

ANALYSIS OF KIWISAVER INVESTMENT FUND CHOICE BEHAVIOR

A thesis submitted in partial fulfilment of the requirements

for the Degree of

Master of Science in Psychology

in the University of Canterbury

by Jonathan Muller

University of Canterbury

2013

TABLE OF CONTENTS

Acknowledgements.....	iv
List of Tables	v
List of Figures.....	vii
Abstract.....	viii
Chapter 1 Introduction	1
Aim	1
Background to the KiwiSaver Scheme	1
The KiwiSaver Superannuation Scheme	5
Importance of Analysing KiwiSaver Fund Choice	11
Approaches to the Study of Saving Behavior	18
Thesis Outline	20
Chapter 2 Literature Review	21
Saving for Retirement	21
Demographic Variables	33
Risk and Uncertainty.....	37
Financial Knowledge	40
Default Rules	42
Personal Advice	45
Professional Financial Advice	46
Fees and Performance	47
Banks and Advertising	49
Summary of Factors Affecting KiwiSaver Fund Choice	50
Chapter 3 Method	52
Survey Design.....	52
Recruitment and Characteristics of Respondents	52

KiwiSaver Questionnaire	55
Chapter 4 Results	62
Investment Behavior, Knowledge, and Perception of Risk	62
KiwiSaver Account Information.....	66
Knowledge about KiwiSaver	72
Risk Attitudes.....	76
Correlational Analyses.....	77
Regression Analyses	81
Chapter 5 Discussion	85
Reasons behind Fund Choice.....	85
Default Rules	86
Tendency towards Conservative Investment	89
Risk Attitudes.....	91
Investment Knowledge	93
Demographics	95
House Purchase Benefits of KiwiSaver	96
Implications.....	96
Limitations of the Research	99
Chapter 6 Conclusion	102
References	106
Appendix A: Information Sheet for Survey Respondents	117
Appendix B: KiwiSaver Investment Fund Choice Survey	118

Acknowledgments

I wish to express my sincere appreciation to my supervisors, Professor Simon Kemp, and Professor Glenn Boyle, for their time, expertise, and assistance in guiding me through the process of researching and preparation of this thesis. I would also like to thank all the survey respondents who gave their time to participate in this study, and for their input.

List of Tables

Table 1.1	Common Categories of Investment Funds Offered	9
Table 2.1	Acts Considered as Examples of Saving	23
Table 2.2	Motives for Saving.....	24
Table 2.3	Reasons for Saving	26
Table 3.1	Demographic Characteristics of Respondents	53
Table 3.2	Other Investments and Saving Plans Held.....	56
Table 3.3	Types of KiwiSaver Fund Invested In	57
Table 3.4	Main Reasons for Investment in Current Fund.....	58
Table 3.5	KiwiSaver Knowledge Questions	59
Table 4.1	Comparison of Other Investments and Saving Plans.....	64
Table 4.2	Knowledge and Perceived Risk of Investment in Four Asset Classes	64
Table 4.3	Breakdown of the Main Reasons for Investment in Current KiwiSaver Fund	69
Table 4.4	Summary Statistics on KiwiSaver Account Information.....	70
Table 4.5	Respondent's Knowledge about KiwiSaver	73
Table 4.6	Summary of Bivariate Correlations with Intent to make a First Home Withdrawal.....	74
Table 4.7	Comparison of Means on Knowledge of KiwiSaver Home Buying Benefits	75
Table 4.8	Risk Scale Scores	76
Table 4.9	Coding of KiwiSaver Investment Fund Types.....	77
Table 4.10	Intercorrelations between the Three Risk Scales	78
Table 4.11	Correlations between Risk Scales and Investment Fund Type	79
Table 4.12	Comparison of Mean Average Risk Scale Scores	79
Table 4.13	Significant Correlations with Demographic Variables	80

Table 4.14	Correlations between Knowledge Scales and Risk Scales	81
Table 4.15	Summary of Bivariate Correlations with KiwiSaver Investment Fund	82
Table 4.16	Simultaneous Multiple Regression of Variables Predicting KiwiSaver Investment Fund Type	83
Table 4.17	Simultaneous Multiple Regression Analysis Predicting Type of KiwiSaver Investment Fund.....	84

List of Figures

Figure 2.1	Theory of Planned Behavior	29
Figure 2.2	Proposed Decision Making Model for Saving for Retirement	31
Figure 2.3	Three-Stage Financial Services Decision-Making Framework	32
Figure 4.1	Respondents with other Investments and Saving Plans	63
Figure 4.2	Choice of KiwiSaver Provider	67

Abstract

The popularity of KiwiSaver, combined with a demographic shift to an ageing population, will make savings invested in KiwiSaver an important source of income in retirement. To investigate the investment fund choices by KiwiSaver members a survey was circulated among 134 people; 87 KiwiSaver members, and 47 non-members. Respondents answered questions on their investment behavior, knowledge, and risk attitudes towards investment in general, and KiwiSaver. The results show investment in KiwiSaver tends to be conservative as a result of low levels of involvement, knowledge, and risk tolerance, and is more common among females. Investment in riskier growth funds is mostly by younger people and those who are risk tolerant as measured by the KiwiSaver Risk Profile.

CHAPTER 1: INTRODUCTION

This chapter introduces the study of behavior and attitudes of members in the KiwiSaver scheme towards their investment funds. A brief history of pension policy and retirement saving in New Zealand is given to place the introduction of the KiwiSaver scheme in context. The design of the KiwiSaver Scheme is then summarised, with an emphasis on the enrolment, contribution, and investment choices that members of the scheme can make. Justification for studying KiwiSaver investment behavior is given by highlighting four issues; the changing demographics of the New Zealand population, the use of default rules in the KiwiSaver scheme, the conservatism of investor behavior, and the current state of academic psychological research into KiwiSaver. An overview of the methods used is provided, followed by an outline of the rest of the thesis.

Aim

This thesis is about the behavior and attitudes of members of the KiwiSaver Scheme. Specifically, the choices of investment fund that members of the KiwiSaver Scheme make are analysed. The central focus of this thesis is exploring what factors can have an influence on this choice.

Background to the KiwiSaver Scheme

Historically, New Zealand has a tradition of establishing generous government funded pension schemes, and low membership in work based privately managed pension schemes. This has contributed in many people relying on the benefits from the current government provided by the NZ Super Scheme as a main source of retirement income.

In 1898 New Zealand became one of the first countries in the world, and the first in the British Empire, to establish a comprehensive public pension for any member of the population that reached retirement age, which at the time was 65 years of age (Ministry for Culture and Heritage, 2011). Important features of this public pension scheme reappear frequently later in public pension policy in New Zealand. These features included a pay-as-you-go system where tax revenue from the working population was used to fund the pension scheme, and entitlement to receiving the pension was based on residential status (Preston, 1997).

Forty years later the Social Security Act (1938) established a two tier pension system. The first tier consisted of a universal pension payable at age 65, and the second tier consisted of a means tested pension payable from age 60 (Preston, 1997). The second tier was a response to the increasingly high proportion of manual workers in the workforce who were unable to continue working until 65 years of age, and often had limited financial means or savings (Preston, 1997). The first tier universal pension remained free from income means testing.

There was a brief attempt to introduce a compulsory contributory superannuation scheme in 1975 by the Labour government. This scheme did not last long, and the incoming National government replaced it in 1977 with the National Superannuation Scheme. This scheme was universal, egalitarian, and accessible. The new scheme paid a flat-rate taxable pension, independent from income testing and employment status, upon reaching the retirement age of 60, and only ten years of residency was required for full entitlement (Preston, 1997).

In 1996 the New Zealand public voted in a referendum on a Compulsory Retirement Superannuation Scheme (CRSS). The CRSS was a defined benefit pension plan where individual saving accounts would be managed by competing private sector Superannuation

Savings Funds, from which a flat rate annuity would be provided (Preston, 1997). Age-related CRSS savings targets would be set with a capital top up from the government if these targets were not met (Preston, 1997). While the CRSS still contained universal and egalitarian features, the main difference was a change to a save-as-you-go system where the working population would have to directly fund their own retirement income. The referendum had a high voter turnout of 80.3%, and was comprehensively rejected with 91.8% voting against the scheme (Preston, 1997).

In 2001 the New Zealand Superannuation Fund was created to ease the impact on the government's finances which will become stretched over the next fifty years because of a shift to a higher proportion of elderly eligible for New Zealand Superannuation (McCulloch & Frances, 2001). The New Zealand Superannuation Fund operates by investing contributions from the government to generate a profitable return. This established an alternative source of funding for New Zealand Superannuation to minimise the future cost to taxpayers. Without contributions from the New Zealand Superannuation Fund, the existing universal pension payments would increase from 4% to around 9% of GDP by 2050 (McCulloch & Frances, 2001; Whitehead, 2006). However, the investment returns from the Superannuation Fund may only be enough to cover the rising costs of financing superannuation, and not be able to reduce it (Whitehead, 2006).

A combination of factors has combined to cause a problem for New Zealand's public pension system. They include the expected demographic changes, where there will be a higher proportion of people over the age of 65, and a shrinking workforce able to support them. Associated with this will be an ever increasing cost of New Zealand Superannuation to the taxpayer. Additionally, the public had also now become so used to universal superannuation that it could be viewed as a financial birth right (Preston, 1997).

A report by Inland Revenue showed that, prior to the introduction of KiwiSaver, the number of voluntary work-based superannuation schemes on offer had declined from 2,863 in 1990 to 560 in 2007 (Inland Revenue, 2009). Furthermore, although total membership in work-based superannuation schemes had increased to 735,952 in 1998, by 2007 that number had declined to 582,035 members. In a speech on New Zealand's saving performance, Whitehead (2007) argued that pro-saving action is desirable to increase the retirement savings of the New Zealand public, and does not necessarily have to be an expensive government intervention.

[There is] evidence that well-designed intervention can be effective in raising saving without triggering too much additional government spending. This includes international evidence on compulsion and savings incentives. ... [There is] also evidence on the power of default settings, in other words automatic enrolment. Participation in the American 401k programmes increased substantially when people had to opt out rather than opt in. (Whitehead, 2007)

In 2006 the Labour government passed the KiwiSaver Act. The stated purpose of this was to “encourage a savings habit and asset accumulation amongst individuals who may not be in a position to enjoy the standards of living in retirement similar to those in pre-retirement” (KiwiSaver Act 2006). Another reason for passing this legislation was to provide a new source of investment funds for the local capital markets (Inland Revenue, 2011). This has been welcomed by some members of the managed funds investment industry (Gaynor, 2012), but others warn of too much investment in the local economy (Carran, 2012).

Despite historically being reliant on public pension schemes, the successful introduction, implementation, and uptake of KiwiSaver, contrasts with previous attempts to introduce nation-wide work-based superannuation funds. There are two differences which have contributed to this success. First, KiwiSaver is not compulsory, and remains a voluntary scheme. Anyone who does not wish to be a member can choose to opt out. Secondly, the design features, and financial benefits of KiwiSaver are more appealing. For example, KiwiSaver is a defined contribution plan, and at age 65 all contributions made can be withdrawn instead of being issued a fixed annuity. Additionally, the financial benefits of joining, including a \$1,000 kickstart from the government, have been shown to be important elements of the KiwiSaver scheme for members (Matthews, 2011). Many of these features were included in the design of the KiwiSaver scheme based on the research of other save-as-you-go pension schemes overseas (Whitehead, 2007).

In summary, the history of New Zealand pension policy has tended to focus on a pay-as-you-go system, with superannuation funded indirectly through taxation. Previous attempts to establish nation-wide work based compulsory save-as-you-go superannuation schemes have often failed due to a variety of reasons. However, the save-as-you-go KiwiSaver Superannuation Scheme differs in several important aspects. Firstly, it is a voluntary scheme, and secondly, it is a defined contribution scheme allowing members to withdraw all their savings upon reaching retirement, instead of a fixed annuity. Finally, previous research has shown that the financial benefits of joining are important elements of the scheme which can influence the decision to join KiwiSaver (Matthews, 2011).

The KiwiSaver Superannuation Scheme

The following information about the design of the KiwiSaver scheme comes from the KiwiSaver website, <http://www.kiwisaver.govt.nz/>, where more detail about the scheme can

be found. All statistics mentioned in this section have been retrieved from the Inland Revenue KiwiSaver Evaluation Annual Report for July 2011 to June 2012 (Inland Revenue, 2012a) unless otherwise cited.

The KiwiSaver Act (2006)

As previously stated, the purpose of the KiwiSaver Act (2006) is to “encourage a savings habit and asset accumulation amongst individuals who may not be in a position to enjoy the standards of living in retirement similar to those in pre-retirement.” Another reason was to provide a new source of investment funds for the local capital markets (Inland Revenue, 2011).

Enrolment in the KiwiSaver scheme became available to the public in July 2007. KiwiSaver is a direct contribution pension scheme with each member possessing their own account. The basic premise of KiwiSaver is to automatically deduct a percentage of an employee’s gross salary, or wage, which is placed into a government approved investment fund. Upon reaching the retirement age of 65, members can withdraw their contributions, plus or minus any investment returns made.

Enrolment in the Scheme

Any New Zealand citizen, or permanent resident, under the age of 65 can join KiwiSaver. Any person not enrolled in KiwiSaver will be automatically enrolled upon beginning new employment, except for those who are under 18 years of age. Existing employees can choose to voluntarily opt into KiwiSaver. Individuals that are automatically enrolled can choose to opt out of the scheme up to eight weeks after being enrolled into the scheme. After that eight week period it is not possible to leave the KiwiSaver scheme. Any individual who chooses to opt in cannot later change their mind and elect to opt out.

Total membership in the KiwiSaver scheme is just over 1.96 million people, an increase of 12% over the year to June 2012. This represents an estimated 49% of the eligible

population enrolled in KiwiSaver. These numbers are expected to grow as new employees entering the workforce are automatically enrolled, and existing employees continue to opt into the scheme. Participation in KiwiSaver is not distributed evenly across age groups. Approximately 67% of eligible people aged between 18 and 24 are enrolled, reflecting the auto enrolment feature of KiwiSaver. Approximately 62% of members have opted in, and 38% have been automatically enrolled into the scheme. Among the members that have been automatically enrolled, about 8% chose their own scheme, and the remaining 92% were enrolled in a default scheme by their employer or Inland Revenue.

Contributions

Currently, contribution rates to KiwiSaver can be 2%, 4%, or 8% of an employee's gross salary or wage. If a contribution rate is not specified by a member, then the default rate of 2% applies. The majority of members (59%) are contributing the minimum rate of 2%, while 36% are contributing 4%, and only 4% of members are contributing 8%, the highest rate possible. Employers are required to make matching contributions which are equivalent to at least 2% of the employee's gross salary or wage. The vast majority of employers (89%) only match contributions up to the legal minimum of two percent. Additional voluntary contributions from the employee into their KiwiSaver account can be made on top of this automatic pay deduction, but do not receive a matching contribution from their employer. The government also provides an annual Member Tax Credit of 50 cents for each dollar contributed, excluding employer contributions, up to a maximum of \$521.43. Another government provided benefit is the \$1,000 kick start paid into new KiwiSaver accounts.

After becoming a KiwiSaver member and making contributions for at least 12 months, members can apply for a contributions holiday where they can stop contributing to their

KiwiSaver account for a period of time. The contributions holiday can last from three months to five years.

Investment of Funds

KiwiSaver Scheme providers are private sector organisations, notably banks, insurers and financial asset managers, which offer a KiwiSaver scheme where KiwiSaver contributions are invested and managed. Members can only be enrolled in one scheme at a time, but are free to change schemes at any time they choose. If members do not choose a scheme when they are enrolled they will be placed by default into their employer's nominated scheme, or if the employer has not nominated a preferred scheme, Inland Revenue chooses on their behalf a scheme from one of six government appointed default providers. Employee contributions deducted at the default rate of 2% would then be invested in the most conservative investment fund offered by the provider.

By December 2012 an estimated \$13.6 billion was invested across various KiwiSaver schemes (Morningstar, 2012). This represents an estimated 17% of the managed funds market. This proportion is expected to increase as membership and KiwiSaver account balances grow. However, the distribution of assets amongst schemes is heavily weighted towards the larger schemes. For example, three schemes have over \$1 billion of assets under management, and this represents 38% of all KiwiSaver assets. These schemes also happen to be offered by three of the default providers, OnePath, AMP, and ASB, which automatically get a share of members that do not make a choice of provider after being automatically enrolled.

Many schemes offered by providers give members the option of investing their savings in a variety of funds that vary in their level of investment risk. Table 1.1 describes the most common types of investment fund offered. The main asset classes that KiwiSaver schemes invest in are cash, fixed interest, property, and shares. An estimated \$5.1 billion is invested

in conservative funds, which includes \$4.3 billion invested among the default funds. In comparison, only \$900 million is invested in aggressive type funds and \$2.2 billion in growth type funds (Morningstar, 2012). That leaves approximately \$4.2 billion invested in balanced type funds, which split the investment of assets evenly among growth and income assets. There is no calculation of the amount invested in the lifetime's option because it is an umbrella term that covers assets under management invested among the other fund types depending on the investor's age.

Table 1.1

Common Categories of Investment Funds Offered

Fund Type	Allocation of Assets
Cash (low risk)	Bank deposits and other fixed interest investments
Conservative (low to medium risk)	A high proportion in bank deposits and fixed interest investments, and a lower proportion in growth assets such as shares and property
Balanced (medium risk)	A more equal split between higher risk growth assets such as shares and property, and more stable investments including fixed interest and bank deposits
Growth (medium to high risk)	A high proportion of shares and property with a lower level of bank deposits and fixed interest
Aggressive (high risk)	Mainly shares
Lifetimes option	Adjusts an investor's allocations to the five main types of investment funds based on his or her specific length of time to the standard New Zealand Superannuation qualification age (currently 65)

Note. Adapted from <http://www.kiwisaver.govt.nz/providers/about/funds/>

Withdrawals

Withdrawals from KiwiSaver funds can be made when members become eligible for New Zealand Superannuation, currently set at 65 years of age, and contributions have been made for five years. Withdrawals can be made in a lump sum payment. By July 2012 the

KiwiSaver scheme will have been running for five years. It is estimated that approximately 25,000 members¹ will be able to make withdrawals in July and August 2012, with over 75% of these members able to withdraw savings of between \$5,000 and \$20,000, excluding investment returns. An early withdrawal can also be made by first home buyers to purchase a house. This withdrawal can be made after making contributions for at least three years, and only member and employer contributions can be withdrawn. The estimated mean average first home withdrawal is \$9,640 per member (Inland Revenue, 2011).

Changes to the KiwiSaver Scheme

Changes to KiwiSaver have been made twice in 2009 and 2011, with further changes scheduled for 2013. In April 2009 changes to the contribution rates were made. Previously there were two rates of 4% and 8%, with 4% being the default rate. The new minimum contribution rate of 2% was established for both employees and employers. The default rate also dropped from 4 percent to 2 percent. Changes made in 2011 included halving the annual member tax credit from a previous rate of \$1 for every \$1 contributed up to a maximum of \$1042.86 to the current 50c for every dollar up to a maximum of \$521.43.

Future changes to KiwiSaver in 2013 include raising the minimum contribution rate to 3%, scheduled to take effect from 1 April 2013. Compulsory matching employer contributions will also rise to 3% (Inland Revenue, 2012b). A proposed change was to automatically enrol all eligible workers not currently enrolled in KiwiSaver, while leaving them the choice to opt out. This method of soft compulsion has been delayed due to the financial cost to the government, but may be considered again later once the government returns the fiscal budget to surplus (Good Returns, 2011).

¹To be eligible these members must have been aged over 60 when they enrolled in July or August 2007.

Importance of Analysing KiwiSaver Investment Fund Choice

The rapid uptake in enrolments means that KiwiSaver is likely to become a major source of saving for retirement. Standard of living in retirement may therefore become heavily influenced by the saving behavior and investment choices of KiwiSaver members. There are four important issues that need to be addressed surrounding investment fund choice by members in KiwiSaver. They are the changing demographics of the New Zealand population, the use of default rules in KiwiSaver, the conservatism of investor behavior, and the state of academic psychological research of KiwiSaver.

Changing Demographics

Over the next 50 years the proportion of the population over the age of 65 is projected to increase from 12% to 27% and the working age population will fall from 65% to 59% (McCulloch & Frances, 2001). Furthermore, the effects of increased life-expectancy, and falling fertility rates in the western world will combine to make this a more permanent demographic shift. While there are currently approximately five workers per retiree, by 2050 that is projected to become approximately two workers per retiree, and is expected to remain at that ratio even after the baby boomer blip has passed (McCulloch & Frances, 2001; Whitehead, 2006).

This will put considerable financial strain on the affordability of the current universal New Zealand Superannuation Scheme. In addition, the investment of the New Zealand Superannuation Fund is expected to barely cover the rising costs associated with this demographic change (Whitehead, 2006). The success of the KiwiSaver Scheme may be essential to easing the financial pressures of providing income for the retired population.

Adequacy of income in retirement may also be affected by the increase in life expectancy seen in New Zealand, and in other developed countries. This naturally increases the length of retirement, both in absolute terms, and in relative terms in comparison to a person's

working life during which they can save for their retirement. Increased longevity may also lead to increased health costs for retirees as age related illnesses become more common in an ageing population. Additionally, advances made in preventative medical health care and improved living standards may lead to an increase in retirees becoming more active than before, resulting in higher standard of living costs. This could place added financial strain on the fixed income nature of retirement savings.

With over half of the New Zealand population projected to be enrolled in KiwiSaver and the ever increasing sums of money being invested, it is becoming increasingly important to understand the choices people make with their retirement savings. The choice between investment funds offered by scheme providers can affect a person's standard of living in retirement because of the differences in exposure to investment risk and expected returns.

Prevalence of Investment in Default Funds

Using the effect of automatic enrolment, instead of only offering financial incentives, was relied on to increase participation rates in the KiwiSaver scheme (Toder & Khitatrakun, 2006). As a result defaults had to be arranged for members that did not choose their scheme provider, investment fund, or contribution rate. New employees enrolled in KiwiSaver who do not choose a KiwiSaver scheme are automatically placed into a default fund. This could be with a preferred scheme provider nominated by the employer. If there is no employer nominated default scheme then the Inland Revenue will place the new member into the most conservative fund option of one of six government nominated default scheme providers. The default providers are AMP, ASB, AXA², OnePath, Mercer, and Tower. As Toder and Khitatrakun (2006) note, it was expected that many members would end up enrolled in the default fund and would not leave it.

² Since completing this study KiwiSaver Scheme provider AXA has merged with AMP under the AMP brand.

One-third of members have not made an active choice of fund to invest in and remain in the conservative default fund assigned (Inland Revenue, 2012a). Why this occurs has not yet been determined. One possibility is that investment in the conservative funds has recently been yielding larger returns during the recent economic recession and slow recovery (Morningstar, 2012). Other possibilities include apathy of members to make an active choice of investment fund, or members are more risk averse to investing in the equity-heavy growth funds. Another possible reason is that the choice of fund is less important than joining to take advantage of the contribution matching features of the scheme from employers and the government (Matthews, 2011).

There is evidence that there have been few transfers made by members out of their provided default scheme. In 2010 it was reported that less than one fifth of automatic enrolees appeared to make an active choice of scheme provider (Inland Revenue, 2010a). Subsequent annual reports from Inland Revenue have not provided any more information on the number of automatic enrolees who decided to actively choose which scheme to belong to. However, it is likely that the number of automatically enrolled members changing schemes will continue to remain very low.

There is also evidence that there have been few people changing their default contribution rate. A default contribution rate of 2% currently applies when a new employee is placed into a default scheme, and is scheduled to rise to 3% in April 2013. Before April 2009 the default rate was 4 percent. For members enrolled before April 2009, 67% are contributing at 4%, and for members enrolled after April 2009, 80% are contributing at 2% (Inland Revenue, 2011). The minimum default rate at the time of enrolment is clearly a contributing factor in determining the current contribution rate.

A Ministry of Economic Development report in 2008 identified a number of factors that could be influencing many members to remain in their appointed default scheme. One

possible factor is that membership of conservative default funds could be seen in the economic context when KiwiSaver was introduced. Low returns on investment in the share market over the last five years to 2012 have seen many conservative funds match, or even better, the returns of growth type funds. Another possible factor is that, for many KiwiSaver members, this will be the first time they are entering the investment market, and they lack the necessary financial literacy to make an informed choice of investment. There may be a preference to avoid the risk of growth funds, due to a lack of knowledge about long term investing. By comparison, conservative funds and their fixed income nature may be preferred due to their bank account style risk profile. Another factor influencing default scheme membership could be the government endorsement that goes with being nominated as a default provider. Membership with a default provider could be viewed as beneficial, because they have been recognised as successful and trustworthy fund managers by the government.

In summary, there are many possible reasons why there is a relatively high prevalence of investment in default funds. The long term investment in these funds may not result in the higher level of returns possible by investment in the riskier growth type funds. However, the reasons for choosing to remain in a default fund are not necessarily irrational. Lack of investment knowledge or being highly risk averse are reasonable explanations for remaining invested in a conservative default fund.

Conservative Investment Trend

As previously mentioned, over a long investment time horizon the low risk conservative type funds are expected to provide a lower return than riskier growth type funds. An upside to this is that conservative type funds provide a lower probability of negative returns. Low risk conservative type funds may be the best option for someone who is near retirement to protect their investment from losing value. However, for a young person with a longer

investment time horizon it may be more beneficial to invest in higher return growth type funds because their long time horizon enables the chance to recover from any investment losses made. However, this depends on the returns from human capital of the investor, the present value of future labour earnings, being more positively correlated with ‘bond’ returns than stock returns (Boyle & Guthrie, 2005; Jagannathan & Kocherlakota, 1996). As age increases, the present value of human capital falls. Optimal reallocation to ‘bonds’ are then made to retain the same level of investment risk in the portfolio.

The Morningstar KiwiSaver Performance Survey for the 2012 December quarter assesses the performance of 16 KiwiSaver providers and reported \$13.65 billion of assets under management held between these providers (Morningstar, 2012). This represents a significant amount of the total amount invested in the whole KiwiSaver scheme and is partly due to the inclusion of all six default providers and the large amount of assets managed in their default schemes. The survey shows that \$5,142.3 million, about 38%, is invested in conservative funds, of which \$4,347.2 million is invested in the six default funds collectively. Unfortunately, there is no breakdown of age among those invested in the default funds. Therefore, it is not possible to determine what proportion of them could benefit from investment in a growth type fund.

Previous Research about KiwiSaver

Studying the investment fund choice of KiwiSaver members is important, because previous studies and surveys have typically focussed on reasons for joining the KiwiSaver Scheme, or choice of provider, but not on choice of investment fund (Inland Revenue, 2012a; Matthews, 2011; Thomas & Matthews, 2012). Additionally, data on the behavior of KiwiSaver members tends to focus on the segmentation of the population based on demographic characteristics, specifically age and income (Inland Revenue, 2012a).

Therefore, there has been little research behind the psychology of investment behavior and attitudes of KiwiSaver members.

Because KiwiSaver is a relatively new scheme, operating since July 2007, there has been limited time for conducting academic research. In a study on the flow of funds between providers, Thomas and Matthews (2012) report KiwiSaver members chase the good performance of scheme providers. While the focus was on provider membership, it was recognised that introducing more variables and taking a fund by fund approach could yield greater insight into KiwiSaver investor behavior.

The majority of research conducted has come from stakeholders in KiwiSaver, the government and the private sector, with the results often published in the news media. The Inland Revenue Department, which manages the KiwiSaver scheme, does publish statistical data, although it takes a financial perspective when focusing on membership trends and contribution levels. It does not focus on the causes of the trends, and has relatively little information on demographic trends.

In its KiwiSaver Joint Evaluation Strategy document the IRD states that one of its objectives is to “assess the response to KiwiSaver in order to understand the scale and pattern of the take-up” (Inland Revenue, 2006). A 2010 Inland Revenue report summarises the results from a survey that was designed to assess the impact of KiwiSaver on individuals during its first three years. In addition to analysing the demographic patterns of KiwiSaver members, three derived variables of risk attitude, knowledge of KiwiSaver, and engagement in KiwiSaver, were analysed (Inland Revenue, 2010b). Risk attitude was assessed by asking two questions about risk attitudes in general, and willingness to accept more risk to achieve higher returns. A total of 78 percent surveyed answered that they were average or low risk takers. This could explain the high proportion of KiwiSaver members who are invested in conservative funds. While the IRD survey analysed risk attitude in relation to various

demographic variables it failed to analyse it in relation to the type of fund held. Knowledge of the KiwiSaver scheme was assessed by asking about awareness of the schemes features. From the sixteen features of the scheme shown, 85% of members were aware of at least nine of them, compared with 64% of non-members. Engagement with the KiwiSaver scheme was assessed by asking questions about how often members made an active decision about their account, or considered making a decision. A total of 57% showed moderate or little engagement, and 15% showed no engagement at all. While 23% considered more than one type of investment fund, only 5% actually indicated that they switched their savings from one fund into another.

While the Inland Revenue survey assessed extensively the reasons why some people join KiwiSaver, it does not go on to ask which type of fund they are in. The tendency of low risk tolerance, high recognition of various features, and moderate to low engagement with KiwiSaver, can be particularly informative of fund choice. In particular, the low engagement and risk attitude scores indicate a possible reason why members remain in conservative default funds, but it is not possible to make this association with this survey data.

Research in the public sector also tends to focus on more concrete variables, such as membership enrolment trends and demographic factors. There is also a greater focus on quantifying provider membership, rather than fund type membership. For example, Matthews (2011) report most KiwiSaver members either, have their default provider allocated for them by the IRD, or choose their main bank as their provider. This has resulted in the default providers and the main banks possessing the largest market share of members and funds under management.

Approaches to the study of saving behavior

The study of KiwiSaver investor behavior can be approached in two ways. Both research fields of economics and psychology can be used to assess the financial behavior of KiwiSaver members. However, both fields of study approach behavior in different ways. Warneryd (1999) argues that an economic approach will tend to focus on predicting the behavior of KiwiSaver members, while a psychological approach will tend to focus on describing and explaining the same behavior. However, there is an increasing trend for psychologists to study decision making in an economic context, and economists are starting to use psychological ideas, concepts, and methods, like laboratory experiments (Warneryd, 1999). This new interdisciplinary approach is reflected in the use of the terms 'behavioral economics' and 'economic psychology' respectively.

Psychological research can be defined as establishing behavioral laws, and focusing on individual differences and the contingencies that cause them. In the context of economic psychology, this translates to finding intervening variables between economic stimuli and consumer reactions (Warneryd, 1999). Intervening variables can be psychological variables, like risk tolerance, which can be used to characterise segments of the population.

Because KiwiSaver is a retirement savings scheme, the purpose of using an economic psychology approach will be to identify different segments of the population, and find the variables that characterise the differences between them. These variables can be psychological in nature, such as risk attitudes. They can also be external economic variables, like how much will be needed to save for retirement. Finally, there could also be demographic variables, where different age groups could have different saving rates or habits. These variables may not necessarily be mutually exclusive from each other. For example, the demographic variable of age could be related to the psychological variable of risk tolerance.

Survey Methods

Studies that examine saving schemes can draw data either from surveys of individuals enrolled in a savings scheme or from plan data about the scheme itself. Both types of studies have different strengths and weaknesses with respect to the different variables measured and analysed.

Plan specific data typically comes from companies that implement retirement savings programs, and examine how specific details of a retirement plan can directly affect observable outcomes. For example, differences in contribution levels, asset allocation, and participation rates, can be studied between plans that may differ on the default rules or the size and scope of the incentives provided of the respective schemes. While plan specific data can produce information on aggregate demographic patterns, they do not take into account many variables that differ between individuals that can affect behavior in a retirement plan. In every population there will be some people who save, and others who do not save. Therefore, aggregate data can conceal important differences between different segments of savers in the population (Warneryd, 1999).

Survey data often contains substantial information about an individual, including other sources of income, and scales can be used to measure various psychological characteristics. Survey data can also be collected from individuals who are not members of a retirement plan, allowing an analysis of the differences that may exist between members and non-members. This makes surveys a valuable way to collect data on psychological variables that could affect investment behavior in a retirement plan. For example, the level of risk an individual is willing to tolerate could be a significant factor in choosing where their savings are invested.

Because this thesis is primarily concerned with how individual psychological differences affect their choices of KiwiSaver funds invested in, a survey was deemed to be the best

approach to assess these variables. It allows the measurement of psychological variables, like risk attitudes, and demographic information. An additional benefit of survey methods is that questions can be asked about information commonly analysed in plan specific data, like contribution rates. This can allow an analysis of individual KiwiSaver information and psychological variables, without letting the aggregate data mask differences that can define different population segments.

Thesis Outline

This thesis comprises a total of seven chapters. Chapter one has summarised the aim and scope of this study. It has also introduced the KiwiSaver Superannuation Scheme and highlighted issues that are important to address and was followed by a review of the appropriate methods to be used.

Chapter 2 reviews the literature on economic and psychological models of saving for retirement, and assesses their applicability towards the study of KiwiSaver. This is followed by a review of a selection of studies, both psychological and economic, which can affect choices made by individuals with respect to their behavior and attitudes towards saving for retirement. The potential applicability and influence of variables may have when studying KiwiSaver are summarised, with hypotheses derived from this analysis.

Chapter 3 provides the methods used, and details the design and implementation of the survey used in the study. The results from the study are then reported in Chapter 4.

A discussion of the findings is presented in Chapter 5. Implications for the future direction of the KiwiSaver scheme and limitations of the study are considered. A conclusion briefly summarising this study and the main findings reached is given in Chapter 6.

CHAPTER 2: LITERATURE REVIEW

The literature review begins by briefly defining what is considered saving and the various motives behind saving. The recurrence of the life cycle motive, which encompasses saving for retirement, is highlighted illustrating the tendency to view planning for retirement as saving and not investing. This is followed by a review of various models on saving for retirement and their relation to what they could contribute in studying the KiwiSaver scheme. The next section reviews variables that could influence KiwiSaver investment fund choice. The final section proposes various hypotheses about investment fund choice to be tested in an exploratory survey study.

Saving for Retirement

Saving Acts and Motives

What is saving can be difficult to define. For example, saving could refer to a child saving their pocket money over four weeks and then spending it on buying a toy. On a weekly basis, the child may be considered to save. However, on a monthly basis no money has been saved because it has been spent. This conceptual issue arises when saving is defined as spending income at a later time, but the time horizon is ill defined. Therefore, it is important to consider the time-horizon, or accounting period, when analysing studies of saving because it will affect the definitions of who saves and how much has been saved (Webley & Nyhus, 2008).

In Warneryd's psychology of saving there are two important factors to consider, the perception of future needs, and the provision of future needs (Warneryd, 1999). The study of these perceptions, actions and the links between them are the domain of the psychology of saving. The prominent question is, why do some people save and others do not. Warneryd (1999) argues that how this question is answered will depend on the definition of saving. If

saving is defined as the excess of income over consumption, then economic variables such as financial conditions and socioeconomic factors would provide more adequate answers, although this would not preclude psychological variables from the analysis. If, saving is defined as refraining from consumption now, then the question to be asked is why consumption is refrained from in the present in favour of future consumption. Warneryd (1999) argues that a psychology of saving should focus on the process of why money is saved in the present to consume in the future. The how and the why of this process should be more important than the outcome. In the context of studying KiwiSaver, the focus would then be on why people join the scheme and how they save once they are enrolled.

Warneryd (1999) asked respondents to what extent they consider the following acts to be saving. Table 2.1 shows the list of responses in descending order of the typicality of the act of saving. Contributing to a pension scheme was not included in this list, however previous research has shown it to be a highly typical form of saving (Groenland, Bloem, & Kuylen, 1996).

Table 2.1

Acts Considered to be Examples of Saving

Savings Act

Put money in saving account

Open term deposit

Put money in savings box

Buy bonds

Consume less than income

Participate in mutual funds

Pay off mortgage

Buy securities

Buy shares

Put money in check account

Speculate with money

Note. Adapted from *The Psychology of Saving* (p. 67), by Warneryd, 1999, Cheltenham: Elgar.

The motives for saving are varied yet there is a consensus in the literature about what they are. Keynes (1936, in Webley & Nyhus, 2008) identified eight motives for saving shown in Table 2.2. Webley and Nyhus (2008) state that most economic theories of saving focus on the second motive, the life-cycle motive because it embodies an obvious reason for saving money, which is to spend it later. The time horizon for the life cycle motive depends when financial need begins to exceed income. This can be when a person retires from the workforce resulting in the need to spend their savings as they can no longer depend on a regular income from employment.

Table 2.2

Motives for Saving

To build up a reserve against unforeseen contingencies (the precautionary motive)
To provide for the anticipated future relationship between income and needs (the life cycle motive)
To enjoy interest (the inter-temporal substitution motive)
To enjoy a gradually improving expenditure (the improvement motive)
To enjoy a sense of independence and power to do things (the independence motive)
To secure a masse de manoeuvre to carry out speculative or business projects (the enterprise motive)
To bequeath a fortune (the bequest motive)
To satisfy pure miserliness (the avarice motive)

Note. Adapted from Inter-temporal choice and self-control: Saving and borrowing. In A. Lewis (Ed.), *The Cambridge Handbook of Psychology and Economic Behavior*, (p. 119), by Webley and Nyhus, 2008, Cambridge: Cambridge University Press

Katona (1975) is often regarded as one of the first researchers to have empirically investigated the psychology of saving. Katona (1975) argued that there are four motives to save which are emergencies, retirement, the needs of children and family, and to buy expensive purchases like houses, businesses, durables, and vacations. These motives are similar to Keynes' (1936) list and are roughly equivalent to the precautionary, life-cycle, and the enterprise motives.

Katona's theory of saving was based on two factors, ability to save and willingness to save. Ability to save was assessed objectively through aggregate data on total household disposable income. Willingness to save was measured through subjective data on psychological variables collected from households. The combination of ability and

willingness combines economic and psychological variables into an economic psychology theory of saving, especially when ability and willingness are interpreted in a broad sense and modern cognitive and social psychology are exploited (Warneryd, 1999).

Katona distinguished three types of saving based on his reasons and motives for saving which are contractual saving, discretionary saving, and residual saving. Contractual saving is similar to pre-commitment and often requires a voluntary decision to start saving, with subsequent saving enforced. For example, entering a retirement savings plan like KiwiSaver would be a voluntary decision and an automatic deduction from an employee's pay would be the enforcement of this saving decision. Discretionary saving relates to the room for genuine decisions that many people have in affluent societies where money is left over after satisfying basic needs. People may decide to save for many different reasons and understanding the decision process would be important. Residual saving refers to money that has not been spent and is saved by default. This has often been the classical view of saving where consumption has been assumed to be the priority. However, residual saving could also be a result of active strict control of expenditure (Warneryd, 1999).

In another review of saving motives Warneryd (1999) listed six reasons shown in Table 2.3. The first reason is not technically a reason because there is no intention or motive to save. The second reason equates to Keynes' (1936) avarice motive, and the third reason is roughly equivalent to the improvement motive. The fourth and sixth reasons are nearly a straight copy from Keynes' (1936) list. Finally, the fifth reason combines the concept of Katona's (1975) contractual type of saving and the lifecycle motive from Keynes (1936).

Table 2.3

Reasons for Saving

Remainder or surplus arises without explicit intention to save (by default; abundance)

Hoarding for recurrent needs or greater needs in the future (e.g. hoarding by squirrels)

The growth of assets is expected to give increased possibility of need satisfaction in the future (saving seeds or lending against interest)

Reserve for uncertainty and risk (precautionary motive)

Voluntary contractual commitment (e.g. paying into pension schemes or self-imposed forced saving)

Widened time horizon (thinking of future generations; bequest motive)

Note. Adapted from *The Psychology of Saving* (p. 57), by Warneryd, 1999, Cheltenham: Elgar.

In a study assessing saving motives Canova, Rattazzi, and Webley (2005) sent out a mail questionnaire asking if respondents were going to save over the next twelve months and to provide four reasons to explain why they were saving, and the importance of those reasons. Three trends emerged from the analysis. First, there was an avoidance of debt and financial security, which could be interpreted as the precautionary motive, or the independence motive. Second, there was a desire to save for self-gratification, for example, going on a holiday. Third, there was a focus on old age and retirement which is clearly related to both the precautionary and life-cycle motives.

The review of the literature on saving motives shows that Keynes' (1936) list of saving motives has reliably stood the test of time. Other lists of saving motives can easily be related back to Keynes' original list. Although there is some variation in saving motives, a common reason given in every list is the life-cycle motive which is the motive behind saving for retirement. In his 'psychology of saving', Warneryd (1999) argues that a focus on

psychological variables is necessary to understand why people save according to the life cycle motive.

Modern Portfolio Theory

An important part of the life cycle hypothesis is that the middle aged should save for retirement. However, it does not recommend a best way to save for retirement. Today, saving from income alone is not sufficient enough to provide for the increasingly lengthier periods of retirement (Warneryd, 1999). To be financially secure in retirement it is beneficial to invest any savings made to generate a profitable return.

The concept of modern portfolio theory, first described by Markowitz (1952), states that financial investments should be diversified to limit risk which is measured by the variance of returns. However, the trade-off between risk and return can differ depending on the investment goals of the portfolio. For example, a young person saving for retirement could invest in a risky portfolio of shares with high expected returns. The long investment horizon means that there is time to recover from any short term drop in value of the portfolio and it is still expected to grow over the long term (Malliaris & Malliaris, 2008). However, for someone nearing retirement the shorter investment time horizon means that less risk is desirable. Therefore, the investment portfolio should invest in assets with less variability in returns, but this reduced risk is associated with lower expected returns.

Canner, Mankiw, and Weil (1997) have shown that common investment advice is to invest a greater ratio of bonds to equities, not as time horizon decreases, but as risk tolerance decreases. Jagannathan and Kocherlakota (1996) argue that, although stocks are more likely to outperform bonds over long time horizons, the rebalancing of portfolios makes this irrelevant. The rebalancing of a portfolio changes the investment horizon from one period with a long horizon to several periods with shorter horizons. With shorter time horizons for stocks, their risk of investment increases.

The common advice to shift an asset allocation away from stocks as someone ages does make economic sense when the value of human capital is considered (Boyle & Guthrie, 2005; Jagannathan & Kocherlakota, 1996). As age increases, human capital, which is the present value of future labour earnings, decreases. The optimal way to respond to the decrease in the value of human capital is to rebalance the portfolio towards 'bonds', provided human capital returns are more positively correlated with 'bond' returns than with stock returns. This echoes the common financial advice given by KiwiSaver providers that members should shift their investments as they age from equity heavy growth type funds towards more conservative funds invested in bonds and term deposits.

Theory of Planned Behavior

The theory of planned behavior, shown in Figure 2.1, is a model that factors in the predictive value of attitudes norms, perceived behavioral control and intentions to predict behavior (Ajzen, 1991). According to this theory, attitudes, subjective norms, and perceived behavioural control affect behavioural intentions. Intentions, in turn, influence the occurrence of the behavior. Attitudes refer to evaluations, appraisals and feelings, social norms are the perceived perceptions from peer groups, and perceived behavioural control is the assessment of ability to perform the behavior which can reflect past experiences of performing the behavior. Together, these factors indicate an intention to perform the behavior. Intention to perform the behavior does not necessarily mean the behavior will be performed. However, as a general rule, the stronger the intention, the greater the likelihood the behavior will be performed.

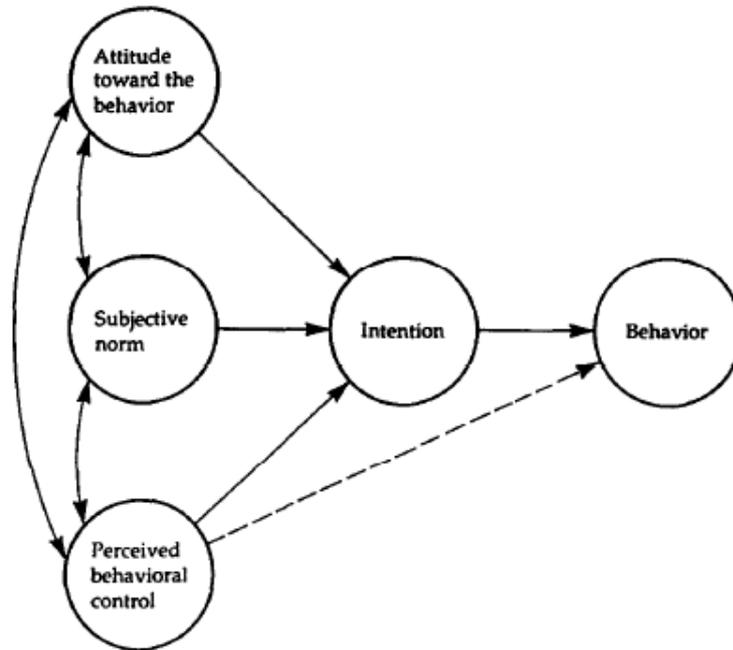


FIG. 1. Theory of planned behavior.

Figure 2.1. Theory of Planned Behavior

Note. From “Theory of Planned Behavior” by Ajzen, 1991, *Organizational Behavior and Human Decision Processes*, 50(2), p.182

A meta-analysis of 185 empirical tests of the theory of planned behavior reported in 161 journal articles was conducted by Armitage and Conner (2001). The theory was reported to be a valid predictor of behavior and intentions. In the meta-analysis the theory accounted for 27% of the variation in behavior and 39% of the variation in intentions.

In a specific application of the theory of planned behavior, East (1993) examined the application for shares in privatised British industries. East (1993) reported that application for shares could be predicted from measured intention which in turn could be predicted from measures of attitudes, social norms, perceived control, and past behavior. Additionally there was a strong influence of friends and relatives on these factors.

According to this model, KiwiSaver investor behavior could be predicted primarily by personal and interpersonal variables. For example, a positive attitude and a behavioral history of saving or planning for the future, combined with the social norm of other friends

and family members joining KiwiSaver, could influence participation in the scheme.

Furthermore, this model could be applied to the choice of investment fund made. While it may be perceived to be a social norm to participate in KiwiSaver, a lack of discussion about investment funds could result in inertia upon joining. This would influence the decision, or lack thereof, to remain invested in the provided default fund. Alternatively, attitudes towards investment risk could influence the choice between conservative and growth funds.

Purchase of retirement plan decision-making models

Rickwood and White (2009) proposed a model that looked at the pre-purchase stage of decision making within the context of buying financial services. The model was a result of exploratory research using focus groups to determine the important factors behind decisions to save for retirement. Rickwood and White (2009) recognised that many elements of pre-purchase decision making had been studied, but this was the first time they had all been analysed in a single study in the area of financial services. The purpose of the study was to establish which variables, or set of variables, would have the most influence on decisions to save for retirement. Their proposed model is shown in Figure 2.2. The proposed model consists of three categories of internal, external, and risk factors that can affect the likelihood of saving for retirement. The most important factors are in the shaded boxes while other significant but less important factors are in the clear boxes.

Major internal factors are the person's involvement level, motivation, and needs and wants. Involvement level was particularly low. Retirement was not a common discussion topic among friends, and little information was actively sought. The exception was for married men between the 40 and 55 years of age. When it came to motivation, increased age emerged as the strongest influence to save for retirement. The factor of needs and wants refers to the identification of education and easily readable information as important to saving for retirement.

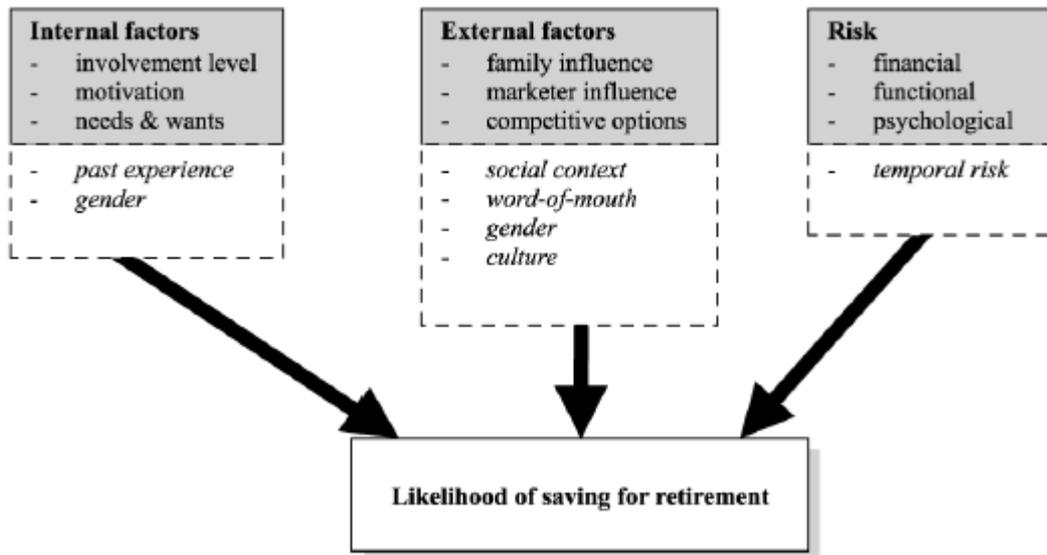


Figure 2.2. Proposed Decision Making Model for Saving for Retirement

Note. From “Pre-purchase decision-making for a complex service: Retirement planning,” by Rickwood and White, 2009, *Journal of Services Marketing*, 23(3), p. 147

Major external factors are influence from family and marketers, and also competitive options. The biggest external factor to save for retirement was familial influence, particularly becoming married and having children. Marketer influence also had a significant impact with the media identified as a way of either, gathering information, or triggering thoughts about beginning to save.

Financial, functional, and psychological risk are also major influences. These had a negative impact with participants identifying changes in rules and regulations and lack of unbiased professional advice as major concerns. This made participants cautious about investing in saving schemes. The authors concluded that, the concerns about the difficulty of financial preparation for retirement, combined with the perceived high level of risk and complex information, could hinder desire to save for retirement.

While Rickwood and White (2009) highlight many factors that have a positive or negative influence on decisions to save for retirement, they single out age, specifically turning 40, and marriage as significant turning points in a person's life that lead them to consider saving for retirement.

Harrison, Waite, and White (2006) used qualitative data from focus groups to derive a model of consumer decision making process in the purchase of pensions shown in Figure 2.3. Their analysis focused on the attitudes, perceptions, and behaviors of individuals during the pre-purchase, purchase and post-purchase stages of the decision making process.

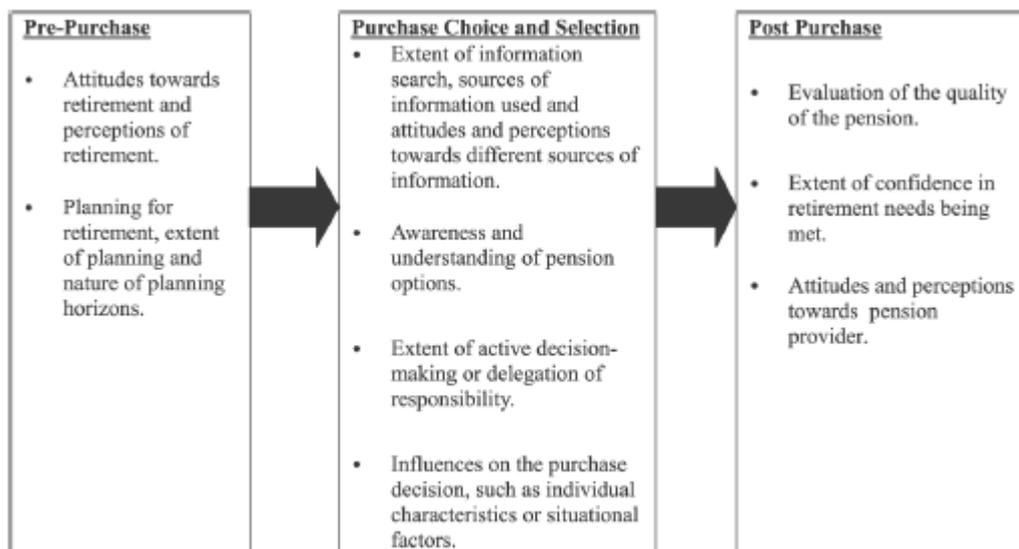


Figure 2.3 Three-Stage Financial Services Decision-Making Framework

Note. From “Analysis by paralysis: The pension purchase decision process,” by Harrison et al., 2006, *International Journal of Bank Marketing*, 24(1), p. 11

Their analysis found saving for retirement tended to be affected mostly by attitudes to retirement with saving often triggered by negative motives about not saving. Choosing to buy into a pension plan was characterised by limited search behavior, preference of personal sources, reluctance to seek professional help, confusion, and lack of awareness of options. Even after purchasing a pension, difficulties were cited in evaluating the quality and extent of the pension plan meeting retirement needs.

One of the most important factors in the decision process highlighted by Harrison et al. (2006) was a perceived lack of accessible and reliable information and a reluctance to use advice from professional experts. Rickwood and White (2009) also reported concerns about professional advice hindered the likelihood of saving for retirement. This concern and reluctance to seek professional advice illustrates how decisions on retirement savings may not be completely informed.

The implications are that planning and saving for retirement can be triggered by significant changes in a person's life (Rickwood & White, 2009), and the awareness about the negative consequences of not saving for retirement (Harrison et al., 2006). Therefore, choosing to join a pension scheme would be a belated and not a proactive choice. However, the automatic enrolment feature of KiwiSaver does get people to save for retirement as soon as they join the workforce. Despite this earlier start to retirement savings, the reluctance to seek professional advice and uncertainty about investing are factors that could hinder the involvement level of KiwiSaver members in making proactive choices about their investment.

Demographic Variables

A number of retirement planning studies have identified several demographic factors that may influence planning and saving for retirement. Age has been shown to be correlated positively with planning for retirement (Baker & Haslem, 1974; Jacobs-Lawson, Hershey, & Neukam, 2004; Petkoska & Earl, 2009). Women are also less likely to plan for retirement than men and are more risk averse when they do so (Bajtelsmit, Bernasek, & Jianakoplos, 1999; Jacobs-Lawson et al., 2004). Higher income is also associated with planning for retirement (Jacobs-Lawson et al., 2004). Amounts saved for retirement are also influenced by education level, length of employment, and income (Yuh & DeVaney, 1996). In a survey

on expectations about funding for retirement Ong (2009) reported that positive expectations on self-funded retirement increase with age, education, and stable employment and divorced women are more likely to expect to be welfare reliant. Additionally, the presence of dependent children after retirement did not affect expectations, although it still had a negative impact on self-provision.

A good source of data on retirement plan asset allocation comes from the Employee Benefit Research Institute (EBRI). EBRI was founded in 1978 to produce and analyse information about employee benefit programs in the United States. Research on behavior of participants in 401(k) plans and Individual Retirement Accounts (IRAs) have been particularly informative and are on-going since the institute was set up. EBRI sources data from several large databases including the Survey of Consumer Finances (SCF), a large triennial interview survey sponsored by the US government. As an example of the large data sources EBRI draws on, the EBRI/ICI database includes statistical information on 23.4 million 401(k) plan participants who are in over 60,000 plans holding just over \$1.4 trillion in assets.

Using data from the SCF, four general asset categories are defined for IRA and 401(k) plan type participants. They are mostly or all in stocks, mostly or all in interest earning assets, a split between stock and interest earning assets, and other miscellaneous types of investment. While Copeland (2004) recognises the informative limitations of this data, it does provide some general insights. Excluding the 'other' category, investment in mostly stocks is the riskiest investment option of all four classes. People who are well educated, high income earning, and young are more likely to invest in this option. It should also be noted that, overall, the proportion of all participants in both IRA and 401(k) type plans investing in stocks has increased over the years from 1992 to 2004. This increase occurred

during a period of strong economic growth, and it may be that strong returns in the stock market have attracted the investment of retirement funds.

VanDerhi, Holden, Alonso, and Bass (2011) used 401(k) data from the EBRI/ICI database to look at asset allocation and account balances in 2010. Investment options were grouped into one of eight categories which are equity, bond, or balanced funds, company stock, money funds, guaranteed investment contracts, other (which includes property), and unknown. Positive correlations were reported between the size of account balance and age and tenure with the employer, which served as a proxy for time spent in the 401(k) plan. While the aggregate data from VanDerhi (2011) show some clear patterns, it also hides significantly wide variation among the population. For example, across all age groups, equity funds received the largest allocation with 42% of funds being allocated on average. However, 47% of individuals had no equity funds and 16% had more than 80% allocated. Therefore, only 37% of individuals allocated between 0% and 80% of their funds to an equity fund.

VanDerhi et al. (2011) also documented an increase in the popularity of target-date balanced funds. These are similar to the life stages fund offered by some KiwiSaver providers where asset allocations are gradually shifted away from riskier equity funds as the member ages. These target-date balanced funds are growing in popularity, particularly with younger people, with 49% of participants in their 20's holding target-date funds compared with 28% in their 60's. Recently hired employees are also more likely to invest in some form of balanced fund and were also more likely to concentrate their allocations into such funds with 70% holding more than 90% of their account balance in them.

Similar results were also reported by Copeland (2011) who analysed the EBRI IRA database. This has information on 14.1 million accounts of 11.1 million individuals with \$732.9 billion of assets as of 2008. Individual retirement accounts in 2008 accounted for

approximately 25% of all pre-retirement assets in the USA. Five asset categories were used in the analysis; equity, bond, money, balanced funds, and other. Across the database, 38.5% was invested in equities, 22.3% in money funds, 13.6% in bonds, 12.1% in balanced funds, and 13.6% in other. Copeland (2011) reported females had a higher proportion invested in balanced funds while males tended to diversify more and allocate more to the other category. Individuals aged less than 45 years were more likely to allocate to equities and balanced funds whilst individuals aged over 45 allocated more to bonds and other. Also, as the size of the account increased, the allocation to equities and balanced funds declined. Copeland (2011) also reported tremendous variation existed around the aggregate means. For example, 30% of individuals held more than 90% of the accounts in equity funds.

The major limitation with the studies by VanDerhi et al. (2011) and Copeland (2011) is that they are a snapshot of the overall state of 401(k) and IRA account balances. Although VanDerhi et al. (2011) was able to track trends in asset allocation over 14 years, it still focused on aggregate changes, and there was no information on changes of individual accounts. A longitudinal study by Agnew, Balduzzi, and Sunden (2003) looked at nearly 7,000 401(k) accounts from a single plan over four years from 1994 to 1998. They reported average annual allocation to equities was 47.6%, but there was a lot of variation. The analysis resulted in a bimodal distribution with 48% and 22% of individuals allocating 0% and 100% of their accounts in equity funds respectively, a similar pattern of results to that reported by VanDerhi et al. (2011) and Copeland (2011). Despite the wide variation, the results showed higher allocations to investments in shares were more likely among men, married investors, and high income earners, while age made investors more cautious about investing in equities. Furthermore, little trading activity was reported indicating a lot of inertia or apathy among investors across all demographics.

In summary, the demographic patterns from pension plan studies show that people who

are well-educated, high income earning, young and male tend to invest more in equities. Target-date funds are also becoming a popular option among younger people. However, there is a lot of variation around asset allocation and inertia towards rebalancing investment portfolios.

Risk and Uncertainty

When it comes to measuring risk, a distinction needs to be made between general risk and contextual risk. General risk refers to an individual's propensity to take risk in many aspects of their life. By contrast, contextual risk means that an individual may be willing to take risks in only in certain settings or contexts. Aspects of the situation, the individual, and the social setting can all combine to influence the perception and tolerance of risk (Bem, 1971). Furthermore measures of risk can be influenced by how the situation or context is framed (Slovic, 1972; Tversky & Fox, 1995; Tversky & Kahneman, 1986, 1992).

Related to risk is the concept of uncertainty. Risk is involved where the evaluation of probabilities is possible. In contrast, situations involving uncertainty are where probabilities cannot be estimated with any reasonable accuracy (Warneryd, 2001). Investment choices in KiwiSaver can involve both risk and uncertainty. Choosing between investment funds can involve comparing the risks of investing in various asset classes and trading off between risk and expected return. However, there is uncertainty surrounding length of retirement and the funds needed to support a comfortable standard of living. Therefore, a decision between a growth fund invested in equities or a conservative income fund may reflect either the risks assessed, or the uncertainty of whether higher returns from the growth fund are needed.

Uncertainty can also surround the design of the scheme and has been shown to be a factor of concern among individuals planning for retirement, although it has often been described as another form of risk (Rickwood & White, 2009). Despite the distinction between risk and

uncertainty, most KiwiSaver scheme providers focus on the variable of risk tolerance of investors because it is a quantifiable measure that can be used to recommend an appropriate investment fund.

A general measure of risk developed by Zuckerman (1994) is the Sensation Seeking Scale and is a common scale that is used to measure an individual's tendency to take risks. Sensation seeking is defined as the need for varied, novel, and complex experiences, with a willingness to take various physical and psychological risks for the sake of those experiences (Zuckerman, 1994). Sensation seeking correlates with gambling, vocational choice, financial transactions, stock market investment, high risk recreation, and high risk investment, making it a well-established measure of general risk taking (Hunter & Kemp, 2004; Zuckerman, 1994, 2007). The 19-item Impulsiveness Sensation Seeking scale, while shorter than the 40-item Sensation Seeking Scale-version V, consists of questions that are more general and do not refer to specific activities (Zuckerman, 1994). The Impulsiveness Sensation Seeking scale has been shown to correlate well with the sensation seeking scale-version V ($r = .66$) making it a brief but still acceptable measure of sensation seeking in general (Zuckerman, 2007).

Grable and Lytton (1998) identify four factors to be considered in modern investment management decision making models. They are goals, time horizon, financial stability, and risk tolerance. The first three factors are objective and fairly easy to measure. Goals are the plans that the investment principal and its returns will be used for. Considering that the goals of KiwiSaver are to provide income for retirement, they can be subject to uncertainty as previously discussed. Time horizon is the length of time before the investment is withdrawn to achieve the goals, which can be uncertain because the retirement age may change. Financial stability refers to the nature and stability, or uncertainty, of the investor's employment, their assets, liabilities, and net worth. Grable and Lytton (1998) argue that the

final factor of risk tolerance is subjective and is the ability of the investor to tolerate the variability of investment returns. This emphasises the investor's attitudes and emotional tolerance towards risk. Another definition could be the rate at which investors are prepared to trade off risk and return. As risk tolerance rises, investors are more prepared to accept a smaller increase in expected return as compensation for an increase in risk.

Grable and Lytton (1998) fail adequately to take into account the distinction between risk and uncertainty when modelling investment management decisions. They consider goals and time horizon to be fixed despite the uncertainty that can surround them in some cases. As a result they identify only risk tolerance as an important topic of research.

Anbar and Eker (2010) argue that the most common form of assessing financial risk tolerance is a questionnaire that asks questions about hypothetical scenarios or investment choices. Other methods include assessing actual behavior in asset allocations, asking questions about investment choices, and asking a combination of investment and subjective questions. They also note that financial risk tolerance is a complex attitude and while a questionnaire can be used to measure this construct it should be developed in accordance with psychological principles.

While financial risk tolerance can be measured objectively, the tendency is to view the construct as subjective and to use demographic characteristics to distinguish between different levels of financial risk tolerance (Anbar & Eker, 2010; Grable & Lytton, 1998; Warneryd, 1999). Previous research has shown that gender, education level, employment status, and level of income, (but not marital status, dependants or age), can effectively discriminate between individuals that vary in their level of risk tolerance (Anbar & Eker, 2010; Grable & Lytton, 1998). While these variables are effective discriminators of risk tolerance, their predictive validity and independence have not been assessed. For example,

gender, education level, and employment status all correlate with income, which could mediate the relationship between these variables and risk tolerance.

Survey data that assesses the subjective risk level of investors can be contradictory depending on the measures used to assess risk levels (Warneryd, 2001). Some studies have reported subjective risk attitudes to have no predictive value (Morse, 1998; Warneryd, 1996). However, other studies have reported no predictive value of risk attitudes (Harlow & Brown, 1990; Hunter & Kemp, 2004; Warneryd, 2001). These contradictory results can be explained by the theory of planned behavior (Ajzen, 1991). According to the theory, risk attitudes are just one variable which affects intention, which in turn affects behavior. There are other factors, like perceived behavioral control, that may lessen the intention to engage in risky investment behavior. The implications for studying KiwiSaver, and other investment situations, are that other variables apart from risk attitudes should be included in the analysis of investment behavior.

Financial Knowledge

Knowledge of financial matters can have an influence on investment and saving behavior. For example, Perry and Morris (2005) reported that the propensity to save and be fiscally responsible was associated with financial knowledge. Jacobs-Lawson and Hershey (2005) reported increased knowledge of financial planning for retirement was associated with positive retirement saving practices. Financial knowledge has also been associated with risk acceptance, reflecting the possibility that increased risk acceptance may be the result of being well informed about financial matters (Warneryd, 2001).

In a study of 3386 mutual fund investors, Capon, Fitzsimons, and Prince (1996) studied self-report survey data and reported that the majority of investors are largely uninformed about their investments. Only a small proportion (4%) was highly knowledgeable. Agnew

and Szykman (2005) report investors with low levels of financial knowledge were more likely to select the default allocation in defined contribution plans. This is not necessarily an irrational decision because low knowledge investors choosing to invest heavily in equities may make significant errors in their investment decisions. Yakoboski and Dickemper (1997) report three-quarters of workers in the United States had no idea of how much was needed to save for retirement and 30% were not confident they were saving enough. Although 25% of workers felt very confident they were saving enough, only 55% of these indicated they had actually calculated that their savings would be sufficient.

Financial education through seminars on saving for retirement can have an effect on planning for retirement. Financial education seminars increases participation in, and contributions to, pension plans, especially when they are offered frequently (Bayer, Bernheim, & Scholz, 2009). They also tend to have a greater effect among low and moderate savers (Bernheim & Garret, 2003) and women (Clark, d'Ambrosio, McDermed, & Sawant, 2006).

In a review of the literature on the effect of financial education on retirement savings, Choi, Laibson, Madrian, and Metrick (2002) reported a strong effect on intentions to change saving habits, but this did not translate well into actual change. For example, Clark et al. (2006) reported that, after being educated about retirement savings, 91% of individuals indicated that they planned to make some changes. A follow up survey three months later assessed the translation from intention to action. Only 25% of individuals planning to open a pension account did so, while 63% said they were still planning to. For individuals who already had an account and planned to increase their contributions, only 42% had made the change.

Other studies have reported that financial knowledge did not necessarily result in better investment decisions. For example, Bodnarak and Simonov (2012) studied the investments

of a group of experts, mutual fund managers. They report that the investment portfolios of fund managers did not significantly perform better, nor did they diversify more. Grinblatt, Keloharju, and Linnainmaa (2011) reported that measurement of the Intelligence Quotient (IQ) was a very important predictor of participation in the stock market, mutual funds, and diversification of assets. Therefore, it is possible that financial knowledge is not necessarily related to investment decisions, rather it is the intelligence of individuals that determines what is done with that knowledge. For example, it may take someone with a high IQ to comprehend the information about investing taught in a financial education seminar, and to then be able to make an informed change in investment behavior.

Default Rules

The default rules in a retirement plan can have a significant impact on the participation rates, contribution levels, and asset allocation within the plan. A seminal study by Madrian and Shea (2001) examined the effects of changes in a 401(k) plan from opting into the plan to opting out of the plan after being automatically enrolled. They report that participation rates rose significantly from 37% of employees hired before the change to 86% of employees hired after the change. Additionally, 76% of automatically enrolled employees contributed at the default rate of 3% compared with just 10% of participants who opted in before the change. Default asset allocation consisted of investing 100% of contributions made into a money market fund. Before the change to automatic enrolment, approximately 10% of contributions were allocated to this type of fund, but after automatic enrolment was introduced, 80% of contributions from new employees were allocated to the default fund. While the introduction of automatic enrolment significantly increased participation in a 401(k) retirement plan, the default rules of the scheme meant that a significant majority of

new employees who were automatically enrolled remain invested in the conservative plan chosen for them (Madrian & Shea, 2001).

A review of the empirical evidence on the impact of default rules by Beshears, Choi, Laibson, and Madrian (2009) confirms the significant influence default rules have at each stage of the savings lifecycle, including plan participation, contributions, and asset allocation. Explanations for the impact of default rules include choice paralysis, a bias to the status quo, endorsement effects, or the framing of 401(k) participation decision (Beshears et al., 2009; Choi et al., 2002; Madrian & Shea, 2001; Samuelson & Zeckhauser, 1988).

The way participation in a retirement savings plan is framed could explain the significant increase in enrolments under an automatic enrolment system (Madrian & Shea, 2001). Before automatic enrolment, non-participation is viewed as the default whereas under automatic enrolment participation is now the default. However, while this can explain the increased participation rates it does not explain why default rules have a significant impact on contribution rates and asset allocation.

A bias to the status quo can be viewed as the result of procrastination by new participants who are automatically enrolled. Preference for staying with the status quo can be explained by participants following the path of least resistance (Choi et al., 2002). Evidence for this comes from Samuelson and Zeckhauser (1988) who reported preference for the status quo tends to increase with the number of alternatives. In other words, as the cost of evaluating alternatives increases, it becomes more attractive to simply accept the default.

Choice paralysis can arise from the increased complexity of choices in a retirement plan scheme. Participants not only choose whether to enrol in one but they also have the choice of how much they want to contribute and how to allocate their contributions among various

funds and assets. Assessing the large array of options available may not only be a time consuming task, but there is also the added complexity of newly hired young employees lacking the knowledge to be able to understand and distinguish between various funds on offer (Beshears et al., 2009; Madrian & Shea, 2001).

A lack of financial knowledge can result in participants viewing the default options as an endorsement by the plan provider as the best option for them. In their review of the literature on defaults, Beshears et al. (2009) report that, for participants who choose to move away from their default allocations, many still continue to invest a significant portion of their assets in their given default fund. Therefore, even when individuals choose their own investment plans after being automatically enrolled, there is still a preference to keep some contributions invested in the option that was previously assigned to them by their plan provider.

Cronqvist and Thaler (2004) reported the power of default rules can be diminished but not extinguished. They studied the privatisation of Swedish pension plans which allowed participants to create a portfolio by investing their contributions in up to five funds from over 400 that were available. One fund was chosen to be a default fund for individuals that did not make a choice. An advertising campaign was run to encourage active choice of funds and to discourage investment in the default fund. The advertisement campaign had an effect with two-thirds of participants choosing their own portfolio. However, after the initial enrolment period, the advertising efforts by both the government and the funds attempting to attract new investors were significantly reduced. Corresponding with this drop in advertisements the number of individuals actively choosing their own portfolio dropped to 8.4 percent. These new members to the pension plan, after the advertising campaign, were largely young workers new to the workforce. In comparison, a comparable group of individuals aged less than 22 years when the plan was first launched chose their own

portfolio 57 percent of the time. This study shows how the impact of defaults can be diminished by making an effort to inform new participants about their options. However, the effect is only temporary, and in the absence of an information campaign the influence of default rules reappears, even if the majority of existing participants are not enrolled in the default option.

Personal Advice

Communications between individuals engaged in the investment of the same financial service can have an influence on behavior. Shiller and Pound (1989) used questionnaire surveys to study the communication patterns of investors in the US stock market. They report that direct interpersonal communications are considered to be very important in investor decisions. In a random sample of individual investors, 28% were influenced to buy stock based on the fact that they knew someone who had previously bought that same stock. This figure increased to 44% of individual investors that had bought stock that had rapidly increased in price. Furthermore, investors who bought stock that rapidly increased in price were more likely to be influenced by friends and family and less likely by professional stockbrokers.

The influence of peers can have an effect on purchases of services. Enrolment in retirement plans can be considered the purchase of a financial service (Harrison et al., 2006; Rickwood & White, 2009). Murray (1991) reported that, when purchases of services as opposed to goods are made, individuals are more likely to prefer personal sources over impersonal sources. Personal sources were also more likely to be considered more effective and more confidence was placed in them.

In a study using focus groups of members in occupational pension schemes, Harrison et al. (2006) reported that, despite the recognised need for guidance about retirement plans,

there seemed to be a reluctance to seek expert advice. Instead, participants highlighted a tendency to consult with a range of personal sources despite their biased and unbalanced nature. Duflo and Saez (2002) examined the influence peers have in retirement savings decisions among staff at a university in the United States. They recognised the limitation that decisions in a social group may correlate for a variety of reasons, like similar tastes, backgrounds or common environmental factors which have no relation to individuals imitating each other. Nevertheless, they report that participation and choice of mutual fund vendor was correlated with participation rates within subgroups in departments, which were distinguished along lines of gender, tenure, status, and age. These correlations existed only within the subgroups analysed showing that participation and mutual fund vendor choice from different subgroups did not have an influence.

This preference for personal sources of information reflects the factor of social norms in the theory of planned behavior (Ajzen, 1991). If an individual perceives that it is a norm among their peer group to invest their retirement savings in a particular fund then this could affect their intention to make the same investment decision, especially if they trust the judgement of their friends and family.

Professional Financial Advice

As mentioned before, professional advice was not commonly sought by individuals planning for their retirement, instead they relied on advice from friends and family (Duflo & Saez, 2002; Harrison et al., 2006; Rickwood & White, 2009). Chalmers and Reuter (2012) studied participants within the Oregon University System's defined contribution retirement plan and analysed who was most likely to seek face-to-face professional advice. They also examined the effect this advice had on portfolio asset allocations. They reported that individuals who sought professional advice tended to be younger, less highly educated, and

less highly paid, which is characteristic of individuals who are less financially literate. Individuals who did seek the advice of brokers tended to have portfolios that were moved out of the default and invested in funds with higher than average past returns, and with higher than average exposure to various forms of market risk which reflected the recommendations of their brokers.

Using KiwiSaver data from New Zealand, Zhang (2013) examined the investments of approximately 400,000 members, of whom about 40,000 had sought financial advice. Zhang (2013) reported that, consistent with previous studies, those who sought professional advice tended to be women and wealthy. Surprisingly, young investors also tended to seek advice, contrary to what was expected. Additionally, investors that sought the advice of a financial advisor had their exposure to risky assets increased, but the influence on returns was minimal. This could be due to the trend of more conservative funds producing the best returns over the last few years, although recent trends indicate that the growth funds are starting to perform better (Morningstar, 2012).

Zhang (2013) argued that younger investors could be seeking advice because they are less informed, or they want to make an informed decision about their investment fund choice. These arguments are plausible considering the automatic enrolment feature of KiwiSaver would have enrolled many young people into a retirement savings scheme before they may have considered saving for retirement themselves.

Fees and Performance

Two other factors that can affect the flow of funds to and from various pension schemes are the performance of the scheme, measured by returns, and its cost or fees. Evidence shows that funds that perform well tend to attract higher inflows of assets from investors (Agnew et al., 2003; Barber, Odean, & Zheng, 2005; Kempf & Ruenzi, 2008; Sirri &

Tufano, 1998). However, Agnew et al. (2003) reported that, although investors are attracted to well performing funds, they cannot time the market. In a longitudinal study of nearly 7,000 401(k) accounts, they report daily changes in equity allocations correlated weakly with same day equity returns, and did not correlate at all with future equity returns.

In addition to fund performance, the effect of perceptions of the fund by other trusted sources can also influence fund flow. Del Guercio and Tkac (2008) examined the influence of fund performance ratings from Morningstar. They analysed approximately 10,000 star rating changes of mutual funds. An increase in the five-star rating attracted investment, while a downgrade deterred investment. This influence was independent of the actual performance of the fund itself. Because Morningstar rates KiwiSaver funds on a similar five star rating and publish performance data, this could influence KiwiSaver investment fund decisions for individuals that choose their fund based on its performance.

While high performing funds succeed in attracting investors, poor performing funds do not see a proportionate exodus of assets and investors (Del Guercio & Tkac, 2002; Sirri & Tufano, 1998). Del Guercio and Tkac (2002) reported that this disproportionate flow differs when pension funds are compared with non-pension mutual funds. Investors in pension funds are more likely to punish poor performance by withdrawing their funds, but do not necessarily invest in the better performing funds of the previous years. Thomas and Matthews (2012) reported that KiwiSaver members chase the good performance of scheme providers. While the focus was on provider membership, it was recognised that introducing more variables and taking a fund by fund approach could yield greater insight into KiwiSaver investor behavior.

The fees incurred in fund investment can influence investors, with high fees tending to deter investment and low fees attracting investment (Barber et al., 2005; Sirri & Tufano, 1998). However, different types of fees vary in their influence on investors. For example,

Sirri and Tufano (1998) compared the effects of operating expenses and more salient front-end load fees, which is essentially an establishment fee. They report a negative relation between inflows of funds and front-end load fees. In contrast there was no relationship between fund flows and operating expenses. Sirri and Tufano (1998) argue that the drain of operating expenses may be masked by the volatility of the fund. Another explanation by Barber et al. (2005) is that the negative effect of expense fees is often offset when these fees are spent on marketing efforts to attract customers.

Banks and Advertising

A common reason given for the choice of KiwiSaver provider by individuals is that it is preferable to have their KiwiSaver account with their main bank (Matthews, 2011). There was some evidence supporting the preference for KiwiSaver members to invest in banks. Excluding the default funds, which capture a significantly large amount of the KiwiSaver market, the top scheme provider is Westpac Bank with approximately \$1.7 billion of assets under management, making it the third largest provider overall (Morningstar, 2012).

Frye (2001) reported that, although bank managed mutual funds do not tend to underperform; they do follow a more conservative investment strategy, produce returns that are less volatile, and are more likely to target individual investors. As previously noted, there is a relationship between past performance and the attraction of investment. However, there is no relationship between past performance and flow of investment in bank managed funds (Frye, 2001; Knuutila, Puttonen, & Smythe, 2007). Frye (2001) argues that investors often rely on the general reputation of the bank, and are less likely to pay attention to abnormal performance of bank managed funds.

Advertising and marketing of mutual funds are successful in attracting inflows of investors (Barber et al., 2005; Jain & Wu, 2000; Kaniel, Starks, & Vasudevan, 2007;

Korkeamaki, Puttonen, & Smythe, 2007). Funds most likely to have media coverage are more likely to be larger, have extreme performance, either good or bad, or produce more volatile returns (Kaniel et al., 2007). Korkeamaki et al. (2007) reported that the independent effect of advertisements on mutual fund cash flows in the Finnish market was not enough to attract investment. It was only in conjunction with superior past performance that advertisements attracted investment.

Summary of Factors Affecting KiwiSaver Fund Choice

Although a model of KiwiSaver fund choice has not previously been developed, the literature does suggest several factors that could have an influence. Other models of retirement savings provide a guide of which variables could have a stronger influence on fund choice (Harrison et al., 2006; Rickwood & White, 2009). However, the applicability of these models may be limited in the context of studying KiwiSaver fund choice. For example, the KiwiSaver scheme design includes automatic enrolment and the use of default rules, factors that are not considered in models that focus on factors behind an active choice of entering a retirement plan.

Despite this limitation, the literature does suggest that demographics, risk attitudes, levels of financial knowledge, default rules, recommendations from friends and family, advice from financial advisors, previous performance, fees, the reputable brand effect of banks, and advertising may all have various levels of influence on fund choice. Exploring the strength of influence each factor has on KiwiSaver choice is the purpose of this exploratory study.

Drawing on the information in the literature, the following hypotheses are made with respect to fund choice.

Hypothesis 1: The most common reasons given for current investment fund choice should be influenced by; (a) the powerful effect of default rules (Beshears et al., 2009; Choi

et al., 2002; Madrian & Shea, 2001), (b) it best matches individual risk level (Warneryd, 2001; Zuckerman, 2007), and (c) recommendations by friends and family (Harrison et al., 2006; Murray, 1991; Rickwood & White, 2009).

Hypothesis 2: A large proportion of respondents are expected to be invested in conservative type funds, be less likely to invest in growth or aggressive type funds, and to contribute at the default minimum contribution rate.

Hypothesis 3: Scores on the Impulsive Sensation Seeking scale, Investor Risk Attitude scale, and KiwiSaver Risk Profile should be correlated with investment fund type, with risk tolerant investors more likely to invest in riskier growth type funds and risk averse investors more likely to invest in less risky conservative funds (Warneryd, 2001; Zuckerman, 2007).

Hypothesis 4: Better knowledge about the KiwiSaver scheme should be correlated with investment in riskier growth type funds (Agnew & Szykman, 2005).

Hypothesis 5: Some demographic factors should be correlated with investment fund type. Specifically, respondents who are male, highly educated, earn a high income, and the young should be more likely to invest in riskier growth funds (Bajtelsmit et al., 1999; Copeland, 2004, 2011; VanDerhi et al., 2011).

CHAPTER 3: METHOD

Survey Design

The survey consisted of a section asking about other investment and saving plans in addition to KiwiSaver that respondents may have, and information about their KiwiSaver account. This was followed by a section assessing knowledge of the KiwiSaver scheme, and scales assessing knowledge and perceived risk of investment in four investment asset classes commonly invested in by KiwiSaver scheme providers. This was followed by a KiwiSaver Investor Profile, an Impulsive Sensation Seeking scale, and an Investment Risk Attitude scale. The survey concluded with questions on the demographic variables of the respondents.

Recruitment and Characteristics of Respondents

Recruitment

The survey was circulated in both hard copy paper form, and online using the survey software package, Qualtrics (found at <http://www.qualtrics.com/>). Surveys were circulated around various local businesses for their employees to answer. Paper questionnaires, and links to the online survey were also circulated around individuals in the general population who, in addition to filling out their own survey, were encouraged to get other people to fill them out. A total of 134 respondents answered the surveys, which included 87 members of KiwiSaver and 47 non-members.

Demographics

Questions on age, gender, and relationship status, number of children, education level, employment status and income were asked at the end of the survey. Each question had a refuse to answer option for those who did not feel comfortable answering, despite the

anonymous nature of the survey. Table 3.1 shows the demographics of respondents for both members and non-members of KiwiSaver.

Table 3.1

Demographic Characteristics of Respondents

Age	% of members	% of non-members
Under 20	1.1	2.1
20-29	26.4	14.9
30-39	19.5	12.8
40-49	19.5	23.4
50-59	12.6	29.8
60-65	10.3	8.5
66 or over	8.0	6.4
Refuse to answer	2.3	2.1
Gender		
Male	49.4	66.0
Female	49.4	31.9
Refuse to answer	1.1	2.1
Relationship status		
Single	26.4	14.9
Married	55.2	66.0
De facto	14.9	6.4
Divorced	1.1	6.4
Widowed	0	2.1
Refuse to answer	2.3	4.3

Table 3.1 continued

Dependants		
None	63.2	57.4
One	9.2	10.6
Two	21.8	14.9
Three or more	4.6	14.9
Refuse to answer	1.1	2.1
Level of education		
No formal qualification	0	0
Secondary school qualification	10.3	19.1
Vocational qualification	14.9	8.5
Bachelor's degree	25.3	31.9
Higher degree	27.6	21.3
Doctorate	19.5	14.9
Refuse to answer	2.3	4.3
Employment status		
Unemployed	0	4.3
Part time	29.9	12.8
Full time	65.5	70.2
Self employed	0	8.5
Retired	3.4	2.1
Refuse to answer	1.1	2.1

Table 3.1 continued

Earnings per annum		
\$0 – \$29,999	18.4	12.8
\$30,000 - \$59,999	27.6	6.4
\$60,000 - \$89,999	17.2	31.9
\$90,000 - \$119,999	13.8	10.6
\$120,000 -	6.9	6.4
\$149,999		
\$150,000 +	6.9	10.6
Refuse to answer	9.1	17.0
Not answered ^a		4.3

^aThese respondents were unemployed.

There were no significant differences between members and non-members with respect to any of the demographic variables measured. A significant number are working part time, but this is likely to reflect the sampling methods which would have disproportionately captured a subset of the general population, which is students, who are working part time and were enrolled automatically into KiwiSaver. A further breakdown of the sample shows 58% of part time workers are aged 20-29, or alternatively, 65% of 20-29 year olds are working part time. The question on earnings per annum was the most sensitive, with twelve percent refusing to answer.

KiwiSaver Questionnaire

The questionnaire was preceded by an information sheet informing respondents about the aim of the study, and that anonymity for the respondent will be preserved. The information

sheet can be viewed in Appendix A. This was followed by the survey questionnaire which can be viewed in Appendix B.

KiwiSaver Information

The first question asked respondents to select from a range of options listed in Table 3.2, other investments or savings plans that they held. Both members and non-members of KiwiSaver answered this question. The next question asked respondents if they were in KiwiSaver. If they answered “no”, respondents were instructed to skip the rest of the section on KiwiSaver information and proceed to the ‘knowledge about KiwiSaver’ section.

Table 3.2

Other Investments and Saving Plans Held

Bank Term deposit

Commercial rental properties

Directly owned shares in public companies

Investment with a finance company

Residential rental properties

Unit trusts or other managed fund investments

Workplace superannuation scheme

Other

None of the above

KiwiSaver members were asked what year they were enrolled in the scheme, who their provider was, what type of fund they were invested in, and the main reason they were currently invested in that fund. Because of the variability in naming conventions and asset allocations of various funds offered by scheme providers, respondents were asked what type of fund best described their current investment fund. The options for type of fund invested

in are given in Table 3.3 and were taken from a description of the types of funds available on the KiwiSaver website.

Table 3.3

Types of KiwiSaver Fund Invested In

Cash (low risk)	Bank deposits and other fixed interest investments
Conservative (low to medium risk)	A high proportion in bank deposits and fixed interest investments, and a lower proportion in growth assets such as shares and property
Balanced (medium risk)	A more equal split between higher risk growth assets such as shares and property, and more stable investments including fixed interest and bank deposits
Growth (medium to high risk)	A high proportion of shares and property with a lower level of bank deposits and fixed interest
Aggressive (high risk)	Mainly shares
Lifetimes option	Adjusts an investor's allocations to the five main asset classes based on his or her specific length of time to the standard New Zealand Superannuation qualification age (currently 65)

Note. Adapted from <http://www.kiwisaver.govt.nz/providers/about/funds/>

A list of the main reasons for current investment in a KiwiSaver fund is given in Table 3.4. A common theme running through these reasons is that they are all apparent salient factors which can affect fund choice. With the exception of being placed into a default fund, the other reasons could be consciously considered by respondents. Advertising and the scheme provider being a main bank reflected the reputation of the scheme.

Recommendations by family, friends, or financial advisors reflected the influence of opinions and arguments from other people, while low fees and good performance reflect

specific aspects of a particular fund. Matching risk level is included because scheme providers will often provide a measure of risk scale on their websites, or in their investment statements, and responses to scores on these scales may prompt members to choose a fund based on their risk level.

Table 3.4

Main Reasons for Investment in Current Fund

It was the fund you were allocated by the IRD
It was the fund you were allocated by your employer
The fund best matches your level of preferred risk
The scheme provider is your main bank
It was recommended to you by a family member or close friend
It has comparatively low fees
It was recommended by a financial advisor
Advertising
It has a proven historical performance of giving good returns
Other

Respondents were asked how many times they changed their investment allocation between different funds. Answers could range from a minimum of zero to a maximum of five or more. A question on contribution level allowed respondents to answer zero, two, four or eight percent of their gross wage or salary. If respondents answered zero percent they were instructed to answer the next question on why they were contributing zero percent, otherwise they skipped to the next question asking if they made any additional contributions. The reasons given for contributing zero percent could be; taking a contributions holiday, significant financial hardship, serious illness, or unemployment.

Finally, respondents were asked how often they checked their KiwiSaver account balance with answers ranging on a scale from never to once a week. The last question asked if KiwiSaver savings were going to be used for a house purchase.

Knowledge about KiwiSaver

Eight questions, shown in Table 3.5, asked respondents about their knowledge of the design of KiwiSaver and its benefits. Four were multiple choice questions, while the other four were open response questions. Respondents were free to answer that they were ‘unsure’ or ‘did not know’ for the open response questions, and an ‘unsure’ option was provided for the multiple choice questions.

Table 3.5

KiwiSaver Knowledge Questions

After how many years can you make a savings withdrawal to put towards buying a first home?^a

What can be withdrawn to put towards buying a first home?^b

What is the maximum amount of the first home deposit subsidy?^a

After how many months since beginning making contributions to KiwiSaver can members take a contribution holiday without a reason?^a

How many years can the maximum length of a contribution holiday be?^a

Are you able to permanently leave the KiwiSaver scheme after being a member for more than eight weeks?^b

Who do you contact if you want to change to another KiwiSaver scheme?^b

Who do you contact to keep track of your overall KiwiSaver balance?^b

^aOpen questions

^bMultiple choice questions

Questions on the KiwiSaver knowledge scale were scored one for correct and zero for incorrect. Scores on the KiwiSaver knowledge scale could therefore range from a minimum of zero to a maximum of eight.

This was followed by scales on self-rated knowledge, and perceived risk of investment about four investment asset classes that are commonly invested in by the majority of funds offered by KiwiSaver scheme providers. The investment asset classes are shares, property, fixed interest, and term deposits. The knowledge of the investment classes was self-assessed on a five point scale ranging from poor (1) to excellent (5). Perceived risk of investment was rated on a five point likert scale from very low risk (1) to very high risk (5).

KiwiSaver Scheme Risk Profile

The KiwiSaver Scheme Risk Profile questionnaire is a four question scale measuring specific risk attitudes to investing in KiwiSaver. It was sourced from the websites of scheme providers ANZ, OnePath, and National Bank. Combined, these three providers have the most KiwiSaver members and assets under management (Morningstar, 2012). Therefore, the scale is likely to be the most widely used risk profile questionnaire used by KiwiSaver members. It was included to check convergent validity with other scales measuring risk and to test its internal reliability and predictive validity about investment fund choice. Four questions were asked about investment objectives, attitudes, risk tolerance to losses, and knowledge surrounding financial investments. Answers were scored on a five point scale from the most conservative response (1) to the least conservative (5) response. Scores could therefore range from a minimum of four for the most conservative investor, to a maximum of twenty for the least conservative. A supplementary question asking if a similar risk profile questionnaire had been taken before was added to assess the prevalence of KiwiSaver members taking these short risk attitude questionnaires.

Impulsiveness Sensation Seeking Scale

The Impulsiveness Sensation Seeking Scale consisted of nineteen true or false statements. Responses were scored one for true, and zero for false, and the second and sixth questions were reversed scored. Scores could range from a minimum of zero, to a maximum of nineteen. This scale has good internal reliability coefficients ranging from .77 to .82 among various reported studies (Zuckerman, 1994).

Investment Risk Attitude Scale

The Investment Risk Attitude Scale is a subjective measure designed specifically to measure attitudes towards investment risk (Warneryd, 2001). The Investment Risk Attitude Scale contains six items which were rated on a five point scale from strongly disagree (1) to strongly agree (5). The first, second, and fourth items were reversed scored. Scores can range from a minimum of six, to a maximum of thirty, with higher scores indicating lower levels of risk aversion. This scale has good internal reliability with a Cronbach alpha of .83 (Warneryd, 2001).

CHAPTER 4: RESULTS

This chapter summarises the main survey findings about KiwiSaver investment fund choice. The first section reports a summary of results from the survey. This includes information comparing KiwiSaver members and non-members about extra assets, investments, and savings plans held, and the knowledge of investment in four investment asset classes and their perceived risk assessment of investment. Information on the characteristics of KiwiSaver member investment and knowledge of KiwiSaver, including a comparison between members and non-members, is summarised next. Finally, the summary results of the scores on the scales measuring investment risk and sensation seeking are reported. The second section reports a series of correlational analyses. Convergent validity of the risk scales are measured, and will be followed by analyses of demographic variables, and investment knowledge, and their relation to each other, risk level and fund choice. The section finishes by presenting the results from the multiple regression analyses that assess the predictive validity of variables associated with investment fund type.

Investment Behavior, Knowledge, and Perception of Risk

The main purpose of the KiwiSaver Act (2006) was to encourage a savings habit among those who need it. As Figure 4.1 shows, KiwiSaver was the most popular form of investment held. Bank term deposits were next followed by workplace superannuation schemes, shares in public companies, and other managed funds investments.

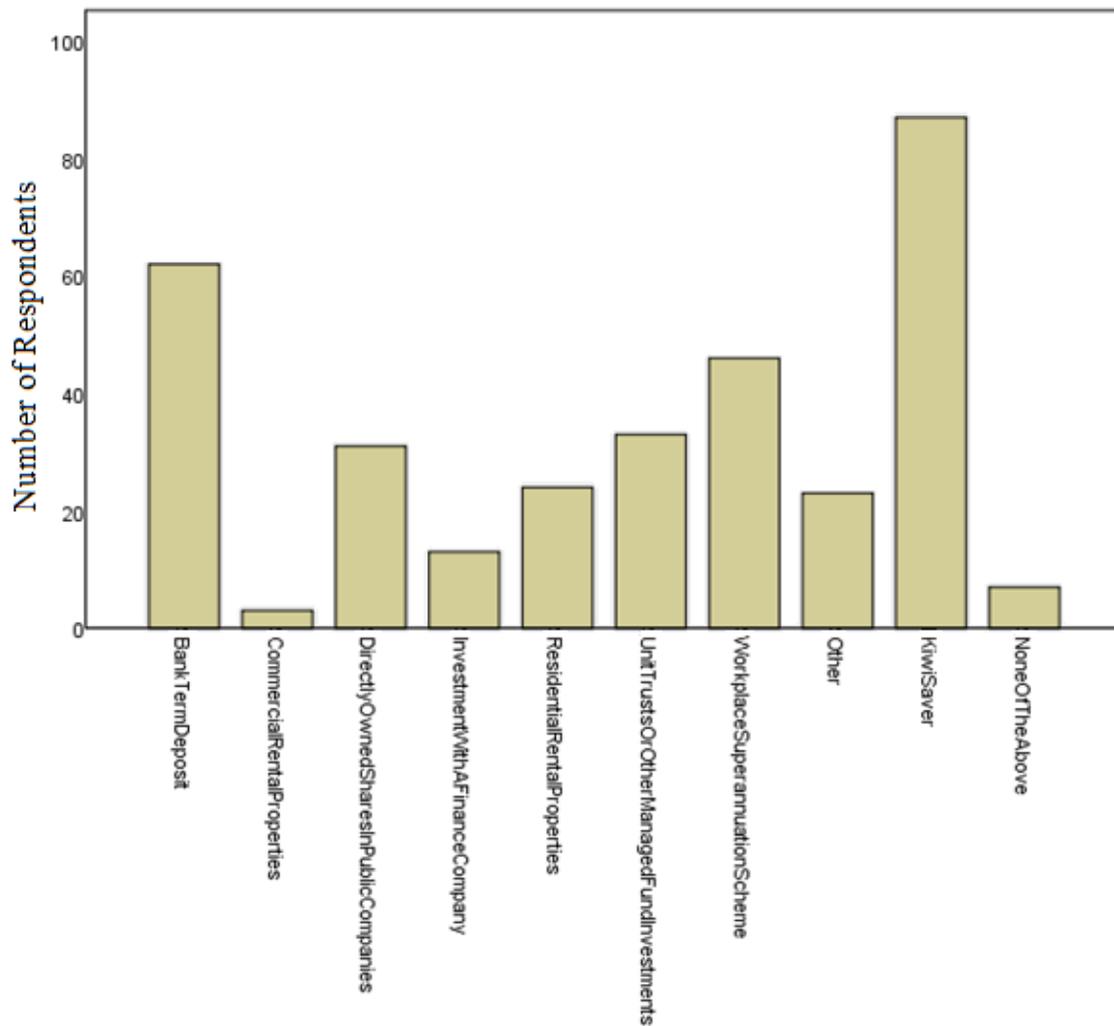


Figure 4.1. Respondents with other Investments and Saving Plans

A comparison of other investments and saving plans in Table 4.1 shows little difference between members and non-members in the types of other investments they held. The biggest difference is that non-members were more likely to hold bank term deposits with 55.3% for non-members, compared with 40.2% for members. However, this was not statistically significant, $t(132) = -1.54, p = .13$. This shows that KiwiSaver members were more likely to be savers anyway. Furthermore, the similarities with non-members indicate that KiwiSaver represents new savings. Also, approximately one-fifth of KiwiSaver members did not hold any additional investments or savings, making KiwiSaver their first significant saving or investment asset.

Table 4.1
Comparison of Other Investment and Saving Plans

Investment/saving plan	Members	Non-members
Bank term deposit	40.2%	55.3%
Workplace superannuation scheme	33.3%	38.3%
Directly owned shares in public companies	24.1%	21.3%
Unit trusts or other managed fund investments	26.4%	21.3%
Residential rental properties	19.5%	14.9%
Investment with a finance company	9.2%	10.6%
Commercial rental properties	0.0%	6.4%
Other	17.2%	17.0%
None of the above	21.8%	14.9%

Two questions asked respondents about their knowledge and perceived risk of investment in four investment asset classes commonly invested in KiwiSaver portfolios; fixed interest, property, shares, and term deposits. Table 4.2 shows the knowledge respondents had about four investment asset classes and the perceived risk of investment in them respectively. Knowledge of each asset class was self-rated on a five point scale from 1 (poor) through to 5 (excellent). Perceived risk of investment was rated on a five point scale from very low risk

(1) to very high risk (5). Scores on both scales could range from a minimum of four to a maximum of twenty.

As Table 4.2 shows, members and non-members gave similar ratings for all four investment asset classes. Respondents believed themselves to be more knowledgeable about term deposits and fixed interest, and also rated them as the least risky form of investment. Shares were rated as the riskiest form of investment followed by property. Respondents appeared to feel knowledgeable about investment asset classes that they perceived as less risky, and knew less about assets they believed to be riskier. An overall knowledge and perceived risk score was calculated by taking the mean average from each respondent. The mean investment knowledge for members was 2.66 (SD=1.19) compared with 2.83 (SD=1.00) for non-members. The mean perceived investment risk was 2.64 (SD=0.43) and 2.53 (SD=0.45) for members and non-members respectively. The mean investment knowledge and mean perceived risk scores are not significantly different between members and non-members, $t(130) = -0.906, p = .37$, and $t(130) = 1.310, p = .19$ respectively. The investment knowledge scale had good internal reliability with a Cronbach alpha of .89, while the perceived investment risk scale showed low internal reliability with a Cronbach alpha of .20. This low value was most likely due to the significantly different ratings given between the riskier group of investment asset classes of property and shares and the less risky group of investment asset classes of term deposits and fixed interest.

Table 4.2
 Knowledge and Perceived Risk of Investment in Four Asset Classes

Asset Class	Knowledge		Perceived Risk	
	Mean	SD	Mean	SD
Members (n = 87)				
Fixed Interest	2.82	1.34	1.68	.80
Property	2.41	1.24	3.13	.82
Shares	2.40	1.32	4.11	.77
Term Deposits	2.99	1.42	1.62	.83
Non-Members (n = 45)				
Fixed Interest	3.18	1.19	1.56	.84
Property	2.60	1.21	2.89	.83
Shares	2.33	1.26	4.11	.78
Term Deposits	3.22	1.28	1.56	.87

KiwiSaver Account Information

This section of the survey asked about respondent's individual KiwiSaver information and assessed their level of involvement in managing their KiwiSaver account. Figure 4.2 displays choice of KiwiSaver provider. A large proportion of respondents (49%) were enrolled with default KiwiSaver scheme providers AMP, ASB, AXA, OnePath, Mercer, or Tower. The largest providers by membership were two default providers, ASB and OnePath, which shared 29% of members between them.

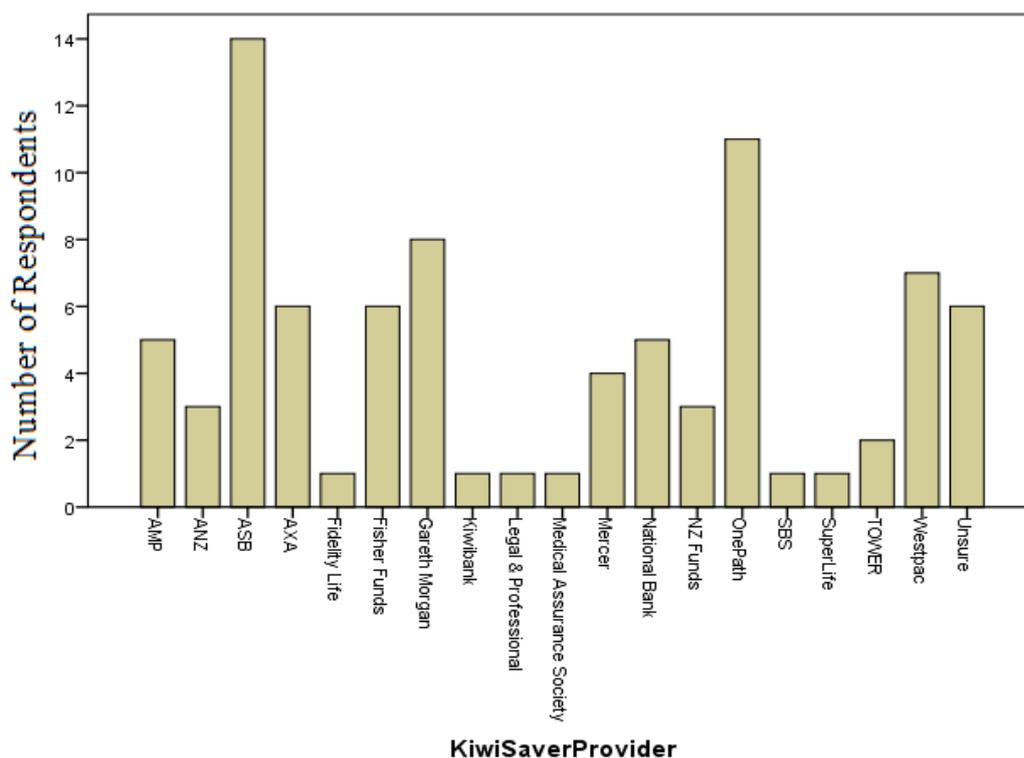


Figure 4.2. Choice of KiwiSaver Provider

Table 4.3 shows the type of fund members were invested in, and the main reasons why they were invested in that fund. Some respondents (12.6%) were unsure about what fund type they were in. A significant majority were invested in conservative and balanced type funds which invest primarily in cash, term deposits, and fixed interest securities. There was also a large number invested in balanced funds which invest in a mixture of conservative income assets, of term deposits and fixed interest, and growth assets, of property and shares. Fewer respondents were invested in the growth and aggressive type funds which primarily invest primarily in riskier assets of shares and property. This pattern could be due to the large number of members who were invested in their employers default scheme, or were allocated to it by the Inland Revenue. Funds that matched member's risk level, investment with a main bank, and recommendations from family and friends, were also popular reasons for choice of investment fund. Three people thought they were in their balanced fund because the Inland Revenue allocated them that fund. However, they appeared to

misunderstand the question because Inland Revenue only allocates new KiwiSaver members to a conservative fund if the member does not choose a fund. Further analysis revealed that of these three respondents, two changed their KiwiSaver fund once and the third had changed it twice. Therefore, the reason for being in their current fund must be different, and they incorrectly answered the question.

The popular reasons behind choice of KiwiSaver fund also show a tendency towards conservative investment. For respondents that responded, the fund best matched their risk level, that the provider was a main bank, or that it was recommended by family or friends, the majority invested in either conservative or balanced type funds. Therefore, even when KiwiSaver members were making an active choice of KiwiSaver fund they tended to choose a conservative investment option.

Table 4.4 presents the rest of the summary statistics on KiwiSaver investment information. The majority of KiwiSaver members (59.3%) have joined the scheme early in the first two years of the schemes operation. Respondents also appeared to be knowledgeable about their own KiwiSaver information with less than 10% responding to questions about with 'unsure'. Table 4.4 shows a tendency among KiwiSaver members to enrol early, contribute the default minimum rate, change their fund allocations rarely, check their account balance infrequently, and make few additional contributions. This could be a result of members being apathetic towards their involvement in managing KiwiSaver funds. Alternatively, the tendency of low management could be intentional as a result of a 'buy and hold' principle, where just participating in KiwiSaver is the main objective.

Table 4.3

Breakdown of the Main Reasons for Investment in Current KiwiSaver Fund

Main Reason	Investment Fund Type							Total
	Cash	Conservative	Balanced	Growth	Aggressive	Lifetimes	Unsure	
Inland Revenue default		8	3					11
Employer default		4	3	2	2	1	5	17
Matches risk level	2	9	6		1			18
Provider is a main bank	2	2	3		1		3	11
Family/friend recommendation		3	4	2	1		3	11
Low fees			1					1
Recommended by a financial advisor	2	2						4
Advertising		1						1
Good past returns				1	1			2
Other	1	1	3	3	1			9
Total	7	30	23	8	7	1	11	

Table 4.4
Summary Statistics on KiwiSaver Account Information

Year Enrolled	Frequency
2007	34
2008	17
2009	9
2010	8
2011	7
2012	5
Unsure	6
Not Answered	1
Times fund changed	Frequency
0	69
1	7
2	4
3	2
4	0
5	1
Unsure	4
Contribution rate	Frequency
0%	4
2%	27
4%	42
8%	6
Unsure	7

Table 4.4 continued

Not answered	1
<hr/>	
Additional contributions	Frequency
<hr/>	
Yes	9
No	77
Not answered	1
<hr/>	
Time spent checking balance	Frequency
<hr/>	
Never	16
Once per year	28
Once per 6 months	16
3-6 times per year	13
Once per month	11
Once per fortnight	0
Once per week	2
Not answered	1
<hr/>	
Using KS for a house	Frequency
<hr/>	
Yes	19
No	67
Not answered	1
<hr/>	

The contribution rate is related to the enrolment date of members. In 2009 the default contribution rate dropped from 4 percent to 2 percent. A total of 51 of respondents were enrolled in KiwiSaver before 2009, with a further 20 enrolling after 2009. Enrolment figures for 2009 are not included because it could not be determined if people enrolling that

year joined KiwiSaver before or after the changes³. For those enrolled before 2009, 60% are currently continuing to contribute at the default rate when they joined, which was 4 percent. For members enrolled after 2009, 55% are currently contributing the default rate of 2 percent. This provides further evidence that KiwiSaver members show little involvement towards the management of their funds, with the majority contributing at the default rate when they joined. For the four respondents contributing 0%, two are on a contribution holiday, one is unemployed, and one gave no reason.

Knowledge about KiwiSaver

This section of the survey assessed respondent's knowledge of the KiwiSaver scheme and its benefits. As Table 4.5 shows, overall the results indicate a lack of knowledge about the KiwiSaver scheme. Members gave correct answers 13% to 78% of the time with a mean of 32.2%. In comparison, non-members were correct 9% to 40% of the time with a mean of 21.8%. Non-members were also more likely to be unsure with a mean of 54.8% answering unsure on each question, compared with 43.4% for members.

A composite KiwiSaver knowledge score was calculated by marking the questions, one for correct and zero for incorrect. The scores were summed to give an overall representation of how knowledgeable respondents were about KiwiSaver. Scores could therefore fall in a range from zero to eight. Non-members tended to have lower scores ($M = 1.77$, $SD = 1.99$) compared with members ($M = 2.54$, $SD = 1.72$). While the KiwiSaver knowledge scores were very low for both groups they were still significantly higher for members $t(132) = 2.249$, $p < 0.05$. A Cronbach alpha of .67 showed the scale has good internal reliability.

³ The changes in minimum contribution rate came into effect on April 1, 2009.

Table 4.5
Respondent's Knowledge about KiwiSaver

Question	Members			Non-members		
	Correct	Incorrect	Unsure	Correct	Incorrect	Unsure
Years until first home withdrawal	24.1%	47.2%	28.7%	12.8%	46.8%	40.4%
Withdrawals for first home purchase	18.4%	25.3%	56.3%	8.5%	21.3%	70.2%
Maximum first home deposit subsidy	17.4%	23.3%	59.3%	8.5%	31.9%	59.6%
Months until contribution holiday	26.4%	21.9%	51.7%	25.5%	21.3%	53.2%
Maximum length of contribution holiday	12.8%	31.4%	55.8%	14.9%	42.5%	57.4%
Able to leave after 8 weeks	36.8%	12.6%	50.5%	29.8%	4.3%	66.0%
Contact to change Scheme	43.7%	24.2%	32.1%	34.0%	14.9%	51.1%
Contact to check KiwiSaver balance	78.2%	9.2%	12.6%	40.4%	19.2%	40.4%

Table 4.6 displays the variables that correlate significantly with the intent to make a first home withdrawal. Members that intended to make withdrawals from their KiwiSaver account to buy their first home were more likely to be young, possess few assets, have a

lower income, know less about investing in general, and be more risk averse. Results of the questions asking about the benefits of KiwiSaver in making a first home purchase were compared between KiwiSaver members planning on withdrawing KiwiSaver savings to purchase a house, and those that were not planning to do so. As Table 4.7 shows, there was little difference between members who were saving for a house purchase and those who were not.

Table 4.6

Summary of Bivariate Correlations with Intent to make a First Home Withdrawal

Bivariate	Correlation
Age	-.434**
Other investments/saving plans	-.403**
Income	-.378**
General Investment Knowledge	-.353**
KSRP	-.221*

Note. Using KiwiSaver to purchase a house scored 1 = no and 2 = yes

* $p < .05$

** $p < .01$

Table 4.7

Comparison of Means on Knowledge of KiwiSaver Home Buying Benefits

Question	For House Purchase			Not for House Purchase		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
First home withdrawal (years)	3.31	1.01	16	3.93	1.41	45
First home purchase withdrawal score	0.84	1.02	19	0.48	.73	66
Max. deposit subsidy (\$)	83,500.13	134,592.42	8	23,923.12	59,539.50	26

Note. There were no significant differences

The maximum deposit subsidy question contained five outliers of \$50,000 (1), \$100,000 (1) and \$300,000 (3) which were significantly higher than the correct answer of \$5,000. To counter the possibility of input errors of too many zeros entered, the four highest outliers were first divided by ten. However, this did not affect the significance of the means comparison. Next, winsorisation was used to limit the five outliers to values of \$30,000, but this did not change the statistical significance. The next data transformation was to remove the outliers entirely. This dropped the mean values to \$3,600 (SD = \$2,190) for members using KiwiSaver to purchase a house, and \$9,250 (SD = \$7,941) for those not using KiwiSaver for a house purchase. The difference between these means was statistically significant, $t(27) = -2.983$, $p < 0.01$, but because of the low number of respondents that answered this question, and the high variation, it is quite possible that this was a false positive result.

Risk Attitudes

Table 4.8 summarises the statistics for the KiwiSaver Scheme Risk Profile (KSRP), Impulsive Sensation Seeking scale (ImpSS), and Investment Risk Attitude Scale (IRAS). Scores on these scales can range from four to twenty for the KiwiSaver Profile, zero to nineteen for Impulsive Sensation Seeking, and six to thirty for Investment Risk Attitude. A higher score on these scales indicates a more risk tolerant attitude. In addition to the KiwiSaver Risk Profile, respondents were asked if they had filled out a similar risk profile questionnaire before. Although most KiwiSaver providers have some form of this short questionnaire on their websites, or in investor statements, the vast majority of respondents (91%) indicated they had not completed one before. Only 7% of members indicated they had completed a similar investor profile before, and 2% were unsure.

Table 4.8

Risk Scale Scores

Scale	Mean	Std. Dev.
KiwiSaver Risk Profile		
Members	11.20	3.78
Non members	11.55	4.14
Impulsive Sensation Seeking Scale		
Members	5.45	3.79
Non-members	4.76	3.31
Investment Risk Attitude Scale		
Members	16.31	4.26
Non members	15.85	4.40

There was no significant difference between the two groups on any of these risk scales. All scales had good internal reliability with Cronbach alphas of .75, .79, and .80 for the KiwiSaver Risk Profile, Impulsive Sensation Seeking, and Investment Risk Attitude scales respectively.

Correlational Analyses

Respondents who were members of KiwiSaver were asked what best described the type of KiwiSaver investment fund they were in. The different investment fund types were ranked on a 5 point scale, shown in Table 4.9, to allow its use in the following correlational and multiple regression analyses.

Table 4.9

Coding of KiwiSaver Investment Fund Types

Investment Fund Type	Coding
Cash (low risk)	1
Conservative (low to medium risk)	2
Balanced (medium risk)	3
Growth (medium to high risk)	4
Aggressive (high risk)	5

Risk level

Correlations between the three risk scales are shown in Table 4.10. When all respondents were pooled together, the scores for the KiwiSaver Risk Profile and the Investment Risk Attitude scale correlated very strongly $r = .701$, $n = 134$, $p < .01$. The Impulsive Sensation Seeking scale correlated with the Investment Risk Attitude scale but not with the KiwiSaver

Risk Profile. When broken down by KiwiSaver membership, the correlation between the Investment Risk Attitude scale and the Impulsive Sensation Seeking scale loses significance for non-members. However, this is likely due to the smaller sample size of non-members. Despite this limitation the results show that the KiwiSaver Risk Profile has good convergent validity with the Investment Risk Attitude scale.

Table 4.10

Intercorrelations between the Three Risk Scales

Scale	ImpSS	IRAS
All respondents (n = 134)		
KSRP	.070	.701*
ImpSS	-	.308*
Members (n = 87)		
KSRP	.094	.666*
ImpSS	-	.316*
Non-members (n = 47)		
KSRP	.031	.772*
ImpSS	-	.285

* $p < 0.01$

Table 4.11 shows the correlations between the risk scales and investment fund type of KiwiSaver members. As a general measure of risk seeking, the Impulsive Sensation Seeking scale did not correlate with investment fund choice. In comparison, the Investment Risk Attitude scale and the KiwiSaver Risk Profile were designed to assess risk tolerance in the context of financial investment, and were shown to be better correlated with investment choices. Respondents who scored higher on these specific measures of risk tolerance were

more likely to invest in a KiwiSaver fund that invests a large proportion in riskier asset classes of property and shares.

Table 4.11

Correlations between Risk Scales and Investment Fund Type

Bivariate	Correlation
KSRP	.520*
IRAS	.450*
ImpSS	.184

* $p < 0.01$

For the subset of members that chose a fund type because it matched their level of preferred risk, 94% chose to invest in conservative or balanced type funds. Further analysis of this subset of members was compared with the rest of the KiwiSaver member population and is shown in Table 4.12. This segment of the KiwiSaver member population scored significantly lower on the Investment Risk Attitude scale. Therefore, there is moderate, but not strong, evidence that KiwiSaver members who choose their fund primarily based on their preferred level of risk are more likely to choose a more conservative fund. However, the lack of a significant difference in scores on the KiwiSaver Risk Profile suggests other factors, like expected return, in addition to risk level can have an influence when choosing an investment fund.

Table 4.12

Comparison of Mean Average Risk Scale Scores

Population segment	KSRP	IRAS	ImpSS
Matches risk level	10.28	13.78*	4.50
Other reasons	11.43	16.97*	5.70

*Significant mean average difference, $p < 0.01$

Demographic variables

Table 4.13 shows age, education level, income, and gender, are correlated to some degree with risk level, knowledge of investment, and the number of other investments and saving plans held among members of KiwiSaver. KiwiSaver members who were older, male, more highly educated, and earned a higher income tended to be more risk tolerant, more knowledgeable of investment in general, and were more likely to have other investments and saving plans in addition to KiwiSaver.

Table 4.13

Significant Correlations with Demographic Variables

Demographic variable	KSRP	IRAS	Investment knowledge	Other investments held
Age	.292**		.370**	.486**
Education level	.266*	.218*		
Income	.416**	.296**	.461**	.470**
Gender ^a	-.289**	-.276*	-.317**	

^a Scored 1 = male, and 2 = female

* $p < .05$

** $p < .01$

The only correlation between investment fund and a demographic variable was for gender, with females being more risk averse than males in their choice of KiwiSaver investment fund, $r = -.319$, $n = 87$, $p < .01$.

Knowledge of investment

Scores on the general investment knowledge scale were positively correlated with the number of other investments held, $r = .508$, n , $p < .01$, which shows higher knowledge of investment is associated with higher levels of investment and diversification. However,

there was no significant correlation between general investment knowledge and knowledge of the KiwiSaver scheme. Despite this, Table 4.14 shows both measures of knowledge are correlated with risk attitude, with greater knowledge associated with a more risk tolerant attitude.

Table 4.14

Correlations between Knowledge Scales and Risk Scales

	KSRP	IRAS
General investment knowledge	.518**	.400*
Knowledge of KiwiSaver	.212*	.227*

* $p < .05$

** $p < .01$

Knowledge about KiwiSaver was significantly correlated with choice of KiwiSaver investment fund, $r = .275$, $n = 87$, $p < .05$. Additionally knowledge about KiwiSaver was correlated with frequency spent checking KiwiSaver account balance, $r = .287$, $n = 87$, $p < .01$, and with the year enrolled in the scheme, $r = -.282$, $n = 87$, $p < .01$. Therefore, a higher knowledge about KiwiSaver was associated with members who joined KiwiSaver earlier, and who checked their account balance more frequently. Additionally, frequency spent checking KiwiSaver account balance was correlated with the year enrolled, $r = -.337$ $n = 87$ $p < .01$.

Regression Analyses

A summary of significant correlations with KiwiSaver investment fund type are shown in Table 4.15. To analyse their predictive validity, the dependent variable of investment fund type was regressed onto these variables with the results shown in Table 4.16 as model 1.

Table 4.15

Summary of Bivariate Correlations with KiwiSaver Investment Fund

Bivariate	Correlation
Gender	-.319**
KS knowledge score	.275*
KSRP	.520**
IRAS	.450**

Note. Gender is scored 1 = male and 2 = female

* $p < .05$

** $p < .01$

The high correlation between the KiwiSaver Risk Profile and the Investor Risk Attitude Scale ($r = .701$) does raise a problem of multicollinearity in this analysis. Because Investment Risk Attitude scale correlated lower ($r = .450$) with investment fund type than the KiwiSaver Risk Profile ($r = .520$) it was removed from the regression analysis. The results of the simultaneous multiple regression analysis, without investment risk attitude as an independent variable, is shown in Table 4.16 as model 2.

The multiple regression analysis shows the best predictor of type of KiwiSaver investment fund was an individual's score on the KiwiSaver Risk Profile. A higher score on this scale can predict investment in a riskier KiwiSaver investment fund which invests a higher proportion in the investment asset classes of property and shares. This is not surprising because scores on these types of risk profile questionnaires in KiwiSaver investment statements are often used to make a recommendation of which type of fund to invest in.⁴ However, few respondents (9%) indicated they had completed a similar profile before. Therefore, although few KiwiSaver members take these kinds of short

⁴ Scheme providers do provide a disclaimer stating that these risk profiles are guides only and do not constitute personal or professional financial advice.

questionnaires offered by scheme providers, the evidence does suggest that they are effective in assessing an investor's risk attitude towards investment in KiwiSaver and can predict what type of investment fund they are likely to invest in.

Table 4.16

Simultaneous Multiple Regression of Variables Predicting KiwiSaver Investment Fund Type

	<i>B</i>	<i>SE B</i>	β
Model 1			
KSRP	.106	.044	.347*
Gender	-.380	.227	-.175
KS knowledge	.100	.066	.157
IRAS	.028	.036	.112
Constant	1.307*	.638	
Model 2			
KSRP	.129	.032	.422**
Gender	-.390	.210	-.190
KS Knowledge	.106	.064	.166
Constant	1.493**	.568	

Note. $R^2 = .329^{**}$ for model 1; $R^2 = .327^{**}$ for model 2

* $p < .05$

** $p < .01$

The multiple regression analysis was expanded to include age, education level, and income, which were variables that correlated with the KiwiSaver Risk Profile shown in Tables 4.13 and 4.14. A simultaneous multiple regression analysis, shown in Table 4.17, revealed that in addition to scores on the KiwiSaver Risk Profile, age is reported to be a significant predictor of investment fund type.

Table 4.17

Simultaneous Multiple Regression Analysis Predicting Type of KiwiSaver Investment Fund

Variable	<i>B</i>	<i>SE B</i>	β
KSRP	.133	.035	.445**
Age	-.229	.077	-.333**
Income	.154	.099	.218
Gender	-.455	.236	-.213
General Investment Knowledge	-.193	.115	-.205
Knowledge of KiwiSaver	.116	.068	.180
Education	.010	.102	.011
Constant	2.481**	.832	

Note. $R^2 = .425^{**}$

** $p < .01$

These results show a more risk tolerant attitude, and younger age, were the best predictors of investment in riskier growth type investment funds. A younger age predicting investment in riskier growth type funds was in contrast to the positive correlation reported between age and tolerant risk attitude measured by the KiwiSaver Risk Profile. This shows that older people may have a more risk tolerant attitude, but their investment behavior is more conservative.

CHAPTER 5: DISCUSSION

What factors influence the choice of KiwiSaver investment funds is a question that has not been studied before. A review of the literature suggest that demographics, risk attitudes, levels of financial knowledge, default rules, recommendations from friends and family, professional financial advice, previous performance, fees, the reputable brand effect of banks, and advertising may all have various levels of influence on fund choice. The results regarding the main reason for fund choice will be discussed regarding their relative frequency with which they are given. Next, the impact of default rules on fund choice, and the pattern of conservative investment are discussed. After this, the role of risk attitudes, knowledge of the KiwiSaver scheme, and investment in general, and demographic factors are discussed. This is followed by a discussion on the characteristics of members planning on using their KiwiSaver savings to purchase a house, and the difficulties faced in using this beneficial feature. Finally, implications for providers and the government are considered, followed by a review of the general limitations of the study and recommendations for future research.

Reasons behind Fund Choice

The main reasons given by respondents for why they are invested in their current KiwiSaver fund show some variation, yet four themes emerge from the pattern of results. First, about one-third of respondents indicated their fund was chosen for them by either their employer or Inland Revenue. This may exhibit either an apathetic attitude towards management of their KiwiSaver account, a desire to join KiwiSaver primarily for the financial benefits of the \$1,000 kickstart and matching contributions, or they recognise their lack of investment expertise, but have not sought professional advice. Second, a fifth of

respondents choose their fund because it best matches their level of risk. Third, 15% cite recommendations from family or friends for their choice of KiwiSaver fund compared with 5% citing advice from financial advisors. This highlights the preference of personal over professional advice sought in financial matters, a pattern that has been reported before in the literature (Harrison, Waite, & White, 2006; Murray, 1991; Shiller & Pound, 1989). Finally, concrete aspects of the fund and provider, including performance and fees, the bank as a provider, and marketing are, with the exception of the provider being a main bank, infrequently reported as the main reason for investment fund choice.

It is important to note that these reasons are not mutually exclusive. Different KiwiSaver funds could be recommended by friends because of their good performance, but it may be the evaluation of an individual's own investment risk tolerance that may be the main contributing factor when selecting a fund. Despite this limitation, the main reasons for investing in a specific KiwiSaver fund can be traced back to either low management involvement, risk level, source of advice, or aspects of the fund.

Default Rules

The results show a high number of KiwiSaver members are invested in a default fund with either their employers preferred scheme or one of the six government-appointed default funds. This has produced a tendency in the population to invest in conservative type funds, or balanced type funds in the case of some employer default schemes. These funds invest a significant proportion into conservative income assets. Furthermore, many members of KiwiSaver are contributing at the minimum rate when they enrolled in the scheme.

This strong effect of default rules on participation, fund choice, and contribution rate, corroborate the research on the effect of default rules in other pension schemes overseas (Beshears, Choi, Laibson, & Madrian, 2009; Choi, Laibson, Madrian, & Metrick, 2002;

Cronqvist & Thaler, 2004; Inland Revenue, 2012a; Madrian & Shea, 2001). However, comparison between pension schemes overseas and KiwiSaver is limited by the fact that automatic enrolment has been a feature of KiwiSaver from the beginning. This prevents a before and after comparison of the effects of automatic enrolment. Another limiting factor in making a comparison is that data on enrolment trends for KiwiSaver cannot currently be analysed at a company level, only at a national level. At the company level, participation rates of new employees are analysed. However, at the national level of KiwiSaver, participation rates of the entire eligible workforce are analysed. Because the KiwiSaver scheme is relatively new, having been operational for a little over five years, existing employees have been opting in at a higher rate in the first few years (Inland Revenue, 2012a). This has skewed the results to showing a higher ratio of opt in enrolments to automatic enrolments.

Despite these limitations on studying the effect of automatic enrolment on participation rates, there is still strong evidence that for individuals who are automatically enrolled, the default rules have a significant effect on fund choice and contribution rate. This study reported that nearly one third of KiwiSaver members are invested in a fund that was chosen for them because it was either, their employer's default fund, or it was allocated to them by Inland Revenue. About half of the members invested in a default fund were allocated into a conservative type fund by either their employer, or Inland Revenue, and remain there. The other half were defaulted into balanced and growth type funds by their employer, or were unsure of the type of fund they are invested in.

A major difference between these findings and the literature on default rules in 401(k) plans is that about half of the employer nominated default funds in this study are not conservative type funds. In a review of the effects of automatic enrolment in 401(k) plans Choi et al. (2002) reported most employers that automatically enrol new employees, choose

very conservative type funds as the nominated default. This is encouraging because it shows a willingness by employers in New Zealand to nominate a fund for their employees that may be more likely to produce higher returns and promote retirement saving goals. However, riskier employer nominated default funds may not be suitable for all new employees, especially older employees that may be more suited to investing in a conservative fund.

Another effect of the default rules is that many KiwiSaver members are still contributing at the minimum default rate when they joined. In April 2009, the minimum contribution rate was dropped from 4 percent to 2 percent. A comparison of contribution rates for members shows that 39% of members enrolled before 2009 are contributing at the previous minimum rate of 4 percent. Meanwhile, 55% of members enrolled after 2009 are contributing at the new minimum rate of 2 percent. Madrian and Shea (2001) reported that, before automatic enrolment, participants in a 401(k) plan were most likely to contribute at a rate of 6%. When automatic enrolment was introduced, the default rate selected was 3%, and 76% of new employees automatically enrolled contributed at this rate.

Madrian and Shea (2001) explain this effect of default rates as a result of inertia among participants in 401(k) plans, resulting in participants becoming passive savers. They reported six out of ten employees did nothing to change their contribution rate, or asset allocation after being automatically enrolled. This pattern also held for existing employees who chose to opt into the 401(k) plan after automatic enrolment was implemented.

Inertia is evident in this study where 84% of respondents indicated they had not changed their investment fund. However, the proportion of KiwiSaver members contributing at the minimum default rate when they enrolled is lower than what Madrian and Shea (2001) reported. This shows that inertia in KiwiSaver is stronger for choice of investment fund, but not for contribution rate. Inertia could be due to the complexity of the decision making process, a lack of adequate information, or the implicit assumption that there is an

endorsement effect where default options constitute investment advice (Beshears et al., 2009; Madrian & Shea, 2001; Samuelson & Zeckhauser, 1988).

Tendency towards Conservative Investment

Both Beshears et al. (2009) and Madrian and Shea (2001) favour the endorsement effect because it explains why they report employees who opt into 401(k) plans, after automatic enrolment is established, are just as likely to invest in the default investment fund as automatically enrolled participants are, but not at the default contribution rate. This would reflect the uncertainty participants who choose to opt in have about asset allocation, but not about contribution rate which is a far less complex decision.

In their review on the power of default rules, Beshears et al. (2009) reported employees who chose to move away from the default options, still tended allocate a significantly higher amount in the default fund compared with participants who had not been automatically enrolled. Although it is uncommon for KiwiSaver members to spread their allocations among various funds offered by a provider, the high investment rates in conservative and balanced funds show that while some KiwiSaver members do move out of the default funds, they often reinvest in something similar. Of the 68% of KiwiSaver members not invested in a default fund, 42% are in a cash or conservative type fund, and 29% are in balanced type funds which still invest a significant proportion in conservative assets.

This tendency towards conservative investment is strongest among respondents who choose their fund based on their risk level, with 94% choosing a low risk conservative or balanced type fund. Other popular reasons for choosing a KiwiSaver fund included recommendations from friends and family, and that the fund provider was a main bank. Respondents citing these reasons also invested conservatively, with 58% investing in conservative or balanced type funds.

This large proportion of respondents investing in conservative funds has implications for schemes providers and the government. Some providers and commentators have argued that to overcome this conservative tendency, automatically enrolled members should be placed into a 'life stages fund' which would adjust an investor's allocation to income and growth assets based on their age and time to retirement (Gibson, 2013; Mace, 2012a). This would place young members into a growth type fund, and progressively move them into a more conservative asset allocation as they near retirement.

Setting the life stages option as a default scheme has received both endorsement and criticism. Similar defined contribution pension systems with an age based default allocation strategy already exist in Chile, Mexico, Peru, Estonia, Hungary, Latvia, and the Slovak Republic (Iglesias, 2011). Mercer, OnePath, and Tower, who are three of the six default scheme providers, support the life stages option, along with provider ANZ and the Financial Markets Authority. Two other default providers, AMP and ASB along with major providers Kiwibank and Westpac, and the Commission for Financial Literacy and Retirement Income, oppose the life stages option. Research conducted by ANZ has been reported to show that a 25 year-old investor could be \$72,000 worse off if invested in a conservative fund compared with investing in the life stages option (Mace, 2012a).

However, Retirement Commissioner Diane Crossan and provider Westpac Bank argue that a life stages approach may not suit the investment goals of everyone (Mace, 2012b). For example, some investors may be distrusting of the share market and its potential for negative investment returns after the recent economic recession. Iglesias (2011) also argues that an individual's risk preferences are not solely determined by age. Differences in employment histories, job certainty, and levels of wealth can vary between individuals within the same age-based cohort. Additionally, provider ASB argue that there appears to be a tendency of people wanting to invest in conservative funds citing 60% of people in its

conservative default fund have decided to remain there (Gibson, 2013). A KiwiSaver survey conducted by ASB reported investment in conservative funds is increasing, which supports evidence from the Financial Markets authority which reported that in the year ending March 2012, a net \$41 million was shifted out of 'share-heavy' growth funds, and a net \$36 million was shifted into conservative funds (Gibson, 2012a).

Risk Attitudes

This study reported the risk scales used by KiwiSaver providers can be significant predictors of an individual's attitude towards financial risk. The KiwiSaver Risk Profile is used by three KiwiSaver scheme providers; ANZ, National Bank, and OnePath. Combined, these providers have the largest number of KiwiSaver members and funds under management (Morningstar, 2012). Its inclusion in the survey with the Investment Risk Attitude scale and the Impulsive Sensation Seeking scale allowed an analysis of its convergent validity, and to compare its predictive validity with the other risk scales. The KiwiSaver Risk Profile has good convergent validity with the Investment Risk Attitude scale, but not with the Impulsive Sensation Seeking scale. In contrast, the Investment Risk Attitude scale does correlate with the Impulsive Sensation Seeking scale, but not as strongly as it correlates with the KiwiSaver Risk Profile. This suggests that the perceived risk of investing in KiwiSaver is context specific, and risk attitudes towards KiwiSaver investment are best measured by specific investment risk attitude scales, instead of more general risk attitude scales, like the Impulsive Sensation Seeking scale.

Another related finding is that the KiwiSaver Risk Profile is correlated with investment fund type better than the Investment Risk Attitude scale, and is the best predictor of investment fund type. A higher score on the KiwiSaver Risk Profile indicates a higher likelihood of investment in riskier growth type investment funds. This provides further

evidence that the more specific the risk scale to the situation, the better it is at predicting risky behavior in that situation. The predictive validity of the KiwiSaver Risk Profile also establishes for the first time in the literature a causal link between a valid measure of risk attitude and investor behavior in KiwiSaver.

However, there is the possibility that the direction of this causal link could go in the opposite direction. The investment in a riskier growth fund could result in more risk tolerance. For example, Warneryd (2001) reported higher levels of interest in financial matters can predict higher levels of risk tolerance. This would lead to investment in riskier investment funds. This study did find more knowledge of the KiwiSaver scheme is related to higher risk tolerance, and investment in risky growth type funds. However, the results of the multiple regression analyses showed risk attitude, and not level of knowledge, was a stronger predictor of investment fund choice.

Finally, investment risk attitude was shown to be associated with age, education level, income, and gender. Higher risk tolerance was observed among respondents who were older, had a higher level of education, earned more, and male. These findings support and extend the literature on demographic variables associated with risk attitudes. However, there are some differences between this study and the literature. For example, in this study employment status was not associated with risk attitude, but age was associated, which is in contrast with the evidence from the literature (Anbar & Eker, 2010; Grable & Lytton, 1998). However, although age was reported to be positively correlated with risk tolerance, the multiple regression analysis reported older people are more likely to invest in conservative type funds. Therefore, increased age is positively associated with an increase in risky attitude, but a decrease in risky behavior.

Investment Knowledge

Four significant findings emerged from the analysis of knowledge of KiwiSaver and investing in general. First, the relationship between investment knowledge and risk attitudes showed knowledge of investing, and KiwiSaver, increased as individuals become less risk averse. This supports the findings by Warneryd (2001) who studied the determinants of risk aversion across three surveys in the Netherlands and Sweden. Warneryd (2001) reported risk aversion only varied consistently with psychological variables, including a relationship with interest in financial matters. As interest in financial matters increased, risk aversion decreased.

Secondly, members who enrolled earlier are more knowledgeable about the KiwiSaver scheme. This may reflect a specific condition where choosing to join the KiwiSaver scheme while it was new may have resulted from information researched or advertised about the benefits of joining KiwiSaver, resulting in higher levels of knowledge about the scheme. Knowledge of KiwiSaver and the year enrolled in the scheme are also associated with the frequency with which individuals check their KiwiSaver account balance, providing additional evidence that members who enrolled earlier are more involved and interested about their retirement savings invested in KiwiSaver. In contrast, later enrollees may be more likely to have been automatically enrolled, and more likely to follow the default rules. Cronqvist and Thaler (2004) reported that in the absence of marketing efforts, the power of default rules increase, and Harrison et al. (2006) reported that information search behavior of individuals joining a pension scheme tended to be passive, with most people joining relatively uninformed. Future research could see if the correlation between KiwiSaver knowledge and the year of enrolment would weaken as the proportion of members enrolling uninformed increases.

Thirdly, respondents who are older, earn a higher income, and are male, tend to be more knowledgeable about investing. It is expected that planning and saving for retirement should require some knowledge of investing savings. These findings are consistent with the literature which shows that retirement planning is greater with age (Baker & Haslem, 1974; Petkoska & Earl, 2009), men (Bajtelsmit, Bernasek, & Jianakoplos, 1999; Jacobs-Lawson, Hershey, & Neukam, 2004), and higher income earners (Jacobs-Lawson et al., 2004). However, knowledge of KiwiSaver does not correlate with any demographic variables at all. A possible explanation is that mean scores on the KiwiSaver knowledge section of the survey were so low it created a floor effect, and masked any possible differences in demographic variables. This is consistent with previous findings that mutual fund investors are largely uninformed about their investments (Capon, Fitzsimons, & Prince, 1996).

Finally, better knowledge of the KiwiSaver scheme was reported to be related to investment in riskier growth type funds. Financial education on retirement saving has been shown to increase participation and contributions to pension plans (Bayer, Bernheim, & Scholz, 2009). However, IQ may also be an important predictor of knowledge about the KiwiSaver scheme (Grinblatt, Keloharju, & Linnainmaa, 2011). New KiwiSaver members, particularly young members, may also be nudged by financial advisors towards investment in a growth type fund (Zhang, 2013). However, better knowledge of KiwiSaver may be the result of intelligent individuals seeking out information about the scheme by themselves. Therefore, a topic for future research would be to study the comparative effects that education and general intelligence may have on knowledge about KiwiSaver and the effect this has on investment behavior and attitudes.

Demographics

Despite the fact that gender, education, income, and age, were predicted to be associated with KiwiSaver investment fund choice, only gender showed a significant correlation with fund choice. Males are more likely to invest in riskier growth funds. However, the multiple regression analysis showed that age is the only significant demographic variable that predicts fund type, with younger KiwiSaver members invested in riskier investment funds. Warneryd (2001) states that, compared with research on market inefficiencies, there has been very little research analysing the demographic and psychological characteristics of investors.

In one of the few studies comparing demographic variables and investor behavior in 401(k) plans using aggregate data, Copeland (2004) reported that higher investment in equities was associated with individuals that were highly educated, earned a higher income, and were younger. However, there can be extreme variations around the mean values which can make the mean differences an artefact of the analysis and not representative of a majority of individuals (Copeland, 2011; VanDerhi, Holden, Alonso, & Bass, 2011).

An advantage of the KiwiSaver scheme is that members do not have to make asset allocations themselves. For example, KiwiSaver members do not have to make investment asset allocations towards equity funds based on their perceived risk, unlike 401(k) and IRA participants in the United States. This more passive approach towards KiwiSaver funds may be suppressing the expected effects of demographic variables, which could be the result of consideration of making asset allocations.

Despite this limitation, the relationship between gender and age on KiwiSaver investment fund type shows that demographic factors still have an influence. Further research could include a hypothetical asset allocation scenario. Participants would allocate a percentage of a hypothetical KiwiSaver mutual fund, to shares, property, fixed interest, and term deposits.

The effect of demographic variables could then become significant due to this more active asset allocation management style.

House Purchase Benefits of KiwiSaver

One of the popular benefits of the KiwiSaver scheme is the ability to withdraw contributions after three years to use in purchasing a house for first home buyers. Although the initial uptake of the first home withdrawal feature was higher than forecast, many members have experienced confusion over the process of the withdrawal (Inland Revenue, 2011). Despite this confusion, about one-fifth of respondents indicate they are planning on using the first home withdrawal feature of KiwiSaver. These respondents are more likely to enrol earlier in KiwiSaver, be more risk averse, less knowledgeable about investing, younger, earn a lower income, and have fewer other investments and saving plans.

This subset of respondents did not score significantly better than the rest of the KiwiSaver member population on the KiwiSaver knowledge questions about the home purchase benefits of KiwiSaver. This non-significant difference may arise from the confusion surrounding the first-home withdrawal and first-home deposit subsidy, resulting in all members being equally unknowledgeable about the benefits. A lack of awareness about the process and requirements, and difficulty in coordinating the applications between scheme providers, Housing New Zealand, Inland Revenue, banks, lawyers and real estate agents, have been cited as obstacles towards benefiting from these features (Gibson, 2012b). In some cases this confusion has left members missing out on these benefits.

Implications

The findings of this study suggest that KiwiSaver members may be unconcerned or apathetic about their KiwiSaver funds, have low levels of investment risk tolerance, and low

knowledge of their investments. This has resulted in a large number of KiwiSaver members remaining in the funds they were defaulted into when they were automatically enrolled.

Even for members that choose their own fund, there is a tendency towards more conservative investments. This conservative tendency could result in a significant number of individuals, who rely solely on KiwiSaver to fund their retirement, not saving an adequate amount for their retirement. Alternatively it could result in protection from potentially significant falls in savings that are invested in riskier growth type funds.

One option to counter the conservative investment tendency is to change the default rules so individuals are placed into a different types of fund based on their age and investment time horizon. For example, young people entering the workforce in their twenties would be defaulted into an aggressive fund that invests mainly in shares. In contrast, people nearing retirement who enter KiwiSaver would be defaulted into a more conservative fund investing in income assets like bonds and term deposits. However, Beshears et al. (2009) argue that an optimal default depends on a large degree of homogeneity among individual preferences and therefore there is no single optimal set of default rules. With factors other than age affecting individual preferences, this life stages option as a default may not necessarily be the best option.

While this approach has its proponents and critics, it is only one method of choice architecture for influencing choices. The goal of a choice architect is to indirectly influence the choices of other people (Thaler & Sunstein, 2009). Using defaults to make a no-choice option easiest is one way of influencing choice but there are other options that could be applied to KiwiSaver. Another method is to provide feedback where well designed systems inform people of their fund's performance, either good or bad. Feedback in a KiwiSaver context does occur where annual investor statements are sent by scheme providers to their members detailing their contributions and return on investment of their account balance each

year. This could be used to highlight the difference between the performances of conservative default funds and better performing growth funds, and to make a recommendation to default fund members to change their fund. However, this approach could be counter-productive, because annual returns are not necessarily an indication of future performance and some members in default funds, like older people, may not benefit from changing to a riskier investment fund.

The alternative to redesigning the KiwiSaver scheme is to invest in financial education. An example of this is the Sorted website, <https://www.sorted.org.nz/>, an independent website run by the Commission for Financial Literacy and Retirement Income, which offers free advice on managing finances and planning for retirement. Part of its services include the use of financial calculators to estimate the amount of KiwiSaver savings an individual might contribute based on their age, income, and contribution rate.

The disadvantage of this service is that it requires KiwiSaver members to be attracted towards using the site. The alternative is to actively promote financial education by having scheme providers and the government reaching out to KiwiSaver members. However, Cronqvist and Thaler (2004) showed, the effect of advertising campaigns have only a temporary effect. Additionally, financial education may not be sufficient to change investment behavior (Choi et al., 2002; Clark, d'Ambrosio, McDermed, & Sawant, 2006), and IQ may be a more important factor (Grinblatt et al., 2011).

What these options have in common is the goal of changing KiwiSaver investor behavior. Yet the methods used to achieve this goal differ significantly. If KiwiSaver investment behavior is to be changed then a decision needs to be made between redesigning the KiwiSaver scheme, or to educate members about their investments. Financial education places the onus on individual KiwiSaver members to change their investment fund to something more appropriate for themselves. Alternatively, redesigning the default rules

relies less on active change by members and adopts a paternal libertarianism approach by influencing their options indirectly.

Limitations of the Research

A limitation with the design of the survey used was the type of response formats used in the knowledge about KiwiSaver section. Half of the questions were open questions, and the other half had a multiple choice format. There could have been a difference between the two response types, with the open questions being a recall task. The multiple choice questions, by virtue of having the correct answer given as one of the options, could represent a recognition task. Non-response rates for the open choice questions ranged from 28% to 60%, whereas 'unsure' responses for the multiple choice questions ranged from 11% to 49% of responses. Whether respondents really did know less about KiwiSaver features assessed by the open questions, or if there was a recognition effect is unclear but could be a topic for further study.

An additional limitation with the KiwiSaver knowledge section was that questions focussed on the features of KiwiSaver. They did not assess respondent's knowledge about the process of how their contributions are invested, and their knowledge of the specific and general risks involved in making such an investment. Assessment of this knowledge might have shown better convergent validity with the questions assessing general investment knowledge about the four investment asset classes of term deposits, fixed interest, property, and shares.

Another limitation is the nature of this study which used survey methods to assess investor behavior. While the survey attempted to gather concrete factual data there was the possibility of a response bias when the risk scales were answered. A link was reported between conservative investment and high risk aversion. However, respondents may have

been primed by their answers to their investment fund type question. In other words, respondents who indicated they were in a conservative fund may have assumed they were financially risk averse, and were therefore biased in their responses to the risk attitude scales.

Another method that can be used to assess risk aversion would be to conduct an experiment where participants would perform an asset allocation experiment. Participants would first be asked to make optimal allocations of a hypothetical KiwiSaver fund to various investment asset classes that vary in their risk of investment. This could then later be compared with their current KiwiSaver investment fund type to see if there is a difference between their recommendations and actual choice. Warneryd (2001) reported investment behavior in an experimental setting can differ depending on whether a team's own money, or money from another team, was invested. Teams investing their own money showed more risk-averse behavior than when money from another team was invested.

Finally, the focus of this study was to assess what factors predicted the choice of a particular investment fund. It did not look at assessing why a particular fund, or set of funds, was not invested in. Aversion from a particular fund may explain some of the investor behavior seen in this study. For example, respondents were given the option of citing good performance of a fund as the main reason for choosing to invest in that particular fund. However, it may be equally applicable that bad performance may drive investors out of a fund (Del Guercio & Tkac, 2002). While leaving poorly performing funds is not as common as joining funds with good performance, it is more common in pension mutual funds than non-pension mutual funds (Del Guercio & Tkac, 2002). This may be due to the greater possibility of losing a significant amount of retirement savings in a pension mutual fund compared with a non-pension mutual fund.

This aversive investment behavior could also be studied with respect to choice of scheme provider and contribution rate. For example, members may contribute the minimum amount because they cannot afford to contribute at the higher rates. With the minimum contribution rate scheduled to rise from 2% to 3% in April 2013, some commentators have suggested that this could lead to more low income earners taking a contributions holiday because they cannot afford the increase in contribution rate (Small, 2013). In this case, investor behavior would be driven, not by an attraction to the contributions holiday, but by the aversion of having to contribute at a higher rate.

CHAPTER 6: CONCLUSION

This study analysed the investment behavior and attitudes of members in KiwiSaver. KiwiSaver is a departure from previous nation-wide pay-as-you-go public pensions funded through taxation. KiwiSaver is a voluntary save-as-you-go defined contribution scheme, and it contains financial incentives, including matching contributions from employers and a \$1,000 kickstart from the government. Once enrolled in KiwiSaver, automatic deductions from an employee's gross salary or wage are placed into an investment fund offered by a government approved scheme provider. Withdrawals can only be made upon reaching the retirement age, currently set at 65, or to purchase a first home.

There are several important reasons for evaluating the choice of investment fund by KiwiSaver members. First, there are the changing demographics of New Zealand's population. Retirees are expected to become a larger proportion of the population, along with a corresponding relative decrease in the working population that is expected to provide the public pension through taxation. Furthermore, this ageing demographic shift is expected to remain permanent. Secondly, a large number of KiwiSaver members have not made a deliberate choice of investment fund and are currently invested in a conservative fund offered by a default scheme provider. Thirdly, a tendency towards investment in conservative funds may mean that some members may not save enough for their retirement. Younger people in particular could benefit from a long term investment in a riskier growth fund. Finally, previous research that examined KiwiSaver often focused on demographic factors behind participation and scheme provider membership. There has been no previous research that has examined the factors behind the investment fund choice of KiwiSaver members.

Research on saving acts and saving motives often highlight the life-cycle motive as a common reason for saving. The life-cycle motive for saving is to provide for the anticipated future relationship between income and needs. Modern portfolio theory can make recommendations for what may be the optimal way to save according to the life-cycle motive. Because of the long investment time horizon, it may be financially beneficial to invest in riskier stocks because of their expected superior returns. The long investment time horizon also allows for recovery from a short term drop in the value of an investment portfolio. However, this recommendation is contingent on returns from human capital, the present value of future labour, remaining more positively correlated with 'bond' returns than with stock returns.

Saving can also be predicted by the Theory of Planned Behavior which suggests that three factors of, attitudes, social norms, and perceived behavioral control, influence intentions, which then influences behavior. This theory predicts that investor saving behavior in KiwiSaver could be predicted using personal and interpersonal psychological variables. Studies on decisions to buy into pension plan schemes have produced models showing that saving behavior may be influenced by significant changes in a person's life, and awareness about the consequences of not saving for retirement. However, a lack of access to reliable and useful information and uncertainty surrounding the process could be hindering factors towards saving.

Several variables were reviewed which could have an effect on KiwiSaver investment behavior. Variables that could influence KiwiSaver investment fund choice to varying degrees included: demographic variables, specifically age, gender, education, and income, risk attitudes, financial knowledge, default rules, personal advice from friends and family, professional financial advice, the fees and past performance of investment funds, banks, and advertising.

A survey was distributed among 134 people, with 87 members of KiwiSaver and 47 non-members responding. In addition to asking KiwiSaver members about their investment behavior, the survey asked all respondents about their behavior, knowledge, and attitudes towards investments in general. Knowledge of the KiwiSaver scheme, measures of risk attitudes and questions on demographic characteristics were also investigated.

The results showed a tendency to invest in conservative type funds and balanced type funds which still invest a significant portion in conservative income assets. Part of this conservative tendency is due to the default rules of the KiwiSaver scheme, with a third of respondents indicating they were invested in their current KiwiSaver fund because they had been placed there by default. For members choosing a fund because it best matched their risk level, two thirds chose a conservative type fund and the remaining third were invested in a balanced type fund. Other common reasons for a member's choice of investment fund included, recommended by family and friends, and because the scheme provider was a main bank. For both reasons, conservative or balanced investment was popular.

Correlations with investment fund type showed that members who were male, were more knowledgeable about KiwiSaver, and had a more risk tolerant attitude, were more likely to invest in a riskier growth type fund. Multiple regression analysis showed that risk attitude, measured by the KiwiSaver Risk Profile, was the best predictor of investment fund choice. Higher scores on the KiwiSaver Risk Profile indicate a more risk tolerant attitude, and therefore a higher likelihood of investment in riskier investment funds. Other variables correlated with this risk attitude measure were added to the multiple regression analysis. Only age was reported to also be a predictor of investment fund choice, with younger people more likely to invest in growth funds.

The study shows that KiwiSaver members invest conservatively for a variety of reasons. Many members have shown a low level of involvement in managing their KiwiSaver

investment, resulting in a significant proportion of KiwiSaver members remaining in the conservative default fund they were allocated to. Whether this is due to apathy, or a deliberate buy and hold strategy to earn the benefits of matching contributions only, or a recognised lack of expertise in investing, is unclear. Even when KiwiSaver members actively choose their fund based on their risk attitudes, or personal advice from others they tend to invest conservatively.

The study has some methodological limitations, including the format and scope of the questions asked. Another limitation is the scope of the study where the focus was on what factors influenced the choice of a specific fund. It did not examine reasons for avoiding certain funds or providers. Research into these reasons may be useful in distinguishing members who are more risk averse among those invested in conservative funds.

REFERENCES

- Agnew, J. R., Balduzzi, P., & Sunden, A. (2003). Portfolio choice and trading in a large 401(k) plan. *The American Economic Review*, 93, 193-215
- Agnew, J. R., & Szykman, L. R. (2005). Asset allocation and information overload: The influence of information display, asset choice, and investor experience. *The Journal of Behavioral Finance*, 6(2), 57-70
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211
- Anbar, A., & Eker, M. (2010). An empirical investigation for determining of the relation between personal financial risk tolerance and demographic characteristic. *Ege Academic Review*, 10(2), 503-523
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour. *The British Journal of Social Psychology*, 40, 471-499
- Bajtelsmit, V. L., Bernasek, A., & Jianakoplos, N. A. (1999). Gender differences in defined contribution pension schemes. *Financial Services Review*, 8(1), 1-10
- Baker, H., & Haslem, J. (1974). The impact of investor socioeconomic characteristics on risk and return preferences. *Journal of Business Research*, 2(4), 469-476
- Barber, B. M., Odean, T., & Zheng, L. (2005). Out of sight, out of mind: The effects of expenses on mutual fund flows. *The Journal of Business*, 78(6), 2095-2120
- Bayer, P. J., Bernheim, D., B., & Scholz, J. K. (2009). The effects of financial education in the workplace: Evidence from a survey of employers. *Economic Inquiry*, 47(4), 605-624
- Bem, D. J. (1971). The concept of risk in the study of human behavior. In R. E. Carney (Ed.), *Risk-taking Behavior: Concepts, Methods, and Applications to Smoking and Drug Abuse* (pp. 4-18). Springfield, Il: Charles C Thomas

- Bernheim, B. D., & Garret, D. M. (2003). The effects of financial education in the workplace: Evidence from a survey of households. *Journal of Public Economics*, 87, 1487-1519
- Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2009). The importance of default options for retirement savings outcomes: Evidence from the United States. In J. Brown, J. Liebman & D. Wise (Eds.), *Social Security Policy in a Changing Environment* (pp. 167-195). Chicago: University of Chicago Press
- Bodnarak, A., & Simonov, A. (2012). Do Financial Experts Make Better Investment Decisions? *Social Science Research Network*. Retrieved February 28, 2013, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2021501
- Boyle, G. W., & Guthrie, G. A. (2005). Human capital and popular investment advice. *Review of Finance*, 9, 139-164
- Canner, N., Mankiw, G. N., & Weil, D. N. (1997). An asset allocation puzzle. *The American Economic Review*, 87(1), 181-191
- Canova, L., Rattazzi, A. M. M., & Webley, P. (2005). The hierarchical structure of saving motives. *Journal of Economic Psychology*, 26(1), 21-34
- Capon, N., Fitzsimons, G. J., & Prince, R. A. (1996). An individual level analysis of the mutual fund investment decision. *Journal of Financial Services Research*, 10, 59-82
- Carran, J. (2012). Take your funds for a holiday overseas. Retrieved August 28, 2012, from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10825063
- Chalmers, J., & Reuter, J. (2012). What is the impact of financial advisors on retirement portfolio choices and outcomes? *The National Bureau of Economic Research*. Retrieved October 16, 2012, from <http://www.nber.org/papers/w18158>
- Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2002). Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. *Tax Policy and the Economy*, 16, 67-113

- Clark, R. L., d'Ambrosio, M. B., McDermed, A. A., & Sawant, K. (2006). Retirement plans and saving decisions: The role of information and education. *Journal of Pension Economics and Finance*, 5(1), 45-67
- Copeland, C. (2004). Retirement plan participation and asset allocation. *EBRI Education and Research Fund*, 25, 1-11. Retrieved October 10, 2012, from <http://www.ebri.org/pdf/notespdf/0104notes.pdf>
- Copeland, C. (2011). IRA asset allocation. *EBRI*, (5), 2-14. Retrieved October 10, 2012, from http://www.ebri.org/publications/notes/index.cfm?fa=notesDisp&content_id=4823
- Cronqvist, H., & Thaler, R. H. (2004). Design choices in privatized social-security systems: Learning from the Swedish experience. *The American Economic review*, 94(2), 424-428
- Del Guercio, D., & Tkac, P. A. (2002). The determinants of the flow of funds of managed portfolios: Mutual funds vs. pension funds. *The Journal of Financial and Quantitative Analysis*, 37(4), 523-527
- Del Guercio, D., & Tkac, P. A. (2008). Star power: The effect of Morningstar ratings on mutual fund flow. *The Journal of Financial and Quantitative Analysis*, 43(4), 907-936
- Duflo, E., & Saez, E. (2002). Participation and investment decisions in a retirement plan: The influence of colleagues' choices. *Journal of Public Economics*, 85, 121-148
- East, R. (1993). Investment decisions and the theory of planned behavior. *Journal of Economic Psychology*, 14, 337-375
- Frye, M. B. (2001). The performance of bank-managed mutual funds. *The Journal of Financial Research*, 24(3), 419-442
- Gaynor, B. (2012). KiwiSaver investors should be thinking local. Retrieved August 28, 2012 from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=1082609

- Gibson, E. (2012a). *KiwiSavers urged to think long term*. Retrieved November 07, 2012, from <http://www.stuff.co.nz/business/money/7914621/KiwiSavers-urged-to-think-long-term>
- Gibson, E. (2012b, 23 April). Clearing confusion for first-home buyers, *The Press*, p. A10
- Gibson, E. (2013). *AMP urges dropping of KiwiSaver first-home withdrawals*. Retrieved January 24, 2013, from <http://www.stuff.co.nz/business/money/8215646/AMP-urges-dropping-of-KiwiSaver-first-home-withdrawals>
- Good Returns. (2011). *English announces KiwiSaver soft-compulsion plans*. Retrieved September 12, 2012, from <http://www.goodreturns.co.nz/article/976498673/english-announces-kiwisaver-soft-compulsion-plans.html>
- Grable, J. E., & Lytton, R. H. (1998). Investor risk tolerance: Testing the efficacy of demographics as differentiating and classifying factors. *Financial Counseling and Planning*, 9(1), 61-73
- Grinblatt, M., Keloharju, M., & Linnainmaa, J. (2011). IQ and stock market participation. *Journal of Finance*, 66(6), 2121-2164
- Groenland, E. A. G., Bloem, J. G., & Kuylen, A. A. A. (1996). Prototypicality and structure of the saving concept for consumers. *Journal of Economic Psychology*, 17(6), 691-708
- Harlow, W. V., & Brown, K. C. (1990). Understanding and assessing financial risk tolerance: A biological perspective. *Financial Analysts Journal*, 46(6), 50-62
- Harrison, T., Waite, K., & White, P. (2006). Analysis by paralysis: The pension purchase decision process. *International Journal of Bank Marketing*, 24(1), 5-23
- Hunter, K., & Kemp, S. (2004). The personality of e-commerce investors. *Journal of Economic Psychology*, 25, 529-537

- Iglesias, A. (2011). An age-based multifunds regulatory approach for latin american funds. In S. Rajkumar & M. C. Dorfman (Eds.), *Governance and Investment of Public Pension Assets: Practitioners' Perspectives* (pp. 212-220). Washington DC: The World Bank
- Inland Revenue. (2006). *KiwiSaver Joint Evaluation Strategy*. Retrieved August 09, 2012 from, <http://www.ird.govt.nz/resources/f/1/f1b9c0804bbe502c956ed5bc87554a30/ks-report-eval-strategy-nov2006.pdf>
- Inland Revenue. (2009). *Six-monthly report: July-December 2008*. Evaluation Services.
- Inland Revenue. (2010a). *Annual Report July 2009 to June 2010*. Retrieved August 09, 2012, from <http://www.ird.govt.nz/resources/3/0/30e314004bbe50239504d5bc87554a30/ks-report-dec2007.pdf>
- Inland Revenue. (2010b). *KiwiSaver Evaluation Survey of Individuals Summary Report*. Retrieved August 09, 2012, from <http://www.ird.govt.nz/resources/7/9/797f4780436e4f83a0b1b24e9c145ab7/ks-evaluation-individuals-summary.pdf>
- Inland Revenue. (2011). *Annual Report July 2010 to June 2011*. Retrieved August 09, 2012, from <http://www.ird.govt.nz/resources/c/4/c4434f004882ca53bdecdb625120aaa/ks-ar-2011.pdf>
- Inland Revenue. (2012a). *Annual Report July 2011 to June 2012*. Retrieved December 21, 2012, from <http://www.ird.govt.nz/resources/0/d/0d3d14004cffc589b843fb036c671ce9/kiwisaver-annual-report-2012.pdf>
- Inland Revenue. (2012b). *KiwiSaver and Superannuation for individuals (Tax changes - Budget 2011)*. Retrieved November 11, 2012, from <http://www.ird.govt.nz/changes/kiwisaver/budget-kiwisaver.html>

- Jacobs-Lawson, J. M., & Hershey, D. A. (2005). Influence of future time perspective, financial knowledge, and financial risk tolerance on retirement saving behaviors. *Financial Services Review, 14*, 331-344
- Jacobs-Lawson, J. M., Hershey, D. A., & Neukam, K. A. (2004). Gender differences in factors that influence time spent planning for retirement. *Journal of Women & Aging, 16*(3/4), 55-69
- Jagannathan, R., & Kocherlakota, N. R. (1996). Why should older people invest less in stocks than younger people? *Federal reserve Bank of Minneapolis Quarterly Review, 20*(3), 11-23
- Jain, P. C., & Wu, J. S. (2000). Truth in mutual fund advertising. *The Journal of Finance, 55*(2), 937-958
- Kaniel, R., Starks, L. T., & Vasudevan, V. (2007). Headlines and bottom lines: Attention and learning effects from media coverage of mutual funds. Retrieved January 10, 2013, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=687103
- Katona, G. (1975). *Psychological Economics*. New York: Elsevier
- Kempf, A., & Ruenzi, S. (2008). Family matters: Rankings within fund families and fund inflows. *Journal of Business Finance & Accounting, 35*(1-2), 177-199
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan
- KiwiSaver Act (2006) § 3 (1).
- Knuutila, M., Puttonen, V., & Smythe, T. (2007). The effect of distribution channels on mutual fund flows. *Journal of Financial Services Marketing, 12*(1), 88-96
- Korkeamaki, T., Puttonen, V., & Smythe, T. (2007). Advertising and mutual fund flows. *International Journal of Bank Marketing, 25*(7), 434-451

- Mace, W. (2012a). *ANZ calls for KiwiSaver change*. Retrieved January 24, 2013, from <http://www.stuff.co.nz/business/money/6282134/ANZ-calls-for-KiwiSaver-change>
- Mace, W. (2012b). *Doubts on bank's push for 'life stages' KiwiSaver*. Retrieved January 24, 2013, from <http://www.stuff.co.nz/business/money/6286590/Doubts-on-banks-push-for-life-stages-KiwiSaver>
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *The Quarterly Journal of Economics*, 166(4), 1149-1187
- Malliaris, A. G., & Malliaris, M. E. (2008). Investment principles for individual retirement accounts. *Journal of Banking & Finance*, 32, 393-404
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77-91
- Matthews, C. (2011, August). *KiwiSaver and retirement savings*: Finsia, Wellington: Massey University, School of Economics and Finance
- McCulloch, B., & Frances, J. (2001). *Financing New Zealand superannuation*. Retrieved September 03, 2012, from <http://www.treasury.govt.nz/publications/research-policy/wp/2001/01-20//twp01-20.pdf>
- Ministry for Culture and Heritage. (2011). Old-Age Pensions Act passes into law. Retrieved October 22, 2012, from <http://www.nzhistory.net.nz/old-age-pensions-act-passes-into-law>
- Ministry of Economic Development. (2008). *KiwiSaver: Evaluation of supply-side impacts*. Retrieved January 14, 2013, from <http://www.med.govt.nz/about-us/publications/publications-by-topic/evaluation-of-government-programmes/lbd-gsr-evaluation-final-report.pdf>

- Morningstar. (2012). KiwiSaver performance survey December quarter 2012. Retrieved February 5, 2013, from, http://www.morningstar.co.nz/s/documents/kiwisaver_survey130122.pdf
- Morse, W. C. (1998). Risk taking in personal investments. *Journal of Business and Psychology, 13*(2), 281-288
- Murray, K. B. (1991). A test of services marketing theory: Consumer information acquisition activities. *Journal of Marketing, 55*(1), 10-25
- Ong, R. (2009). Self-provision in retirement: Quantitative evidence on older Australians' expectations and experiences. *Australian Journal on Aging, 28*(1), 22-27
- Perry, V. G., & Morris, M. D. (2005). Who is in control? The role of self-perception, knowledge, and income in explaining consumer financial behavior. *Journal of Consumer Affairs, 39*(2), 299-313
- Petkoska, J., & Earl, J. (2009). Understanding the influence of demographic and psychological variables on retirement planning. *Psychology and Aging, 24*(1), 245-251
- Preston, D. A. (1997). The Compulsory Retirement Savings Scheme Referendum of 1997. *Social Policy Journal of New Zealand, 9*, Retrieved September 10, 2012, from <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/journals-and-magazines/social-policy-journal/spj09/compulsory-retirement-savings-scheme-referendum.html>
- Rickwood, C., & White, L. (2009). Pre-purchase decision-making for a complex service: Retirement planning. *Journal of Services Marketing, 23*(3), 145-153
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty, 1*, 7-59

- Shiller, R. J., & Pound, J. (1989). Survey evidence on diffusion of interest and information among investors. *Journal of Economic Behavior and Organization*, 12, 47-66
- Sirri, E. R., & Tufano, P. (1998). Costly search and mutual fund flows. *The Journal of Finance*, 53(5), 1589-1622
- Slovic, P. (1972). Information processing, situation specificity, and the generality of risk taking behavior. *Journal of Personality and Social Psychology*, 22(1), 128-134
- Small, V. (2013). *KiwiSaver contributions to rise in April*. Retrieved March 08, 2013, from <http://www.stuff.co.nz/business/money/8400800/Kiwisaver-contributions-to-rise-in-April>
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness* (Revised ed.). New York: Penguin
- Thomas, C., & Matthews, C. (2012). KiwiSaver Member Behaviour: A Quantitative Analysis. *Paper presented at the 25th Australasian Finance and Banking Conference 2012*. Sydney, Australia
- Toder, E., & Khitatrakun, S. (2006). *KiwiSaver evaluation literature review*. Washington DC: Tax Policy Center
- Tversky, A., & Fox, C. R. (1995). Weighing risk and uncertainty. *Psychological Review*, 102(2), 269-283
- Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Journal of Business*, 59(4), 5251-5278
- Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5, 297-323
- VanDerhi, J., Holden, S., Alonso, L., & Bass, S. (2011). 401(k) plan asset allocation, account balances, and loan activity in 2010. *EBRI*. Retrieved October 10, 2012, from http://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=4968

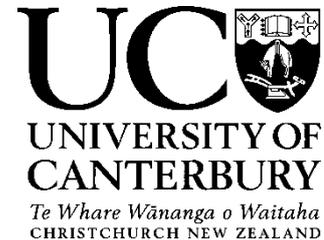
- Warneryd, K.-E. (1996). Risk attitudes and risky behavior. *Journal of Economic Psychology*, 17, 749-770
- Warneryd, K.-E. (1999). *The Psychology of Saving: A Study on Economic Psychology*. Cheltenham: Elgar
- Warneryd, K.-E. (2001). *Stock-Market Psychology: How People Value and Trade Stocks*. Cheltenham: Elgar
- Webley, P., & Nyhus, E. K. (2008). Inter-temporal choice and self-control: Saving and borrowing. In A. Lewis (Ed.), *The Cambridge Handbook of Psychology and Economic Behavior* (pp. 105-131). Cambridge: Cambridge University Press
- Whitehead, J. (2006). Facing Fiscal Futures. *Paper presented at the New Zealand Association of Economists' Annual Conference*. Wellington, New Zealand
- Whitehead, J. (2007). Better saved than sorry: The Treasury's position on New Zealand's saving performance. Retrieved November 28, 2012, from <http://www.treasury.govt.nz/publications/media-speeches/speeches/pdfs/spch-13aug07.pdf>
- Yakoboski, P., & Dickemper, J. (1997). Increased saving but little planning: Results of the 1997 retirement confidence survey. *Employee Benefit Research Institute*, 191, 1-21. Retrieved November 28, 2012, from <http://www.ebri.org/pdf/briefspdf/1197ib.pdf>
- Yuh, Y., & DeVaney, S. (1996). Determinants of couples' defined contribution retirement funds. *Financial Counseling and Planning*, 7(1), 31-38
- Zhang, A. (2013, February). Financial advice and asset allocation. *Paper presented at the New Zealand Finance Colloquium*, Dunedin, New Zealand.
- Zuckerman, M. (1994). *Behavioral Expressions and Biosocial Bases of Sensation Seeking*. Cambridge: Cambridge University Press

Zuckerman, M. (2007). *Sensation Seeking and Risky Behavior*. Washington DC: American Psychological Association

APPENDIX A

Information Sheet for Survey Respondents

**College of Science
Department of Psychology**

**QUESTIONNAIRE****Analysis of Kiwisaver Investment Fund Choices**

Please read the following note before completing the questionnaire.

NOTE: You are invited to participate in the research project Analysis of Kiwisaver Investment Fund Choices by completing the following questionnaire. The aim of the project is to analyse why Kiwisaver members choose the particular fund that they have invested their contributions in.

The project is being carried out as part of a Masters Thesis by Jonathan Muller under the supervision of Simon Kemp, who can be contacted at simon.kemp@canterbury.ac.nz or at +64 3 364 2968. He will be pleased to discuss any concerns you may have about participation in the project.

The results of the project will be published as a Masters is a public document available via the UC library database. You may be assured of the complete confidentiality of data gathered in this investigation: the identity of participants will not be made public without their consent. To ensure anonymity and confidentiality, no personal information will be collected that could in any way link you to your response or participation in the survey.

You may withdraw your participation, including withdrawal of any information you have provided, until your questionnaire has been added to the others collected. Because it is anonymous, it cannot be retrieved after that.

This survey has been reviewed and approved by the University of Canterbury Human Ethics Committee.

By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.

APPENDIX B

KiwiSaver Investment Fund Choice Survey

Individual Kiwisaver Information

Do you have any of the following investments or savings plans? (*you may tick more than one*)

Bank Term deposit	<input type="checkbox"/>	Unit trusts or other managed fund investments	<input type="checkbox"/>
Commercial rental properties	<input type="checkbox"/>	Workplace superannuation scheme	<input type="checkbox"/>
Directly owned shares in public companies	<input type="checkbox"/>	Other	<input type="checkbox"/>
Investment with a finance company	<input type="checkbox"/>	None of the above	<input type="checkbox"/>
Residential rental properties	<input type="checkbox"/>		

Are you a member of the New Zealand Kiwisaver Superannuation Scheme? Yes No

If no then skip the rest of this section and proceed to page four

In what year were you enrolled in the Kiwisaver scheme?

2007 2008 2009 2010 2011 2012 Unsure

Who is your Kiwisaver Provider?

AMP	<input type="checkbox"/>	Gareth Morgan Kiwisaver Limited	<input type="checkbox"/>	NZ Anglican Church Pension Board	<input type="checkbox"/>
ANZ Bank	<input type="checkbox"/>	Grosvenor Financial Services	<input type="checkbox"/>	OnePath Kiwisaver Scheme	<input type="checkbox"/>
Aon New Zealand Ltd	<input type="checkbox"/>	Kiwibank Kiwisaver Scheme	<input type="checkbox"/>	Professionals Group Holdings	<input type="checkbox"/>
ASB Group Investments	<input type="checkbox"/>	Legal & Professional Investment	<input type="checkbox"/>	SBS Bank	<input type="checkbox"/>
AXA New Zealand	<input type="checkbox"/>	Medical Assurance Society NZ Limited	<input type="checkbox"/>	Smartshares Limited	<input type="checkbox"/>
Brook Asset Management Limited	<input type="checkbox"/>	Mercer (NZ) Limited	<input type="checkbox"/>	Staples Rodway	<input type="checkbox"/>
Civic Assurance	<input type="checkbox"/>	Milford Funds Limited	<input type="checkbox"/>	SuperLife Ltd	<input type="checkbox"/>
Craigs Investment Partners Limited	<input type="checkbox"/>	Mutual Superannuation Fund Limited	<input type="checkbox"/>	Taupo Moana Iwisaver Limited	<input type="checkbox"/>
Fidelity Life	<input type="checkbox"/>	National Bank	<input type="checkbox"/>	TOWER	<input type="checkbox"/>
Fisher Funds Management Ltd	<input type="checkbox"/>	NZ Funds Kiwisaver Scheme	<input type="checkbox"/>	Westpac	<input type="checkbox"/>
Forsyth Barr	<input type="checkbox"/>	New Zealand Harbours Superannuation Plan	<input type="checkbox"/>	Unsure	<input type="checkbox"/>

What best describes the type of Kiwisaver investment fund you are in?

Cash (low risk)	Bank deposits and other fixed interest investments	<input type="checkbox"/>
Conservative (low to medium risk)	A high proportion in bank deposits and fixed interest investments, and a lower proportion in growth assets such as shares and property	<input type="checkbox"/>
Balanced (medium risk)	A more equal split between higher risk growth assets such as shares and property, and more stable investments including fixed interest and bank deposits	<input type="checkbox"/>
Growth (medium to high risk)	A high proportion of shares and property with a lower level of bank deposits and fixed interest	<input type="checkbox"/>
Aggressive (high risk)	Mainly shares	<input type="checkbox"/>
Lifetimes option	Adjusts an investor's allocations to the five main asset classes based on his or her specific length of time to the standard New Zealand Superannuation qualification age (currently 65)	<input type="checkbox"/>
Unsure		<input type="checkbox"/>

What is the main reason for why you are in your current Kiwisaver fund?

- It was the fund you were allocated by the IRD
- It was the fund you were allocated by your employer
- The fund best matches your level of preferred risk
- The scheme provider is your main bank
- It was recommended to you by a family member or close friend
- It has comparatively low fees
- It was recommended by a financial advisor
- Advertising
- It has a proven historical performance of giving good returns
- Other

How many times have you changed your investment allocation? (*e.g. from your provider's cash fund to a growth fund*) 0 1 2 3 4 5+ Unsure

What is your current contribution level?

0% 2% 4% 8% Unsure

If you answered 0% then answer the following question, if not then proceed to the question after it

Why is your contribution level currently at 0%?

- Taking a contributions holiday
- Contributions stopped due to significant financial hardship
- Contributions stopped because of a serious illness
- Currently unemployed

Do you make any additional direct contributions?

Yes No

On average, how often do you check your Kiwisaver balance?

- Never
- Once a year or less
- Once every six months
- 3 – 6 times a year
- Once a month
- Once a fortnight
- Once a week

Are you currently using Kiwisaver to save for a house purchase?

Yes No

Knowledge about Kiwisaver

After how many years can you make a savings withdrawal to put towards buying a first home? ____

What can be withdrawn to put towards buying a first home? (*you may tick more than one*)

Your contributions

Your employers contributions

The \$1,000 kick-start

Any member tax credits

Unsure

What is the maximum amount of the first home deposit subsidy? \$_____

After how many months since beginning making contributions to Kiwisaver can members take a contribution holiday without a reason? _____

How many years can the maximum length of a contribution holiday can be? _____

Are you able to permanently leave the Kiwisaver Scheme after being a member for more than eight weeks? Yes No Unsure

Who do you contact if you want to change to another Kiwisaver scheme?

Your employer

IRD

Provider of your current scheme

Provider of scheme you want to join

Unsure

Who do you contact to keep track of your overall Kiwisaver balance?

IRD

Your employer

Your scheme provider

Unsure

What is your knowledge like of the following investment asset classes?

	Poor	Fair	Good	Very Good	Excellent
Fixed Interest	<input type="radio"/>				
Property	<input type="radio"/>				
Shares	<input type="radio"/>				
Term Deposits	<input type="radio"/>				

Rate the following investment asset classes on a scale of perceived risk from very low risk to very high risk

	Very Low Risk			Very High Risk
Fixed Interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Term Deposits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Kiwisaver Scheme Investor Profile

For this investment my main objective is to?

- Avoid losing money
- Keep up with the bank deposit rate
- Achieve returns marginally above the bank deposit rate
- Achieve returns well above the bank deposit rate
- Achieve the highest returns I can regardless of risk

Which sentence best reflects your investment attitude?

- I don't want to see my portfolio lose value at any time
- I like to minimise risks and am willing to assume only limited risks
- I'm comfortable with my investments losing their value for a short period of time, provided it's likely they return to their original value
- I'm prepared to see my investment reduce in value for a period, provided this gives prospects of superior gains over the long term
- I would expect to see my investment reduce in value for a period, with the expectation of superior long-term returns, and I'm comfortable with this as my investment goal is based on the long run

Investment markets can go up and down in value. By how much could the value of your total investment go down over one year before you'd feel uncomfortable?

Any fall in value would make me feel uncomfortable

A fall of 1-7%

A fall of 8-13%

A fall of 14-19%

A fall of 20% or more

What is your level of knowledge of and comfort around investments in shares and managed funds?

I have never invested before

I have only invested in term deposits and have little knowledge and comfort investing outside of this

I have some understanding of investing, but it is very limited

I have some knowledge and a reasonable amount of comfort around investments in shares or managed funds

I am very comfortable with investments in shares and managed funds

Have you completed similar Kiwisaver Profile questionnaires before?

Yes No Unsure

Impulsive Sensation Seeking Scale

If you agree with a statement or decide that it describes you, circle True. If you disagree with a statement or feel that it is not descriptive of you, circle False. Answer every statement either True or False even if you are not entirely sure of your answer.

I tend to begin a new job without much advance planning on how I will do it	True	False
I usually think about what I am going to do before doing it	True	False
I often do things on impulse	True	False
I very seldom spend much time on the details of planning ahead	True	False
I like to have new and exciting experiences and sensations even if they are a little frightening	True	False
Before I begin a complicated job, I make careful plans	True	False
I would like to take off on a trip with no preplanned or definite routes or timetable	True	False
I enjoy getting into new situations where you can't predict how things will turn out	True	False
I like doing things just for the thrill of it	True	False
I tend to change interests frequently	True	False
I sometimes like to do things that are a little frightening	True	False
I'll try anything once	True	False
I would like the kind of life where one is on the move and travelling a lot, with lots of change and excitement	True	False
I sometimes do "crazy" things just for fun	True	False
I like to explore a strange city or section of town by myself, even if it means getting lost	True	False
I prefer friends who are excitingly unpredictable	True	False
I often get so carried away by new and exciting things and ideas that I never think of possible complications	True	False
I am an impulsive person	True	False
I like "wild" uninhibited parties	True	False

Investment Risk Attitude Scale

I think it is more important to have safe investments and guaranteed returns than to take a risk to have a chance to get the highest possible returns

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

I would never consider investments in stocks, because I find this too risky

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

If I think an investment will be profitable, I am prepared to borrow money to make this investment

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

I want to be certain that my investments are safe

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

I get more and more convinced that I should take greater financial risks to improve my financial position

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

I am prepared to take the risk to lose money, when there is also a chance to gain money

Disagree completely	Disagree	Neither disagree nor agree	Agree	Agree completely
---------------------	----------	----------------------------	-------	------------------

Demographics

You may refuse to answer any questions in this section if you feel like you do not want to answer

What age group are you in?

Under 20	<input type="checkbox"/>	50-59	<input type="checkbox"/>
20-29	<input type="checkbox"/>	60-65	<input type="checkbox"/>
30-39	<input type="checkbox"/>	66 or over	<input type="checkbox"/>
40-49	<input type="checkbox"/>	Refuse to answer	<input type="checkbox"/>

Gender

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Refuse to answer	<input type="checkbox"/>

Relationship Status

Single	<input type="checkbox"/>
Married	<input type="checkbox"/>
De facto	<input type="checkbox"/>
Divorced	<input type="checkbox"/>
Widowed	<input type="checkbox"/>
Refuse to answer	<input type="checkbox"/>

Number of dependent children:

None	<input type="checkbox"/>
One	<input type="checkbox"/>
Two	<input type="checkbox"/>
Three or more	<input type="checkbox"/>
Refuse to answer	<input type="checkbox"/>

Level of Education

- No formal qualification
- Secondary School Qualification
- Vocational Qualification
- Bachelors Degree
- Higher Degree
- Doctorate
- Refuse to answer

Employment status

- Unemployed
- Part time
- Full time
- Self Employed
- Retired
- Refuse to answer

Earnings per annum

You may only answer this question if you are currently employed

- \$0 - \$29,999
- \$30,000 - \$59,999
- \$60,000 - \$89,999
- \$90,000 - \$119,999
- \$120,000 - \$149,000
- \$150,000+
- Refuse to answer