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OECD

PISA2012

New Zealand financial literacy report

MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

New Zealand Government

Foreword

The PISA survey measures the abilities of 15-year-olds in mathematics, science and reading. The survey is undertaken every three years by the OECD. In 2012, 65 countries participated. Over time the PISA study has introduced the assessment of a number of new competencies. For example, New Zealand students participated in assessments of problem-solving in PISA 2003 and electronic reading in PISA 2009.

In PISA 2012 financial literacy was offered as an international option and 18 of the 65 countries participating in that study, including New Zealand, took part. As this is the first time the skills and knowledge of 15-year-old students in financial literacy have been assessed in PISA participating countries are unable to report, at this point, if and how their students' competence in this domain is changing over time. But because of the range of information that is collected as part of the PISA study it is possible to examine the relationship between financial literacy skills and knowledge and aspects of students' background such as gender, ethnicity and the language students speak in the home.

Financial capability is included in the New Zealand Curriculum as a theme that schools can use for cross-curricular teaching and learning programmes. Financial capability provides a context for linking learning areas, such as social sciences, mathematics and statistics, business studies, and provides a relevant context for strengthening literacy and numeracy skills. Learning outcomes encompass three capability strands: managing money (covering money, spending, credit and debt, saving and investing, income and taxation, and budgeting and financial management); setting goals (covering setting financial goals and planning ahead); and managing risk (covering identifying and managing risk, and rights and responsibilities).

To support building financial literacy skills and knowledge in all New Zealand students, in 2014 the Ministry of Education released a suite of new online financial capability resources that can be used across all areas of the curriculum from Year 1 – 13. These resources are located at http://nzcurriculum.tki.org.nz/Curriculum-resources/Financial-capability. Professional learning and development in financial capability is also available.

The results from PISA 2012 show that students who are proficient in financial literacy are also likely to be proficient in reading and mathematics. The implications of this are that to develop financial literacy skills and knowledge for students with only basic financial literacy skills, resources will need to be accessible to students with relatively low literacy and numeracy.

As well as learning financial skills and knowledge at school, the results from PISA 2012 also show that a students' experience with money matters and regular discussions with parents can also support understanding and the development of skills. For example, one finding is that those students who have a bank account score higher on the financial literacy assessment on average than those students who do not. It is probably not the amount of money in the account that makes a difference – but the fact that the student has had to think about some aspect of financial literacy to open and/or operate that account.

Overall, there is a relatively high proportion of young New Zealanders who are very proficient in financial literacy. Nearly 1 in 5 New Zealand students has advanced skills and knowledge. The challenge is how to ensure that all young people in New Zealand have the opportunity to acquire these skills which will stand them in good stead for their future.

An overview of PISA

The Programme for International Student Assessment (PISA) is an international study that assesses and compares how well countries are preparing their 15-year-old students to meet real-life opportunities and challenges after completing around 10 years of compulsory schooling.

PISA is an initiative of the Organisation for Economic Co-operation and Development (OECD) and a collaborative effort of participating countries. In New Zealand, the Comparative Education Research Unit within the Ministry of Education's Research Division is responsible for implementing PISA and analysing the results.

PISA provides countries with information on student achievement and how this relates to student and family factors, school-level factors affecting teaching and learning, and system-related factors.

PISA uses a broad approach to "determine the extent to which young people have acquired the wider knowledge and skills in reading, mathematics and science that they will need in adult life" (OECD, 2013a, p. 14). It is not restricted to assessing how well students have mastered the content of a national school curriculum.

PISA has been administered every three years since it began in 2000. Each time PISA is administered, three key areas of knowledge and skills are assessed: reading literacy, mathematical literacy and scientific literacy. Rotating the main focus for each cycle of PISA provides detailed information on one main literacy area, along with an ongoing source of data on two minor areas.

The focus of PISA 2012 was mathematical literacy, as it was in 2003. In each country, students complete a two-hour test booklet in their language of instruction.[1] Background information was gathered from student and school principal questionnaires. Eighteen countries also participated in the financial literacy option.

Approximately half a million 15-year-old students from 65 countries[2] participated in PISA 2012, including the 34 OECD member countries. In New Zealand, over 5,000 students from 177 schools took part, of whom 957 participated in the financial literacy option. The majority of New Zealand students started school in 2001, the rest in 2002.

Schools and students are randomly selected to ensure the sample is representative of the New Zealand 15-year-old population. Schools that are selected by the PISA consortium are stratified by the following characteristics: size, decile, location (urban or rural), authority (state or independent) and type (co-educational or single-sex). Students are selected randomly in the sampled schools from students within the specified age group (between 15 years 3 months and 16 years 2 months).

Further details of the PISA study design and quality assurance procedures will be provided in the forthcoming *PISA 2012 Technical Report*.

1 In New Zealand, PISA was administered only in English.

2 PISA participants include both countries and economies, such as Shanghai–China. For brevity, the word 'countries' in this report will refer to both countries and economies.

Contents

Key findings

- New Zealand's average in financial literacy (520 points) is above the average score for the 13 OECD countries taking part (500 points).
- New Zealand had a large proportion of students (19%) with advanced skills and knowledge in financial literacy compared to the OECD average (10%).
- Most New Zealand students (approximately 90 percent) had a bank account, a proportion higher than most participating countries. The difference in achievement in financial literacy between students who held a bank account (543 points) compared to those who did not (437 points) was the largest among all participating countries.
- Relative to students in other participating countries, New Zealand students did better in the money and transactions content area than in planning and managing, risk and reward, and financial landscape.
- In New Zealand performance in financial literacy is strongly related to a students' scores in maths (correlation of 0.85), and reading (correlation of 0.8).
- No gender differences in average score were found in New Zealand, although a greater number of boys demonstrated advanced financial literacy skills and knowledge than girls, and more boys demonstrated basic financial literacy skills and knowledge than girls.
- In PISA a student's socio-economic background is derived from information supplied by students about their parents' level of education, occupation and possessions in the home. It is summarised in the PISA index of Economic, Social and Cultural Status (ESCS). The relationship between student socio-economic background and financial literacy performance in New Zealand is the strongest among participating countries. Students in the bottom quarter of the ESCS index (students who are relatively socio-economically disadvantaged) score 459 points compared to 585 points in the top quarter of the index (students who are relatively socio-economically advantaged).
- Māori students (466 points) and Pasifika students (424 points) achieved lower financial literacy scores than the average for New Zealand (520).
- Students with an immigrant background (504 points) achieved lower financial literacy scores than students who did not have an immigrant background (533 points), and students who spoke a language other than English at home (474 points) achieved lower financial literacy scores than students who did speak English at home (535 points).

Introduction: What is financial literacy

Do our 15-year-old students have the skills and knowledge that are needed to make financial decisions and plans for their future? PISA 2012 is the first large-scale international study to assess students' financial literacy that has been learned both in and outside school. Eighteen countries, including New Zealand, took part in this study.

How is financial literacy defined?

Better financial literacy skills can contribute to improved financial decision-making. These decisions can, in turn, have positive effects not only on households but also on the economic and financial stability of the whole country (OECD, 2014). An international option to assess students' financial literacy skills and knowledge was offered to all countries participating in PISA 2012. The 18 countries that chose to take part are listed on the back cover of this report.

The main focus of the financial literacy assessment in PISA 2012 was on measuring the proficiency of 15-year-old students in demonstrating and applying the knowledge and skills they had learned both in and out of school. The OECD report, *PISA 2012 Assessment and Analytical Framework* (OECD, 2013a), provides a comprehensive description of the framework used to assess the financial literacy of 15-year-olds.

The definition of financial literacy that underlies its assessment in PISA is:

> *the knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life (OECD, 2013a, page 144).*

This definition has two parts. The first is about the kind of thinking and behaviour that characterise financial literacy. The second is about the reasons for developing financial literacy.

Fifteen-year-olds are already beginning to acquire knowledge about fundamental aspects of the financial world and gain experience of the financial environment they and their family are part of, and the main risks they face. They are likely to have been shopping to buy household goods or personal items, and some will have taken part in family discussions about money and whether what is wanted is actually needed or affordable. A proportion of them will have already begun to earn and save money. A grasp of concepts such as interest, inflation and value for money are soon going to be – if they are not already – important to their financial well-being.

Financial literacy is not just about knowledge and understanding. It is also about having the motivation to seek the information and advice needed to engage in financial activities, the confidence to do so, and the ability to manage factors (such as emotion) that influence financial decision-making. PISA focuses on a student's ability to activate and apply knowledge and understanding in real-life situations in a range of financial contexts in order to make effective decisions, rather than just reproducing facts.

What were the questions on nancial literacy about?

There were four content areas in the financial literacy assessment. These were: money and transactions; planning and managing finances; risk and reward; and the financial landscape.

Money and Transactions

Money and Transactions is about being aware of the different forms and purposes of money and handling simple monetary transactions such as everyday payments, spending, and bank accounts.

'Pay Slip' is a sample item which illustrates the kinds of questions students were asked to answer relating to money and transactions. Pay slips are common financial documents, although 15-year-old students may be unfamiliar with them and the difference between gross and net pay. Numeracy skills were not necessary to complete the task.

Each month Jane's salary is paid into her bank account. This is Jane's pay slip for July.

EMPLOYEE PAY SLIP: Jane Citizen

Position: Manager	1 July to 31 July
Gross salary	2,800 zeds
Deductions	300 zeds
Net salary	2,500 zeds
Gross salary to date this year	19,600 zeds

PAY SLIP: Question 1

How much money did Jane's employer pay into her bank account on 31 July?

300 zeds

2,500 zeds

2,800 zeds

19,600 zeds

Question type	Multiple choice
Description	Identify the net salary on a pay slip
Content	Money and transactions
Process	Identify financial information
Context	Education and work
Difficulty	550.5 (Level 4)

Planning and Managing

Planning and Managing covers essential financial literacy skills such as planning and managing income over the short and long term, particularly in relation to enhancing financial well-being.

An example of an item in this area can be found in Appendix A, where students answered a question on saving money for travel and needed to calculate the time needed to accumulate savings.

Risk and Reward

Risk and Reward incorporates the ability to identify ways to manage, balance and cover risks (eg, through insurance and savings) and understand the potential for gains and losses across a range of financial contexts (eg, a mortgage or credit agreement).

An example of an item in this area can be found in Appendix A, where students answered a question on renewing motorbike insurance and needed to demonstrate knowledge of factors affecting insurance premiums.

Financial Landscape

Financial Landscape covers aspects of the financial world, such as knowing the rights and responsibilities of consumers and the implications of financial contracts. It includes things such as changes in interest rates, inflation, taxation and benefits.

An example of an item in this area can be found in Appendix A, where students were assessed on their ability to respond appropriately to a financial scam email.

1 New Zealand achievement in an international context

How well did New Zealand students perform in financial literacy?

In this chapter we look at the performance of New Zealand 15-year-old students in financial literacy. We describe their performance in two ways. First, we look at how New Zealand students performed on average and we compare this with the average of the OECD countries taking part in this international option. Second, we look at how proficient New Zealand students are in financial literacy. This shows, for example, the proportion of students who have very basic skills and knowledge, ranging up to those who have advanced skills and knowledge, on the basis of their scores in PISA's financial literacy assessment.

New Zealand students scored 520 points on average on the PISA financial literacy scale, which is well above the 500 point average of the 13 OECD countries that participated in this financial literacy option.[3] This is on a par with Australian students (see Figure 1.1).

Figure 1.1 also shows the proportions of students in each country that achieved different levels of proficiency in financial literacy. PISA proficiency levels describe the types of financial literacy tasks that students can do. For example, students proficient at Level 1 display very basic financial literacy skills: they can identify common financial products and terms, and interpret information relating to basic financial concepts (eg, knowing the purpose of an invoice). They can also make simple decisions on everyday spending, such as comparing prices on the same article.

However, students at this level are not well placed to apply their knowledge to real-life situations involving financial issues and decisions. Students who perform at this level are below Level 2, which is considered to be the baseline for essential skills in financial literacy in PISA (Appendix B gives detailed descriptions of tasks that students are able to perform at each proficiency level, and the percentages of students in New Zealand and the OECD average attaining each level). New Zealand had almost the same proportion of students whose scores placed them at or below Level 1 (16%) as the average of the 13 OECD countries (15%).

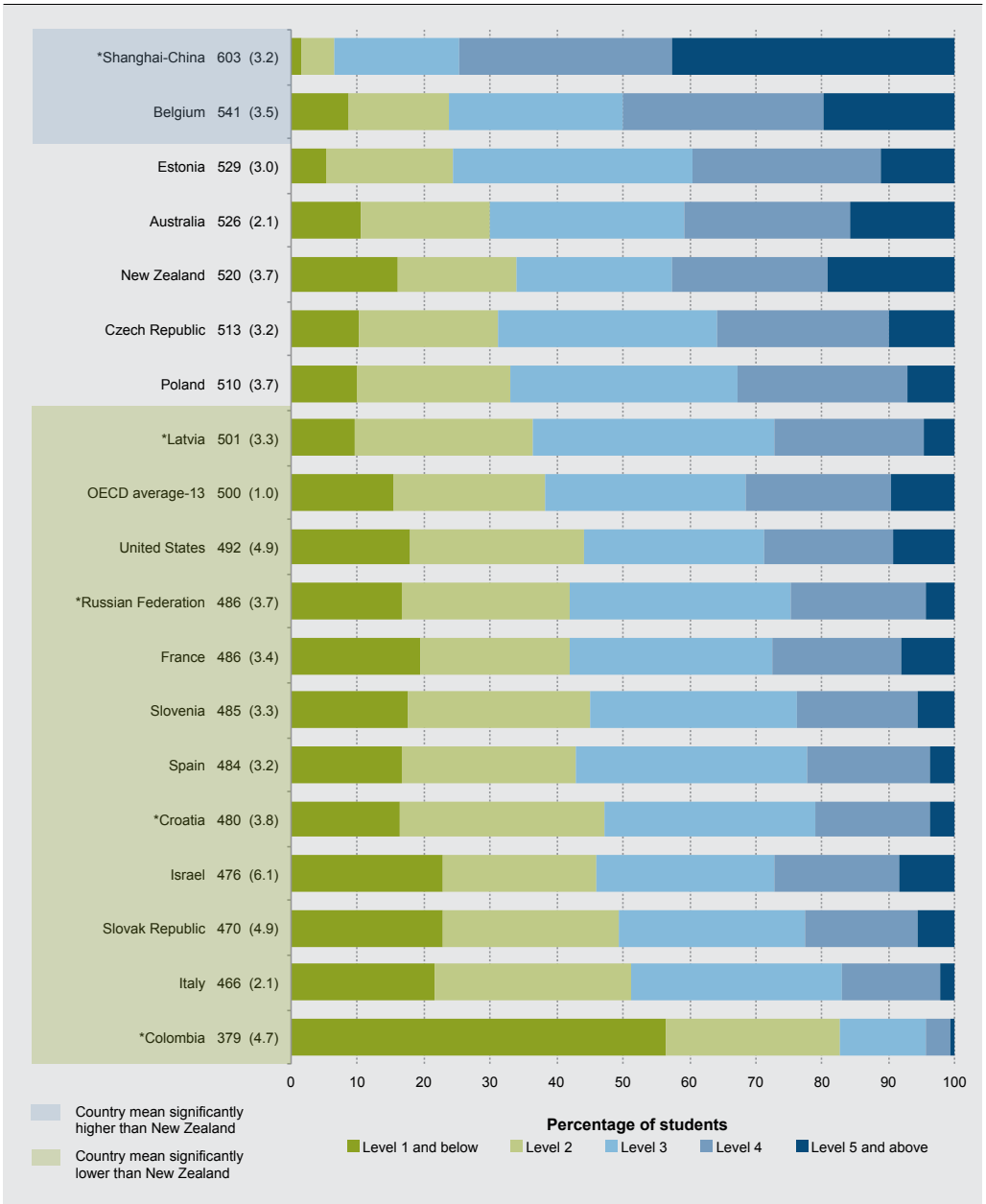
Students at the highest level of proficiency (Level 5 and above) have the knowledge and skills to successfully complete the most difficult financial literacy items. The tasks at this level are related to

3 There were 13 OECD and 5 non-OECD countries participating in the financial literacy option.

students' ability to look ahead and plan for the future to solve financial problems or make the kinds of financial decisions that will be relevant to them in the future. They can also describe the potential outcomes of financial decisions, thereby showing an understanding of the wider financial landscape, such as income tax, or explain the financial advantages of different types of investments.

New Zealand had a significantly higher proportion of students whose score put them at Level 5 or above (19%) compared to the OECD average (10%). Relative to countries with a similar average score, New Zealand had a higher proportion of students at both ends of the proficiency spectrum: that is, a relatively high proportion of students with advanced skills and knowledge and of students with poor or basic skills and knowledge.

Figure 1.1: Average financial literacy scores and proficiency levels



Note: Standard errors are presented in parentheses.
An asterisk (*) before the country name denotes a non-OECD country/economy.

How does a student's performance in financial literacy relate to their performance in maths and reading?

Students in PISA were assessed in reading and maths as well as financial literacy. This provides an opportunity to look at whether students' performance in financial literacy is related to their performance in reading and maths.

The OECD has calculated the relationship between performance in maths and financial literacy and between reading and financial literacy for each country and for the 13 OECD countries on average. The statistic they use for this purpose is correlation: the stronger the relationship (correlation) between two domains, the greater the likelihood that a good score in one will predict a good score in the other – or a poor score in one will predict a poor score in the other.

The relationship between these domains is higher in some countries than in others. In New Zealand, the relationships between maths and financial literacy (0.85) and reading and financial literacy (0.86) are strong – slightly stronger than those in the OECD countries on average. This means that in New Zealand, those students who are stronger in financial literacy tend also to have better skills and knowledge in reading and maths, and vice versa. It is also likely to mean that those factors linked to the acquisition of skills and knowledge in reading and maths are also linked to the development of skills and knowledge in financial literacy.

Another way of looking at the relationship between financial literacy and maths and reading is to examine the extent to which the differences in financial literacy performance can be explained by maths and reading.[4] On average, in the 13 OECD countries, around 25 percent of the differences in financial literacy scores reflect skills that are uniquely captured in the financial literacy assessment. In the OECD, on average the remaining 75 percent of the differences in financial literacy scores reflects skills that are measured in the maths and reading assessments. In New Zealand, the proportion of the differences in financial literacy scores that reflects skills that are measured in the maths and reading assessments is 80 percent.

What are the areas of strength of New Zealand students in financial literacy?

As described earlier, there were four content areas in the financial literacy assessment: *money and transactions*; *planning and managing* finances; *risk and reward*; and the *financial landscape*.

For tasks in the four content areas, Table 1.1 shows the average percentage of items that New Zealand and OECD students got correct. It shows that New Zealand 15-year-old students tended to do better on tasks that relate to *money and transactions* (63%) and to *planning and managing* (63%), than *risk and reward* (58%) and the *financial landscape* (54%). However, we need to look at the OECD averages for a measure of the relative difficulty of the questions that make up each of these content areas. This would suggest that *planning and managing* questions in the assessment were relatively easier than the other content areas.

The results in Table 1.1 show that the knowledge and skills in each of the four content areas are higher among New Zealand students than for students in the OECD on average. This is particularly the case for *money and transactions*. This may reflect a finding covered later in this report on the extent to which students in New Zealand have a bank account compared with students in other countries.

4 Total explained variance is the R-squared coefficient from a regression of financial literacy performance on maths and reading performance. Variation uniquely associated with each domain is measured as the difference between the R-squared of the full regression and the R-squared of a regression of financial literacy on the two remaining domains only. The residual variation is computed as (100 minus total explained variation).

This finding also suggests that 15-year-old New Zealand students are more likely than their OECD counterparts to be aware of the different forms and purposes of money and handling simple monetary transactions such as everyday payments, spending and bank accounts – *money and transactions*. The larger difference between the New Zealand percentage correct in this area and the OECD average compared to the difference for the other content areas indicates that this is an area of particular strength in the New Zealand context.

New Zealand students had their lowest percentage correct for *financial landscape* questions. These look at aspects of the financial world, such as knowing the rights and responsibilities of consumers and the implications of financial contracts, and include changes in interest rates, inflation, taxation and benefits. However, the relative difference between the New Zealand percentage correct and the OECD average was similar for questions covering essential financial literacy skills, such as planning and managing income over the short and long term (in the *planning and managing* content area). It was also similar for questions in the *risk and reward* content area, which look at identifying ways of managing, balancing and covering risks (eg, through insurance and savings) and understanding the potential for gains and losses across a range of financial contexts (eg, a mortgage or credit agreement).

Table 1.1: Average percentage correct, by content area in financial literacy

	Average percentage correct			
	Money and transactions	**Planning and managing**	**Risk and reward**	**Financial landscape**
New Zealand	63	63	58	54
OECD	56	60	55	50

2 Financial literacy and student background

The financial competencies and skills of children and young people are influenced by parents' financial knowledge and skills and behaviour, and by the overall family context (OECD, 2014). In the following sections we look at the extent to which the differences in scores in PISA financial literacy are related to students' socio-economic and demographic characteristics (eg, gender, ethnicity and migrant status).

Gender

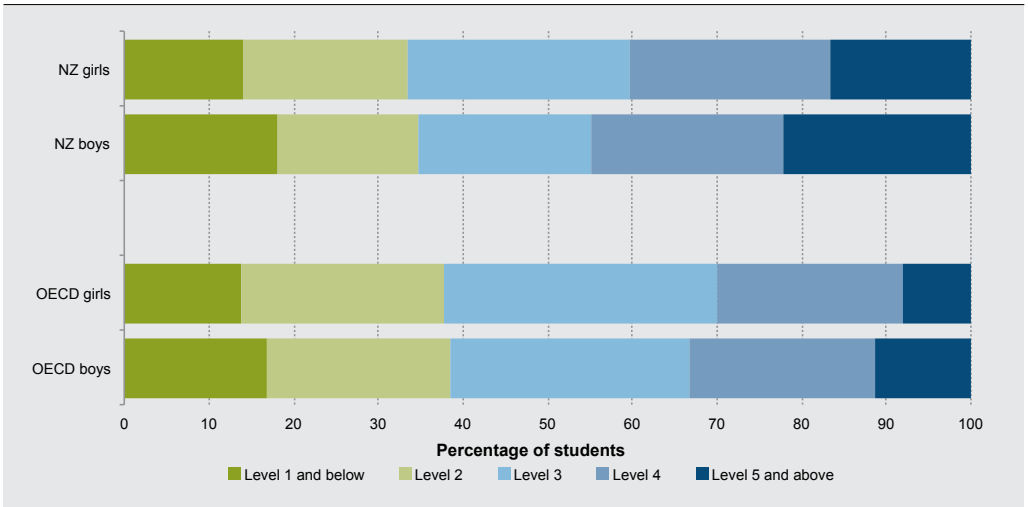
There were no gender differences in financial literacy scores in all but one of the 18 countries – and New Zealand was no exception. New Zealand girls (519 points) and boys (521 points) had nearly the same average score on the financial literacy assessment. The OECD average was 500 for both boys and girls.

Although there are no differences in the average scores for boys and girls, when you look at the proportions of boys and girls with advanced or poor financial literacy skills and knowledge some differences start to emerge. Those students who had advanced skills and knowledge attained Level 5 and above while those students with poor skills and knowledge did not attain levels higher than Level 1.

Looking at the data for boys and girls (Figure 2.1), overall there is a larger proportion of New Zealand boys with poor financial literacy skills and knowledge (18%) than girls (14%), and with advanced skills (22%) than girls (16%). This pattern is consistent with the average for the OECD countries participating in this option.

The implications of these gender differences is that, in terms of supporting the development of skills and knowledge in financial literacy, girls may need more targeted support to acquire more advanced skills and knowledge.

Figure 2.1 Financial literacy proficiency levels, by gender, New Zealand and OECD



Socio-economic background

For the PISA study a student's socio-economic status is considered to be a combination of several background factors. It is derived from information on parental education and occupation, and possessions in the home, including the educational resources available at home, as reported by students at the time of testing.

Figures 2.2 and 2.3 both show average scores achieved in the PISA financial literacy assessment against quarters of the index of Economic, Social and Cultural Status (ESCS). This index is designed to allow the socio-economic status of students in different countries to be measured on the same scale. For this index, zero (0) represents the average student economic-social-cultural status for OECD countries. Negative values on the index represent students who are lower than the OECD average (lower SES) and positive values represent students who are higher than the OECD average (higher SES).

Figures 2.2 and 2.3 show that there is a link between socio-economic status (as measured by the ESCS index) and performance in both New Zealand and the OECD countries on average. In New Zealand the relationship is stronger between socio-economic status and scores on the financial literacy scale than it is on average among OECD countries. This can be best observed in Figure 2.2, where the slope of the graph for New Zealand is steeper than for the OECD average.[5]

Figure 2.3 shows the same information in a different way. From this figure it is clear that those students in the bottom quarter of the socio-economic index for New Zealand – which represents those students who are relatively socio-economically disadvantaged – perform significantly less well than students in the top quarter of the socio-economic index – which represents those students who are relatively socio-economically advantaged. The graph shows that the average financial literacy score for socio-economically disadvantaged students in New Zealand is lower (459) than for the second (509), third (543) and top quarters (585). Similarly the trend across the OECD is for scores on the financial literacy scale to increase with socio-economic status.

5 Figure 2.2 plots the average ESCS index value for each quarter of the ESCS index for the OECD and for New Zealand against the financial literacy score. From this we can see that the average socio-economic status of students in the bottom quarter for New Zealand is similar to that for the OECD.

Figure 2.3 also shows that the quarter of New Zealand students with the lowest socio-economic status had a similar average score to the lowest socio-economic students in the OECD. As we progress through the quarters, the difference between the New Zealand students and the OECD average increases.

Figure 2.2 Link between students' social, economic and cultural status and financial literacy performance

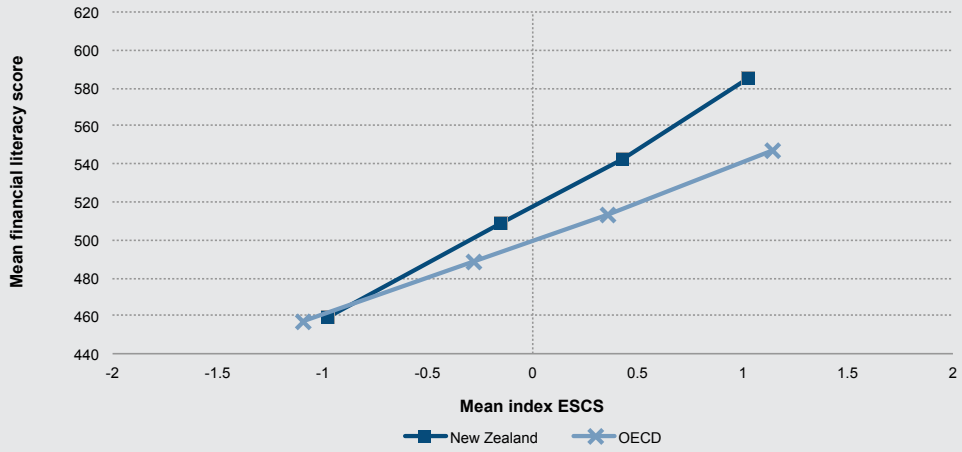
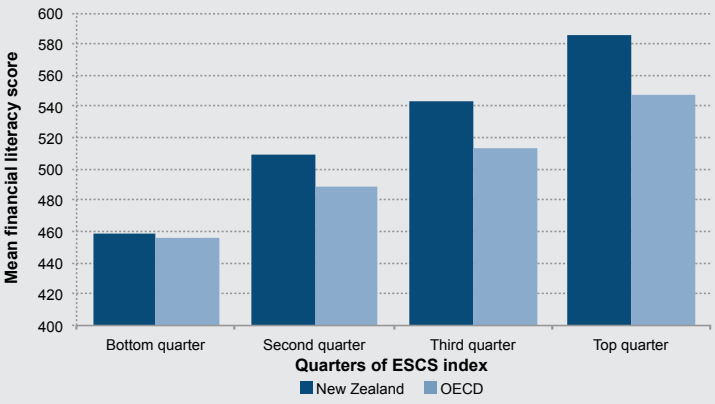


Figure 2.3 Financial literacy performance, by ESCS index quarter



Instead of looking at the averages for quarters of the ESCS index, Figure 2.4 shows the averages throughout a range of index values for ESCS.[6] These are displayed as the socio-economic gradients in Figure 2.4. Figure 2.4 also displays individual data points for students across the OECD.

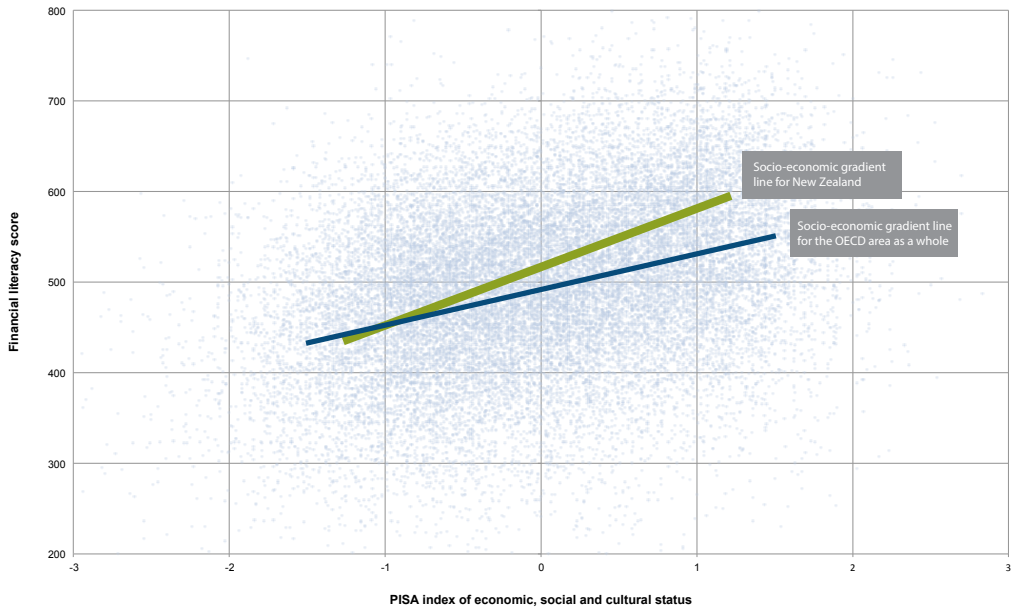
Even though this trend is very apparent when looking at the socio-economic gradients, what is clear from Figure 2.4 is that at each level of the socio-economic index there is a wide spread of scores on the financial literacy assessment. At each level of the index – from the lower ESCS, which are negative, to the higher ESCS, which are positive – there is a range of scores on the financial literacy achievement scale. For example, at zero on the PISA ESCS index, financial literacy scores range from less than 300 points to over 700 points. This range extends across the index but with fewer higher and many lower scores at –1, compared to many higher and fewer lower scores at +1.

Achievement in financial literacy in New Zealand is more closely linked to socio-economic status than in the other countries that took part in this option in PISA 2012. On average in the OECD, 14 percent of the differences in achievement in financial literacy is accounted for by socio-economic status; in New Zealand it is 19 percent and the relationship is relatively strong. By way of comparison, almost the same percentage of the differences in achievement in maths (18%) in New Zealand is accounted for by socio-economic status.

New Zealand students from low socio-economic backgrounds tend to have very basic financial literacy skills, and it is clear that more support is needed to develop their skills and knowledge, and their ability to apply them to financial decisions in everyday life.

However, as with achievement in maths (to which it is strongly related), achievement in financial literacy is linked to more than low socio-economic status. When parents and teachers focus on effectively developing financial literacy skills and knowledge, this can make a large contribution to achievement in this area.

Figure 2.4 Socio-economic gradients for financial literacy, New Zealand and OECD



Note: Each dot represents a student in an OECD country or economy.
Source: OECD, PISA 2012 Database.

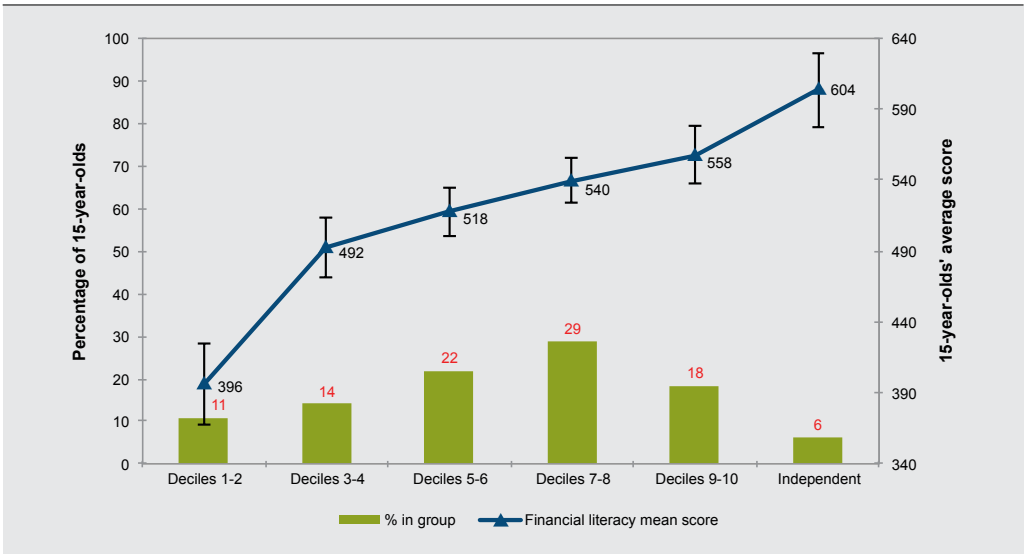
6 The range is from the 5th percentile of the ESCS to the 95th percentile of the ESCS for each of the OECD and New Zealand.

As well as looking at New Zealand student performance in financial literacy by the PISA socio-economic factor (the ESCS index), we can also look at performance according to New Zealand school decile.[7]

Figure 2.5 tracks student performance across five decile groups as well as independent schools. The line graph shows mean performance for the different school groups and the bar graph shows the proportion of students in each decile group and in independent schools.[8]

What is very apparent from this figure is that students in deciles 1 and 2 schools perform significantly below students in any other pair of deciles, and those students attending independent New Zealand schools have a very high average performance. The difference between the average of students in the lowest pair (deciles 1 and 2) and the next pair (deciles 3 and 4) is particularly evident: almost 100 score points separate the average performance in the two pairs. Students in deciles 1 and 2 have, on average, a score that places them in the lowest proficiency level in financial literacy, with only very basic skills and knowledge of issues related to financial literacy.

Figure 2.5 Link between socio-economic background, as measured by school decile, and financial literacy performance, New Zealand only



While the above data show that there are differences between schools of different decile, data from PISA 2012 also show that there are differences in performance among those students who attend the same school. In fact the variations in the scores for financial literacy within schools were greater than the variability between schools, on average.

7 The decile rating of a school is related to the socio-economic composition of the students within that school. This provides a school-level measure of socio-economic status for New Zealand students.

8 The number of students and/or schools in some individual deciles is too small for reliable measures of student achievement to be made, which is why the analysis is undertaken on pairs of deciles.

Ethnicity

In addition to the performance of sub-groups of students who can be compared with their counterparts internationally (such as girls and boys), data collected specifically for New Zealand provide an understanding of the performance of specific sub-groups of our own population. This section looks at the achievement Māori and Pasifika students.

Māori students

The performance of Māori students – or of students from any other ethnic background – is not included in the international reports prepared by the OECD. Information on students' ethnic background is only considered within a country because of the great diversity of ethnic backgrounds in the 65 countries that participated in the PISA 2012 assessment.

Ensuring Māori enjoy and achieve success in the New Zealand education system is at the heart of the Māori education strategy, *Ka Hikitia – Accelerating Success 2013–2017* (Ministry of Education, 2013a). PISA provides a regular way to report on the achievement of 15-year-old Māori students in reading, maths and science, as well as from time to time in other skills and knowledge such as financial literacy.

We can describe the performance of Māori students in financial literacy in two ways. The first is to look at their average performance. The average score in financial literacy for Māori students was 466 points. This is below the average for both all New Zealand students (520 points) and the OECD countries taking part in this option (500 points).

The second way is to look at the levels of proficiency in financial literacy attained by Māori students. Earlier in this report we showed that 16 percent of New Zealand 15-year-olds and 15 percent of students in the OECD on average were at or below the lowest level of proficiency (Level 1), indicating their skills and knowledge in this area were poor or very basic. If we look only at those students who identify as Māori, over a quarter (27%) had scores that placed them at or below Level 1 proficiency.

At the other end of the proficiency scale, 19 percent of New Zealand students overall and 10 percent of students in the OECD on average were in the highest levels of proficiency – Level 5 and above. Seven percent of Māori showed advanced financial literacy skills and knowledge by achieving at Level 5 and above. These are the top performers in financial literacy (see Figure 2.6.)

Pasi ka students

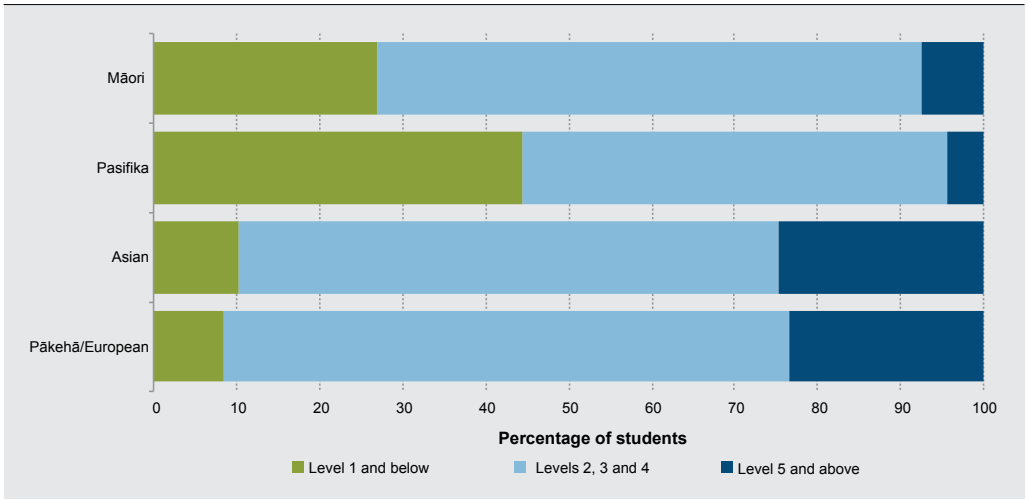
Ensuring Pasifika students are participating, engaging and achieving within the New Zealand education system is core to the *Pasifika Education Plan 2013–2017* (Ministry of Education, 2013b). PISA provides a regular way to report on Pasifika student achievement in reading, maths and science, and, from time to time, on other skills and knowledge such as financial literacy.

We can describe the performance of Pasifika students in financial literacy in two ways. The first is to look at their average performance. The average score in financial literacy for Pasifika students was 424 points. This is well below the average for both all New Zealand students (520 points) and the OECD countries taking part in this option (500 points).

The second way is to look at the levels of proficiency in financial literacy attained by Pasifika students. Earlier in this report we showed that 16 percent of New Zealand 15-year-olds and 15 percent of students in the OECD on average were at or below the lowest level of proficiency (Level 1), indicating their skills and knowledge in this area were poor or very basic. If we look only at those students who identify as Pasifika, 44 percent had scores that placed them at or below Level 1 proficiency.

At the other end of the proficiency scale, 19 percent of New Zealand students overall and 10 percent of students in the OECD on average were in the highest levels of proficiency (Level 5 and above). Four percent of Pasifika students showed advanced financial literacy skills and knowledge by achieving at Level 5 and above. These are the top performers in financial literacy. Figure 2.6 illustrates this for Pasifika students, and for students of other ethnic groups.

Figure 2.6 Financial literacy performance across ethnic groups in New Zealand



Note:The small numbers of Māori and Pasifika students at Level 5 and above means that the proportions at this level are indicative only. Students may identify with more than one ethnic group. Students are counted in each group they identify with.

Pākehā/European and Asian students

These students are well represented among those students with advanced skills and knowledge in financial literacy – the top performers. On average, in New Zealand 19 percent of students are top performers, and the proportion of Asian (25%) and Pākehā/European (23%) students exceeds this average. At the other end of the proficiency spectrum, 16 percent of 15-year-olds are not performing above the most basic levels of skill and knowledge in financial literacy (Level 1 and below), and somewhat lower proportions of Asian (10%) and Pākehā/European (9%) students are at this level.

Home language and immigrant status

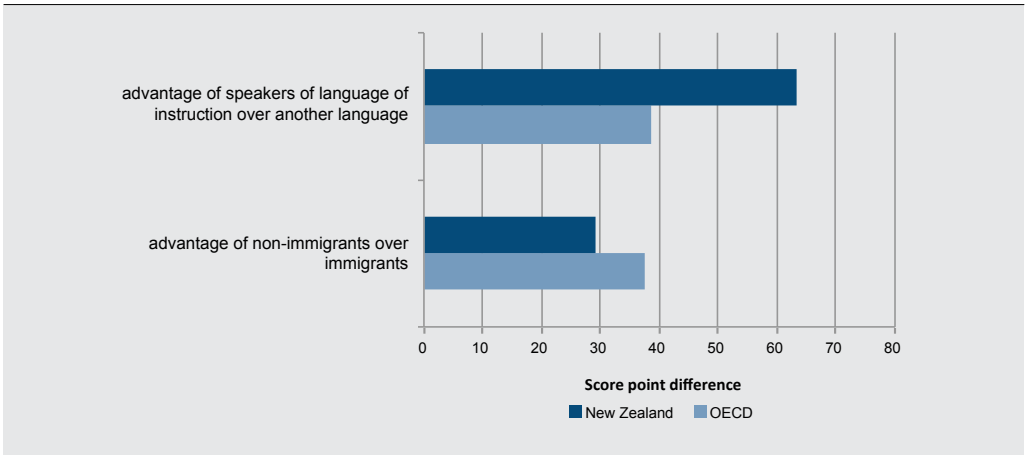
Within the New Zealand population there are demographic characteristics that are often associated with differences in average achievement. The PISA international reports explore some of these relationships for several groups, including immigrant students, students from rural communities, and students who speak a language at home that is different from the language of instruction.

Students who speak a language at home that is different from the language of instruction

One factor that has been linked to differences in achievement in PISA is the language spoken in the home and whether or not that language is different to the language of instruction. The OECD notes that students who speak a different language at home from the one in which they were assessed (their language of instruction) are likely to face more difficulties with things like making sense of financial documents such as bank statement and contracts, compared with students who speak the language of instruction at home.

In PISA 2012, 15 percent of New Zealand students reported that they spoke a language other than English at home most of the time. On average these students scored 63 points lower in financial literacy than those students who spoke English in the home most of the time. The equivalent difference on average in the OECD was 39 points. In New Zealand, students who spoke a language other than English at home most of the time scored 472 points on average, while for students who spoke English at home most of the time the average was 535 points.

Figure 2.7 Performance differences for language of the home and immigrant status



Immigrant students

A background factor that PISA focuses on is students who are from an immigrant background. In New Zealand this refers to students who were born in a country other than New Zealand (first generation immigrant) or whose parents were born in another country (second generation immigrant).

Looking at the performance of immigrant students is not straightforward because both within and across countries students with an immigrant background differ in their country of origin, language and culture, and bring with them a wide range of skills and knowledge.[9] When interpreting the differences in performance between immigrant and non-immigrant students, it is important to take this into account. In this section we look at the differences in the average scores of New Zealand students with an immigrant background and non-immigrants, as defined by PISA.

New Zealand has a large immigrant community compared to most OECD countries. Using the definition of immigrant for PISA 2012, about 27 percent of 15-year-olds in New Zealand would be immigrants. Across the OECD, 11 percent of students fall within this definition. New Zealand students with non-immigrant backgrounds (533 points) score 29 points higher on average on the financial literacy scale than students with an immigrant background (504 points). Across OECD countries the difference is slightly greater (37 points). See Figure 2.7.

We can compare the average performance of first and second generation immigrants in New Zealand. First generation immigrants are those students who were born in another country.[10] In PISA 2012 these students were predominantly Asian (42%) and Pākehā-European (36%), with some Pasifika (22%).[11] Second generation students were born in New Zealand but their parents were born in another country.[12] In PISA 2012 these students were predominantly Asian (40%) and Pasifika (38%), with about one in four identifying as Pākehā-European (26%).[13]

There was little difference in performance among migrant students of different generations, with first generation students having an average score of 505 and second generation students having an average score of 503.[14]

9 As mentioned previously, data for ethnic background are not collected across the 65 countries who participated in PISA 2012.

10 First generation students make up nearly 60 percent of New Zealand immigrant students (and 16% of all New Zealand PISA financial literacy students).

11 Note: students may identify with more than one ethnic grouping, so percentages may sum to more than 100.

12 Second generation students make up just over 40 percent of New Zealand immigrant students (and 11% of all New Zealand PISA financial literacy students).

13 Note: students may identify with more than one ethnic grouping, so percentages may sum to more than 100.

14 For consistency with figures reported in the OECD international Volume VI, these figures exclude students with missing values for immigration status, home language and socio-economic status (ESCS).

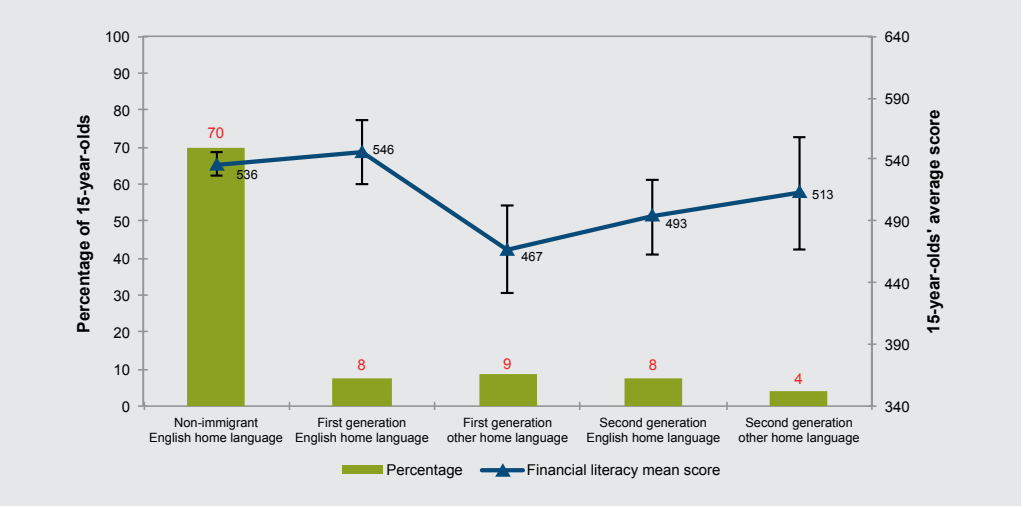
Immigrants and home language

Some New Zealand immigrants speak a language other than English at home. We can compare the average performance of first and second generation immigrants and whether they speak English at home with the performance of non-immigrant students. Figure 2.8 shows the proportion of immigrants in each category, as well as their average score in financial literacy.

Because the number of immigrant students on which this analysis is based is small, the precision with which we can measure their achievement is limited. Figure 2.8 indicates this with error bars, which provide a confidence interval for their average performance. We can see that nearly all of these confidence intervals overlap. This means that we cannot say with certainty that there are differences in average performance among these groups.

However, the graph does provide an indication that immigrant students who speak a language other than English at home may have more difficulties with financial literacy on average than immigrants who speak English at home. This appears to be more so for first generation students (who were born overseas).

Figure 2.8 Percentage and average financial literacy score for immigrant and non-immigrant New Zealand students by language spoken at home



Note: The number of non-immigrant students who speak a language other than English at home was too few to be included .

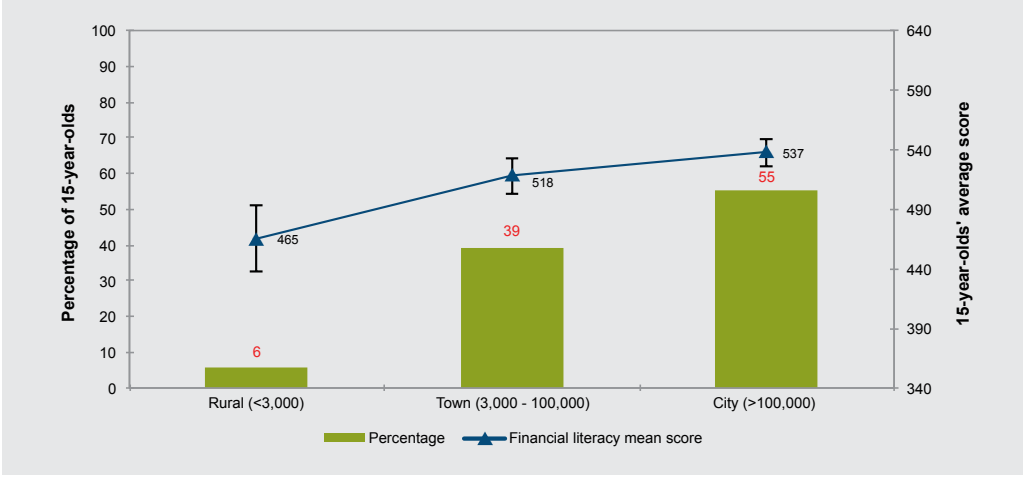
Students who attend schools in rural areas

In PISA 2012 over half of New Zealand 15-year-old students (55%) attended schools in communities with more than 100,000 inhabitants (cities), 39 percent attended schools in communities with between 3,000 and 100,000 inhabitants (towns), and only 6 percent attended schools in very small towns or rural communities with less than 3,000 inhabitants. The OECD average proportions are 36 percent, 56 percent and 11 percent respectively.

Figure 2.9 shows that, in New Zealand, 15-year-old students attending schools in rural areas scored lower on average (465 points) than students attending schools in cities (518 points) and towns (537 points).

The OECD notes that in some countries, student performance varies according to the location of their schools (eg, towns and cities versus rural locations) and they suggest that differences in the size and density of local communities may result in different opportunities for developing skills and knowledge on financial matters. For example, larger communities might provide students with more opportunities to be exposed to a wider and more complex range of financial goods and services than smaller communities.

Figure 2.9 Percentage and average financial literacy score of New Zealand students by community size of school location



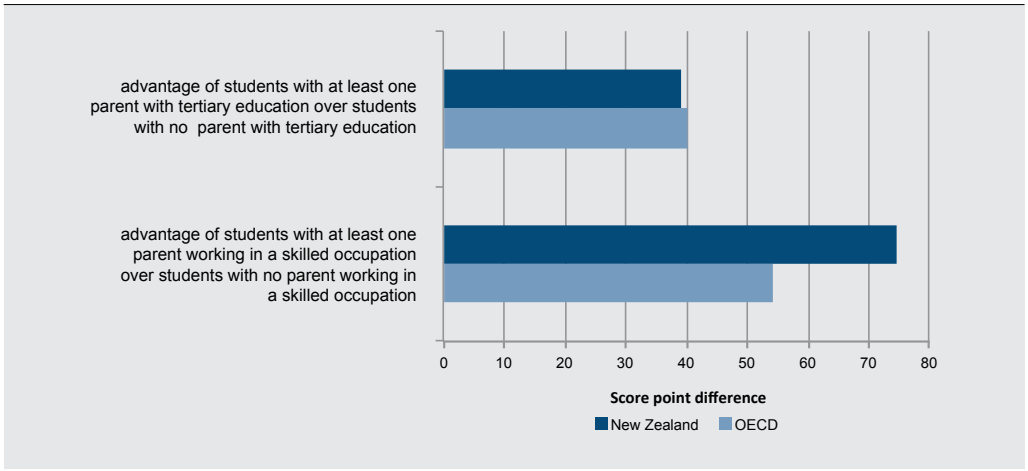
Parental influence

As stated earlier in this report, parents and whānau can have an important influence on their children's knowledge and skills in financial literacy. Parents and whānau are an important source of financial socialisation, both by acting as role models and through direct teaching, especially when financial education is not offered in schools.

Through PISA 2012 we can look at whether there is a difference in financial literacy performance related to parents' education and occupation, and/or the frequency with which students discuss money matters with their parents. On average across OECD countries, the difference in financial literacy performance between students with at least one parent with tertiary education and students with no parent with tertiary education is 40 points. In New Zealand the difference is almost the same (39 points), with students whose parents have no tertiary education having an average score of 509 and students who have at least one parent with tertiary education having an average score of 548 points.

In New Zealand, students with at least one parent working in a skilled occupation (eg, managers, medical professionals, teachers and technicians) score 75 points higher on average than students whose parents do not work in a skilled occupation (eg, parents working in clerical, trade, retail or labouring occupations). This difference is larger than the OECD average (54 points).

Figure 2.10 Performance differences for parents' education and employment

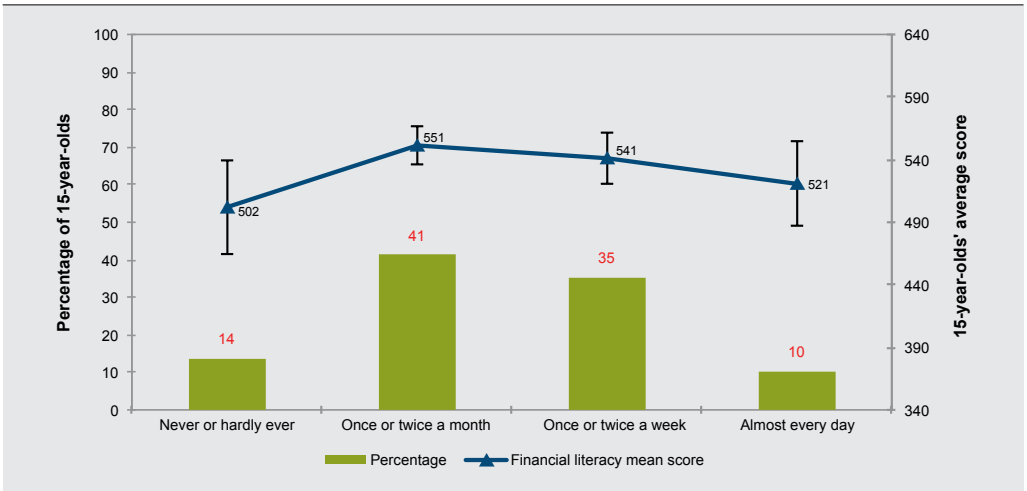


Students taking part in PISA 2012 were asked how frequently they discuss money matters with their parents and whānau. Money matters could include things like spending, saving and banking. Options were that they hardly ever discussed financial matters, or that they discussed them monthly, weekly or on a daily basis.

The relationship between performance in financial literacy and discussing money matters with parents and whānau is not entirely straightforward. Generally it appears that talking about money almost every day or never is associated with poorer performance in financial literacy than discussing the subject weekly or monthly.

In New Zealand, students vary in the extent to which they discuss money matters with their parents. As found generally in participating countries, Figure 2.11 shows that New Zealand students who tend to discuss money matters with their parents monthly (551 points) or weekly (541 points) tend to score better that those students who hardly ever discussed money matters with them (502) or discussed them almost every day (521).

Figure 2.11 Percentage and average financial literacy score of New Zealand students by frequency with which students discuss money matters with their parents



Students' experience, attitudes and behaviour, and their performance in financial literacy

As the definition of financial literacy used in this assessment highlights, financial literacy involves not only the knowledge, understanding and skills to deal with financial issues, but also attributes such as attitudes, motivation and confidence. The OECD also suggest that, when it comes to finances, direct experiences are important in developing habits and shaping behaviour.

Information about students' experience with money matters and their financial behaviour is based on their responses to a short questionnaire attached to the financial literacy assessment booklets. Unfortunately, in some cases not enough students completed items to be able to report on their responses, either in New Zealand or in other countries.

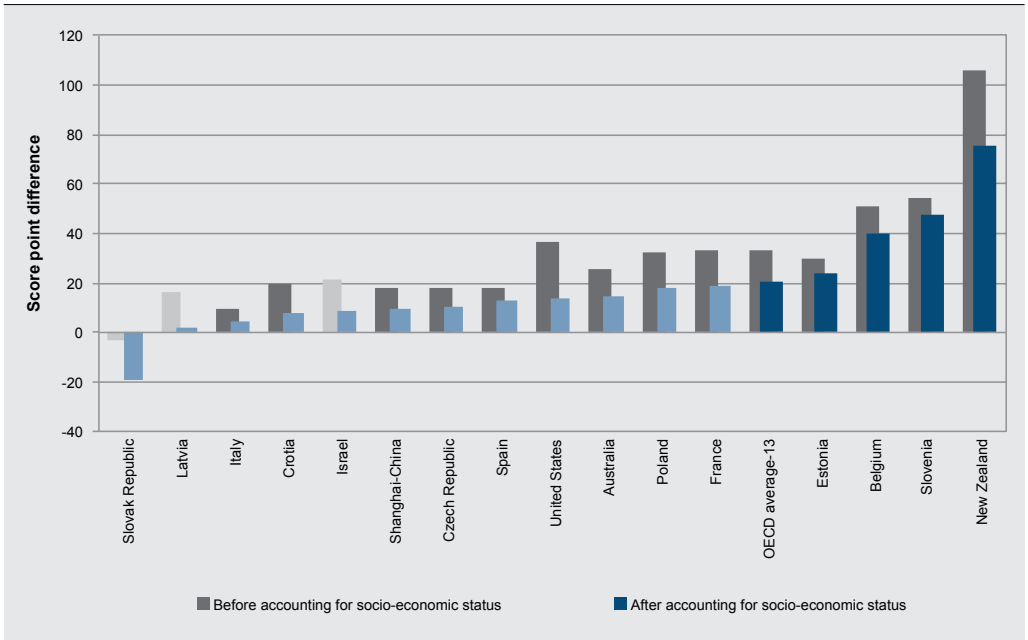
Is student experience with money matters related to their financial literacy performance?

Bank accounts

There was a large variation in the proportion of students with a bank account across the countries that took part in the financial literacy option. In New Zealand, 89 percent of students reported having a bank account. This was higher than all but one other country (Slovenia) and similar to Australia (81%). In some countries less than one-third of students had a bank account.

The score point difference between those New Zealand students holding a bank account (543) and those not holding a bank account (437) was far and away the biggest (106 score points) among the 18 countries. The next biggest difference was 54 score points. In Australia it was 26 score points.

Figure 3.1 Performance difference between students who hold a bank account and those who do not



Note: the darker shading in Figure 3.1 indicates differences that are statistically significantly different. Colombia and the Russian Federation are not displayed due to missing data.

The association between performance in financial literacy and holding a bank account is partly related to socio-economic status. In New Zealand, if you compare students who have a bank account with students with similar socio-economic backgrounds who do not have a bank account, the difference in scores reduces from 106 to 76 score points.

One of the factors likely to contribute to the difference in scores between students with and without bank accounts is that holding an account provides practical, hands-on experience in the skills and knowledge needed for financial literacy at 15 years of age.

Sources of money

Students were asked about the different sources from which they received money. Table 3.1 shows the extent to which students receive money from a number of different sources. The most frequent source of money in all countries is gifts from friends or relatives – and New Zealand is no exception in this regard – although a higher proportion of New Zealand students than in other countries received pocket money for doing chores and money from selling things.

Overall, the PISA data show that earning money from work (either doing chores or working outside the home) was not associated with greater financial literacy. However, some caution is required in interpreting this result as no information is available on how much money students get from these sources or how much time they spend working.

Table 3.1 Percentage of students who receive money from different sources

	Gifts of money from friends or relatives	Working outside school hours, or in a family business, or occasionally	Pocket money for chores	Pocket money without chores	Selling things (eg, local markets or internet sites)
	Average percentage correct				
New Zealand	87	75	58	37	41
Australia	89	73	44	32	27
OECD average	84	66	38	51	31

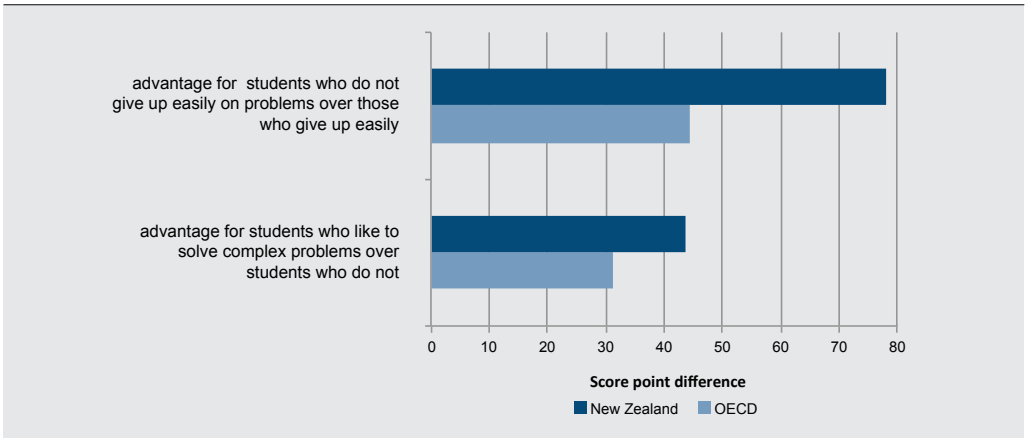
Are students' behaviours and attitudes to problem solving related to financial literacy?

Perseverance and openness to problem solving

Students were asked to respond to two statements to say whether it was 'like me' or 'not like me'. The two statements related to perseverance ("When confronted with a problem, I give up easily") and openness to problem solving ("I like to solve complex problems").

Figure 3.2 shows that those New Zealand students who identified as being open to problem solving and not giving up easily scored higher in financial literacy on average than those students who did not. The differences between the average scores in both cases were bigger than any of the differences for all the other countries in the financial literacy option.[15]

Figure 3.2 Performance difference by perseverance and openness to problem solving



15 Including all OECD and non-OECD countries.

4 Financial education at school

New Zealand is one of the few countries participating in PISA 2012 where the Ministry of Education has responsibility for financial literacy in schools. Financial capability is included in the New Zealand Curriculum as a theme that schools can use for cross-curricular teaching and learning programmes.

It provides a context for linking learning areas, such as social sciences, mathematics and statistics, English, business studies, health and technology, and it provides a relevant context for strengthening literacy and numeracy skills. The Financial Capability Progressions set out suggested curriculum based learning outcomes across the eight learning areas of the Curriculum. These outcomes encompass three capability strands: managing money (covering money, spending, credit and debt, saving and investing, income and taxation, and budgeting and financial management); setting goals (covering setting financial goals and planning ahead); and managing risk (covering identifying and managing risk, and rights and responsibilities).

In PISA 2012 school principals were asked several questions about financial education within their schools. This section provides some of the findings from the data collected. It should be noted that these results are those reported by principals in relation to the following instruction:

> *"The following five questions are about financial education/personal finance in your school. Financial education/personal finance involves the development of students' knowledge, confidence and skills relating to topics such as money and income; budgeting and long term planning; saving and spending; credit and debt; investment and insurance; the potential risks and benefits of financial products; and the financial landscape (including consumer rights and responsibilities and understanding of the wider financial, economic and social system)."*

How widely available is financial education?

The school questionnaire asked principals about the availability of financial education. Thirty percent of New Zealand students were in schools where financial education was not available compared to the OECD average of 48 percent. A further 11 percent of New Zealand students were in schools where financial education has been available for less than two years (16% for the OECD), and 59 percent of New Zealand students were in schools where it has been available for two years or more (36% for the OECD).

Is financial education compulsory in schools?

Only eight percent of New Zealand students were in schools where financial education is compulsory compared to the OECD average of 28 percent.

How is financial education taught at school?

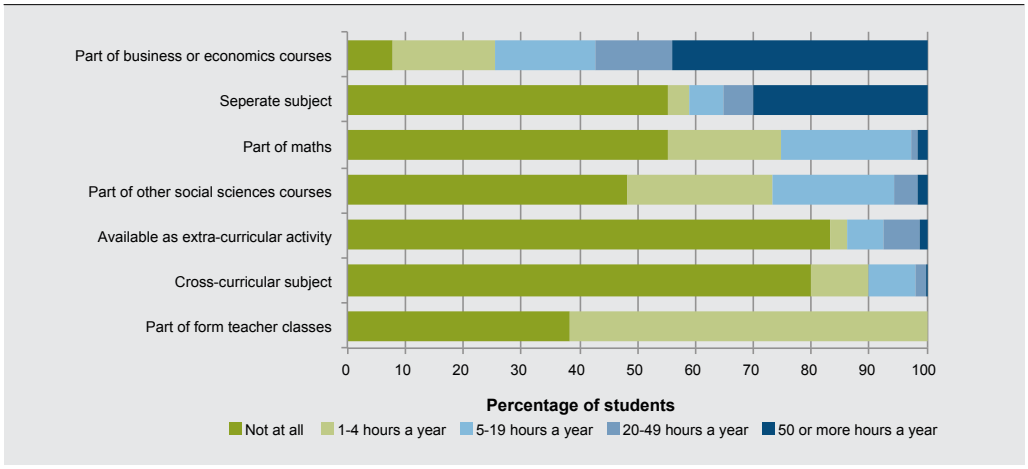
School principals were asked how many hours of teaching were dedicated to financial education a year for Year 11 students, and whether it was taught as a separate subject, cross-curricular subject, part of business or economics courses, part of maths, part of other social sciences and humanities and or/literature e.g. history, geography, home economics, as an extra-curricular activity, or as part of form teacher classes. When looking at these results it must be remembered that the question only asks about the number of hours for each Year 11 subject area. Year 11 students may or may not be accessing the financial education provided dependent on their subject choices.

The majority of New Zealand students and students in the OECD average were in schools where financial education was not taught either as a separate subject (55% and 77% respectively), or as a cross-curricular subject (80% and 55% respectively). In schools where financial education is taught as a separate subject, 30 percent of New Zealand students were taught this subject for 50 or more hours a year, compared to the OECD average of 11 percent of students.

In schools where financial education is taught as a cross-curricular subject, 10 percent of New Zealand students were taught for 1-4 hours a year, and 8 percent were taught for 5-19 hours a year (compared to 19% and 18% of students in the OECD average).

Figure 4.1 illustrates that in New Zealand, principals reported that financial education tends to be taught as part of business or economics courses, social science courses, and maths.

Figure 4.1 How financial education is taught in New Zealand schools



Who provides financial education?

Almost all New Zealand students (98%) are in schools where financial education is provided by teachers, compared to 85 percent of students in the OECD on average. At least one third of New Zealand students are in schools where financial education is also provided from people in the private sector (e.g. commercial banks) and people from non-governmental organisations (e.g. Iwi and Youth Enterprise Trust), while one fifth are in schools where such knowledge is provided from people in the public sector (e.g. Commission for Financial Literacy and Retirement Income). In the OECD between 14 and 20 percent of students are in schools where financial education is provided from people in the private sector or people from NGOs, while 9 percent are in schools where such knowledge is provided from people in the public sector.

Are teachers undertaking professional development in financial education?

School principals reported the percentage of teaching staff who attended a professional development programme with a focus on financial education in the last twelve months. In New Zealand, 30 percent of students were in schools where up to half of the teaching staff attended professional development with a focus on financial education, and another 30 percent of students were in schools where half or more of the teaching staff attended such professional development. The OECD averages are 31 percent and 21 percent respectively.

How to get further information from PISA 2012

This report and further information from PISA 2012 are available from the Ministry of Education's Education Counts website, at:

www.educationcounts.govt.nz/topics/research/pisa_research/pisa_2012

Future national publications for PISA 2012 will be added to this website.

The OECD PISA 2012 international publication *What Students Know and Can Do: Student Performance in Mathematics, Reading and Science (Volume I)* (OECD, 2013b) offers a comparative view of achievement in mathematics, reading and science. This is covered in the New Zealand context by the publication *PISA 2012: New Zealand summary report* (May, with Cowles and Lamy, 2013).

The forthcoming publication *Spotlight on maths achievement* (Cowles, with Lamy and May, forthcoming) will provide a more in-depth look at maths achievement in New Zealand, including performance on each of the three maths processes and four content areas.

The OECD's *Excellence through Equity: Giving Every Student the Chance to Succeed (Volume II)* (OECD, 2013c) covers issues relating to equity in achievement outcomes.

The OECD's *Ready to Learn: Students' Engagement, Drive and Self-Beliefs (Volume III)* (OECD, 2013d) covers how countries compare on measures of student engagement, drive and belief, how they interact, and how these measures relate to student achievement.

The OECD's *What Makes a School Successful: Resources, Policies and Practices (Volume IV)* (OECD, 2013e) looks at how resources, policies and practices at the school and system level relate to student achievement.

Another New Zealand series of publications, *PISA 2012: Series on the Learning Environment* (Lamy with May, 2014), covers aspects of Volumes III and IV that relate to the learning environment in New Zealand.

The OECD international reports and further information on PISA in an international context can be found on the OECD PISA web page: www.oecd.org/pisa/

Appendices

Appendix A: Sample items from content areas

Sample item – Planning and managing[16]

TRAVEL MONEY

Natasha works in a restaurant 3 evenings each week.

She works for 4 hours each evening and she earns 10 zeds per hour.

Natasha also earns 80 zeds each week in tips.

Natasha saves exactly **half** of the total amount of money she earns each week.

Question 2: TRAVEL MONEY

Natasha wants to save 600 zeds for a holiday.

How many weeks will it take Natasha to save 600 zeds?

Number of weeks: .....

SCORING

Full Credit

Code 1: 6
- six *[Written in words.]*

No Credit

Code 0: Other responses.

Code 9: Missing.

FRAMEWORK CHARACTERISTICS

Context	Education and work
Process	Apply financial knowledge and understanding
Content	Planning and managing finances
Question intent	Calculate the time needed to accumulate savings

16 Sample items presented in this section were items included in the field study that were publicly released.

Sample item – Risk and reward

MOTORBIKE INSURANCE

Last year, Steve's motorbike was insured with the PINSURA insurance company.

The insurance policy covered damage to the motorbike from accidents and theft of the motorbike.

Question 10: MOTORBIKE INSURANCE

Steve plans to renew his insurance with PINSURA this year, but a number of factors in Steve's life have changed since last year.

How is each of the factors in the table likely to affect the cost of Steve's motorbike insurance this year?

Circle "Increases cost", "Reduces cost" or "Has no effect on cost" for each factor.

Factor	How is the factor likely to affect the cost of Steve's insurance?
Steve replaced his old motorbike with a much more powerful motorbike.	Increases cost / Reduces cost / Has no effect on cost
Steve has painted his motorbike a different colour.	Increases cost / Reduces cost / Has no effect on cost
Steve was responsible for two road accidents last year.	Increases cost / Reduces cost / Has no effect on cost

SCORING

Full Credit

Code 1: Three correct responses: Increases cost, Has no effect on cost, Increases cost, in that order.

No Credit

Code 0: Fewer than three correct responses.

Code 9: Missing.

FRAMEWORK CHARACTERISTICS

Context	Individual
Process	Analyse information in a financial context
Content	Risk and reward
Question intent	Recognise factors affecting motorbike insurance premiums

Sample item – Financial landscape

BANK ERROR

David banks with ZedBank. He receives this e-mail message.

Dear ZedBank member,

There has been an error on the ZedBank server and your Internet login details have been lost.

As a result, you have no access to Internet banking.

Most importantly your account is no longer secure.

Please click on the link below and follow the instructions to restore access. You will be asked to provide your Internet banking details.

https://ZedBank.com/

ZedBank

Question 7: BANK ERROR

Which of these statements would be good advice for David?

Circle "Yes" or "No" for each statement.

Statement	Is this statement good advice for David?
Reply to the e-mail message and provide his Internet banking details.	Yes / No
Contact his bank to inquire about the e-mail message.	Yes / No
If the link is the same as his bank's website address, click on the link and follow the instructions.	Yes / No

SCORING

Full Credit

Code 1: Three correct responses: No, Yes, No in that order.

No Credit

Code 0: Fewer than three correct responses.

Code 9: Missing.

FRAMEWORK CHARACTERISTICS

Context	Societal
Process	Evaluate financial issues
Content	Financial landscape
Question intent	Respond appropriately to a financial scam e-mail message

Appendix B: Description of proficiency levels in financial literacy

Figure B.1 Summary description for the five levels of proficiency in financial literacy

Level	Score range	Percentage of students able to perform tasks at each level or above		Characteristics of tasks
		New Zealand	OECD average	
1	326 to less than 400 points	93.8%	95.2%	Students can identify common financial products and terms and interpret information relating to basic financial concepts. They can recognise the difference between needs and wants, and can make simple decisions on everyday spending. They can recognise the purpose of everyday financial documents such as an invoice and apply single and basic numerical operations (addition, subtraction or multiplication) in financial contexts that they are likely to have experienced personally.
2 **Baseline**	400 to less than 475 points	83.9%	84.7%	Students begin to apply their knowledge of common financial products and commonly used financial terms and concepts. They can use given information to make financial decisions in contexts that are immediately relevant to them. They can recognise the value of a simple budget and can interpret prominent features of everyday financial documents. They can apply single basic numerical operations, including division, to answer financial questions. They show an understanding of the relationships between different financial elements, such as the amount of use and the costs incurred.

Figure B.1 Summary description for the five levels of proficiency in financial literacy

3	475 to less than 550 points	66.0%	61.8%	Students can apply their understanding of commonly used financial concepts, terms and products to situations that are relevant to them. They begin to consider the consequences of financial decisions and they can make simple financial plans in familiar contexts. They can make straightforward interpretations of a range of financial documents and can apply a range of basic numerical operations, including calculating percentages. They can choose the numerical operations needed to solve routine problems in relatively common financial literacy contexts, such as budget calculations.
4	550 to less than 625 points	42.6%	31.6%	Students can apply their understanding of less common financial concepts and terms to contexts that will be relevant to them as they move towards adulthood, such as bank account management and compound interest in saving products. They can interpret and evaluate a range of detailed financial documents, such as bank statements, and explain the functions of less commonly used financial products. They can make financial decisions taking into account longer-term consequences, such as understanding the overall cost implication of paying back a loan over a longer period, and they can solve routine problems in less common financial contexts.
5	Equal to or higher than 625 points	19.3%	9.7%	Students can apply their understanding of a wide range of financial terms and concepts to contexts that may only become relevant to their lives in the long term. They can analyse complex financial products and can take into account features of financial documents that are significant but unstated or not immediately evident, such as transaction costs. They can work with a high level of accuracy and solve non-routine financial problems, and they can describe the potential outcomes of financial decisions, showing an understanding of the wider financial landscape, such as income tax.

Source: OECD, 2014.

Appendix C: Tables of data[17]

Table C1.1 Financial literacy proficiency levels

			Percentage of students									
Country and mean score			**Level 1 and below (below 400.33 score points)**		**Level 2 (from 400.33 to less than 475.10 score points)**		**Level 3 (from 475.10 to less than 549.86 score points)**		**Level 4 (from 549.86 to less than 624.63 score points)**		**Level 5 and above (above 624.63 score points)**	
*Shanghai-China	603	(3.2)	1.6	(0.4)	5.1	(0.9)	18.6	(1.4)	32.2	(1.6)	42.6	(1.7)
Belgium	541	(3.5)	8.7	(1.0)	15.1	(1.4)	26.2	(1.5)	30.4	(1.7)	19.7	(1.3)
Estonia	529	(3.0)	5.3	(0.8)	19.1	(1.5)	36.0	(2.1)	28.3	(2.0)	11.3	(1.2)
Australia	526	(2.1)	10.4	(0.7)	19.5	(1.3)	29.4	(1.1)	24.9	(0.9)	15.9	(0.8)
New Zealand	520	(3.7)	16.1	(1.2)	18.0	(1.4)	23.4	(1.5)	23.3	(1.7)	19.3	(1.3)
Czech Republic	513	(3.2)	10.1	(1.5)	21.2	(1.9)	32.8	(1.9)	26.0	(1.7)	9.9	(1.0)
Poland	510	(3.7)	9.8	(1.2)	23.2	(1.7)	34.2	(1.8)	25.6	(1.8)	7.2	(1.0)
*Latvia	501	(3.3)	9.7	(1.2)	26.8	(1.8)	36.2	(2.1)	22.7	(1.9)	4.6	(0.9)
OECD average-13	500	(1.0)	15.3	(0.4)	22.9	(0.5)	30.2	(0.5)	21.9	(0.4)	9.7	(0.3)
United States	492	(4.9)	17.8	(1.5)	26.2	(1.8)	27.1	(1.8)	19.4	(1.8)	9.4	(1.2)
*Russian Federation	486	(3.7)	16.7	(1.4)	25.4	(1.5)	33.1	(1.7)	20.5	(1.6)	4.3	(0.8)
France	486	(3.4)	19.4	(1.4)	22.6	(2.1)	30.4	(2.1)	19.4	(1.5)	8.1	(1.1)
Slovenia	485	(3.3)	17.6	(1.6)	27.4	(2.2)	31.3	(2.3)	18.0	(1.5)	5.8	(1.0)
Spain	484	(3.2)	16.5	(1.2)	26.4	(1.6)	34.6	(1.6)	18.6	(1.5)	3.8	(0.9)
*Croatia	480	(3.8)	16.5	(1.4)	30.8	(1.7)	31.6	(1.7)	17.4	(1.7)	3.8	(0.7)
Israel	476	(6.1)	23.0	(2.0)	22.9	(2.1)	27.0	(2.0)	18.6	(1.4)	8.5	(1.2)
Slovak Republic	470	(4.9)	22.8	(2.0)	26.5	(2.1)	28.1	(1.9)	16.9	(1.6)	5.7	(1.0)
Italy	466	(2.1)	21.7	(0.9)	29.5	(1.0)	31.7	(0.9)	14.9	(0.8)	2.1	(0.3)
*Colombia	379	(4.7)	56.5	(2.0)	26.1	(1.8)	13.1	(1.3)	3.7	(1.0)	0.7	(0.3)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

17 The numbering of the tables of data reflects the figure numbers in the body of the report along with associated text.

Table C2.1 Financial literacy proficiency levels, by gender

	Percentage of students									
	Level 1 and below		Level 2		Level 3		Level 4		Level 5 and below	
New Zealand girls	14	(2.0)	19	(2.1)	26	(2.1)	24	(2.4)	17	(2.2)
New Zealand boys	18	(1.8)	17	(2.1)	20	(2.2)	23	(2.4)	22	(1.8)
OECD girls	14	(0.5)	24	(0.7)	32	(0.7)	22	(0.6)	8	(0.5)
OECD boys	17	(0.5)	22	(0.7)	28	(0.7)	22	(0.6)	11	(0.4)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

Table C2.2/C2.3 Link between students' economic, social and cultural status (ESCS) and financial literacy

	Mean index scores							
	Bottom quarter		Second quarter		Third quarter		Top quarter	
New Zealand	–0.97	(0.04)	–0.15	(0.04)	0.42	(0.03)	1.03	(0.0)
OECD	–1.09	(0.01)	–0.29	(0.01)	0.36	(0.01)	1.14	(0.0)
	Mean financial literacy scores							
New Zealand	459	(7.5)	509	(8.8)	543	(8.0)	585	(7.4)
OECD	457	(1.9)	488	(1.9)	514	(1.9)	547	(1.8)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

Table C2.4 Socio-economic gradients for New Zealand and the OECD

	Strength of the relationship: Percentage of explained variation in student performance		Slope of the relationship: Score-point difference associated with a one-unit increase in the ESCS index	
New Zealand	19.0	(2.6)	64	(4.7)
OECD	13.6	(0.6)	41	(1.0)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Note: The strength of the relationship refers to the spread of scores around the socio-economic gradient – the larger the percentage of explained variation the closer individual points are to the socio-economic gradient.

Source: OECD, 2014.

Table C2.5 Link between socio-economic background (as measured by school decile) and financial literacy performance, New Zealand only

	Percentage of students	Financial literacy score
Deciles 1–2	11 (1.4)	396 (14.7)
Deciles 3–4	14 (2.0)	492 (10.6)
Deciles 5–6	22 (2.9)	518 (8.9)
Deciles 7–8	29 (3.5)	540 (8.1)
Deciles 9–10	18 (2.7)	558 (10.3)
Independent	6 (1.4)	604 (13.5)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: PISA 2012 financial literacy database.

Table C2.6 Financial literacy proficiency levels, by ethnic groups

	Percentage of students		
	Level 1 and below	Levels 2, 3 and 4	Level 5 and above
Māori	27 (4.0)	66 (4.5)	7 (2.4) #
Pasifika	44 (4.8)	51 (5.2)	4 (2.1) #
Asian	10 (2.5) #	65 (4.4)	25 (4.5)
Pākehā/European	9 (1.3)	68 (2.3)	23 (2.0)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Note: Levels 2, 3, and 4 have been combined due to small sample sizes. Students may identify with and be reported for more than one ethnic group.

The small number of students and /or schools for Māori and Pasifika at Level 5 and above and for Asian at Level 1 and below means that these percentages are indicative only.

Source: PISA 2012 financial literacy database.

Table C2.7a Score point difference between students who speak the language of instruction at home and students who speak another language

	Language of instruction spoken at home most of the time	Another language spoken at home most of the time	Difference
	Mean financial literacy score		
New Zealand	535 (3.8)	472 (12.8)	**63** (13.4)
OECD	508 (1.1)	470 (3.5)	**39** (3.6)
	Percentage of students		
New Zealand	85 (1.5)	15 (1.5)	
OECD	89 (0.3)	11 (0.3)	

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

Source: OECD, 2014.

Table C2.7b Score point difference between immigrant and non-immigrant students

	No immigrant background	Immigrant background	Difference
Mean financial literacy score			
New Zealand	533 (5.1)	504 (9.2)	**29** (11.8)
OECD	511 (1.2)	473 (4.2)	**37** (4.4)
Percentage of students			
New Zealand	73 (2.0)	27 (2.0)	
OECD	89 (0.4)	11 (0.4)	

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

Source: OECD, 2014.

Table C2.8 Percentage and average score of New Zealand immigrant and non-immigrant students by the language they speak at home

	Percentage of students	Mean financial literacy score
Non-immigrant English home language	70 (2.0)	536 (4.8)
Non-immigrant other home language	3 (0.6)	~
First generation immigrant English home language	8 (0.9)	493 (15.6)
First generation immigrant other home language	9 (1.2)	513 (23.2)
Second generation immigrant English home language	8 (1.0)	546 (13.4)
Second generation immigrant English home language	4 (0.7)	467 (18.0)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. ~ indicates that there are too few students for reliable estimate of performance.

Source: PISA 2012 financial literacy database.

Table C2.9 Percentage and average score of New Zealand and OECD students by the size of the community in which they live.

	Percentage of students		Mean financial literacy score	
New Zealand students				
Rural (<3,000 inhabitants)	6	(1.0)	465	(14.3)
Town (3,000 – 100,000)	39	(3.7)	518	(7.5)
City (>100,000 inhabitants)	55	(3.6)	537	(5.8)
OECD students				
Rural (<3,000 inhabitants)	10	(0.5)	476	(3.9)
Town (3,000 – 100,000)	57	(0.8)	499	(1.5)
City (>100,000 inhabitants)	33	(0.7)	512	(2.5)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

Table C2.10a Score point difference between students with at least one parent with tertiary education and students with no parents with tertiary education

	At least one parent with tertiary education		No parent with tertiary education		Difference	
Mean financial literacy score						
New Zealand	548	(5.6)	509	(5.8)	**39**	(8.5)
OECD	523	(1.5)	483	(1.3)	**40**	(1.9)
Percentage of students						
New Zealand	55	(1.5)	45	(1.5)		
OECD	48	(0.4)	52	(0.5)		

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

Source: OECD, 2014.

Table C2.10b Score point difference between students with at least one parent working in a skilled occupation and students with no parent working in a skilled occupation

	At least one parent working in a skilled occupation	No parent working in a skilled occupation	Difference
Mean financial literacy score			
New Zealand	552 (4.9)	477 [1]	**75** (8.3)
OECD	528 (1.2)	474 [1]	**54** (1.8)
Percentage of students			
New Zealand	67 (1.6)	33 (1.6)	
OECD	54 (0.5)	46 (0.5)	

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

[1] Standard error not available.

Source: OECD, 2014.

Table C2.11 Percentage and average score of New Zealand and OECD students by the frequency with which students discuss money matters with their parents

	Percentage of students	Mean financial literacy score
New Zealand students		
Never or hardly ever	14 (1.8)	502 (19.2)
Once or twice a month	41 (2.5)	551 (7.7)
Once or twice a week	35 (2.3)	541 (10.6)
Almost every day	10 (1.7)	521 (17.4)
OECD students		
Never or hardly ever	16 (0.5)	486 (4.2)
Once or twice a month	36 (0.6)	512 (2.0)
Once or twice a week	32 (0.6)	513 (2.3)
Almost every day	15 (0.5)	497 (3.5)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

Table C3.1 Score point difference between students who hold a bank account and those who do not

	Hold a bank account		Do not hold a bank account		Difference before accounting for ESCS		Difference after accounting for ESCS[1]	
	Mean financial literacy score							
Slovak Republic	479	(12.0)	482	(6.5)	-3	(13.6)	-19	(12.6)
Latvia	513	(7.8)	497	(5.9)	17	(11.1)	2	(12.0)
Italy	478	(3.2)	468	(2.9)	10	(4.3)	4	(4.1)
Croatia	500	(7.6)	480	(4.9)	20	(8.3)	8	(8.1)
Israel	500	(11.4)	479	(7.3)	22	(14.0)	9	(13.3)
Shanghai-China	612	(4.5)	594	(6.2)	18	(7.7)	10	(6.9)
Czech Republic	531	(6.4)	513	(5.0)	18	(8.1)	10	(7.6)
Spain	499	(5.6)	481	(6.7)	18	(8.7)	13	(8.6)
United States	518	(6.9)	481	(6.1)	37	(8.2)	14	(7.4)
Australia	540	(3.4)	514	(7.0)	26	(7.8)	15	(7.6)
Poland	544	(11.2)	512	(4.7)	32	(12.0)	18	(11.0)
France	509	(5.1)	476	(10.8)	33	(12.3)	19	(11.9)
OECD average	518	(2.0)	484	(2.7)	33	(3.3)	21	(3.1)
Estonia	535	(4.2)	505	(8.7)	30	(9.1)	24	(9.5)
Belgium	558	(4.6)	508	(10.3)	51	(11.1)	40	(10.9)
Slovenia	494	(4.1)	440	(16.8)	54	(17.7)	47	(11.9)
New Zealand	543	(5.3)	437	(18.9)	106	(19.7)	76	(19.8)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

[1] accounting for ESCS provides a measure of the difference in average scores for students of similar socio-economic backgrounds. The difference before accounting for ESCS is the actual score point difference between students who hold a bank account and those who do not.

Source: OECD, 2014.

Table C3.2a Score point difference between students who do not give up easily when confronted with a problem and those who give up easily

	Score point difference	
New Zealand	**78**	(10.6)
OECD	**44**	(2.2)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

Source: OECD, 2014.

Table C3.2b Score point difference between students who like to solve complex problems and those who do not

	Score point difference	
New Zealand	**44**	(9.3)
OECD	**31**	(2.1)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding. Values that are bold are statistically significant.

Source: OECD, 2014.

Table C4.1a Teaching financial education as a separate subject

	Percentage of students in schools where financial education is taught as a separate subject									
	Not at all		1-4 hours a year		5-19 hours a year		20-49 hours a year		50 or more hours a year	
New Zealand	55	(4.6)	4	(1.5)	6	(2.1)	5	(2.2)	30	(4.0)
OECD	77	(0.8)	4	(0.4)	4	(0.4)	5	(0.5)	11	(0.6)

Source: OECD, 2014.

Table C4.1b Teaching financial education as a cross-curricular subject

	Percentage of students in schools where financial education is taught as a cross-curricular subject									
	Not at all		1-4 hours a year		5-19 hours a year		20-49 hours a year		50 or more hours a year	
New Zealand	80	(3.4)	10	(2.2)	8	(2.6)	2	(1.0)	<0.5	(0.4)
OECD	55	(0.9)	19	(0.7)	18	(0.8)	5	(0.4)	3	(0.4)

Source: OECD, 2014.

Table C4.1c How financial education is taught in New Zealand schools

	Not at all		1-4 hours a year		5-19 hours a year		20-49 hours a year		50 or more hours a year	
	Percentage of students									
Part of business or economics courses	8	(2.1)	17	(3.1)	17	(3.6)	13	(2.9)	44	(4.2)
Separate subject	55	(4.6)	4	(1.5)	6	(2.1)	5	(2.2)	30	(4.0)
Part of maths	55	(4.5)	19	(3.1)	22	(3.4)	1	(0.6)	2	(1.2)
Part of other social sciences courses	48	(4.5)	25	(4.1)	21	(3.4)	4	(1.5)	2	(1.4)
Available as extra-curricular activity	83	(3.2)	3	(1.5)	6	(2.2)	6	(1.9)	1	(0.5)
Cross-curricular subject	80	(3.4)	10	(2.2)	8	(2.6)	2	(1.0)	<0.5	(0.4)
Part of form teacher classes	38	(3.9)	62	(3.9)	-		-		-	

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: PISA 2012 Financial literacy database.

Table C4.2 Who provides financial education

	Percentage of students attending schools where financial education is provided by different people							
	Teachers		People from the private sector		People from the public sector		People from NGOs[1]	
New Zealand	98	(0.9)	38	(3.9)	23	(3.7)	33	(4.5)
OECD average	85	(0.6)	20	(0.9)	9	(0.6)	14	(0.8)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

[1] Non-governmental organisations

Source: OECD, 2014.

Table C4.3 Professional development in financial education

	Percentage of students according to the proportion of teachers in their school who attended a programme of professional development with a focus on financial education in the last twelve months					
	No teachers attended professional development		Up to 50% of teachers attended professional development		50% or more of teachers attended professional development	
New Zealand	42	(4.2)	29	(3.2)	29	(3.6)
OECD average	48	(1.0)	31	(1.0)	21	(0.9)

Standard errors are presented in parentheses. Results may appear inconsistent due to rounding.

Source: OECD, 2014.

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Definitions and technical notes

PISA 2012 literacy definitions

Financial Literacy: Knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.

Mathematical Literacy: An individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena. It assists individuals to recognise the role that mathematics plays in the world, and to make the well-founded judgements and decisions needed by constructive, engaged and reflective citizens.

Reading Literacy: An individual's ability to understand, use, reflect on and engage with written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society.

Scientific Literacy: Scientific literacy refers to an individual's:

- → Scientific knowledge and use of that knowledge to identify questions to acquire new knowledge, to explain scientific phenomena, and to draw evidence-based conclusions about science-related issues;
- → Understanding of the characteristic features of science as a form of human knowledge and enquiry;
- → Awareness of how science and technology shape our material, intellectual, and cultural environments;
- → Willingness to engage in science-related issues, and with the ideas of science, as a reflective citizen.

Technical notes and definitions relating to financial literacy analyses

Average

Student performances in PISA are reported using means (a type of average) for groupings of students. In general, the mean of a set of scores is the sum of the scores divided by the number of scores, and it is referred to in this report as 'the average'. Note that for PISA, as with other large-scale studies, the means for a country are adjusted slightly (in technical terms 'weighted') to reflect the total population of 15-year-olds rather than just the sample.

First and second generation migrants

First generation immigrant students are born overseas. Second generation immigrant students were born in New Zealand but have parents who were born overseas.

Economic, social and cultural status (ESCS)

The PISA index of economic, social and cultural status (ESCS) was derived from the following three indices: highest occupational status of parents, highest educational level of parents in years of education, and home possessions (including books). In this report, low ESCS students are those in the bottom quarter of the PISA ESCS index within a country, and high ESCS students are those in the top quarter of the index.

OECD average

The OECD average includes only the OECD countries: no non-OECD (partner) countries are included in this average. The OECD average is the average of the means for the OECD countries.

Points – or scale score points

The design of PISA allows for a large number of questions to be used in reading, mathematics and science, but each student answers only a proportion of these questions. PISA employs techniques to enable population estimates of achievement to be produced for each country even though a sample of students responded to differing selections of questions. These techniques result in scores that are on a scale with an average value of 500. Scores on this scale are referred to in this report as points. About two-thirds of students across OECD countries score between 400 and 600 points.

Proficiency levels

PISA developed proficiency levels to describe the range in literacy across 15-year-old students. The proficiency levels describe the competencies of students achieving at that level and are anchored at certain score points on the achievement scale. Note that students were considered to be proficient at a particular level if, on the basis of their overall performance, they could be expected to answer at least half of the items in that level correctly. Typically, students who were proficient at higher levels had also demonstrated their abilities and knowledge at lower levels.

School location

- → Rural schools are those in communities with less than 3,000 inhabitants.
- → Town schools are those in communities of 3,000 to 100,000 inhabitants.
- → City schools are those in communities with over 100,000 inhabitants.

Standard error, confidence intervals and error bars

Because of the technical nature of PISA, the calculation of statistics such as averages and proportions has some uncertainty due to (i) generalising from the sample to the total 15-year-old school population, and (ii) inferring each student's proficiency from their performance on a subset of items. The standard errors (usually given in brackets) provide a measure of this uncertainty. In general, we can be 95 percent confident that the true population value lies within an interval 1.96 standard errors either side of the given statistic. This has been displayed on graphs in this report as error bars. The error bars provide a measure of the precision of the estimate of the average.

Variance

Variance is a measure of spread. A small total variance of the average score (calculated as the square of the standard deviation) highlights equity in outcomes, such that most students are achieving at levels close to the average. A large total variance highlights inequity, such that many students achieve at levels far from the average. It is useful to compare the variance in achievement among New Zealand students with the average OECD variance.

List of countries and economies participating in **PISA 2012 financial literacy**

 Australia
 Belgium
 Colombia*
 Croatia*
 Czech Republic
 Estonia
 France
 Italy
 Israel
 Latvia*
 New Zealand
 Poland
 Russian Federation*
 Shanghai-China*
 Slovak Republic
 Slovenia
 Spain
 United States

* non-OECD countries and economies

Published by

Comparative Education Research Unit
Research Division
Ministry of Education
PO Box 1666
Wellington 6140
New Zealand

Email: research.info@minedu.govt.nz
Fax: 64-4-463 8312 Phone: 64-4-463 8000

ISBN 978-0-478-43927-4 (Print)
ISBN 978-0-478-43928-1 (Web)

RMR 1049

New Zealand Government