio diversification and sophistication. My finding that overconfidence seems to dissuade these investors from taking advice supports the broader literature suggesting personality traits influence the effectiveness of households taking advice (Barberis et al., 2003; Neymtotin, 2010). One of the more important implications of this result is that overconfidence potentially overshadows a lack of technical literacy for some investors, the

net result of which is a reluctance to seek advice exactly when it is most needed. This remains an open empirical question particularly for investors outside of the SMSF industry.

The implications of my results for policy makers are twofold. The global shift into defined contribution retirement plans and the subsequent rise in self-directed retirement investors has placed increasing importance on the sector in many countries around the world (Poterba et al., 2007; Gerrans et al., 2013). The Australian case presented here demonstrates that self-directed investors are at risk of managing underperforming SMSFs if they are technically illiterate. Technical and financial advice can mitigate some of the potential impacts of investor illiteracy, however the propensity for investors to seek such advice is itself moderated by the cognitive bias arising from overconfidence. My results point to the need for policy makers to address the most vulnerable self-directed investors (i.e. those who are both illiterate and overconfident). In particular, emphasis should be placed on ensuring investors can meet technical compliance standards and minimum levels of general financial literacy. Additionally, there is a need to further debate what type of mechanisms could be used to motivate investors to seek advice whenever they are not adequately literate with respect to the compliance and financial management of their fund. This is important to ensure that investors do not become a burden to the State if their funds are mismanaged and depleted.

Further research examining the decision to take advice is crucial to better understanding methods that can be employed to target individuals who do not seek, but nevertheless are, in need of counselling. With the move from defined benefit to defined contribution plans and the parallel rise in self-directed retirement planning around the world the importance of advice, particularly in this sector, will continue to grow. This, in my opinion, is a significant yet still relatively unexplored research area that needs greater attention.

4. Small-to-medium Sized Agricultural Enterprises

4.1 Introduction

This chapter investigates how the professionalization of management succession planning integrates with other managerial processes and the financial outcomes of private SMAE households. I apply a customised questionnaire-based instrument to a stratified sample of Australian farms to examine whether differences in management succession approaches are interdependent with general business planning, insurance use and the use of financial derivatives. A secondary analysis then examines the financial impacts of succession planning in terms of farm ROA for the sample.

I am initially motivated by Sharma, Chrisman and Chua (2003) who demonstrate that the process of management succession can be viewed within the framework set out by the theory of planned behaviour. They find that family social norms are positively related to some succession planning activities, but that it is primarily the feasibility of succession, or availability of a trusted and willing successor, which coincides with positive changes in the succession planning process. Koropp, Kellermanns, Grichnik and Stanley (2014) have similarly applied the theory to the capital structure of family firms, finding that family norms and attitudes toward external debt and external equity shape behavioural intent and subsequently financing choices. Taken together, these findings suggest that *multiple* aspects of household business management can be explained, at least in part, by the attitudes, social norms, behavioural control and intentions of the families controlling enterprise households.

These results raise important questions about whether management succession decisions and other managerial decisions are integrated in family firms and subsequently whether the level of integration differs with the type of succession approach adopted. I argue

that from a theoretical perspective, succession and other managerial outcomes should be integrated if household decisions in SMAEs are being made by the same dominant coalition, driven by the same behavioural traits. If, as Sharma et al. (2003) and Koropp et al. (2014) suggest, managerial decision making is consistent with the theory of planned behaviour, I would not for example, expect to see vastly different levels of succession and general business planning on aggregate in family firm households. Not only this, but I would also expect them to be coincident for comparable levels of professionalization in each process. Household businesses which (do not) actively engage in formal written succession planning are (not) expected to also actively engage in formal written business planning. Extending this rationale in the case of SMAEs, I further argue that the use of insurance and financial derivative contracts will similarly be coincident with the use of formal written succession planning. My expectations reverse for firms which are not professionalising succession (i.e. those with informal verbal arrangements, expectations to sell or who have neglected succession altogether) because they are unlikely to experience the advantages commonly associated with professionalization (see Stuart and Hitt, 2012).

Family businesses straddle the intersection between family and professional commerce. As a consequence their performance objectives can be expressed with both the personal attributes of the family (nonfinancial) and the needs of the business (financial) in mind (Astrachan, 2010; Graves and Shan, 2014). Although, family businesses pursue more than merely financial goals, much of the literature on their performance has focused exclusively on financial objectives (Astrachan, 2010). With respect to the performance impacts of succession, the literature lacks consensus. For example Wang et al. (2004) show empirical support for a positive association between the succession process and business performance in small- and medium-sized enterprises (SMEs), including for business profitability. While more recently, Molly et al. (2010) highlight a lack of evidence to suggest

that firm profitability is affected by the succession process – a finding which is at odds with Wang et al. (2004). However, neither of these studies focuses on the performance impacts of different approaches to succession planning prior to the succession process taking place. Despite the body of literature on family business performance, it remains unclear whether (the degree of professionalization in) succession planning is associated with changes in performance before succession occurs. In light of potential advantages from professionalization (Stuart et al., 2012), this raises an important but unexplored question which I examine in the context of SMAE households via their ROA. Namely, is the financial performance of family business households associated with the level of professionalization in their approach to succession planning?

The broader family business literature has overlooked this line of questioning, instead predominantly focussing on succession as a process, the consequences of succession and the barriers to and characteristics of effective succession, most often for SMEs (Handler, 1994; Ip and Jacobs, 2006; De Massis, Chua and Chrisman, 2008). As a process, succession is a protracted and multifaceted practice (Sharma, Chrisman and Chua, 1997; Stavrou, 1999; Motwani, Levenburg, Schwarz and Blankson, 2006). While it is vital for the ongoing success of businesses in all industries and of all sizes, it is at the same time, one of the most significant and complex challenges faced by private family owned businesses (Handler, 1994; Wang et al., 2004; Motwani et al., 2006; Hicks, Sappey, Basu, Keogh and Gupta, 2012). De Massis et al. (2008) provide a comprehensive summary of the individual, relation, financial, context and process based barriers to effective succession. Some of these link directly with the theory of planned behaviour, including most notably the primary driver of succession planning activities – the availability of a willing and trusted successor (Sharma et al., 2003). With respect to the characteristics of effective succession, firm demographics such as business size (Stavrou, 1999; Motwani et al., 2006) and individual demographics such as

owner gender (Harveston, Davis and Lyden, 1997) have been shown to hold relevance for the succession process. Dumas, Dupuis, Richer and St.-Cyr (1995) also note that birth order and successor training and education might be relevant demographic predictors for the likelihood that the next generation will succeed the incumbent, specifically within the context of family farm households.

While SME succession has received extensive attention within the family business literature, a concurrent stream of research spanning agricultural and household economics has provided a complementary body of work on succession planning, specifically in the context of family farming (Glauben, Tietje and Weiss, 2004; Mishra, El-Osta and Shaik, 2010; Lobley, Baker and Whitehead, 2010; Wheeler, Bjornlund, Zuo and Edwards, 2012). While methodologically different, this literature has also accumulated a body of evidence on the individual and household demographics which are associated with succession planning decisions (Pesquin, Kimhi and Kislev, 1999; Mishra et al., 2010) and the impact of the succession process (or lack thereof) on the future management of the farm (Wheeler et al., 2012). Kimhi and Nachlieli (2001), Mishra and El-Osta (2008) and Mishra et al. (2010) all make empirical findings which suggest that succession planning decisions are not independent of the age and educational attainment of the incumbent. Moreover, household-level demographics such as farm size (Glauben et al., 2004) and location (Mishra et al., 2010) have also been shown to hold relevance for succession outcomes. These findings at least partially overlap with those from the family business literature on SME succession (Dumas et al., 1995; Stavrou, 1999; Motwani et al., 2006). Beyond demographic predispositions, the agricultural economics literature on family farm succession also explores factors associated with the financial impacts of succession for family controlled farms (Pesquin et al., 1999; Harris, Mishra and Williams, 2012). For example, Harris et al. (2012) find evidence to suggest that succession decisions are associated with improved farm financial performance.

These results again at least partially overlap with the family business literature on SMEs, where Wang et al. (2004) and Molly et al. (2010) have similarly noted empirical support for some financial and capital structure impacts of succession and associated activities.

However, neither the family business nor the agricultural economics literature considers how the level of professionalization in succession planning integrates with other aspects of household business management and performance. This chapter attempts to provide some empirical evidence on this question in the context of Australian SMAEs. I take the context of family farms because they have historically held a critical position (Dumas et al., 1995; Hicks et al., 2012) in an industry which is particularly diverse with respect to the range of decisions made by managers. In Australia, as elsewhere, farmers are often expected to consider not only succession, but also other general business planning and risk management processes (including the use of insurance and financial derivatives) not commonly found in other industries (Moschini and Henessy, 2001; Commonwealth of Australia, 2014). Moreover, the complex nature of the succession process from a management standpoint (see Sharma, 2004 for a summary) seems to be exacerbated for SMEs in agriculture relative to other non-agricultural businesses because of the added external pressure of climate (or water) dependency (Wheeler et al., 2012). This latter point is particularly relevant in the context of Australian farming, adding a further dimension to this study in terms of the possible interactions between planned succession behaviours, their degree of professionalization and other management decisions. SMAE households provide a particularly rich setting for examining these interactions.

The contributions of this chapter to the literature are threefold. First, although the interdisciplinary literature on succession is extensive, it has thus far overlooked examination of how different approaches to succession planning embed within the broader scope of household business management. Addressing this gap, I investigate how the degree of

professionalization in succession planning relates to other professional practices in family SMAEs. The results suggest that positive relationships exist between succession planning, business planning and the use of insurance in SMAEs. However, I find that this is only the case for formal written succession arrangements. Less professionalised verbal succession arrangements, as well as alternatives like selling the business or neglecting succession altogether, are either disassociated or negatively associated with other professional management practices. Second, while numerous studies examine the performance of family businesses, studies on the financial impacts of succession have predominantly focussed on succession as a process. The results presented here demonstrate that succession planning might be associated with improved asset returns for family farms prior to succession occurring. More importantly, this result is also sensitive to the degree of professionalization observed, holding only for family farms with formal written succession arrangements. Collectively these results suggest that the value in planning succession is at least partly expressed through pathways for professionalization in SMAE households. Third, the findings presented here demonstrate the broader value of the theory of planned behaviour in family business research. It generally provides a strong rationale for family business studies (Sharma et al., 2003, Koropp et al., 2014) and directly motivates my empirical examination of the links between succession planning and other managerial processes. I encourage researchers to continue exploring its applications.

The key contribution for practitioners and family business specialists who advise SMAEs is to highlight the importance of professionalization in succession planning. Farm households with lower uptake of professional services, like formal business planning and insurance, appear less likely to also use formal written succession plans. In turn, farms with alternative succession arrangements may miss out on some of the performance advantages of professionalization (Stuart et al., 2012) even before undergoing the succession process. My

results therefore encourage the use of formal written succession plans ahead of verbal (and other) succession arrangements in family farm businesses. Promoting professional succession planning in SMAEs also partly addresses the general need for more effective financial services discussed by Hicks et al. (2012).

The remainder of this chapter is structured as follows. Section 4.2 considers some of the background literature, including on the theory of planned behaviour, and develops hypotheses. Section 4.3 follows with a description of the data and research method. I then discuss my findings in Section 4.4 before concluding in Section 4.5.

4.2 Background, theory and hypothesis development

4.2.1 The theory of planned behaviour and hypotheses

Ajzen (1991) suggests that rational decision makers strike a balance between biological and environmental behavioural impacts through cognitive self-regulation. Within such an analytical approach to decision making, *intent* and *control* are central to the prediction of behaviour. The theory of planned behaviour contends that (perceived) behavioural control acts alongside the behavioural attitudes and subjective norms of the decision maker to influence her intentions, which in turn influence her behaviour (Ajzen, 1991). Put simply, the probability of a given behaviour depends on the intent of an individual to engage in it. The intent is subsequently dependent on the perceived desirability of the outcome, the acceptability of the outcome to the social norms of a reference group (i.e. household) and the expectation that the behaviour will lead to the desired outcome (Sharma et al., 2003).

Within the context of succession planning in SMAEs, the theory reduces succession behaviours to incumbent desire for (attitudes), and family commitment to (social norms), keeping the business in the family, along with also the availability of a trusted and capable successor (control) (Sharma et al., 2003). However, the theory of planned behaviour is not applied to succession as a process here. I instead shift focus away from the outcome of *keeping the business in the family* and onto the outcome of *maintaining long-term business prosperity*.[24] The theoretical implication of this is that I expect an alignment in the use of multiple professionalised business processes which promote long-term business prosperity – as long as the underlying attitudes, social norms, perceived behavioural control and intent of the household are aligned when using such processes.

In this context, the perceived desirability of the outcome reduces to the attitudes and desire of the household to maintain a successful intergenerational business (along the lines of the legacy effect as for example in Blumentritt, Mathews and Marchisio, 2013). The acceptability of the outcome to the social reference group (assumed to be the family or household) would then reflect the group's social norms and commitment to long-term business prosperity. The feasibility of the outcome and the family control over it boil down to the availability of a well maintained and prosperous business along with trusted and capable heirs.

Within this conceptual framework, professionalised planned succession clearly plays a pivotal role in the long-term intergenerational prosperity of a business (Handler, 1994; Wang et al., 2004; Motwani et al., 2006; Hicks et al., 2012). However, it is not necessarily the sole ingredient. This idea is tentatively supported by Sharma et al. (1997) who, on the basis of prior literature, note that succession may at times be a strategy for achieving other goals rather than a goal itself.

[24] I note that, long-term business prosperity as discussed here is akin to *firm survival through time*. This is in contrast with the *longevity of family enterprises* as a measure of intergenerational success (Colli, 2012). Multi-venture farming households are beyond the scope of the research presented here.

This broader application of the theory of planned behaviour to SMAEs guides me to the agricultural economics literature on other managerial practices which also promote long-term business prosperity. For SMAEs, professionalised financial and operational management decisions such as formal (written) business planning (Ip et al., 2006), crop insurance and the use of financial derivatives (Moschini et al., 2001) play a similarly important role for the long term prosperity and viability of the underlying business. Family farms usually outsource for these services to professionals, thereby potentially experiencing some of the advantages discussed by Stuart et al. (2012).

Reviewing the existing strategic management literature on succession planning reveals that there is anecdotal support for an association between the use of succession plans and general business plans (Ip et al., 2006).[25] There is however also a corresponding lack of detailed evidence demonstrating this empirically (Ip et al., 2006). The theory of planned behaviour suggests that succession and general business planning may be interdependent. If the attitudes, social norms and perceived control of the family in SMAE households are assumed constant, then I claim that the use of professionalised processes like formal business and succession planning will be aligned in the best interests of the underlying enterprise. That is, I expect family farms to have a written succession plan in place if they also use a written business plan. Formally, this leads to hypothesis 1a:

H1a: The use of formal written succession planning is positively related to the use of formal written business planning in SMAEs

Moschini et al. (2001) provide a detailed discussion on the role of crop insurance in agricultural management. While they acknowledge that insurance is incapable of eliminating

[25] A business plan is a formal (usually written) statement of the goals of an enterprise and the methods to be employed in achieving them.

all production risks, it is also seen as a critical tool for mitigating much of the tail risk associated with extreme climatic events. Crop insurance is especially relevant given the global increase in such events over recent years and even more so in Australia, where different agricultural areas are commonly subject to either drought or flood (Wheeler et al., 2012). If the attitudes, social norms and perceived control of the family in SMAE households are constant, then I argue that the use of crop insurance contracts and the use of professionalised written succession planning will be aligned in the best interests of the underlying enterprise. That is, I expect family farms to have a formal intra-family succession plan in place if they also use crop insurance. Formally, this leads to hypothesis 1b:

H1b: The use of formal written succession planning is positively related to the use of crop insurance in SMAEs

Farm managers also have access to and regularly use forward, futures and options contracts to moderate their exposure to price and quantity risks (Moschini et al., 2001). Trade risks related to uncertainty in future prices and demand quantity are a universal concern in agriculture. This is again particularly true for Australia, where the agricultural sector remains a major exporter despite a decline over recent years relative to other sectors (Hicks et al., 2012). If the attitudes, social norms and perceived control of the family SMAE households are constant, then I contend that the use of financial derivatives and the use of professionalised succession planning will be aligned in the best interests of the underlying enterprise. That is, I expect family farm households to have a formal written succession plan in place if they also use financial derivatives. Formally, this leads to hypothesis 1c:

H1c: The use of formal written succession planning is positively related to the use of financial derivatives in SMAEs

Conversely, based on hypotheses 1a, 1b and 1c I expect that succession planning approaches which are not professionalised will be disassociated or negatively correlated with other professional managerial processes. That is, family farms which have verbal succession arrangements in place, will be sold instead of succeeded or have no succession arrangement are not expected to have positive associations with the use of written business plans, crop insurance or derivatives.

4.2.2 Professionalised succession planning and the financial outcomes of SMAEs

In applying the theory of planned behaviour, this chapter shifts the focus away from the motivating outcome being a 'successful' succession and onto being a 'successful' SMAE in the long term. Agricultural studies generally support the idea that crop insurance and financial derivatives assist farms with risk management and mitigation and are therefore conducive to overall business prosperity (Moschini et al., 2001; Hicks et al., 2012). By associating approaches to succession with these managerial processes, hypotheses 1a-1c implicitly assume that increased professionalization in succession planning is associated with improved overall performance for family run agricultural businesses. However, this result cannot be assumed.

My remaining hypothesis is therefore motivated by the inconclusive family business literature on the link between succession and financial performance. For example, Wang et al. (2004) find a positive relationship between succession planning and firm profitability for UK SMEs whereas Molly et al. (2010) find no evidence that the profitability of Belgian family firms is affected by succession. Taken together, these results suggest that the link between succession and financial performance cannot be assumed and is most likely context (industry/ country) dependent. More importantly, neither of these studies focuses on the performance

impacts of different approaches to succession planning prior to the succession process taking place. It is unclear whether the degree of professionalization in succession planning is associated with changes in performance before succession occurs. Within the context of Australian agriculture, I aim to make an empirical contribution complementing that of Wang et al. (2004) by examining the association between professionalised and other succession planning approaches and farm ROA.[26] Specifically, I differentiate among farms with formal (written) succession arrangements in place and those with either informal (verbal) succession plans, no succession plan or those which are expected to be sold rather than succeeded.

I argue that if professionalised succession planning is found to be positively correlated with other managerial practices which generally improve the financial performance of SMAEs (i.e. at least some of Hypotheses 1a-1c are upheld), then it should also be directly correlated with improved financial performance (as indicated by a positive association with ROA). Formally, this leads to hypothesis 2:

H2: The use of formal written succession planning is positively related to the ROA of SMAEs

Conversely, based on hypothesis 2 I expect that succession planning approaches which are not professionalised will be disassociated or negatively correlated with the financial performance of family farms. That is, family farms which have verbal succession arrangements in place, will be sold instead of succeeded or have no succession arrangement in place are not expected to be positively associated with increasing ROA.

[26] ROA is a relative measure of profitability commonly used as a proxy for general financial performance (see for example Graves et al., 2014). In contrast, Wang et al. (2004) provide evidence on the associations between succession planning and profit margin, return on capital, return on equity, sales growth, employment growth and employee productivity.

4.3 Data and methodology

4.3.1 Data collection

A detailed and demographically stratified random sample of questionnaire responses from 285 SMAEs was collected to evaluate the proposed hypotheses.[27] The instrument was distributed in partnership with The Australia and New Zealand Banking Group (ANZ), Rural Bank[28] (RB) and the Rural Financial Counselling Service[29] (RFCS). Each partner organisation specifically targeted cohorts within its client base to ensure that the sample was representative of family owned and managed SMAEs of all sizes and from all States. The choice of partner organisations also ensured that a wide range of the financial performance spectrum would be represented in the sample, including some SMAE households in serious financial hardship.

The instrument was initially developed in consultation with ANZ. This initial version was then administered as a pilot to farm business managers on two separate agricultural field days. Amendments concerning question wording and survey content were made as a result of these consultations. The final instrument was both comprehensive and easy to complete, with the only difficulty for respondents posed by the requirement for financial statement data. All responses were recorded via multiple choice or open-ended numerical questions. In order to maintain the anonymity of individual respondents no personal information was recorded.[30] All questions were focused on farm level variables. Variables which were considered include

[27] To the best of my knowledge, no longitudinal database exists which considers the data items in this study specifically in the context of family owned SMAEs.
[28] Rural Bank is a wholly-owned subsidiary of the Bendigo and Adelaide Bank Group and a specialist provider of financial services to the agricultural sector in regional and rural Australia.
[29] The RFCS provides free financial counselling to primary producers, fishers and small rural businesses who are suffering financial hardship. The program is jointly funded by the Federal and State governments of Australia.
[30] The questionnaire was administered by ANZ, RB and RFCS to their clients to maintain anonymity of personal financial records. Therefore an overall survey response rate cannot be determined.

demographics such as business structure, use of financial services, approaches to succession planning and historical financial data from SME statements of income and financial position. Table 4.1 provides a summary of the variables with definitions. The full questionnaire is listed in Appendix C.

Table 4.1 Variable definitions

Variable	Definition
Dummies	Equal to 1 if the family farm:
SP-Writ	has a written management succession plan in place
SP-Verb	has a verbal understanding with respect to management succession in place
SP-Sell	will be sold rather than succeeded
SP-None	has no succession plan in place
BU-Plan	has a formal (written) 3-5 year strategic business plan in place
BU-Insu	uses crop insurance
BU-Deri	uses financial derivatives
DE-Size	four year (2008-11) average revenue exceeds $1 million
OS-Trus	ownership structure is a trust
OS-Comp	ownership structure is a company
OS-Part	ownership structure is a partnership
ST-NSW	is in the State of New South Wales
ST-VIC	is in the State of Victoria
ST-QLD	is in the State of Queensland
FI-Bank[a]	predominantly uses the services of a large commercial bank
Other	
DE-Rain	three year (2008-10) average rainfall for the farm (in meters)
DE-Gene	the number of generations the family has owned the farm (count 1-7)
FI-Serv[b]	the number of financial services used by the family farm (count 1-6)
PE-ROA	four year (2008-11) average net income/ total assets percentile rank (1-100)

[a] The alternative to using the large commercial banks is for farms to predominantly use the services of a smaller rural based bank.
[b] From the following: transaction account, savings account, asset finance, overdraft facility, mortgage and specialised financial management.

4.3.2 Descriptive statistics

Returned questionnaires comprising the final sample suffer from a low amount of non-response to individual questions, reducing the total number of observations available for formal analysis. All included observations are from SMAEs (farms having less than 200 employees) with estimated value of agricultural operations greater than AUD 22,500. Response dispersion across States is relatively level, with the five most populated mainland States accounting for more than 96% of returns (Queensland 11.9%, Victoria 14.7%, New South Wales 19.6%, Western Australia 20.4% and South Australia 29.8%). The sample is

also skewed toward responses from SMEs which operate as a partnership[31] (53.5%) however both of these observations seem representative of the general population of SMAEs in Australia (Hicks et al., 2012). Table 4.2 provides a summary of descriptive statistics and pairwise variable correlations. It shows that the use of a written professionalised management succession plan is significantly and positively correlated with the use of a written business plan ($r_{1,5} = 0.24$, $p < .05$) and the use of crop insurance ($r_{1,6} = 0.22$, $p < .05$). The correlation between the use of a written (formal) management succession plan and the use of financial derivatives is also positive although not statistically significant ($r_{1,7} = 0.05$, $p > .05$).

Table 4.2 Descriptive statistics with pairwise correlations

	N	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. SP-Writ	222	0.09	0.28											
2. SP-Verb	222	0.40	0.49	-0.24										
3. SP-Sell	222	0.18	0.39	-0.14	-0.39									
4. SP-None	222	0.33	0.47	-0.20	-0.58	-0.33								
5. BU-Plan	240	0.18	0.39	0.24	0.06	-0.05	-0.17							
6. BU-Insu	247	0.36	0.48	0.22	0.02	-0.17	-0.01	0.14						
7. BU-Deri	244	0.16	0.37	0.05	-0.03	-0.01	0.01	0.12	0.37					
8. DE-Size	277	0.12	0.32	0.20	0.08	-0.11	-0.11	0.13	0.09	0.13				
9. OS-Trus	284	0.20	0.40	0.03	0.12	-0.07	-0.08	0.06	0.19	0.06	0.11			
10. OS-Comp	284	0.09	0.28	0.04	0.01	0.07	-0.09	0.06	-0.02	0.14	0.28	-0.17		
11. OS-Part	284	0.54	0.50	-0.04	0.04	-0.08	0.05	-0.01	-0.12	-0.11	-0.17	-0.52	-0.38	
12. ST-NSW	285	0.20	0.40	-0.12	0.01	0.05	0.01	-0.09	-0.25	-0.06	-0.03	-0.08	0.06	0.00
13. ST-VIC	285	0.15	0.36	-0.08	-0.12	0.18	0.02	-0.13	-0.21	-0.06	0.03	-0.07	0.06	-0.04
14. ST-QLD	285	0.12	0.32	0.07	0.01	0.03	-0.07	-0.12	-0.16	-0.01	-0.07	-0.11	-0.04	0.07
15. FI-Bank	285	0.24	0.43	-0.02	-0.11	0.00	0.13	0.14	-0.04	0.09	-0.16	0.06	0.00	-0.02
16. DE-Rain	285	0.55	0.32	0.03	0.15	-0.07	-0.12	-0.15	-0.17	-0.05	0.02	-0.08	0.10	0.02
17. DE-Gene	239	1.95	1.08	0.15	0.21	-0.22	-0.12	0.09	0.27	0.02	0.10	0.20	0.08	-0.14
18. FI-Serv	285	2.38	0.97	-0.09	0.02	-0.09	0.10	0.13	-0.03	0.02	-0.03	-0.02	-0.04	0.04
19. PE-ROA	260	50.20	28.92	0.12	0.02	-0.10	-0.01	0.09	0.12	0.15	0.05	0.18	-0.10	-0.10

	12	13	14	15	16	17	18
13. ST-VIC	-0.11						
14. ST-QLD	-0.17	-0.11					
15. FI-Bank	-0.10	-0.10	-0.13				
16. DE-Rain	0.03	0.03	0.49	-0.17			
17. DE-Gene	-0.02	-0.13	-0.18	0.11	0.15		
18. FI-Serv	-0.03	-0.14	-0.08	0.41	-0.11	0.09	
19. PE-ROA	0.13	-0.13	-0.21	0.21	-0.19	0.03	0.17

Note: 169 observations included after adjustments. Correlations with absolute value greater than 0.15 are significant at $p < .05$.

[31] As opposed to others which can be incorporated, independently owned or structured as trusts.

4.3.3 Key variable constructs

The dependent variables extracted from the instrument to evaluate hypothesis 1 were captured as dummies of the household decision to either have in place or not have in place (1) a written management succession plan (SP-Writ), (2) a verbal management succession understanding (SP-Verb), (3) an expectation to sell the SME farm upon retirement (SP-Sell) or (4) no succession plan whatsoever (SP-None). SP-Writ represents a professionalised approach to succession planning. The four categories chosen were developed in consultation with ANZ, RB and RFCS representatives as well as farm business managers who participated in the pilot field days. The four categories are parsimonious while also capturing succession statuses which sum up the vast majority of Australian family farms. They are regressed against other professionalised managerial decisions including the decision to use a formal written business plan (BU-Plan), crop insurance (BU-Insu) and financial derivatives (BU-Deri). These were captured as dummies to assist with encouraging responses to the instrument as well as to maintain the privacy of respondents with respect to their personal financial matters.

One dependent variable was constructed from the instrument to evaluate hypothesis 2 on the association between financial performance and the degree of professionalization in succession planning arrangements. I examine the association between having a written succession plan and SMAE ROA along with the corresponding relationships between verbal, sale and absent succession approaches. I capture ROA as a farm's 4 year average net income over total assets between 2008 and 2011 and convert this measure to a percentile intra-sample index (PE-ROA). The ROA index reflects 4-year average values to minimise the impact of idiosyncratic year-on-year variations (not reflected in succession planning status) on model quality. The index captures a significant amount of the variation in the underlying raw

series,[32] but has the advantage of substantially improving model quality in the regressions used to evaluate hypothesis 2.[33] Given that the sample was intentionally stratified with respect to SMAE financial standing, both within and across instrument distribution partners, it seems that the constructed index captures this variation adequately for my purposes here. Losses to the economic significance of the estimated coefficients are acknowledged as being of minor consequence.

Household level (i.e. non-personal) control variables were used to account for demographic differences between responding enterprises in all regressions (1-8) used to evaluate the developed hypotheses. A dummy was included for the size of family farms (DE-Size) based on large SMAEs exceeding $1 million in four year average revenue between 2008 and 2011. Several dummies were used to account for the various types of ownership structure which exist in Australia, including trusts (OS-Trus), companies (OS-Comp) and partnerships (OS-Part). The dummy for individually owned farms was excluded to prevent multicollinearity. A dummy was included to differentiate farms where the primary financial services provider is a large commercial bank (FI-Bank) from those mainly serviced by smaller rural banks. Location dummies were also included for the State of primary farming operation (ST-NSW, ST-VIC and ST-QLD), with South Australia again excluded to avoid multicollinearity issues.

A further three non-dummy controls were also included. Counts for the number of generations the farm has been in the family (DE-Gene) and the number of financial services used by the household (FI-Serv) were included. For regressions 5-8 an additional continuous

[32] The correlation between ROA and ROA-percentile is 0.791.
[33] By avoiding the need to regress continuous dependent variables against independent variable sets consisting entirely of discrete variables and reducing the impact of non-linear behaviour in the extremities of financial series.

variable was included for the three year average rainfall received by farms between 2008 and 2010 (DE-Rain) to control for climate impacts on financial performance.[34]

4.4 Results and discussion

4.4.1 Analytical framework

Two regression methods are applied to evaluate the hypotheses. In order to address hypothesis 1, where the dependent variables (SP-Writ, SP-Verb, SP-Sell and SP-None) are all dummies, I apply binary probit regressions with Huber-White robust standard errors while controlling for household-level demographic differences between responses. The probit model is described by equations 3.1 and 3.2 in Section 3.4.1.

In order to address hypothesis 2, where the dependent variable (PE-ROA) is a count index, I apply ordered dependent variable regressions with Huber-White robust standard errors while again controlling for climate and household-level demographic differences between responses. I describe the ordered dependent variable regression model with equations 2.3, 2.4 and 2.5 in Section 2.3.3.2.

At each stage of the empirical analysis I include only farm-level control variables. These include a dummy for farm size and a count for the number of generations a farm has been in the family (Sharma et al., 2003; Motwani et al., 2006). I also account for differences in climatic effects by including three year average annual rainfall as a proxy control in my models of financial performance. Notably my control set excludes individual-level demographic controls such as age, gender and education of incumbents, heirs and possibly other family stakeholders. My efforts are aimed at examining (1) how the degree of

[34] Rainfall data for 2011 was not available.

professionalization in succession planning outcomes relates to other managerial processes and decisions and (2) whether any association between the succession planning and financial outcomes of SMAEs varies with the degree of professionalization. Ex post, at the process level multiple stakeholders both from within the dominant coalition and external to it can make contributions to the succession outcome adopted (Handler, 1994; De Massis et al., 2008). The resulting multitude of ages, genders and education levels is not applicable to succession planning viewed from a process perspective, nor is it variable across other SMAE processes. That is, the personal demographics of incumbents, heirs and others remain constant across succession and other SMAE processes at the individual farm level.

4.4.2 Diagnostics

All empirical models used to evaluate the hypotheses in this chapter are estimated with heteroscedasticity–consistent coefficient standard errors (Huber-White). In order to verify that the resulting regressions are also free from multicollinearity–based misspecification, I check both the pairwise correlations between independent variables in Table 4.2 and the coefficient VIFs for each model presented. I find little evidence of multicollinearity with the largest absolute pairwise correlation between 2 independent variables in Table 4.2 occurring between OS-Part and OS-Trust ($r_{11,9} = –0.52$, $p < .05$), where I naturally expect a significant negative relationship due to the experimental design. More than 97% of the remaining correlations in Table 4.2 are less than 0.4 in absolute value. Moreover, for regressions 1–4 in Table 4.3 VIFs ranged from 1.06 to 2.92, whereas for regressions 5–8 in Table 4.4 VIFs ranged from 1.11 to 2.03, with the largest of these in each case again occurring for OS-Part. Despite the apparent absence of multicollinearity issues and the fact that any partial incidence of multicollinearity only detracts from the statistical

strength of the results presented here (as opposed to artificially inflating it), I performed the following robustness check. Secondary regressions were run with the 1st, 1st and 2nd, and 1st, 2nd and 3rd highest VIF independent variables removed from the original regressions in Tables 4.3 and 4.4 (all variables removed were controls). These revealed no meaningful change in the significance of the remaining coefficients or overall model quality, inclining me to conclude that the models are not suffering from a multicollinearity misspecification.

4.4.3 Succession planning within the broader context of SMAE management

In order to demonstrate a relationship between the degree of professionalization in succession planning and other managerial decisions for family farms Table 4.3 summarises four regressions of different succession arrangements as a function of three managerial processes and controls. The selected processes, namely the use of a formal (written) business plan, crop insurance and financial derivatives, were selected on the basis of their prevalence in the agricultural economics literature (see for instance Moschini et al., 2001). Each regression corresponds to the farm having either a written succession plan (1), a verbal succession understanding (2), an expectation of selling upon retirement (3) or no plan for the succession of the farm (4).

The results for regression 1 indicate that the use of a written succession plan is positively associated with the use of a formal written business plan (BU-Plan 1.07, $p < .01$). Furthermore, regression 4 in Table 4.3 shows that the absence of a succession approach is negatively associated with the use of a written business plan (BU-Plan –0.78, $p < .01$). Each of these results is consistent with hypothesis 1a, suggesting that the degree of professionalization in succession planning is related to differences in the level of general business planning adopted by SMAE households.

Table 4.3 Succession planning in the broader context of SMAE management

	Expected Sign	(1) SP-Writ	Expected Sign	(2) SP-Verb	(3) SP-Sell	(4) SP-None
Constant		–2.12***		–1.12**	0.05	–0.05
BU-Plan	+ (H1a)	1.07***	–/ns (H1a)	0.16	0.01	–0.78***
BU-Insu	+ (H1b)	0.91***	–/ns (H1b)	–0.25	–0.19	0.03
BU-Deri	+ (H1c)	–0.36	–/ns (H1c)	–0.03	0.13	0.15
DE-Size		0.71*		0.08	–0.73*	–0.16
DE-Gene		0.16		0.24**	–0.34**	–0.18*
OS-Trus		–0.38		0.73**	–0.14	–0.40
OS-Comp		–0.63		0.50	0.22	–0.53
OS-Part		–0.09		0.57*	–0.37	–0.20
FI-Bank		0.44		–0.43	0.22	0.20
FI-Serv		–0.27*		0.04	–0.09	0.12
ST-NSW[a]				–0.04	0.28	–0.04
ST-VIC		0.70		–0.86**	0.89**	–0.21
ST-QLD		0.97**		–0.05	–0.01	–0.22
McFadden R^2		0.252		0.083	0.131	0.074
Likelihood-ratio statistic		26.072		20.132	22.554	17.159
Likelihood-ratio probability		0.010		0.092	0.047	0.192
Huber/ White robust S.E.		Yes		Yes	Yes	Yes
Observations		181		181	181	181

The table presents the following binary probit regression models:

$$SP-\ (Writ/Verb/Sell/None)_i = \alpha + \beta_1 BU-Plan_i + \beta_2 BU-Insu_i + \beta_3 BU-Deri_i + \gamma_j \sum_{j=1}^{10} CONTROLS_i$$

where SP–(Writ/Verb/Sell/None)$_i$ are the 4 dummy dependent variables indicating the succession plan status of individual farms. SP-Writ$_i$ is a dummy for the farm having a formal written succession plan, SP-Verb$_i$ is a dummy for the farm having an informal verbal understanding with respect to succession, SP-Sell$_i$ is a dummy for farmers who plan to sell upon retirement and SP-None$_i$ is a dummy for farms with no succession expectation whatsoever. The α is a constant term, BU-Plan$_i$ is a dummy for whether or not the farm uses a formal (written) 3-5 year business plan, BU-Insu$_i$ is a dummy for whether or not the farm makes use of crop insurance and BU-Deri$_i$ is a dummy for whether or not the farm uses financial derivatives. The CONTROLS include a dummy for farm size based on four year average farm revenue exceeding $1 million (DE-Size), count index for the number of generations the farm has been in the family (DE-Gene), dummies for the type of ownership structure, including trust (OS-Trus), company (OS-Comp) and partnership (OS-Part), dummy for the primary financial services provider being a large commercial bank (FI-Bank), count index for the number of different financial services used by the enterprise (FI-Serv), and dummies for the State of primary farming operation (ST-NSW, ST-VIC and ST-QLD).

[a] ST-NSW is excluded from regression 1 because of quasi-complete statistical separation between respondents who use written succession plans and respondents who are from NSW. That is, none of the 56 respondents from NSW reported having a written succession plan.

Note: Statistical significance is denoted: *** p < 0.01; ** p < 0.05; and * p < 0.10.

This finding lends empirical support to the anecdotal evidence on this relation discussed by Ip et al. (2006) and has specific implications for professionals, and in particular specialist family business advisors who service the planning needs of SMAEs. Hicks et al. (2012) comment that there is room for the financial services industry in Australia to develop more effective measures for family farm succession. The results presented here provide at least an initial rationale for integrating succession and other business planning services by demonstrating an empirical link between the two which is strongest for formal written approaches to planning succession.

The results for regression 1 in Table 4.3 also indicate that the use of a written succession plan is positively associated with the use of crop insurance (BU-Insu 0.91, $p < .01$). Regressions 2-4 in Table 4.3 return insignificant results for links between the use of crop insurance and other approaches to succession. Taken together, these results lend support to hypothesis 1b, that the use of formal written succession planning is positively related to the use of crop insurance in SMAEs. The level of professionalization implemented in succession planning within family farms again appears to vary with the use of other professional management practices.

With respect to hypothesis 1c, I find no evidence linking the use of formal written succession plans to the use of financial derivatives in Australian SMAEs (BU-Deri insignificant under regression 1 in Table 4.3). Anecdotal evidence from discussions with industry professionals and farm business managers (collected during the instrument development for this study) suggests that financial derivatives are still not well understood by a majority of farmers. This is reflected by the low in-sample incidence of SMAEs who employ derivatives (mean BU-Deri of 0.16 in Table 4.2). So while their use remains key for industry in general (Moschini et al., 2001), this study finds both a low participation rate in financial derivatives and a lack of evidence to suggest that their use is linked to succession planning approaches among Australian family farms.[35]

The control variables in regressions 1-4 behave mostly as expected. Some differences in succession planning behaviour are observed across States, while increases in the number of generations the SMAE has been in the family appear to be significantly associated with verbal succession arrangements (regression 2 DE-Gene 0.24, $p < .05$) and negatively related

[35] The absence of a result here may also be due to data aggregation. The instrument was designed to maintain, as much as possible, the financial privacy of respondents as well as to encourage responses by being brief. The derivatives category therefore aggregates the use of options, futures, forwards and swaps into one marginal effect for the regressions presented here. If the individual derivative types have varying (or opposite) associations with succession planning, then the aggregated series is likely to return statistically insignificant results (similar to those found here). This is a limitation of the current study and disentangling it is perhaps a direction for future research.

to the likelihood of selling the enterprise upon retirement (regression 3 DE-Gene –0.34, $p < .05$). SMAEs where the ownership structure is set up as a trust or partnership similarly appear more likely to adopt verbal succession arrangements when compared with other ownership structures (individually owned or incorporated). Larger SMAEs also appear more likely to have professionalised formal succession arrangements in place while also being less likely to be sold rather than succeeded upon retirement (regression 1 DE-Size 0.71, $p < .10$; regression 3 DE-Size –0.73, $p < .10$).

Collectively the empirical analysis in Table 4.3 lends support to hypotheses 1a and 1b only. That is, it demonstrates at least some level of interrelatedness between the succession planning choices of farm business managers and other managerial decisions they make, such as those on the use of formal written business plans and crop insurance. More importantly, I find that the degree of professionalization in succession planning is also a relevant factor for the presence and strength of these links. While the use of written business plans and crop insurance appears to be positively associated with professionalised written succession arrangements, no such link is found for less formal verbal succession plans. Family farms which will be sold rather than succeeded and those without any succession planning are similarly disassociated with the use of other professional tools, except in the case of formal business planning, which is associated with lower likelihood of farms falling in the latter category. The degree of professionalization in succession planning therefore varies with changes in the general management environment of SMAE households. Family farm managers who are on the journey to professionalise subsequently need to consider how their approach to succession embeds with other facets of their business, as do the family business advisors who support them.

4.4.4 Succession planning and financial outcomes

The second stage of analysis examines the link between degrees of professionalization in succession planning (written [formal] and verbal [informal]), non-succession arrangements (those who expect to sell or have omitted planning for succession) and ROA for Australian family farms. Table 4.4 summarises regressions 5-8 which test for these associations.

Table 4.4 Professionalization in succession planning and financial outcomes

	Expected Sign	(5) PE-ROA	Expected Sign	(6) PE-ROA	(7) PE-ROA	(8) PE-ROA
SP-Writ	+ (H2)	0.52**				
SP-Verb			–/ns (H2)	0.04		
SP-Sell			–/ns (H2)		–0.30*	
SP-None			–/ns (H2)			0.00
DE-Size		0.24		0.31	0.29	0.31
DE-Gene		–0.01		0.01	–0.01	0.01
OS-Trus		0.35		0.32	0.30	0.33
OS-Comp		–0.49*		–0.51*	–0.50*	–0.51*
OS-Part		–0.11		–0.12	–0.16	–0.12
FI-Bank		0.32		0.33	0.33	0.32
FI-Serv		0.14*		0.13	0.12	0.13
ST-NSW		0.40**		0.35*	0.38*	0.36*
ST-VIC		–0.24		–0.28	–0.24	–0.28
ST-QLD		–0.35		–0.31	–0.29	–0.32
DE-Rain		–0.14		–0.17	–0.19	–0.16
Pseudo R^2		0.019		0.018	0.019	0.018
Likelihood-ratio statistic		32.848		29.772	31.989	29.703
Likelihood-ratio probability		0.001		0.003	0.001	0.003
Huber/ White robust S.E.		Yes		Yes	Yes	Yes
Observations		188		188	188	188

The table presents the following ordered dependent variable regression models:

$$PE - ROA_i = \beta_1 SP - (Writ/Verb/Sell/None)_i + \gamma_j \sum_{j=1}^{11} CONTROLS_i$$

where PE-ROA_i is a count index dependent variable comprised of the percentile ROA of individual farms, SP-$Writ_i$ is a dummy for the farm having a formal written succession plan, SP-$Verb_i$ is a dummy for the farm having an informal verbal understanding with respect to succession, SP-$Sell_i$ is a dummy for farmers who plan to sell upon retirement and SP-$None_i$ is a dummy for farms with no succession expectation whatsoever. The CONTROLS are a dummy for farm size based on four year average farm revenue exceeding $1 million (DE-Size), a count index for the number of generations the farm has been in the family (DE-Gene), dummies for the type of ownership structure, including trust (OS-Trus), company (OS-Comp) and partnership (OS-Part), a dummy for the primary financial services provider being a large commercial bank (FI-Bank), a count index for the number of different financial services used by the enterprise (FI-Serv), dummies for the State of primary farming operation (ST-NSW, ST-VIC and ST-QLD) and a continuous variable for the 3-year average rainfall received by farms between 2008 and 2010 (DE-Rain).
Note: Statistical significance is denoted: ** $p < 0.05$; and * $p < 0.10$.

The result for regression 5 in Table 4.4 indicates that the ROA of SMAEs is positively associated with the use of a written succession plan (SP-Writ 0.52, $p < 0.05$). This

finding supports hypothesis 2, on the use of formal written succession planning being positively related to the ROA of SMAEs. Regression 7 estimates a significant negative association between farms which will be sold rather than succeeded and ROA performance (SP-Sell –0.30, $p < .10$). Furthermore, regressions 6 and 8 in Table 4.4 return insignificant results for ROA changes in the cases of family farms with verbal succession arrangements and those who have neglected to plan for succession altogether. These results are also in line with hypothesis 2 since I expected succession planning approaches which are not professionalised to be disassociated or negatively correlated with the financial performance of family farms.

The control variables in regressions 5-8 also behave mostly as expected. Family farms in the State of New South Wales are associated with higher ROA while those where the ownership structure is a company appear to underperform relative to those owned through trusts and partnerships. However, I do not observe significant variations in ROA for the sample with changes in family farm size (DE-Size) and changes in the number of generations that the farm has been owned (DE-Gene).

Studies on the financial impacts of succession have predominantly focussed on family firms undergoing the succession process (Wang et al., 2004; Molly et al., 2010). The results from the second stage of analysis presented here compliment this literature, showing that succession planning itself might be associated with improved asset returns for family farms prior to succession occurring. Moreover, this result is sensitive to the degree of professionalization in succession planning, holding only for family farms with formal written succession arrangements. Family farms with informal verbal arrangements, those which expect to be sold and those without any preparation for succession are either disassociated or negatively associated with changes in financial performance. Collectively these results

suggest that the value in planning succession is at least partly expressed through pathways for professionalization in Australian SMAE households.

4.5 Conclusion

The purpose of this chapter was to examine the links between succession planning, operational management and financial performance in Australian SMAEs. Motivated by the theory of planned behaviour, I first sought to establish how succession planning decisions embed alongside other managerial decisions in family farms, before investigating how financial outcomes vary with different approaches to succession planning. A unique instrument was administered to a stratified cohort of Australian farm households to address these questions empirically. The results suggest that the use of succession planning is positively associated with the use of written business plans and crop insurance, but that this occurs only for family farms with professionalised written succession arrangements. Similarly, I found that the cohort with written succession plans was also the only one associated with improved ROA relative to peer family farm households.

The chapter makes several important contributions for family business researchers and specialists who advise family businesses. The links between succession planning and other management processes found here suggest that future studies on succession can consider succession within a holistic setting of family business management. Second, the results also demonstrate that succession planning might be linked with performance prior to family farms actually undertaking the process of succession. Each of these findings is sensitive to the degree of succession professionalization observed, holding only for family farms with formal written succession arrangements. I therefore suggest that, for family farms, the value in planning succession at least partly lies in the value of going down pathways for

professionalization. Whether these results are generalizable for public family firms and family firms in other industries remain open questions for future research. Finally, from a theoretical perspective, my results demonstrate the broader value of the theory of planned behaviour in family business research. It provides a strong foundation for family business studies both on succession and other aspects of family business management (Sharma et al., 2003, Koropp et al., 2014). My results should encourage family business researchers to continue exploring its applications.

Overall, my results support the use of formal written succession plans ahead of verbal succession arrangements in family farm businesses. For practitioners and family business specialists who advise SMAEs, this underscores the importance of professionalization in succession planning. Farms with alternative succession arrangements may miss out on some of the performance benefits of professionalization. However, I also caution that despite the apparent advantages, not all family farms will embark on the journey to professionalise (Stuart et al., 2012). This is potentially where family business specialists can add the most value.

While the family business literature highlights that family firms pursue both financial and nonfinancial objectives (Astrachan, 2010; Graves et al., 2014), the context of family farm performance considered here is exclusively financial. This limitation provides a potentially innovative direction for future studies to extend the empirical findings made here by examining the impacts of succession planning for nonfinancial goals in family firms. The remaining limitations of this study predominantly relate to the use of self-reported survey data. The instrument was designed with emphasis on the need to encourage responses by being brief. This resulted in some variables being captured at an aggregate level (i.e. BU-Deri on the use of financial derivatives) where a disaggregated, more detailed breakdown would have been preferred. While care was taken to ensure that responses were as diversified as

possible, the instrument also only received 285 responses, with a low internal non-response rate. This likely reflects the fact that sensitive financial information was required from respondents, despite substantial reassurances as to the confidentiality of the collected data and lack of identifying demographic information sought. Lastly, there is also a potential self-selection influence within the final cohort because the questionnaire was voluntary.

5. Conclusion

Spurred on by interest from researchers, policy makers and practitioners, household finance is receiving increased attention in the literature. This dissertation contributes to the growing body of work with three micro-finance studies on the impacts of household financial decision making. The research is carried out in the context of Australian households and examines the consequences of a variety of mortgage, superannuation and business choices. Data availability limitations in each case create a need for research tools outside of the conventional framework in finance. I therefore address each study by collecting primary data from customised surveys.

5.1 Contributions

This thesis makes two key contributions to the literature on household finance. First, it adds the empirical findings from each chapter presented here – the results of which are novel among previous studies.

In chapter two I find that shared appreciation mortgages are associated with positive changes in household budgetary behaviours. Specifically, I note that after entering homeownership with a shared appreciation mortgage (SAM), households appear to reduce some of their non-discretionary expenditures while simultaneously increasing their spending on discretionary items. This also coincides with improved social satisfaction for the borrowers in these households relative to other new homeowners from the general population.

Next I present an analysis of households managing their retirement funds through self-managed superannuation funds (SMSFs). The results indicate that both the behavioural

characteristics and knowledge of investors play a role in their propensity to seek financial advice. Increasingly overconfident investors as well as those with improved financial literacy are found to be less likely to seek advice. I then examine how this translates into the financial performance of the funds. Initially I find that investors who avoid seeking advice underperform in all categories, including compliance, portfolio diversification and sophistication. Further analysis reveals that the diversification and sophistication relationships reverse for the cohort of investors who do not seek advice but are also financially literate. They are found to have broader diversification and more sophisticated portfolios relative to their peers while also driving the original results on fund compliance. Most notably, the study identifies a vulnerable cohort of households which could benefit from financial advice, yet do not use it. These SMSFs belong to investors who appear overconfident in their ability to manage a fund, despite holding under-diversified, less sophisticated portfolios relative to their peers.

Finally, in chapter four I examine the links between succession planning, operational management and financial performance in small-to-medium sized agricultural enterprises (SMAEs). The results indicate that succession planning decisions are positively associated with the use of written business plans and crop insurance, but that this is only true for households with professionalised written succession arrangements. This is also the only cohort which I find associated with improved ROA relative to peer agricultural businesses with alternative succession arrangements in place.

The second major contribution this dissertation makes to the literature on household finance concerns the methodology applied. I focus on micro-finance questions which cannot be answered with data from conventional databases. The scarcity of SAMs, industry structure in the SMSF sector and a lack of detailed data on SMAE succession all result in difficulties with using standard databases to address the specific questions posed here. I therefore collect

primary data directly from household surveys in each case. Despite the known limitations of this approach, the results demonstrate that customised questionnaires can produce meaningful findings, thereby complementing existing research. I argue that this should encourage future researchers to explore improved methods for primary data collection in household finance, as well as in finance more generally. Research in this vein potentially adds contextual richness to larger studies built around the analysis of traditional databases.

Given the impetus for this thesis from both the State Government of South Australia and the Federal Government, the findings also have direct relevance for policy makers. The positive outcomes documented for SAM households should encourage sustained funding for the SAM lending program in South Australia. The results should further interest policy makers because they hint at potential flow-on effects in the local economy from the budgetary changes I observe for SAM households (although these are not explicitly captured here). Moreover, because SAMs realign the traditional incentives between borrowers and lenders, and in light of the positive findings for households, I also promote the idea that private sector lenders can consider adding SAMs to their retail offerings. SAMs could be particularly relevant as an alternative to foreclosure in adverse housing environments.

Policy makers also need to be aware that self-directed investors may be at risk of managing underperforming SMSFs if they are financially illiterate. While financial advice can mitigate some negative impacts, the likelihood that investors will seek such advice itself appears to vary with their behavioural tendencies. Public policy therefore needs to address the most vulnerable SMSF households. This involves identifying and assisting illiterate investors who are also overconfident. From this point of view, financial education and stimulating demand for financial advice both appear to be relevant items for the policy agenda. If policy makers neglect these preventative approaches now, they may be risking the need for

reactionary policies down the track to fund the retirement of households which have mismanaged or depleted their SMSFs.

Finally, substantial Federal Government policy efforts are directed at assisting and supporting the agricultural sector in Australia. The results of chapter four suggest that the use of formal written succession plans is preferable to verbal and other succession arrangements for SMAE households. This implies that policy makers should promote a degree of professionalization in succession planning among SMAEs. Likewise, this rationale extends to practitioners and business specialists who advise SMAEs. Professionalization appears to be contagious within SMAE households and may indirectly lead to a reduced burden for government by enhancing the financial performance of small business households.

5.2 Limitations

The limitations of the research presented in this dissertation primarily revolve around the use of questionnaires to capture data, with each chapter relying on this methodology. The surveys are tailored for the households they are administered to as well as for the specific research questions posed here. Although the results raise questions for future research, they are somewhat limited in terms of their generalizability. Future researchers and policy makers would therefore be best served through context specific inquiries supplemented by the outcomes and conclusions offered here.

A further limitation for survey based research is the potential for non-response bias (Baker et al., 2007). If the responses received from participants differ from the potential answers of non-participants, key statistics can skew away from the parameters which they estimate. The industry and government partners who assisted with data collection for this thesis placed a strong emphasis on ensuring representative samples in each case. Despite

these efforts, a wide variation remains among the three cases in terms of population and sample sizes. It is therefore difficult to project the overall impact of non-response bias in the dissertation outside of acknowledging the potential risk it poses.

5.3 Directions for future research

Future research on SAMs could adopt a longitudinal approach, examining whether the household impacts I observe change over time. If they do, capturing the dynamics in these relationships will enhance the understanding of both researchers and policy makers on the longer term impacts of SAM financed homeownership. Alternatively, similar studies can be performed for other alternative mortgages, enabling researchers to contrast and compare the household impacts of SAM homeownership to those of other mortgage programs.

Future studies of SMSFs could focus on formulating and evaluating policy alternatives on investor education and financial advice in the sector. The findings presented here certainly support the idea that both play a role in the financial outcomes of households managing SMSFs. While each therefore deserves outright consideration from policy makers and researchers, it would also be interesting to see the efficacies of educational and advisory policy approaches contrasted against one another. This however, is a long term research commitment.

Future research into the succession planning of SMAEs could investigate the causal drivers of professionalization across the managerial decisions documented here. It may be that the reasons for professionalising insurance and general business planning are dissimilar to those for professionalising succession planning approaches. Understanding these differences can enhance the ability of policy makers as they develop programs to promote professionalization in succession planning. Furthermore, there is additional scope for future

studies to examine the impacts of household succession planning decisions for nonfinancial outcomes in SMAE households.

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Appendix A

SAM Questionnaire

The following survey was drafted in consultation with Professor Ralf Zurbruegg and Dr Claire Sherman from the University of Adelaide. The questionnaire was further refined based on comments from Deb Dickson and Mutsa Tumbare from HomeStart Finance as well as from the feedback of pilot group participants. The questionnaire was administered to households via mail and is presented in its original form.

Section A

The first few questions are intended to provide us with some general demographic details on you and your household. Again, please be assured that none of the information gathered in any of the 3 sections in this questionnaire will be used to identify you at any stage of this research.

(A1) How many children do you have who still live at home with you? Please include all children of any age who live with you permanently.

☐	None
☐	1
☐	2
☐	3
☐	Other (please specify):_____

(A2) Which of these brackets contains the total income (before any tax or deductions) of everyone in your household during the last financial year (July 2008 to June 2009)? Please include income from all sources, including investments, pensions, benefits and wages. If your income is variable, please provide a best estimate.

	PER WEEK (Gross)	PER YEAR (Gross)
☐	$1 - $189……	$1 - $9,999
☐	$190 - $379……	$10,000 - $19,999
☐	$380 - $579……	$20,000 - $29,999
☐	$580 - $769……	$30,000 - $39,999
☐	$770 - $959……	$40,000 - $49,999
☐	$960 - $1149……..	$50,000 - $59,999
☐	$1150 - $1529……	$60,000 - $79,999
☐	$1530 - $1919……	$80,000 - $99,999
☐	$1920 - $2399……	$100,000 - $124,999
☐	$2400 - $2879……	$125,000 - $149,999
☐	$2880 - $3839……	$150,000 - $199,999
☐	$3840 or more……	$200,000 or more

(A3) Of the following, which best describes your current marital status?

- ☐ Married in a registered marriage
- ☐ Living with someone in a relationship but not married
- ☐ Not living with someone in a relationship and not married
- ☐ Separated (without divorce)
- ☐ Divorced
- ☐ Widowed

(A4) Please describe your home. Is your home a:

☐ Free standing house ☐ Semi-detached house ☐ Apartment/ Unit

(A5) How many bedrooms does your home have? Please include bedrooms even if they are not currently being used as such.

☐ 1 ☐ 2 ☐ 3 ☐ Other (please specify):_____

Section B

The following questions are intended to gauge your attitudes and intentions towards the Breakthrough Loan as well as any lifestyle differences you may have subsequently experienced from obtaining the loan.

(B1a) Which one of the following best describes how shared appreciation products such as the Breakthrough Loan work?

- ☐ I share a portion of the property's value with HomeStart
- ☐ I share a portion of the value increase/decrease in the property with HomeStart
- ☐ HomeStart owns part of my property
- ☐ HomeStart is a joint owner of my property
- ☐ Other (please specify):_____

(B1b) If I choose to pay out my Breakthrough Loan, the portion of gains HomeStart receives are:

- ☐ Determined by how much my property has increased/decreased in value
- ☐ The majority portion of the value gains in the property
- ☐ The minority portion of the value gains in the property
- ☐ A set dollar amount as outlined in my mortgage agreement

(B1c) If I want to make home improvements I will:

- ☐ Automatically get the full value of improvements added to my share of property gains
- ☐ Not receive any benefit from the improvements I make
- ☐ Contact HomeStart first to get permission
- ☐ Contact HomeStart first to have the value of these improvements considered in my share of gains

(B2) What is your overall level of satisfaction with the Breakthrough Loan?

Completely dissatisfied	*Somewhat dissatisfied*	*Slightly dissatisfied*	*Neutral*	*Slightly satisfied*	*Somewhat satisfied*	*Completely satisfied*
☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(B3) Would you recommend the Breakthrough Loan to others?

- ☐ Yes I definitely would
- ☐ Most probably
- ☐ Probably
- ☐ I'm not sure
- ☐ Probably not
- ☐ Most probably not
- ☐ No I definitely wouldn't

(B4) Which of the following reasons were most relevant to you in encouraging you to take out a Breakthrough Loan? Select all that apply.

- ☐ Moving into home ownership for the first time
- ☐ Having the freedom to do as I please with my own home
- ☐ The Breakthrough Loan was the only financing alternative available
- ☐ The Breakthrough Loan was the best financing alternative available
- ☐ The Breakthrough Loan helped you overcome personal hardship/ difficulties
- ☐ Talking to HomeStart about my/ our options
- ☐ Reduced mortgage repayments in comparison to standard loan
- ☐ Enabled me/us to stay in the same suburb (or move into a more desirable one)
- ☐ Enabled me/us to stay in the same house
- ☐ Enabled me/us to improve on our property (land size, bedrooms etc.)
- ☐ Expected increases in rent or property prices
- ☐ Other (please specify):_____

(B5) Which of the following best describes your living arrangements before you took out the Breakthrough Loan?

Renting privately (i.e. non-government landlord)	☐	→ *Go to B6*
Renting publicly (housing trust etc)	☐	→ *Go to B6*
Homeowner (with or without mortgage)	☐	→ *Go to B7*
Other (please specify):_____	☐	→ *Go to B7*

(B6) You indicated that you were renting prior to taking out the Breakthrough Loan. Were you entitled to or using any social assistance scheme to help with your rent (i.e. rent assistance)?

- ☐ Yes, my family was eligible for financial help with our rent
- ☐ No

(B7) Did you use the Breakthrough Loan to:

Purchase a new property	☐ → *Go to B8*
Refinance an existing mortgage	☐ → *Go to B11*
Other (please specify):_____	☐ → *Go to B11*

(B8) You indicated that you bought a new property. At the time of purchase, was your property:

- ☐ A house and land package
- ☐ A home built recently by the previous owner (within the last year)
- ☐ An established property (built more than a year ago)

(B9) The Breakthrough Loan gives borrowers the ability to borrow up to 35% more without increasing their repayments. Did you use this increased purchasing power to buy a:

More expensive property than what you would have otherwise *i.e. you maintained your planned total mortgage debt*	☐ → *Go to B10*
Property of similar value as to what you would have otherwise *i.e. you reduced your planned total mortgage debt*	☐ → *Go to B11*

(B10) In buying a more expensive property, which of the following did the Breakthrough Loan enable you to improve on? Select all that apply.

- ☐ The size of the house/ dwelling (i.e. number of bedrooms/ baths or indoor area)
- ☐ The land allotment of the property (including all outdoor areas)
- ☐ The location of the property/ suburb
- ☐ The build quality of the house/ dwelling
- ☐ Other features (i.e. air conditioning, swimming pool, water tank)
- ☐ Other (please specify):_____

(B11) Did you make any of the following secondary purchases after you used the Breakthrough Loan? Please indicate YES or NO for each category and where 'YES' also provide the total cost (or estimates if unsure about specific figures).

	NO	YES	Total cost (inc. GST)
Interior renovations (painting, flooring etc)	☐	☐	$ .00
Exterior renovations (windows, verandah etc)	☐	☐	$ .00
Interior additions (air conditioning, wardrobes etc)	☐	☐	$ .00
Exterior additions (rainwater tank, shed etc)	☐	☐	$ .00
Landscaping and gardening	☐	☐	$ .00
Housing extension	☐	☐	$ .00
Furniture and other household appliances	☐	☐	$ .00

(B12) After using the Breakthrough Loan, did your housing costs decrease, increase or stay the same? By 'housing costs' we mean rent or mortgage payments, house insurance and utility bills (council rates, water, electricity, gas etc.) but not common expenses such as fuel and food. Please cross the box corresponding to your answer and where relevant also provide a dollar estimate.

☐ Housing costs decreased by $_____/month → *Answer B13a only*

OR

☐ Housing costs increased by $_____/month → *Answer B13b only*

OR

☐ Housing costs stayed the same → *Go to B14*

(B13a) You indicated that you now have lower housing costs than before you used the Breakthrough Loan. Which of the following best describes how the excess money left over is used by your family?

☐ Mostly saved (this includes investments etc.)

☐ Mostly spent

☐ About evenly saved and spent

☐ Used to make extra mortgage repayments

☐ Other (please specify):_____

(B13b) You indicated that you now have higher housing costs than before you used the Breakthrough Loan. Which of the following best describes where the extra money comes from?

- ☐ Mostly through reducing our household savings
- ☐ Mostly through reducing our household spending
- ☐ Additional employment gained by household members
- ☐ Other (please specify):_____

(B14) Has being able to afford the home that you wanted provided you or your family with any of the following? Select all that apply.

- ☐ Easier access to your workplace
- ☐ Better employment opportunities
- ☐ Your children with access to better schooling
- ☐ Easier access to education facilities
- ☐ Easier access to public transport
- ☐ Easier access to shops and other amenities
- ☐ Other (please specify):_____

(B15) Do you feel that owning your own home provides you with more financial security?

- ☐ Yes, definitely
- ☐ Mostly
- ☐ Slightly
- ☐ Neither more nor less
- ☐ Slightly not
- ☐ Mostly not
- ☐ No, not at all

(B16) For how long do you anticipate to be financed by the Breakthrough Loan? If you provide an estimate, please include the total time since you took out the loan (in years).

- ☐ _____ years
- ☐ Until property is sold
- ☐ Indefinitely/ until mortgage is paid off
- ☐ Don't know

(B17) How do you expect your property's value to change while you have the Breakthrough Loan?

- ☐ Substantially reduce from what it is now
- ☐ Somewhat reduce from what it is now
- ☐ Maintain the same value
- ☐ Somewhat increase from what it is now
- ☐ Substantially increase from what it is now

(B18) Which of the following best describes your intentions in dealing with the shared appreciation agreement between you and HomeStart? Do you intend to:

Save and buy out HomeStart's appreciation share	☐	→ *Go to B19*
Refinance and buy out HomeStart's appreciation share	☐	→ *Go to B19*
Payout HomeStart once the property is sold	☐	→ *Go to C1*
Remain in a shared appreciation arrangement with HomeStart indefinitely	☐	→ *Go to C1*

(B19) You have indicated that you may choose to buy out HomeStart's share in the appreciation of your property. How do you feel about the HomeStart requirement that any buyout be settled at current market prices (including any price appreciation/depreciation)?

Strongly negative	*Somewhat negative*	*Slightly negative*	*Neutral*	*Slightly positive*	*Somewhat positive*	*Strongly positive*
☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Section C

The final section of questions considers your personal and household circumstances (with regard to health, social and economic situations) ***independently*** *of any Breakthrough Loan impacts on these areas of your life.*

(C1) Please indicate how satisfied you are with each of the following:

	Completely dissatisfied						*Completely satisfied*
Your health	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Your employment	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Your financial situation	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Your home	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Your neighbourhood	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
How safe you feel	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Being part of your community	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
The amount of spare time you have	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(C2) Has a shortage of money caused any of the following to happen to you since January 2009?

	YES	NO
You were unable to pay your rent or mortgage on time	☐	☐
You were unable to pay your utilities bills on time (gas, electricity etc)	☐	☐
You asked your family or friends for financial help	☐	☐
You received financial aid from welfare or community organisations	☐	☐

(C3) The following is a list of things which South Australian households include in their weekly, monthly and annual budgets. For each type of expense, please indicate whether or not anyone in your household spends any money on that item by selecting YES or NO. Where an item is priced into your budget please also indicate your <u>best estimate</u> for the total amount of money spent on that item by all members of your household.

WEEKLY	NO	YES	Weekly cost
Groceries (food, toiletries, cleaning products etc)			$ .00
Tobacco products (cigarettes, papers etc)			$ .00
Alcohol (include alcohol purchased at restaurants)			$ .00
Meals eaten out (restaurants, take-away, snacks etc)			$ .00
Taxis and public transport			$ .00
MONTHLY			Monthly cost
Clothing (including footwear)			$ .00
ANNUALLY			Annual cost
Holidays and recreational trips			$ .00

This concludes the questionnaire.

Thank you for your time.

Appendix B

SMSF Questionnaire

The following survey was drafted in consultation with Professor Ralf Zurbruegg and Professor Alfred Yawson from the University of Adelaide. Development of the survey was also substantially assisted by Ashley Miller from the University of Adelaide. The questionnaire was further refined based on comments from Peter Burgess and Andrea Slattery from SPAA. The questionnaire was published and made available to respondents online. It has been visually modified from its original form to ensure consistent formatting for this thesis.

In order to complete the survey you will need to have your 2010 SMSF tax return (or related financial statements) on hand. All data obtained from respondents will be kept strictly confidential. Results will only be reported at aggregate levels – individual responses will not be available to anyone other than the primary investigator and assistant researchers. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it is been deleted by the primary investigator.

(Q1) How many members does your SMSF have?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

(Q2) In what year was the oldest fund member born?

☐ _____

(Q3) In what year was the fund established?

☐ _____

(Q4) What is your postcode?

☐ _____

(Q5) Was the audit report qualified for the year ended 20 June 2010? Please refer to Q6B on your annual return

- ☐ Yes
- ☐ No

(Q6) In terms of investment decisions how would you describe your SMSF?

- ☐ Self-directed
- ☐ Self-directed with the occasional help of others
- ☐ Dependent on the advice of experts

(Q7) What is your occupation?

- ☐ Stock broker
- ☐ Financial planner
- ☐ Accountant in public practice
- ☐ Lawyer in public practice
- ☐ Auditor in public practice
- ☐ Other (please specify):_____

(Q8) In what phase was your SMSF during the financial year ended 30 June 2010?

- ☐ Pension
- ☐ Accumulation
- ☐ Both pension and accumulation
- ☐ Do not know

(Q9) Please provide the following cash flows, holdings and financial positions for your SMSF as they were during the 2009-2010 financial year. Please also refer to your tax return (financial year ending June 2010). Report figures excluding the $ symbol and entering "0" for nil values.

	Financial category	Value	Tax return reference
☐	Total assessable income	_____	Q10 Box V
☐	Approved auditor fee	_____	Q11 Box H
☐	Investment expenses	_____	Q11 Box I
☐	Management and administration	_____	Q11 Box J
☐	Listed trusts	_____	Q14 Box A
☐	Unlisted trusts	_____	Q14 Box B
☐	Other managed investments	_____	Q14 Box D
☐	Cash and term deposits	_____	Q14 Box E
☐	Loans	_____	Q14 Box G
☐	Listed shares	_____	Q14 Box H
☐	Derivatives and installment warrants	_____	Q14 Box J
☐	Residential real property	_____	Q14 Box L
☐	Overseas shares	_____	Q14 Box P
☐	Total Australian and overseas assets	_____	Q14 Box U
☐	Borrowings	_____	Q14 Box V

(Q10) How do you rate your understanding of the following?

	No understanding						*Excellent understanding*
Superannuation and retirement strategies	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Investment and capital markets	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Taxation planning	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Estate planning	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
SIS Act and regulations	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Copper review recommendations	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Contribution levels and limits	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Lending to members and their relatives	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Acquiring assets from ‘related parties’	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Borrowing/ investing in in-house assets	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
The sole purpose test	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Benefit payments on death	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q11) Who/what influenced you to establish a SMSF?

	No influence						*Significant influence*
Stock broker	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Financial planner	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Accountant	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Lawyer	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Auditor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Newspaper	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Technical journals	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Internet	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Seminars	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Platform provider	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Peers/ friends and colleagues	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Other:_____	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q12) Consider the factors that you have identified as significant from Q11. Please rank them in order of their significance to your decision to establish a SMSF. Where most significant is denoted '1' and least significant '12'. You are not required to rank all factors.

☐	Stock broker
☐	Financial planner
☐	Accountant
☐	Lawyer
☐	Auditor
☐	Newspaper
☐	Technical journals
☐	Internet
☐	Seminars
☐	Platform provider
☐	Peers/ friends and colleagues
☐	Other:_____

(Q13) From the list below, what are the key factors that influenced your decision to establish a SMSF?

	No influence						*Significant influence*
Size of assets	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Investment choice/ control	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Number of members	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Taxation planning	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Costs in establishment	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Annual running costs	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Access to experts for assistance in running your fund	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q14) Consider the factors that you have identified as significant from Q13. Please rank them in order of their significance to your decision to establish a SMSF. Where most significant is denoted '1' and least significant '12'. You are not required to rank all factors.

☐	Size of assets
☐	Investment choice/ control
☐	Number of members
☐	Taxation planning
☐	Costs in establishment
☐	Annual running costs
☐	Access to experts for assistance in running your fund

(Q15) If you have a technical question that you are not confident about whom are you likely to refer to?

	Will not refer to						*Will definitely refer to*
Stock broker	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Financial planner	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Accountant	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Lawyer	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Auditor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Newspaper	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Technical journals	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Internet	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Seminars	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
SMSF administrator (exc. Accountant)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Peers/ friends and colleagues	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Other:_____	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q16) Overall, how do you rate the quality of ongoing advice given by your provider? Please indicate to the left of each provider if they are not applicable to you.

Not applicable		*Unacceptable*						*Excellent*
☐	Stock broker	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Financial planner	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Accountant	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Lawyer	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Auditor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	SMSF administrator	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Other:_____	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q17) Overall, how do you rate the investment performance of your SMSF during the following years?

	Very poor						*Excellent*
Year ended 30 June 2009	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Year ended 30 June 2010	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Year ended 30 June 2011	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q18) Overall, how do you rate the value for money of ongoing advice provided by your? Please indicate to the left of each provider if they are not applicable to you.

Not applicable		*Unacceptable*						*Excellent*
☐	Stock broker	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Financial planner	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Accountant	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Lawyer	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Auditor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	SMSF administrator	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
☐	Other:_____	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q19) Who is in the best position to prevent a possible breach of the SIS Act and regulations?

	Not in any position						*In the best position*
Stock broker	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Financial planner	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Accountant	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Lawyer	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Auditor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
SMSF administrator	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Yourself, as trustee	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

(Q20) Can your SMSF do the following and still comply with the SIS Act and regulations?

	No	Yes	Do not know
Borrow money from a bank to buy a residential property for purely investment purposes that you have never owned	☐	☐	☐
Purchase business premises that you currently own	☐	☐	☐
Buy from you as a member, an unlisted managed investment that is widely held	☐	☐	☐
Pay a pension to a member who is over 55 but under 60, as part of a transition to retirement strategy	☐	☐	☐
Own a trading business	☐	☐	☐

This concludes the questionnaire.

Thank you for your time.

Appendix C

SMAE Questionnaire

The following survey was drafted in consultation with Professor Ralf Zurbruegg and Dr Jean Canil from the University of Adelaide. Development of the survey was also substantially assisted by Andrew Harrison from the University of Adelaide. The questionnaire was further refined based on comments from Mick Davidson from Rural Bank as well as from the feedback of pilot group participants. The questionnaire was published and made available to respondents online. It has been visually modified from its original form to ensure consistent formatting for this thesis.

Section A

In this section, the questions enquire about the general farm operations employed at your property along with some of demographic features of your business. We expect this to take approximately 10 minutes to complete and remind you that all responses remain confidential.

(Q1) Please indicate the percentage (by value of production) that each product below contributes to the total value of production by your farm. Please exclude any lines of production that contribute less than 10% of overall production

- ☐ Grain farming and cotton
- ☐ Poultry farming (inc. meat and eggs) and pigs
- ☐ Dairy
- ☐ Horticulture
- ☐ Sheep and beef cattle (inc. grain-sheep and grain-beef cattle farming)
- ☐ Mixed cropping
- ☐ Other (please specify):_____

(Q2) What is your farm business structure?

- ☐ Individually owned
- ☐ Partnership
- ☐ Trust
- ☐ Company

(Q3) Is the farm family-owned?

- ☐ Yes
- ☐ No

(Q4) How long have you owned the farm?

- ☐ Less than 7 years
- ☐ Longer than 7 years

(Q5) How many generations has the farm been in this family?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ Other (please specify):_____

(Q6) What was the total annual rainfall on your farm for each of the years listed below? Please also specify the units of measurement (i.e. mm or inches).

	Annual rainfall (including units)
Calendar year ending 2010	_____
Calendar year ending 2009	_____
Calendar year ending 2008	_____

(Q7) Have you received an Exceptional Circumstances Interest Rate Subsidy (ECIRS) from the government since the beginning of 2007?

- Yes ☐
- No ☐ → *Go to Q10*

(Q8) How long have you been receiving the ECIRS?

- ☐ 1 year
- ☐ 2 years
- ☐ 3 years
- ☐ Other (please specify):_____

(Q9) What was the amount of the subsidy for the financial year ending June 2009?

- ☐ Equal to 50% of the interest payable on your eligible debt (generally in the first year)
- ☐ Equal to 80% of the interest payable on your eligible debt (generally in subsequent years)
- ☐ Other (please specify):_____

(Q10) Which financial institution would you consider the main institution for your farm business?

- [ ] Commonwealth Bank
- [ ] ANZ Bank
- [ ] Westpac Bank
- [ ] NAB Bank
- [ ] Rural Bank/ Rabobank
- [ ] Credit Union (e.g. Savings and Loans, Australian Central)
- [ ] Building Society (e.g. ABS Building Society, Lifeplan)
- [ ] Other (please specify):_____

(Q11) How many years have you been a customer of your main bank?

- [ ] 1 year
- [ ] 2 years
- [ ] 3 years
- [ ] Other (please specify):_____

(Q12) Which of these services/ accounts do you use with your main financial institution? Please select all that apply.

- [ ] Cheque/ transaction accounts
- [ ] Saving/ deposit accounts
- [ ] Asset financing (e.g. loans for machinery or vehicles)
- [ ] Overdraft facility
- [ ] Mortgage
- [ ] Financial management services (e.g. transaction services or cash management)
- [ ] Other (please specify):_____

(Q13) How many other financial institutions do you hold accounts with or receive services from? Not including your main financial institution.

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] Other (please specify):_____

(Q14) When obtaining a new loan, which of the following methods have employed in the past to obtain the best financing option? Please select only one option. If you have taken multiple approaches please only note the most recent instance.

- ☐ Sought the advice of a professional (e.g. farm consultant or accountant)
- ☐ Actively and independently analysed bank packages and product information yourself
- ☐ Returned to your current bank relationship manager

(Q15) Does your farm business earn any off-farm income? Examples of this can include income from wages, other businesses, investments or government assistance to the farm.

Yes ☐

No ☐ → *Go to Q17*

(Q16) What are the sources and amounts of your off-farm income? Please select as many as apply. All dollar amounts are quoted on an annual basis.

	< $1K	$1K–$5K	$5K–$10K	$10K–$50K	$50K<
Working in a non-farm professional business	☐	☐	☐	☐	☐
Working on another farm	☐	☐	☐	☐	☐
Investments (e.g. shares)	☐	☐	☐	☐	☐
Government assistance	☐	☐	☐	☐	☐
Other:_____ _____	☐	☐	☐	☐	☐

(Q17) Do you have a written business plan for the next 3–5 years?

- ☐ Yes
- ☐ No

(Q18) Do you currently use Price Risk Management tools? These can include swaps, options, futures or forward contracts.

- ☐ Yes
- ☐ No

(Q19) Have you purchased crop insurance for the current season?

- ☐ Yes
- ☐ No

(Q20) At what stage is your succession plan?

Have a written plan – documented and approved by all parties	☐
Have a general verbal understanding approved by all parties	☐
Expect to sell the business to third party	☐ → *Go to Q23*
Have no plan for succession in place	☐ → *Go to Q23*

(Q21) Please select yes or no for each of the following questions:

	No	Yes	Do not know
Does your succession plan distinguish between entitlements upon retirement and entitlements upon death?	☐	☐	☐
Have you sought professional advice from a lawyer, accountant of business planner regarding the succession plan?	☐	☐	☐
Does the succession plan clearly state all member entitlements, including for the family home, land and household business?	☐	☐	☐
Does the plan outline the time required for the successor(s) to spend in a managerial position on the farm prior to succession?	☐	☐	☐
Is there a proposed transition period during which the successor(s) will take the farm over?	☐	☐	☐
Does any proposed transition period fall in a favourable period of the business cycle?	☐	☐	☐

(Q22) How often is the succession plan revisited?

- ☐ Once a year
- ☐ Once every two years
- ☐ Less often
- ☐ Never

(Q23) Upon your retirement, where will you derive your income from?

- [ ] Superannuation
- [ ] Pension
- [ ] Dividends from your household business
- [ ] Through the sale of the business (or land)
- [ ] Off-farm investments
- [ ] Do not know

Section B

This section requires financial information about your farm business between 2008 and 2011. Please consult your accounting and financial records when responding. Again, please be assured that all responses remain strictly confidential.

(Q24) Please fill out the following financial information for the financial years ending:

	Total current assets (000's)	Total farm assets (000's)
30 June 2011	_____	_____
30 June 2010	_____	_____
30 June 2009	_____	_____
30 June 2008	_____	_____

(Q25) Is your household farm business debt-free?

Yes ☐

No ☐ → *Go to Q27*

(Q26) Please fill out the following financial information for the financial years ending:

	Total current interest bearing debt (000's)	Total interest bearing debt (000's)
30 June 2011	_____	_____
30 June 2010	_____	_____
30 June 2009	_____	_____
30 June 2008	_____	_____

(Q27) Please fill out the following financial information for the financial years ending:

	Total farm revenue (000's)	Total farm expenses (000's)
30 June 2011	_____	_____
30 June 2010	_____	_____
30 June 2009	_____	_____
30 June 2008	_____	_____

(Q28) Please fill out the following financial information for the financial years ending:

	Earnings before interest and taxation (000's)	Total interest paid (000's)
30 June 2011	_____	_____
30 June 2010	_____	_____
30 June 2009	_____	_____
30 June 2008	_____	_____

(Q29) Please approximate the market value of your land on these dates:

	Land value (000's)
30 June 2011	_____
30 June 2010	_____
30 June 2009	_____
30 June 2008	_____

This concludes the questionnaire.

Thank you for your time.