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**FINANCIAL LITERACY AND RETIREMENT PLANNING  
IN NEW ZEALAND**

**Diana Crossan  
David Feslier  
Roger Hurnard**

# Financial Literacy and Retirement Planning in New Zealand<sup>1</sup>

Diana Crossan, New Zealand Retirement Commissioner

David Feslier, Retirement Commission

Roger Hurnard, Retirement Commission

## Abstract

We compare levels of financial literacy in New Zealand with levels in five other countries and between the general adult population of New Zealand, people of Māori ethnicity and, more particularly, the people of Ngāi Tahu, a Māori tribe based mainly in the South Island of New Zealand who have initiated a long-term savings scheme and are also providing financial education courses for members of their tribe. Our findings indicate that, while the financial knowledge level of Māori people generally is lower than for non- Māori (controlling for demographic and economic factors), there is little difference between the financial knowledge of the people of Ngāi Tahu and other New Zealanders. Finally, the analysis finds financial literacy (defined as getting all three test questions correct) is not significantly associated with thinking about planning for retirement ‘a lot’, although it appears to be significant for other measures of financial achievement. This result could reflect the dominant role of New Zealand’s universal public pension in providing retirement income security.

Keywords: financial literacy, retirement planning, financial education, Maori, Ngai Tahu, New Zealand.

JEL classification: D91

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## **Part I Introduction**

Financial literacy is a fundamental component of a well-functioning civil society. In New Zealand there has been a growing awareness of its importance and value in an environment of (currently) light-handed financial regulation, financial product diversity and economic recession.

With the onset of economic recession in late-2007, housing, shares and other asset prices followed a boom and bust scenario. Although the banking system proved resilient, there have been a number of failures of finance companies (non-bank deposit-taking institutions) and these losses have been felt by many New Zealanders, both directly and indirectly. In response, there has been a flight back to the security of bank deposits, a more cautious approach to borrowing and debt on the part of households and a rapid increase in the number of KiwiSaver<sup>2</sup> retirement savings accounts. (Retirement Commission (2010c)).

The crisis and collapses have expedited changes in legislation regarding the financial services sector. In particular, financial advisers will now have to meet specified qualification standards and be registered. Other changes include establishment of prudential standards for non-bank deposit-takers, and reform of the existing law relating to securities.

There is a lack of consumer trust in parts of the financial sector in New Zealand. Company failures, poor returns, mis-selling, complex products, poor communications, high levels of indebtedness and commission driven sales have all contributed to this lack of trust (Guthrie, S (2010); White B (2010)). The financial sector recognises that in order to improve its reputation not only does it need to overcome the problems above but it needs an informed consumer to challenge the sector.

These events and developments have all resulted in an increasing demand that financial literacy be improved. Improving the quality of information given to borrowers and investors would improve their ability to compare products and their understanding of risk. It is also potentially another way of raising financial literacy since better information could induce people to apply it and, in the process, become more financially literate.

With regard to financial planning for retirement, New Zealand is in a somewhat different situation from many other countries because of the structure of its public pension system. New Zealand pays a universal, flat-rate pension to people aged 65 and over<sup>3</sup> irrespective of their assets, income or employment status. The state pension, known as New Zealand Superannuation, is funded on a pay-as-

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<sup>2</sup> KiwiSaver is a relatively new voluntary but publicly subsidised retirement saving scheme.

<sup>3</sup> Eligibility is based on having at least 10 years of legal residence in New Zealand since age 20, including five years since age 50.

you-go basis out of general taxation. It provides a level of income that generally minimizes poverty among older people (Ministry of Social Development (2010)). The level of NZS equates to 33% - 43%<sup>4</sup> of the national average after-tax ordinary-time weekly wage. As such, it represents a foreseeable, basic, indexed annuity on which people are able, without penalty, to layer additional earnings, investment income and assets.

This unusual pension structure has implications for the long-term savings strategies of New Zealanders. First, the longevity insurance and income protection provided by the basic annuity reduces the necessity for private long-term saving, particularly among lower income groups. It may also elicit a somewhat higher degree of risk-taking with investments among higher income groups. Second, extended time in paid employment beyond age 65 is not penalised<sup>5</sup> and this opens up a greater range of earning, saving and decumulation options.

These factors might suggest that financial literacy need play only a minor role in retirement planning, since the cost of “mistakes” is cushioned by the universal public pension. There are, however, a number of reasons to believe that, as with the consumer trust and protection concerns discussed earlier, there is a growing need for financial literacy to support retirement planning.

Doubts have been raised about the long-term fiscal sustainability of New Zealand Superannuation in conjunction with the subsidisation of the KiwiSaver scheme. The current government has made a commitment not to change the existing policy settings for New Zealand Superannuation, thus putting more pressure on future governments. This has increased uncertainty among younger people about how much they need to save for a comfortable retirement<sup>6</sup>. More than half of people aged 20-25 years now have a KiwiSaver account, but there is a clear split of opinion over whether this will be sufficient to give them an adequate income in their retirement<sup>7</sup>.

A further source of uncertainty lies in the declining rates of home ownership among younger New Zealanders. Owning a house is viewed as important for the wellbeing of retired people; those who are retired and live in rented accommodation score significantly lower on well-being scales (Perry, B 2010). Both the quantum of saving and its allocation to home equity or other financial assets are key decisions to be made and require a considerable degree of financial literacy.

A National Strategy for Financial Literacy (Retirement Commission (2010b) sets the framework for the development and coordination of financial literacy programmes throughout New Zealand. The Retirement Commission has a mandate to inform and educate New Zealanders about financial

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<sup>4</sup> This variation depends on a person’s partnership status and whether he/she lives alone or with other adults. It is independent of the individual’s income or employment status.

<sup>5</sup> As discussed in Hurnard, R (2005) New Zealand has one of the highest rates of labour force participation of people over age 65 in the OECD as a result of this pension structure and other institutional factors.

<sup>6</sup> Retirement Commission (2010c), pp 93-94.

<sup>7</sup> Colmar Brunton (2009)

management and retirement planning. The Ministry of Education is responsible for providing financial education in schools, but work is only commencing on this. Other agencies also provide financial education aligned with their areas of interest. A Financial Literacy Strategy for Māori has also been developed by the Retirement Commission (Retirement Commission (2010a)).

This paper uses data from the ANZ/Retirement Commission Survey of Financial Literacy 2009 to describe financial literacy levels in New Zealand. The objectives of this paper are first, to enable comparison of levels of financial literacy in New Zealand with levels in six other countries: Italy, Germany, the Netherlands, the United States, Japan and Russia. This is achieved through the same (or similar) three distinguishing questions (understanding of interest rates, the effects of inflation, and risk and diversification) being included in financial literacy surveys in each country, allowing for comparisons to be made.

In a separate exercise, the same questionnaire, including the three distinguishing questions, was also administered in 2010 to members of the Ngāi Tahu, a Māori tribe centred in the South Island of New Zealand. We compare levels of financial literacy among the general New Zealand population, people of Māori ethnicity, and then, more specifically, members of the Ngāi Tahu.

Finally, the paper discusses the effects of financial literacy on financial planning for retirement and provides estimates of the relationship between financial literacy and financial planning for retirement.

## **Part II      Dataset**

The evidence presented for the cross-country comparison is drawn from the 2009 ANZ/Retirement Commission Financial Knowledge Survey conducted by Colmar Brunton, a large market and social research organization (Colmar Brunton (2009)). A nationally representative sample of 850 New Zealanders were interviewed face-to-face. A high response rate of 62% was achieved. Respondents were given NZ\$20 to take part in the interview.

This was the second such survey to be undertaken, the first being completed in 2005/06 (Colmar Brunton (2006)). The same questions were used in both surveys so time-based comparisons can be made. The 2005/06 Financial Knowledge Survey included a booster sample of Māori from throughout New Zealand to provide an adequate number of Māori respondents to permit more detailed analysis. A Māori booster was not included in the 2009 survey. A repeat of this survey will be carried out in 2013 so will provide three points in time for comparison.

We also report results from a financial knowledge survey of 400 Ngāi Tahu iwi (tribe) members aged 18 years or over that was carried out between 5 April and 18 June 2010. This survey used the same financial knowledge questions as the 2009 Financial Knowledge Survey of the general population.

Further contextual background to this survey is provided later in this paper when the results are presented and technical details are included in the data appendix.

Financial knowledge, for the purposes of the Surveys, is defined as “the ability to make informed judgments and to take effective decisions regarding the use and management of money”. Each Survey tested the following areas of personal financial knowledge: money management, budgeting, goal setting, financial planning, debt management, home loans and mortgages, managing risk, savings, planning for retirement and investing. Survey questions were designed to capture the most important skills and knowledge under all the categories in the framework.

### **Part III Empirical evidence**

#### **How financially literate are individuals?**

For the purposes of measuring financial literacy in a cross-country context, three questions that most closely match those used in other studies have been selected from within the extensive questionnaire. The first two questions, on the understanding of interest rates (numeracy) and understanding of inflation, are effectively identical to those originally developed for the US Health and Retirement Study, but the third question selected, on long-term investment returns, was not a close match to the recommended standard question on understanding risk and diversification, for reasons explained below.

Table 1 presents the distribution of responses to each of the three questions. Results are shown from both the general population survey in 2009 and the survey of Ngāi Tahu members in 2010. Also shown is a comparison between the all survey respondents and those aged in the range 25-64<sup>8</sup>

##### ***Question 1: Understanding of interest rate (Numeracy)***

“If Nicky had \$100 in a savings account and the interest rate was 2% per year, after 5 years how much would Nicky have in her account if she left the money to grow? Would it be more than \$102, exactly \$102 or less than \$102?”

This question is easy for most New Zealanders to understand and answer. There are no particularly difficult terms or words in the question. It only requires very rudimentary mathematical abilities.

New Zealand schools teach pupils how to calculate compound interest. Tertiary students are familiar with the term through considerable media discussion on interest free student loans. Home owners and business people are familiar with compounding interest through normal borrowing from or saving with banks or other financial institutions.

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<sup>8</sup> Age information was collected in pre-specified age bands, so it has not been possible to extend the top end of the range to include 65 yearolds.

	Whole sample		Aged 25-64	
	General NZ population	Ngāi Tahu	General NZ population	Ngāi Tahu
a) More than \$102	86%	85%	88%	88%
b) Exactly \$102	6%	6%	6%	6%
c) Less than \$102	4%	5%	4%	4%
Don't understand the question	*	*	*	*
Don't know the answer	4%	3%	2%	2%
N of obs	850	400	587	317

\* Percentage is between 0.0% and 0.5%

Results indicate the question was understood by respondents with less than 1% in each survey saying they didn't understand the question. As can be seen in the above table, the majority (86%) of the general population and Ngāi Tahu (85%) answered the 'interest' question correctly. Nevertheless, 14% of respondents either got it wrong or didn't know the answer (15% Ngāi Tahu). Those that did get it wrong were more likely to respond 'Exactly \$102' than 'Less than \$102'.

### **Question 2: Understanding inflation**

"If the interest rate on Anne's savings account was 1% per year and inflation was 2% per year, after 1 year, with the money in this account, would she be able to buy more than today, exactly the same as today, or less than today?"

The topic of inflation receives regular and considerable media coverage in New Zealand. The Reserve Bank of New Zealand is mandated to keep the inflation rate between 0 and 3% pa. The announcement of the inflation rate by Statistics NZ and the announcement of the official cash rate by Reserve Bank both receive considerable media coverage. The question on understanding Inflation is very easy for most New Zealanders to understand and answer. There are no particularly difficult terms or words in the question.

Most school pupils receive some insights into the meaning of inflation to varying levels through a number of subjects: economics, mathematics, history, social studies and others. New Zealand home owners and business people are familiar with inflation impacts through such events as housing booms, business cycles and the impact on earnings from investments.

Those New Zealanders alive in the high inflation periods in the 1970s and 1980s are particularly aware of the impact of inflation. Those born from the mid 1980's, the time since inflation has been 'under control' have not experienced the impacts of high inflation but will understand the concept either through school or media discussion.

	Whole sample		Aged 25-64	
	General NZ	Ngāi Tahu	General NZ	Ngāi Tahu

	population		population	
a) More than today	7%	11%	6%	10%
b) Exactly the same as today	7%	7%	8%	7%
c) Less than today	81%	76%	83%	77%
Don't understand the question	1%	1%	*	1%
Don't know the answer	5%	6%	3%	5%
N of obs	850	400	587	317

\* Percentage is between 0.0% and 0.5%

Similar to the interest question, the majority (81%) of the general population and Ngāi Tahu (76%) also answer the inflation question correctly. Just 1% in each survey commented that they did not understand what was being asked. The question also appears to be well understood, but with slightly lesser percentage correct than for the *Interest* question. However, nearly 1 in 5 (Ngāi Tahu nearly 1 in 4) either got it wrong, or didn't know, or didn't understand the question.

***Question 3: Understanding risk and diversification***

The question in the original US Health and Retirement Study was:

*'Do you think that the following statement is true or false? Buying a single company stock usually provides a safer return than a stock mutual fund.'*

This question is unlikely to be well understood in New Zealand. The word 'stock' is likely to be understood by many, in the context of agricultural stock. Words like '*single company stock*' and '*stock mutual fund*' are not used much if at all. Furthermore, only 22% of New Zealanders over 18 invest in shares directly, i.e. not through managed funds (Colmar Brunton (2009)).

Consequently, the New Zealand survey questionnaire did not contain this question nor did it contain a similarly worded risk and diversification question. The following question has been selected as it was deemed to be most relevant.

“Which one of the following is **generally** considered to make you the most money over the next 15 to 20 years?

- a) A savings account
- b) A range of shares
- c) A range of fixed interest investments
- d) A cheque account”

This question is about the expected returns from different types of financial securities and does not explicitly address diversification as a risk-reducing investment strategy. Unfortunately this reduces the value of the question for cross-country comparison purposes.

Interpretation of the results is further complicated by determining which response should be regarded as the correct answer. '*A range of shares*' is generally considered the best answer by those in



the finance sector and indeed this may well be the case depending on the timing of investment and withdrawal. Recently, however, returns from fixed interest have been attractive compared to share investments. Public perception may be that fixed interest is likely to provide a better return than equities.

Whilst the general expert consensus may be that over the long run a range of shares will outperform other investments, the impact of the recession and the collapse of many financial institutions have changed the public's perception of risk and consequently response to this question appears to include elements of both risk and returns.

This needs to be borne in mind when considering the analysis. Many of those who got this question 'wrong' could well be financially sophisticated.

	Whole sample		Aged 25-64	
	General NZ population	Ngāi Tahu	General NZ population	Ngāi Tahu
a) a savings account	22%	30%	16%	29%
b) a range of shares	27%	30%	31%	32%
c) a range of fixed interest investments	49%	38%	51%	38%
d) a cheque account	*	1%	*	*
Don't understand the question	*	1%	*	*
Don't know the answer	2%	2%	2%	1%
	850	400	587	317

\* Percentage is between 0.0% and 0.5%

Fewer than a third of the general population (27%) and Ngāi Tahu (30%) answered this question correctly. Having said this, given the recent economic recession, there could be some dispute as to the correct answer. New Zealanders, and to some extent Ngāi Tahu, appear to consider the range of fixed interest investments would be expected to make the most money over the next 15 to 20 years.

Less than 1% of respondents in the general population survey and just 1% in the Ngāi Tahu survey commented that they could not answer the question. However, although respondents said they understood the question, the various views of what is the correct answer make these findings difficult to interpret or analyse. Those who chose option c) may well be just as financially literate as those who chose option b), the 'correct' answer.

The ambiguous responses to the risk question have, unfortunately, cast some doubt over the usefulness of this question, in combination with the first two questions, as an accurate indicator of financial literacy<sup>9</sup>. Table 2 shows the distribution of various combinations of responses to the three questions.

<sup>9</sup> Spearman rank correlation tests confirm that, while there is a significant, positive correlation between correct answers to the interest and inflation questions ( $r_s = .25$  for the general population and  $r_s = .19$  for the Ngāi

	Whole sample		Aged 25-64	
	General NZ population	Ngāi Tahu	General NZ population	Ngāi Tahu
Correct answers to interest and inflation	73%	68%	75%	70%
All correct answers	24%	21%	27%	24%
No correct answer	6%	6%	4%	4%
At least one 'do not know/do not understand'	7%	6%	7%	7%
All 'do not know/do not understand'	*	1%	*	*
N of observations	850	400	587	317

\* Percentage is between 0.0% and 0.5%

There are no statistically significant differences in response patterns between Ngāi Tahu and the general population at the 95% confidence level.

While around three quarters of respondents answered the interest and inflation questions correctly, less than one quarter answered all three questions correctly.

### Who knows the least?

The distribution of responses to the three financial knowledge questions across a selection of demographic groups is presented in Table 3. Information on income (within specified bands) was sought in the questionnaires, but because of the number of missing values the breakdown has not been included here.

	Interest		Inflation		Risk		Overall	
	Correct %	DK/U %	Correct %	DK/U %	Correct %	DK/U %	Three Correct %	At least 1 DK/U %
<i>Age</i>								
Under 35 years (30%)	83	5	65	10	24	1	19	11
35 to 49 years (31%)	92	1	87	1	33	3	30	4
50 to 64 years (22%)	86	4	91	4	29	2	28	4
65 years or over (17%)	82	6	85	8	21	3	17	9
<i>Gender</i>								
Male (48%)	87	4	86	3	35	2	32	5
Female (52%)	85	4	76	7	20	2	16	8
<i>Ethnicity<sup>p</sup></i>								
NZ European (71%)	86	4	86	5	29	2	26	6
Māori (13%)	82	4	63	7	17	2	9	10

Tahu sample), the relationship between correct answers to the risk question and other questions is weaker in the general population and insignificant for the Ngāi Tahu sample.

Other (23%)	91	3	73	6	25	3	22	7
<i>Location</i>								
Main urban (73%)	87	4	80	5	31	2	27	6
Provincial (14%)	78	4	78	10	14	3	11	11
Rural (13%)	88	5	83	5	19	1	15	6
<i>Education (ISCED 97)<sup>†</sup></i>								
Level 1 (2%)	74	6	47	6	11	-	11	16
Level 2 (19%)	76	6	78	7	13	2	9	7
Level 3 (24%)	80	7	76	8	18	1	16	8
Level 4 to 5 (32%)	93	2	84	4	32	1	27	7
Level 5 (14%)	94	-	85	3	44	2	41	5
Level 5 to 6 (8%)	92	1	88	4	47	7	42	7
Don't know (*)	100	-	-	-	-	-	-	-
Refused (1%)	100	-	86	-	14	14	14	14

\* Percentage is between 0.0% and 0.5%

<sup>†</sup> Questionnaire used some categories that were too broad to map to ISCED97 (ie, postgraduate qualification, technical, trade or other tertiary qualification)

<sup>‡</sup> Ethnic groups are not mutually exclusive because respondents can identify with more than one group

Table 3 shows that for the general population, low financial knowledge about interest, inflation and risk (as indicated by less success in answering all three questions correctly) is associated with both youth and old age, being female, identifying as Maori, living in a provincial or rural area and lower levels of educational attainment.

A similar analysis of the results from the Ngāi Tahu Financial Knowledge Survey (excluding ethnicity) shows similar demographic factors associated with low financial knowledge.

## Comparisons amongst the New Zealand population, Māori and Ngāi Tahu

Some background information will help in interpreting the following statistical results as they relate to the indigenous Māori people. There are two different ways that Māori people can be identified in official statistics: through ethnicity or through descent. Ethnicity is the most common measure and refers to cultural affiliation; a person may indicate their affiliation with one or more ethnic groups (such as Māori, or both Māori and European). In this paper, individuals are counted as of Māori *ethnicity* if they identify themselves as such, whether or not they report other cultural affiliations as well.

The other measure, Māori descent, refers to having some degree of Māori ancestry and is a biological concept. Having Māori descent is a pre-condition for people to be classified according to iwi (tribe) groupings, of which Ngāi Tahu is one of many. Some people of Māori descent choose not to claim Māori ethnicity, or may not know their iwi connections. On the other hand, others may classify themselves as members of more than one iwi if they have ancestral linkages to both.

(Thousands of people)	Of Māori descent	No Māori descent	Other*	Total
European ethnicity	307	2,105	198	2,610
Māori ethnicity	523	4	39	565
Other ethnicity	95	883	108	1,086
Not elsewhere included	3	16	149	168
<b>Total people#</b>	644	2,917	467	4,028
<i>Of which: Number reporting an iwi affiliation:</i>	512			
<i>Of which: members of Ngāi Tahu</i>	49			

\* Includes don't know, refused and not elsewhere included

# Total is less than the sum of ethnicity claims because some people identify with more than one ethnicity.

Table 4 describes the populations measured under these different classifications. Measured by ethnicity, Māori (565 thousand) make up 14% of the New Zealand population. Ngāi Tahu members (49 thousand) comprise 9.6% of those of Māori descent who identify their affiliation to an iwi (512 thousand) and just over 1% of the New Zealand population of around 4 million.

With this background, we move on to consider what the results from the 2006 and 2009 financial knowledge surveys of the general population indicated about the relative financial literacy of those of Māori ethnicity.

The survey questions covered a broad range of topics, including basic mathematical and literacy skills and the understanding of financial records and financial terms, methods of money management and payment, mortgages, knowledge of financial planning, budgeting, debt management and consumer rights. Respondents' answers to these questions in 2006 were converted into a financial knowledge score and then, for profiling purposes, people were assigned to one of three, equal-sized groups: low, medium or high knowledge. Following the second survey, the 2009 respondents were scored in the same way and assigned to knowledge group categories keeping the original category boundaries.

Table 5 shows an overall improvement in financial knowledge levels between 2006 and 2009, particularly at the upper end of the distribution of scores. Māori remain heavily over-represented within the low financial knowledge group, but this shows signs of improving.

	Low knowledge		Medium knowledge		High knowledge	
	2006	2009	2006	2009	2006	2009
All respondents	33	31	34	<b>26</b>	33	<b>43</b>
Males	25	28	36	<b>27</b>	39	<b>46</b>
Females	40	<b>34</b>	32	<b>26</b>	28	<b>40</b>
	<i>Age</i>					
19-24	57	57	32	25	11	18

25-34	30	37	42	<b>30</b>	29	33
35-44	24	20	30	23	46	<b>57</b>
45-54	22	15	28	25	50	60
55-64	28	21	39	<b>27</b>	33	<b>53</b>
65 +	45	44	33	28	23	29
<i>Ethnicity</i>						
NZ European	24	24	37	<b>27</b>	39	<b>49</b>
Māori	67	56	22	31	11	13
Pacific peoples	85	<b>66</b>	11	12	4	21
Asian peoples	56	40	24	28	20	32

Source: Colmar Brunton (2009), Table B

Lower average levels of financial literacy among those of Māori ethnicity can also be seen when using the three test questions that are the focus of this paper (Table 6).

	Māori ethnicity	Non-Māori ethnicity	Significantly different?
Interest question correct	82.1%	86.6%	No
Inflation question correct	62.6%	83.3%	Yes
Risk question correct	16.7%	28.9%	Yes
All three correct	8.9%	26.0%	Yes
Interest and inflation correct	55.6%	75.2%	Yes

The simple univariate statistics reported in Table 5 and Table 6 do not reveal the extent to which low financial knowledge scores for people of Māori ethnicity are associated with economic and educational disadvantage or a result of other factors more specific to Māori. However, fitting a linear regression model for individual financial knowledge scores in 2009 revealed that, even after including highly significant controls for age group, education level, income, partnership status, homeownership, partnership status and being an investment decision maker, Māori ethnicity remained a highly significant explanatory factor<sup>10</sup>.

## Ngāi Tahu

With the evidence strongly suggesting that Māori are disadvantaged, it may seem surprising that members of Ngāi Tahu, one particular Māori tribe, show levels of financial literacy that are not significantly different from those of the general population (Table 2).

<sup>10</sup> Tested controls that were found not to be statistically significant in explaining variations in individual financial knowledge scores were: gender, employment status and whether the respondent was a member of the KiwiSaver scheme.

One reason could be that having a tribal affiliation has a number of positive effects in terms of wellbeing and opportunities for learning and advancement in comparison with those of Māori ethnicity who have no such affiliations. In recent years, financial settlements from the Crown to compensate for land confiscation and other historical breaches of Treaty agreements are helping to boost the economic base of many Māori tribes<sup>11</sup>. *‘Financial literacy is particularly important to ensure ‘financial wealth isn’t short-lived. Māori need to have the capability to manage borrowing and debt and to have the funds to be able to make important choices in life, for oneself, for one’s whānau and for one’s iwi.’*” (Sharples, P, 2010).

Another reason relates specifically to Ngāi Tahu. This tribal grouping, the fourth largest in New Zealand, has been remarkably forward-looking in the way it has invested the proceeds of the negotiated settlement of its own claim against the Crown. An apology, the return of lands taken by the Crown and financial compensation offered by the Crown was accepted by Ngāi Tahu in September 1998.

The tribe’s governance body (Te Rūnanga o Ngāi Tahu) has sought to ensure that the benefits of the settlement are enjoyed by all members, now and in the future. Through a charitable trust, the governance body holds assets in equities, property, seafood and tourism businesses. It has established a subsidised long-term savings scheme (Whai Rawa) for members and also is providing financial education courses. It is the first tribe in New Zealand to do this.

## **Does financial literacy matter?**

In order to explore whether financial literacy is associated with effective financial planning for retirement, we first need to select an indicator of retirement planning from among the set of questions that were asked in the financial knowledge surveys. Five questions were identified as possible measures of achievement:

- A “Do you have financial goals? If so, are they written down? – **yes**, no”
- B “A financial plan is a written approach of the steps you plan to take to achieve your financial goals. Do you have a financial plan that is written down? – **yes**, no”
- C “To what extent have you thought about your financial planning for your retirement - **a lot**, a fair amount, a little, not at all?”

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<sup>11</sup> The Treaty of Waitangi was signed on 6 February 1840 by representatives of the British Crown and many Māori chiefs. The Treaty recognises Māori ownership of their lands and gave Māori the rights of British subjects. The Treaty is the founding document of New Zealand and Waitangi Day, the day the Treaty was first signed, is a national holiday. In 1975 the Waitangi Tribunal was established to look into breaches of the Treaty by the Crown and to suggest ways to settle historical grievances. The Crown has agreed that it has breached the Treaty and its principles. A number of settlements with individual tribes have been made in recent years, cumulatively amounting to hundreds of millions of dollars in money and assets, as well as formal apologies. .

D “Can you please tell me which of these you have” – SHOWCARD – yes, **have: High interest call account, OR Term deposit/term investment OR Unit trust or managed fund.**

E “Can you please tell me which of these you have” – SHOWCARD – yes, **have Shares**

Measures A and B are oriented towards some activity but are not specifically focused on long-term retirement saving behaviour, since financial goals and plans may be short or medium term. Measure C is the only one focused specifically on financial planning for retirement, but it does not test whether any action has been taken. Measures D and E ask about specific financial asset holdings, but do not reveal the motivation for them or how much thought or analysis might have gone into selecting them.

We conclude that, despite its limitations, Measure C is the closest in spirit to the focus on retirement income planning that is sought for country comparison purposes.

General population (n=850)	Financial goals written down	Financial plan written down (for achieving goals)	Thought about financial planning for retirement ‘a lot’	High interest call account, term deposit/ term investment, or unit trust or managed fund	Shares
	A	B	C	D	E
Interest	.020 (.569)	-.001 (.988)	.016 (.973)	-.001 (.973)	.084 (.015)
Inflation	.013 (.698)	.011 (.747)	.096 (.005)	.148 (.000)	.054 (.118)
Risk	.077 (.025)	.069 (.043)	.043 (.215)	.113 (.001)	.194 (.000)
No. of correct answers	.079 (.021)	.061 (.075)	.077 (.024)	.140 (.000)	.179 (.000)

Source: ANZ/Retirement Commission Survey of Financial Knowledge, 2009

From Table 7 we see that financial literacy (defined by the number of correct answers) is weakly and positively associated with Measure C “Think about financial planning for retirement a lot” ( $r_s=.08$ ). Further, answering the inflation question correctly is associated with Measure C ( $r_s=.10$ ), but the association between correct answers to the interest or risk questions and Measure C is not significant.

The other possible measures of achievement all show significant positive association with the number of correct answers, but in no case does a measure show significant association with correct answers to all of the individual financial knowledge questions.

Focusing on Measure C as our primary achievement indicator, we start by reporting the distribution of responses to the financial literacy questions according to whether respondents had thought

about financial planning for retirement or not (Table 8). Results from the financial knowledge survey of Ngāi Tahu members are also shown for comparison.

Table 8: Response rates according to financial planning status				
	General population (n=850)		Ngāi Tahu (n=400)	
	Thought about financial planning “a lot”		Thought about financial planning “a lot”	
	Yes (n=228)	No (n=622)	Yes (n=117)	No (n=283)
Interest question				
Correct	87	86	91	82
Don't know/understand	3	4	3	4
Inflation question				
Correct	86	79	80	74
Don't know/understand	3	6	4	8
Risk question				
Correct	29	27	28	30
Don't know/understand	2	2	2	2
Overall				
Inflation and interest correct	78	71	73	65
All correct	26	23	22	20
At least 1 Don't know/understand	6	7	6	6

Note: significant differences in the proportion who answer the literacy questions correct are shaded

The data suggest that those who report having thought a lot about financial planning for their retirement are more likely, than those who have not, to answer financial literacy questions correctly, although the difference is statistically significant for only a few of the questions. A similar pattern is apparent among members of Ngāi Tahu.

It is worth noting that, when particular financial asset holdings are used as an achievement indicator (Measures D and E) the resulting differences in financial literacy according to whether or not a respondent has a particular type of investment is statistically significant in a greater number of cases than those shown in Table 8.

These associations between retirement preparation indicators and financial literacy do not, of course, establish causation, let alone the direction of any causation. In the regression results reported below, we see that, when controls are included, financial literacy performance is not a particularly strong factor in explaining variations in any of the achievement indicators tested.

In Table 9 we report the results of a series of Ordinary Least Squares regression model estimations to test the effect of financial literacy (all three questions correct), along with a number of demographic and other relevant controls. The dependent variable takes the value 1 if a respondent reports having thought a lot about financial planning for retirement, and 0 otherwise.



Table 9: Dependant variable: Think about financial planning for retirement “a lot”				
	General NZ population		Ngāi Tahu members	
All three correct	-0.008 (0.042)	-0.025 (0.044)	0.034 (0.058)	0.041 (0.060)
Age 35-44	0.116** (0.050)	0.132** (0.053)	0.011 (0.077)	-0.010 (0.080)
Age 45-54	0.138*** (0.053)	0.159*** (0.056)	0.193** (0.077)	0.163** (0.080)
Age 55-64	0.257*** (0.059)	0.259*** (0.065)	0.329*** (0.084)	0.327*** (0.087)
Female	0.048 (0.037)	0.039 (0.039)	0.070 (0.050)	0.069 (0.051)
Educ level 3 or 4	0.082* (0.049)	0.042 (0.055)	-0.048 (0.061)	-0.060 (0.064)
Educ level 5 or 6	0.132** (0.056)	0.078 (0.061)	-0.036 (0.073)	-0.062 (0.080)
Māori ethnicity	-0.009 (0.053)	0.014 (0.056)		
Financial decision maker	0.083 (0.058)	0.119* (0.063)	0.005 (0.089)	0.060 (0.097)
In KiwiSaver scheme	0.003 (0.039)	0.017 (0.041)	0.093* (0.052)	0.075 (0.054)
In Whai Rawa scheme			-0.029 (0.050)	-0.022 (0.052)
Home owner	-0.030 (0.042)	-0.086* (0.046)	0.082 (0.058)	0.087 (0.063)
Not in labour force	-0.088* (0.047)	-0.079 (0.057)	-0.031 (0.067)	0.011 (0.078)
Self employed	-0.078 (0.061)	-0.079 (0.063)	0.012 (0.090)	0.005 (0.091)
Not partnered	-0.053 (0.043)	-0.048 (0.051)	-0.077 (0.064)	-0.023 (0.075)
Income \$20-30k		0.001 (0.087)		-0.040 (0.145)
Income \$30-50k		0.059 (0.081)		0.089 (0.115)
Income \$50-100k		0.044 (0.081)		0.049 (0.118)
Income over \$100k		0.155* (0.086)		0.169 (0.132)
Constant	0.018 (0.077)	-0.026 (0.110)	0.066 (0.127)	-0.065 (0.163)
Observations	573	515	313	295
Adj R-squared	0.040	0.042	0.110	0.108

Standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The models are estimated separately for the 2009 general population sample (including a control variable for people of Māori ethnicity) and for the 2010 sample of members of Ngāi Tahu (including a control

variable for membership of the tribe's own sponsored saving scheme, Whai Rawa). Each dataset for these regressions has been restricted to include only people in the age range 25 to 64 years. Age information was collected as a categorical variable and this prevents us from testing a quadratic age function<sup>12</sup>.

The information on household income is incomplete and as a result some specifications include income, but with the estimation excluding records with missing values for income, while others exclude income and use the full dataset.

We find that getting all three questions correct does not predict whether someone has thought a lot about financial planning for retirement. Age appears as the most strongly significant factor, which is to be expected when retirement and its financing is more likely to be considered the closer one gets to retirement age. Thinking about financial planning for retirement is positively related higher levels of educational achievement among the general population, but there is a negative, but insignificant, association in the case of members of Ngāi Tahu. Being not in the labour force has a negative, significant effect.

When income is included as an explanatory variable, with a reduced sample size, the having income over \$100,000 has a positive, significant, effect, but other income bands are not significant. Being a financial decision maker in the household becomes a mildly significant factor. At the same time, being a home owner appears with a negative, significant sign. This is unexpected, but could reflect the fact that people who do not own a home may have greater reason than homeowners to be concerned about the affordability of their future retirement.

However, some of the other explanatory control variables, notably educational achievement, lose their significance when income is introduced into the model. In view of this we cannot be sure whether income or education is the pre-eminent influence.

Being a member of the national KiwiSaver scheme appears as a mildly significant explanatory factor in the case of Ngāi Tahu, but not among the general NZ population sample. The Ngāi Tahu survey was taken one year later than the general survey, at a time when, as a relatively new scheme, KiwiSaver saw its membership growing rapidly, but this may not explain this difference. Early joiners were most likely to have enrolled by choice, rather than being automatically enrolled under the "opt out" provisions when starting a new job.

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<sup>12</sup> An urban/provincial/rural location variable was available for the general survey, but was found to be statistically insignificant in the models and is not included here, as comparable data was unavailable from the Ngāi Tahu survey.

## Alternative specifications

The absence of any clear relationship between financial literacy and financial planning for retirement in Table 9 leads us to consider whether possible shortcomings in the indicator of financial literacy or in the measure of achievement used could explain this result. We have for example mentioned the difficulty respondents may have had in judging the correct answer to the question on investment returns given New Zealand's recent experiences and the low percentage of correct answers. This could make "All three answers correct" an unreliable indicator of financial literacy. We have also noted that alternative measures of achievement are more action oriented than merely "thinking a lot" about financial planning for retirement.

We tested the effect of the different indicators of financial literacy and achievement measures introduced earlier, using the same general model as that in columns 2 and 4 of Table 9, i.e. with income included among the dependent variables and for the general population and Ngāi Tahu surveys. The results are summarised in Table 10 with the original specification shown in the shaded cell.

Table 10: Sign and significance of financial literacy coefficient using alternative indicators and measures						
		Measure of achievement in financial planning for retirement (dependent variable)				
Indicator of financial literacy	Survey	Financial goals written down	Financial plan written down (for achieving goals)	Thought about financial planning for retirement 'a lot'	High interest saver#	Shares
All three correct	Gen NZ	+ ***	+ *	-	+ **	+ **
	Ngāi Tahu	-	+	+	+	+
Interest and inflation correct	Gen NZ	+	+	+	+	-
	Ngāi Tahu	-	+	+	-	+ *
Number correct	Gen NZ	+ *	+	-	+	+
	Ngāi Tahu	+	+	+	-	+

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Respondent reports having a high interest call account, term deposit/term investment, or a unit trust or managed fund.

There is no combination in Table 10 in which, under both surveys, financial literacy shows a significant, positive contribution to financial planning. The "all three correct" indicator does, however, produce significant positive coefficients (for the general New Zealand population, but not for Ngāi Tahu) more consistently across different measures of achievement than do the two other indicators tested. The one exception is when the dependent variable is our preferred measure of achievement: having thought a lot about financial planning for retirement.

## Part IV Discussion and Conclusion

There has been an encouraging rise in New Zealanders' levels of financial knowledge, with a statistically significant increase between 2006 and 2009 in the proportion of people placed in the "High financial knowledge" category. Among those with lower financial knowledge scores, females, young people and those of Māori ethnicity or with lower levels of educational attainment are over-represented (Table 5). This pattern is also seen when we examine responses to our three specific test questions on interest, inflation and risk (Table 3).

In contrast to the pattern of lower financial knowledge levels amongst Māori generally, the survey of members of the Ngāi Tahu tribe indicates that this group has a level of financial knowledge similar to that of the general population. This is thought to be at least partially the result of the tribe's focus on investing communal assets for the future benefit of its members<sup>13</sup> and the savings and education initiatives undertaken. The tribe's governing body has established a long-term saving scheme for their members and are providing financial education seminars for young adults.

The overall improvement in financial knowledge levels has occurred at a time when nearly one-third of all New Zealanders have used the free, independent and impartial information and resources available under the Retirement Commission's personal financial education programme designed to help them manage their personal financial resources throughout life<sup>14</sup>. At the same time, economic recession and the collapse of a number of finance companies has caused a loss of public confidence and trust in some parts of the finance sector and financial advice services and has led to a recovery in household saving rates, debt reduction and a retreat to the security of bank deposits. The introduction of the KiwiSaver scheme has seen a higher than expected growth in scheme membership.

All of these developments are expected to have had a positive effect on the demand for financial literacy and it has not been possible to identify their separate contributions. However we expect that momentum has been generated that will see a continuing improvement in the levels of financial literacy in coming years.

We have found no evidence that the three indicators of financial literacy (dealing with interest, inflation and risk) have an effect on thinking about financial planning for retirement (Table 9). They do however appear to have a significant association with other measures of achievement, particularly with setting and writing down financial goals that are not necessarily related to retirement (Table 10).

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<sup>13</sup> Te Rūnanga o Ngāi Tahu has a long term vision 'Mō tātou, ā, mō kā uri ā muri ake nei', 'For us and our children after us.'

<sup>14</sup> This programme, known as "Sorted", began in 2001 with the website: [sorted.org.nz](http://sorted.org.nz) which provides calculators, tools and information covering the financial situations most New Zealanders face, from goal setting and budgeting to investing, retirement planning and insurance.

This difference could be a reflection of the fact that New Zealand's public pension system currently provides a considerable degree of retirement income security without the need for people to make investment decisions or manage their own pension plans, although this could change in the future as people increasingly acquire their own stake through KiwiSaver. In contrast, the challenge for young people of having to budget their daily expenses, manage consumer debt and save for a home deposit makes the need to set financial goals a much more pressing issue. It is in this context that we believe the benefits of greater financial literacy are beginning to be seen.

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## **Data appendix**

### **The 2009 Survey of Financial Knowledge**

A multistage sample design was used to produce a representative sample of 850 New Zealanders aged 18 or over. First, a stratified sample of Statistics New Zealand area units was drawn with probability of selection in proportion to size of the area unit. Eight interviews were conducted in each area unit, with households selected using a random route method. Within the household, a respondent was selected at random (using the last birthday method) from the eligible members of the household. As each respondent was selected randomly, they were not necessarily the financial decision maker in each household. Having said this, a surprisingly high 86% of the respondents said they either make investment decisions or contribute equally to them.

To ensure it reflects population characteristics, the data have been weighted by household size, age and gender.

The first ANZ/Retirement Commission Survey of Financial Knowledge was undertaken in 2005/6. It included a booster sample of 104 Māori and 96 Pacific Island people from around the country in order to provide a sufficient sample for analysis. In all, 181 people who identified as Māori were interviewed.

### **Ngāi Tahu financial knowledge survey**

Face-to-face interviews were carried out in nine regions (Auckland, Waikato, Hawke's Bay, Manawatu-Whanganui, Wellington, West Coast, Canterbury, Otago, and Southland), approximately in proportion to the size of each region (defined by the total number of Ngāi Tahu members in the region).

Sampling was undertaken using a list of Ngāi Tahu iwi members that was provided by Te Rūnanga (the governing body) and potential respondents were randomly selected from this list based on the region they live in. All fieldwork for this study was managed and conducted by Te Rūnanga with the guidance of Colmar Brunton, a large market and social research organization in New Zealand. Interviewers were recruited by Te Rūnanga and trained by a Colmar Brunton supervisor specifically for this project. To provide support and feedback on interviewing techniques, Colmar Brunton supervisors viewed some of the initial interviews conducted.

To reflect characteristics of the population of interest, the data have been weighted to reflect the proportions of respondents who were members of Whai Rawa, the tribe's saving initiative.

Participants were given a koha<sup>15</sup> as a 'thank you' for their help in this study.

### **Sample profiles**

The table below provides the sample profiles of the two surveys.

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<sup>15</sup> Small gift

	General population % (n=850)	Ngāi Tahu % (n=400)
<i>Age</i>		
Under 35 years	30	18
35 to 49 years	31	38
50 to 64 years	22	26
65 years or over	17	16
<i>Missing information</i>	-	2
<i>Gender</i>		
Male	48	50
Female	52	50
<i>Education (ISCED 97)<sup>†</sup></i>		
Level 1	2	2
Level 2	19	27
Level 3	24	24
Level 4 to 5	32	26
Level 5	14	13
Level 5 to 6	18	8
<i>Don't know</i>	*	-
<i>Refused</i>	1	1
<i>Missing information</i>	-	*
<i>Occupation</i>		
<i>Employed/self-employed</i>		
Professional or senior govt official	6	7
Business manager or executive	5	8
Business proprietor or self-employed	7	7
Technical or skilled worker	13	11
Teacher, nurse, police or other trained service worker	9	11
Farm owner or manager	3	*
Clerical or sales employee	9	8
Semi skilled worker	5	7
Labourer, manual, agricultural or domestic worker	4	7
<i>Not employed</i>		
Home duties	10	10
Retired/superannuitant	16	11
Student at secondary school	*	*
Student at university, polytechnic or other tertiary institution	6	7
Social welfare beneficiary or unemployed	7	6
<i>Refused</i>	*	-
<i>Missing information</i>	-	2
<i>Location</i>		
Main urban area	73	
Provincial town	14	
Rural area	13	
<i>Ethnicity<sup>ρ</sup></i>		
NZ European (71%)	71	
Māori (13%)	13	
Other ethnic group (23%)	23	

\* Percentage is between 0.0% and 0.5%

<sup>†</sup> Questionnaire used some categories that were too broad to map to ISCED97 (ie, postgraduate qualification, technical, trade or other tertiary qualification)

<sup>ρ</sup> Ethnic groups are not mutually exclusive because respondents can identify with more than one group



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