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Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study

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Abstract/Résumé

MEASURING FINANCIAL LITERACY: RESULTS OF THE OECD INFE PILOT STUDY*
by Adele Atkinson and Flore-Anne Messy

This paper presents the findings from an OECD International Network on Financial Education pilot study undertaken in 14 countries. The analysis focuses on variations in financial knowledge, behaviour and attitude across countries and within countries by socio-demographics.

The results highlight a lack of financial knowledge amongst a sizeable proportion of the population in each of the countries surveyed. Furthermore, there is considerable room for improvement in terms of financial behaviour. Attitudes are shown to vary widely.

These results will enable countries to identify needs and gaps in financial education provision and develop national policies or strategies. They also provide a sound evidence base for developing OECD recommendations and principles.

JEL codes: D12, D14, D18, D63

MESURER LA CULTURE FINANCIERE: RESULTATS DE L'ETUDE PILOTE DE L'OCDE INFE
par Adele Atkinson et Flore-Anne Messy

Ce document présente les résultats de l'étude pilote effectuée par le Réseau international de l'éducation financière (INFE) de l'OCDE dans 14 pays. L'analyse porte sur les différences en matière de connaissance financières, de comportements et d'attitudes des individus entre les pays ayant pris part au pilote et au sein de ces pays en fonction de critères sociodémographiques.

Les résultats révèlent le manque de connaissances financières d'une partie importante de la population dans tous les pays participant à l'étude. En outre, le comportement et les prises de décisions en matière financière de la population pourrait être très sensiblement amélioré. L'étude montre aussi de grandes variations en ce qui concerne les attitudes des individus dans ce domaine.

Les résultats de cette étude permettront aux principaux responsables d'identifier les besoins et les lacunes de l'éducation financière dans leur pays et de développer des politiques et des stratégies nationales adaptées. Ils constituent également une source fiable de données permettant de développer les recommandations et principes de l'OCDE.

Codes JEL : D12, D14, D18, D63

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 6

INTRODUCTION 13

Participating countries and data collection 14
The structure and content of this paper 14

FINANCIAL KNOWLEDGE 16

Survey questions designed to test knowledge 16
A financial knowledge score 18

FINANCIAL BEHAVIOUR 23

Financial behaviour across different domains 23
A score for financial behaviours 28

FINANCIAL ATTITUDES 33

Attitudes and preferences: short term or longer term? 33
Combining the various attitudes 33

RELATIONSHIP BETWEEN BEHAVIOUR AND THE OTHER SCORES 36

COMBINED MEASURES OF FINANCIAL LITERACY 38

Segmenting the population 39
Developing an overall measure of financial literacy 40

VARIATIONS BY SOCIO-DEMOGRAPHICS 42

Gender 43
Age 46
Income 48
Education level 50
Attitude to risk 52
Multivariate analysis 52

CONCLUSION AND NEXT STEPS 56

ANNEX 58

Tables

Table 1. Correct responses to knowledge questions 7
Table 2. Positive financial behaviours by country 8
Table 3. Attitudes towards the longer term 9
Table 4. High score on each of the financial literacy components 10
Table 5. The 8 knowledge questions 17
Table 6. Creating a knowledge score 19
Table 7. Actively saving or buying investments in the past 12 months 26
Table 8. Creating a behaviour score 29
Table 9. Regression results 54
Table 10. Participating country contacts and details of sample 58
Table 11. Financial knowledge: division, time-value of money, interest paid on a loan 61
Table 12. Financial knowledge: interest plus principle, compound interest 62
Table 13. Financial knowledge: risk and return, inflation, diversification 63
Table 14. Behaviour: Before I buy something I carefully consider whether I can afford it 64
Table 15. Behaviour: I pay my bills on time 64
Table 16. Behaviour: I keep a close personal watch on my financial affairs 65
Table 17. Behaviour: I set long term financial goals and strive to achieve them 65
Table 18. Average behaviour score by country 66
Table 19. Attitude: I find it more satisfying to spend money than to save it for the long term 66
Table 20. Attitude: I tend to live for today and let tomorrow take care of itself 67
Table 21. Attitude: Money is there to be spent 67
Table 22. Average combined attitude scores 67
Table 23. Financial literacy segments by gender 68
Table 24. Financial Literacy Segments by Income 69

Figures

Figure 1. Country groupings by average financial knowledge scores 20
Figure 2. Distribution of knowledge scores 21
Figure 3. Financial knowledge: Percentage scoring 6 or more 22
Figure 4. Responsible and has a household budget 25
Figure 5. Shopping around for financial products 27
Figure 6. Borrowing to make ends meet 28
Figure 7. Country groupings by average financial behaviour scores 30
Figure 8. Distribution of financial behaviour scores 31
Figure 9. Financial behaviours: Percentage scoring 6 or more 32
Figure 10. Distribution of financial attitude scores 34
Figure 11. Percentage of respondents with average score over 3 35
Figure 12. Relationship between financial knowledge and behaviour 37
Figure 13. Financial behaviour and attitudes 38
Figure 14. Financial Literacy Segments 40
Figure 15. Country groupings by average overall financial literacy scores 41
Figure 16. High knowledge score by gender 43
Figure 17. High behaviour score by gender 44
Figure 18. High attitude score by gender 45
Figure 19. Mean overall score by gender 46
Figure 20. Financial literacy segments by age 47
Figure 21. Average overall score by income 49
Figure 22. Financial literacy segments by education 51
Figure 23. Average overall scores by risk aversion 52

EXECUTIVE SUMMARY

The OECD International Network on Financial Education (INFE) has developed a survey instrument that can be used to capture the financial literacy of people from very different backgrounds in a wide range of countries. The questionnaire is designed to be used in face-to-face or telephone interviews.

The survey comprises good practice questions drawn from existing financial literacy questionnaires. Core questions within the survey cover financial knowledge, behaviour and attitudes relating to various aspects of financial literacy including budgeting and money management, short and long term financial plans, and financial product choice. There are also questions to provide important socio-demographic details of the participants, including age, gender and income.

The questionnaire has been used in 14 countries across 4 continents, and data has been submitted to the OECD for analysis[1].

This report is the first to detail the findings from analysis of data from each of these countries, focusing particularly on levels of financial knowledge, the range of financial behaviours exhibited and attitudes towards long term financial plans. It also reports initial analysis of variations in levels of financial literacy by socio-demographic status.

The results focus on the general pattern of financial literacy in different countries. The exercise is not designed to rank countries according to their levels of financial literacy, although it is illustrative to draw certain comparisons across countries to highlight variations.

Financial knowledge

A financially literate person will have some basic knowledge of key financial concepts. The OECD core questionnaire therefore includes 8 questions to test levels of knowledge in each country (summary information is provided in Table 1)[2]. The questions have been chosen to cover a range of financial topics and to vary in difficulty, although none of them is excessively complex and none of them requires expert knowledge.

We have created a financial knowledge score by counting the number of correct responses given by each respondent, and calculated the proportion of the population in each country that exhibited a relatively high level of financial knowledge (defined as 6 or more correct responses). In some countries, fewer than half of the respondents achieved this score, and no country had more than 70% of their population who could answer at least 6 questions.

[1] Of these, Armenia, Czech Republic, Estonia, Germany, Hungary, Ireland, Malaysia, Norway, Peru, Poland, South Africa and the UK originally agreed to pilot the survey in late 2010. Albania and the British Virgin Islands used the questionnaire in 2011, following the agreed methodology.

[2] Most countries have used the questions as designed, although there are some variations which mean that direct comparisons of overall scores between the other countries and Norway or Hungary should be made with caution.

Of particular concern is the relatively large proportion of people who could not calculate simple interest on a savings account over one year and then identify the impact of compounding over 5 years. In Albania and Peru, fewer than 1 in 5 people were able to apply their knowledge to this two-part question, and in every country except Norway, at least half of the population failed to identify the impact of compounding.

There was also a worrying low level of awareness of the benefit of diversification, with at least a third and in some cases over half of respondents being unable to answer this question.

Table 1. Correct responses to knowledge questions

Proportion giving correct response (Cell percentages by country).

	Division	Time-value of money	Interest paid on loan	Calculation of interest plus principle	Compound interest and correct answer to previous question	Risk and return	Definition of inflation	Diversification
Albania	89%	61%		40%	10%	77%	81%	63%
Armenia	86%	83%	87%	53%	18%	67%	57%	59%
Czech Republic	93%	80%	88%	60%	32%	81%	70%	54%
Estonia	93%	86%	84%	64%	31%	72%	85%	57%
Germany	84%	61%	88%	64%	47%	79%	87%	60%
Hungary	96%	78%	95%	61%	46%	86%	91%	61%
Ireland	93%	58%	88%	76%	29%	84%	88%	47%
Malaysia	93%	62%	93%	54%	30%	82%	74%	43%
Norway*	61%	87%	61%	75%	54%	18%	68%	51%
Peru	90%	63%		40%	14%	69%	86%	51%
Poland	91%	77%	85%	60%	27%	48%	80%	55%
South Africa	79%	49%	65%	44%	21%	73%	78%	48%
UK	76%	61%	90%	61%	37%	77%	94%	55%
BVI**	84%	74%	60%	63%	20%	83%	87%	41%

Empty cells have no relevant observations, including those where the response was not recorded. See Table 5 for question text. *The results reported for Norway under the Division column actually refer to an alternative questions posed: What is the nominal interest rate. Norway also slightly reworded the time value of money question, as they had not asked the previous question. Under interest for Norway we report responses to: What is meant by the effective interest rate. The Norwegian question reported under Risk and Return asked whether it was true or false that when you buy shares you lend money to the company. **For diversification Norway and BVI asked Buying a single company's stock usually provides a safer return than a stock mutual fund.

Financial behaviour

The way in which a person behaves will have a significant impact on their financial wellbeing. It is therefore important to capture evidence of behaviour within a financial literacy measure. The OECD INFE core questionnaire does this by asking a variety of questions in different styles, to find out about behaviours such as thinking before making a purchase, paying bills on time and budgeting, saving and borrowing to make ends meet.

The financial behaviour score counts positive behaviours exhibited; it takes a maximum value of 9, and a score of 6 or more is considered to be relatively high. As with knowledge, in some countries fewer than 50% achieved a score of 6 or more. BVI residents showed the largest number of positive behaviours, with 71% exhibiting at least 6.

There is a wide variation in behaviours within countries, and noticeable variation across countries. However, of concern in all the countries surveyed is the lack of active, informed market participation: very few people reported that they had shopped around and sought independent information or advice to make a financial product choice in the last 2 years (UK participants were the most likely to have done so, at 16%).

In some of the countries, the lack of active saving is also a concern, although here there are large variations by country. In Hungary just 27% had been saving in the previous 12 months whilst in Malaysia almost everyone had done so (97%). In all, only three countries found that more than 80% of their population were actively saving.

The likelihood of setting long term goals also varies by country: more than 7 in 10 Peruvians reported that they did set long term goals, compared with just 3 in 10 Albanians.

Whilst borrowing to make ends meet is not widespread, it is a problem for a large minority in certain countries. In particular, almost half (47%) of Armenians had resorted to borrowing the last time their income fell short of their expenditure; in Albania, Peru and South Africa over a quarter of respondents had also done so.

Looking across the various behaviours we see considerable variation within a country. For example, a large proportion of Malaysian respondents were active savers and carefully considered their purchases, yet hardly any (3%) had made a recent financial product choice after shopping around and seeking independent guidance. In Norway, almost 9 in 10 people reported that they were keeping an eye on their financial affairs yet just 1 in 4 was budgeting: showing that more people look over their recent financial activities than plan future ones.

Table 2. Positive financial behaviours by country

Cell percentages by country.

	Behaviour statements						Financial product choice		
	Carefully considers purchases	Pays bills on time	Keeps close watch on personal financial affairs	Sets long term goals and strives to achieve them	Responsible and has a household budget	Has been actively saving or buying investments in the past year	…after gathering some info	… after shopping around and using independent info or advice	Has not borrowed to make ends meet
Albania	87%	77%	71%	30%	59%	42%	49%	2%	69%
Armenia	91%	94%	81%	58%	51%	36%	42%		53%
Czech Republic	75%	85%	76%	36%	37%	72%	28%	10%	89%
Estonia	68%	83%	78%	41%	28%	36%	24%	8%	78%
Germany	82%	96%	87%	61%	22%	86%	52%	5%	96%
Hungary	86%	82%	71%	52%	31%	27%	48%	4%	86%
Ireland	83%	85%	85%	56%	54%	53%	39%	10%	86%
Malaysia	92%	69%	78%	64%	74%	97%	39%	3%	79%
Norway	72%	79%	89%	59%	25%	71%	57%	5%	93%
Peru	91%	86%	82%	71%	49%	62%	52%	4%	73%
Poland	70%	78%	81%	46%	54%	51%	32%	2%	79%
South Africa	83%	61%	65%	55%	43%	53%	56%	3%	74%
United Kingdom	77%	89%	80%	43%	43%	68%	29%	16%	91%
BVI	87%	83%	80%	68%	43%	83%	70%	2%	87%

The first 4 columns report people putting themselves at 4 or 5 on a scale from Never=1 to Always=5. The financial product choice data is used in the final measure as follows: 1 point for gathering some information (column 7 above), 2 points for shopping around and using independent information and advice (column 8 above).

Attitudes

Attitudes and preferences are considered to be an important element of financial literacy. If people have a rather negative attitude towards saving for their future, for example, it is argued that they will be less inclined to undertake such behaviour. Similarly, if they prefer to prioritise short-term wants then they are unlikely to provide themselves with emergency savings or to make longer term financial plans.

The financial literacy survey includes three attitude statements to gauge respondents' attitudes towards money and planning for the future[3]. The attitude questions ask people about whether they agree or disagree with particular statements, to capture their disposition or preferences.

The average response to the three attitude statements provides an overall **indicator of attitude**. We consider a 'high' score to be an average attitude indicator above 3, as this indicates attitudes that tends towards the longer term. There is a very wide variation in attitudes across countries: in Armenia, just over 1 in 10 people have a positive attitude towards the longer term; compared with 71% in Peru.

Looking at the questions in detail, we find that very few respondents in Armenia (8%) and Poland (19%) got satisfaction from saving. In contrast, 64% of Peruvians and 61% of Albanians found saving satisfying. Albanians and Peruvians were also the most conservative with money, with almost half of respondents (45%) disagreeing that money is there to be spent. In contrast, just 2% of Armenians and 12% of Polish respondents tended to disagree with the statement.

Table 3. Attitudes towards the longer term

Cell percentages by country.

	Disagrees with the following attitude statements:		
	I find it more satisfying to spend than save it for the long term	I tend to live for today and let tomorrow take care of itself	Money is there to be spent
Albania	61%	66%	45%
Armenia	8%	60%	2%
Czech Republic	45%	69%	29%
Estonia	39%	49%	24%
Germany	49%	65%	26%
Hungary	56%	68%	33%
Ireland	38%	54%	30%
Malaysia	47%	57%	26%
Norway	57%		
Peru	64%	72%	45%
Poland	19%	45%	12%
South Africa	48%	60%	39%
United Kingdom	35%	50%	29%
BVI	60%	66%	31%

Each of the columns reports % of respondents putting themselves at 4 or 5 on a scale from Completely agree=1 to Completely disagree=5.

[3] Norway only used the first question.

Overall indicators of financial literacy

Whilst it is illustrative to focus on each component of financial literacy in turn, it is also valuable to consider how they combine. We have done this in several ways. First, a simple table showing the proportion of the population achieving high scores on each component illustrates important variations (Table 4). In 8 of the countries surveyed, a larger proportion of the population achieved a high knowledge score than a high behaviour score; indicating that levels of financial literacy in these countries are higher in terms of knowledge than behaviour. Conversely, in Germany, Malaysia, Norway, Peru, South Africa and BVI countrywide financial literacy levels are higher in terms of behaviour; in most cases this is because a larger proportion of the population exhibit 6 or more positive behaviours, rather than because knowledge is exceptionally low.

Table 4. High score on each of the financial literacy components

Proportion scoring highly on each component (Cell percentages by country)

	High knowledge score	High behaviour score	High attitude score
Albania	45%	39%	69%
Armenia	46%	41%	11%
Czech Republic	57%	48%	62%
Estonia	61%	27%	46%
Germany	58%	67%	63%
Hungary	69%	38%	69%
Ireland	60%	57%	49%
Malaysia	51%	67%	53%
Norway	40%	59%	57%
Peru	41%	60%	71%
Poland	49%	43%	27%
South Africa	33%	43%	54%
United Kingdom	53%	51%	49%
BVI	57%	71%	67%

Each of the columns reports % of respondents gaining a high score (6 or more on knowledge and behaviour, more than 3 on attitudes).

We have also counted the number of high scores each respondent achieved. In all of the countries surveyed there are some people who did not achieve any high scores and others who achieved a high score on all 3 aspects of financial literacy. However, typically people tend to have 1 or 2 strengths. Germany and BVI stand out with over 30% of their populations achieving 3 high scores, indicating high levels of financial literacy.

In addition to counting the high scores, we have summed the three scores into an overall indicator of financial literacy which takes values from 0 to 22. The average of this combined score across all participating countries is 13.7. Scores in the Czech Republic, Germany, Hungary, Ireland, Norway, Malaysia, Peru, the UK and BVI are above this combined average.

Relationship between behaviour and the other two components

Analysis of financial knowledge scores and financial behaviour scores indicates a consistently positive association between financial knowledge and behaviour for each participating country. Respondents with higher financial knowledge exhibit more positive behaviours. Similarly, respondents with positive attitudes towards the longer term exhibit more positive behaviours than those with a strong preference for the short term.

Variations by socio-demographics

It is clear that levels of financial literacy vary within countries and it is therefore useful to know more about how they vary across particular socio-economic groups.

The findings of analysis by socio-demographics show that women have much lower levels of financial knowledge than men in almost all of the countries studied (Hungary being the exception). So for example, whilst 67% of men in the UK gained a score of 6 or more on the knowledge measure, just 40% of women achieved the same; in Germany the corresponding percentages are 67% and 50%.

Women are also less likely to gain high scores for financial behaviour than men in several countries (Albania, Armenia, South Africa and BVI). In BVI for example, 78% of men but only 66% of women gained a high score. However, in other countries, similar proportions of men and women gain high financial behaviour scores, and in some (Czech Republic, Ireland and Norway) women are more likely than men to gain a high score: in Ireland 62% of women but only 51% of women achieved a high behaviour score.

In most of the countries surveyed, women are more likely to have a positive attitude towards the long term than their male peers. However, this is not true in Albania and Poland where men are more likely, or in Armenia and South Africa, where there is little or no difference between the genders.

In none of the countries studied do women score more than men on the combined measure. Indeed in Albania, Armenia, Germany, Norway, Poland, South Africa, the UK and BVI women score significantly less.

There is a noticeable variation in financial literacy by age and income. In most countries, middle age is associated with higher levels of financial literacy, whilst the oldest and youngest respondents are more likely to have no high scores. Regression analysis confirms that higher income respondents are more likely to gain high scores than their lower income peers.

Similarly, there is also a positive relationship between education and financial literacy. Higher educated individuals are more likely to exhibit positive behaviours and attitudes as well as show advanced levels of knowledge.

Conclusion and next steps

This paper shows that it is possible to apply the same set of questions to very different populations around the world and create simple, meaningful indicators of financial literacy.

The results of this analysis provide evidence from which the participating countries can identify needs and gaps and develop appropriate national policies and strategies. They also provide a sound evidence base from which to inform the current revision and elaboration of OECD recommendations on financial education, including the new high-level principles on national strategies for financial education (2012 Forthcoming).

The cross-country nature of this analysis enables countries to create partnerships to tackle particular issues at an international level, and also enables some countries to identify potential ‘benchmark countries’ that have achieved a higher level of financial literacy across their population.

In particular, the research highlights areas for concern. For instance, in every country there is significant room for improvement in terms of financial knowledge: understanding of some everyday financial concepts such as compound interest and diversification is lacking amongst sizeable proportions of

the population in every country, and in most countries surveyed women are less knowledgeable than their male counterparts.

The findings also highlight a large proportion of individuals who could benefit from initiatives designed to change their behaviour. In almost every country surveyed, at least 3 in 10 respondents exhibited fewer that 6 of the 9 positive behaviours discussed.

The analysis also shows how knowledge and behaviour are associated in every country – more knowledgeable individuals are more likely to exhibit positive financial behaviour.

The data holds a great deal of potential. We will continue with our analysis in order to inform the work of the INFE, focusing particularly on variations in financial literacy by key socio-demographic groups, levels of financial inclusion and financial access, as well as exploring in more detail the relationship between various aspects of financial literacy.

We will also write a short note drawing out the potential policy implications of the analysis undertaken so far. In particular, we will explore how the results can inform the development of financial education and the extent to which it may be preferable to focus on increasing levels of knowledge or changing behaviour and/or attitudes.

INTRODUCTION

Financial literacy is rapidly being recognised as a core skill, essential for consumers operating in an increasingly complex financial landscape. It is therefore no surprise that governments around the world are interested in finding effective approaches to improve the level of financial literacy amongst their population and that many are in the process of creating or leading a national strategy for financial education to provide learning opportunities throughout a person's life.

The OECD defines financial education as follows:

> Financial education is the process by which individuals improve their understanding of financial products and concepts; and through information, instruction and/or objective advice develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being and protection (OECD 2005).

Financial education strategies benefit from empirical evidence to indicate the level of need amongst the population and within particular subgroups[4]. The measurement of financial literacy levels is therefore widely recognised as a priority for countries seeking to deliver financial education in an efficient manner and evaluate its impact at a national level.

Such a measurement exercise allows policy makers to identify potential needs and gaps in relation to specific aspects of financial literacy and provides information about which groups of people are in need of most support. The results of the first financial literacy survey undertaken in a particular country can be taken as a baseline, and used to set benchmarks for financial education initiatives. Subsequent waves of a survey can be used to identify changes that have occurred during the interim period.

National financial literacy surveys are clearly important tools, but the potential gain from a survey undertaken across a number of countries is much greater. Such an international study provides the opportunity to compare levels of financial literacy and progress across populations and financial markets, and is of huge interest to policy makers and other stakeholders seeking to understand why one country appears to be achieving more than another and which interventions are most effective.

The OECD International Network on Financial Education (INFE) agreed to address the lack of internationally comparable data through the design and testing of a purpose built survey instrument. After many months of development and refinement, the INFE approved a core questionnaire[5], and countries were invited to pilot this questionnaire according to an agreed methodology.

This instrument took as its starting point the following working definition:

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[4] See also OECD/INFE 2012 (Forthcoming) High-level Principles on National Strategies for Financial Education.

[5] INFE(2010)REV1 Financial Literacy Measurement Questions. The final version of these questions is now available from www.financial-education.org. The World Bank is currently developing a complementary Financial Capability Survey designed specifically for use in Low Income Countries.

Financial literacy is a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.

The questionnaire focuses on those aspects of knowledge, attitudes and behaviours that are associated with the overall concept of financial literacy. The questions cover a range of contexts, including accessing financial services, meeting immediate financial requirements and planning for the future. Almost all the questions relate directly to the individual answering the question, although some information is collected about the household, including the household income and the number of people living with the respondent.

The core questions have been picked because they are applicable to the vast majority of people and they are suitable across a wide range of countries. Each question is designed to be asked in the same way in each country, but country-specific responses are possible (for example when respondents are asked about their methods of saving, or types of financial product, their responses will reflect the local financial market). This enables cross country comparisons that are contextually meaningful, while maximising the potential to include all interested countries.

Participating countries and data collection

The OECD INFE Core Questionnaire has so far been used in 14 countries: of these, 12 originally volunteered to pilot the questionnaire (Armenia; Czech Republic; Estonia; Germany; Hungary; Ireland; Malaysia; Norway; Peru; Poland; South Africa and the United Kingdom), whilst the 13th, Albania joined the pilot at a later stage with the guidance of our INFE Measurement Subgroup Expert from Italy. The 14th country, The British Virgin Islands (BVI), did not participate in the formal pilot, but undertook a national survey using the core questionnaire and shared the data with the OECD INFE.

Each pilot country aimed to interview at least 1000 individuals and data has been weighted to reflect the national population in terms of basic demographics. In contrast, the BVI interviewed 535 individuals. The data collection for this pilot process began in the second half of 2010 and was completed early 2011[6]. Each participating country undertook a nationally representative survey using the core questionnaire, collected the results in an anonymised database and provided a dataset to the OECD Secretariat for analysis. Both the methods employed during the analysis and the preliminary findings were discussed with the participating countries and the INFE at meetings in Toronto and Cape Town in 2011.

Additional information about the countries that have participated in the pilot study and the approaches that they used can be found in the Annex (Table 10).

The structure and content of this paper

The financial literacy measurement pilot and additional information from BVI has resulted in a rich data source that can be analysed in various ways[7]. This paper represents the first output from such analysis, and provides an overview of the methods used.

The following three chapters focus on each of the three components of financial literacy: knowledge, behaviour and attitudes. After reporting the responses to specific questions, we look at the average score across several questions and the distribution of these scores.

Chapter 5 reports some basic analysis of the relationship between knowledge and behaviour, and between attitudes and behaviour. It leads quickly into Chapter 6, which discusses how the population can

[6] With the exception of data from Albania, which were received in August 2011.

[7] Analysis of the BVI data is presented at the end of each table and figure as the country was not formally part of the pilot process, and has a smaller sample.

be segmented according to their strengths and weaknesses in terms of financial literacy, and looks at overall levels of financial literacy by combining the scores from each of the three components.

In the final substantive chapter, we describe how levels of financial literacy vary by key demographic factors. We then conclude by summarising the findings and discussing next steps.

The analysis is particularly powerful in showing general patterns in financial literacy around the world. However, as highlighted in the text that follows, the reader should apply caution when making specific cross-country comparisons from this data, as the pilot process necessarily means that there are some variations in the questions used and the methods employed.

FINANCIAL KNOWLEDGE

A financially literate person will have some basic knowledge of key financial concepts and the ability to apply numeracy skills in financial situations. The core questionnaire therefore asks a range of questions in relation to concepts such as simple and compound interest, risk and return, and inflation.

Survey questions designed to test knowledge

The core questionnaire includes 8 questions designed to test knowledge (Table 5). These vary in style and content in order to avoid undue biases that could be caused by different ways of processing information across certain types of people or cultural norms. Whilst some knowledge questions allow a person to give a completely free response others provide a list of possible answers, from which the respondent must choose their response. The questionnaire also encourages respondents to say if they don't know the answer to something, in order to dissuade them from guessing (as we want to capture actual levels of knowledge rather than lucky guesses).

In some countries questions were amended or substituted, as indicated in Table 5[8]. To some extent, this limits our ability to make cross-country comparisons and in particular, caution should be applied when comparing results from Hungary and Norway with the other countries or with each other.

The questions can only provide meaningful information about the level of financial literacy of individuals and populations if they are sufficiently varied to differentiate between high and low achievers by combining a mixture of easy and more difficult problems. The analysis of responses to each question shows that the spread of difficulty in the core questionnaire is appropriate; differentiating well both within countries and across countries. There are also a sufficient number of questions to provide a good overview of a person's basic knowledge, indicate general willingness to absorb financial information and an ability to apply knowledge to particular problems. Nevertheless, it is impossible to capture every aspect of financial knowledge that may be of use to a consumer. An international survey is not intended to capture country-specific knowledge, such as understanding the tax system within a county, or knowing about the retirement provision provided by the state[9]. A high score therefore indicates that someone has a high level of financial knowledge, but does not necessarily suggest that they are financial experts.

[8] All countries made essential edits to currency units. In some cases this also required changing the amount to reflect national prices.

[9] Countries wishing to find out more about the levels of knowledge amongst their population are encouraged to draw on the INFE Supplementary Questions: Additional, Optional Survey Questions available at www.financial-education.org.

Table 5. The 8 knowledge questions

	Question as in core questionnaire (and response codes with correct response in **bold text)**	**Changes to core questions**
Division	Imagine that five brothers are given a gift of $1000. If the brothers have to share the money equally how much does each one get? [Open response: **$200**]	Armenia used a previous version of the core questionnaire, which asked about a lottery prize rather than a gift. Not asked in Norway*.
Time-value of money	Now imagine that the brothers have to wait for one year to get their share of the X. In one year's time will they be able to buy: Multiple choice: a) More, b) the same amount, or c) **less than they could buy today.** Interviewers also recorded 2 other responses which were considered to be correct: it depends on inflation, it depends on the types of things they want to buy	Norway: Imagine that you get a gift of 1000kr, and you put it in the drawer at home for 12 months. After one year how much could you buy for this money? Armenia had 4 options (excluding: It depends on the types of things)
Interest paid on a loan	You lend X to a friend one evening and he gives you X back the next day. How much interest has he paid on this loan? [Open response: **0**]	Not asked in Albania and Norway*. In Malaysia respondents were asked what return was earned on the loan. We have not used this question in the score for Peru, due to problems with data coding.
Calculation of interest plus principle	Suppose you put $100 into a savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made? [Open response: **$102**]	Hungary changed the interest rate to 5%
Compound interest	and how much would be in the account at the end of five years? Would it be: a) **More than $110** b) Exactly $110 c) Less than $110 d) Or is it impossible to tell from the information given	Hungary: The options given were less than simple interest, making it impossible to know whether respondent identified the impact of compound interest or just calculated simple interest
Risk and return	An investment with a high return is likely to be high risk [**True**/False]	RSA: If someone offers you the chance to make a lot there is a chance that you will lose a lot Not asked in Norway*
Definition of inflation	High inflation means that the cost of living is increasing rapidly [**True**/False]	
Diversification	It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and shares [**True**/False]	RSA: It is less likely that you will lose all of your money if you save it in more than one place (Yes) Norway and BVI: To buy a single share carries less risk than buying shares in mutual funds (No)

*Norway asked three alternative questions which have been used in their score: What is the nominal interest rate? What is meant by the effective interest rate? True/False: When you buy shares in a company you lend money to the company?

The results reported in Table 11 (Annex) show that most people in most of the pilot countries could use mental arithmetic to undertake a simple division. However, there are noteworthy variations in the proportion of respondents who gave an incorrect answer, from just 1% in Malaysia through to 17% in the United Kingdom.

Fewer respondents gave a logical answer to the follow-up question designed to identify those who understand how inflation impacts on the value of fixed cash amount. In South Africa fewer than half (49%) believed that the money would buy less in one year's time despite the fact that inflation in that country was

over 4% at the time of the survey. Only in Armenia, Czech Republic, Estonia and Norway did at least 4 out of 5 people give a correct response to this question.

The concept of paying interest on a loan appears to be widely understood; indeed in Hungary 95% of respondents gave a correct response. The question requires the simplest possible arithmetic, but records an open ended response to minimise the possibility that people guess the correct answer.

People found it harder to calculate a percentage than to undertake a division. Between 40% (Albania, Peru) and 76% (Ireland) of respondents gave a correct response to the first saving related question requiring them to calculate 2% interest and add it to the principle (Table 12, Annex). The follow-up question was found to be harder still, particularly in Albania, Armenia and Peru: only 10%, 18% and 14% respectively showed that they could calculate simple interest and also describe the impact of compounding.

Individuals in Hungary (86%) and Ireland (84%) were most likely to understand the basic concept of risk and return, whilst fewer than half of the Polish respondents appear to have grasped the relationship as described (48%) (Table 13, Annex)[10]. In all other countries over 60% of respondents gave a correct answer to this question.

Most respondents knew that high inflation meant the cost of living was increasing, suggesting an awareness of simple economic terms. It appears that in most countries people were more likely to know the definition of inflation than know what impact it has on their spending power, but in Armenia considerably more people understood the time value of money than recognised the definition.

The various diversification questions used in different countries proved to be challenging. Up to 37% of respondents claimed not to know the answer to the question used in Norway, and no more than 61% per cent of respondents in any of the pilot countries gave a correct response (Hungary).

The extent to which people said that they didn't know the answer to a question varies by question, and country. For example, in the Albania, South Africa and the UK around 1 in 10 respondents (10%, 10%, 8%) reported that they didn't know the answer to the division question; in Malaysia just 1 in 100 gave this response. Furthermore, almost half of Albanians (45%) said they didn't know how much money would be in a savings account at the end of the year, compared to just 2% in Poland and 3% in Norway.

A financial knowledge score

Analysis of the responses to each question by country indicates that the combination of knowledge questions adequately identified high and low achievers in all countries. It also shows that relatively few people refused to answer the questions[11]. We have therefore created a financial knowledge score using all 8 questions. However, given that some countries have made changes to the questionnaire, we also undertook a battery of tests to ensure that the measure was robust. In particular we:

- explored the impact of omitting or including certain questions, by observing how a particular change impacted on the relative position of countries in a ranking exercise
- used factor analysis to confirm that the questions were all capturing an underlying phenomenon[12].

[10] Note that in Albania more than one in 5 appears to have got the question wrong. However, Albania did not record 'don't know' responses separately.

[11] In the case of the knowledge questions, don't know is considered to be a valid response – indeed respondents were encouraged to say if they didn't know the answer - and so this will not cause a problem in analysis.

[12] These tests were reported in INFE(2011)16 Measuring financial literacy: methodological report of the OECD INFE pilot study.

It would be possible to create a score for each respondent from the factor analysis, and this approach is widely considered to be good practice when scoring complex data[13]. However, there is also a strong argument for giving each component of financial knowledge equal weighting, as each has benefits for individuals, and each has been identified as important by international experts. There is also some sense in avoiding complex statistical approaches if these are likely to be applied or interpreted in different ways in different countries or if problems with data from one country are likely to influence the way the data from other countries is analysed.

In the results that follow, we have therefore kept to a simple count of correct answers. This approach is in keeping with the development process: the questions within the core questionnaire were all chosen because they were considered to capture essential aspects of financial knowledge.

The process of counting correct answers began by assigning a value to the responses to each question (Table 6).

Where countries have substituted questions, or reworded them, we have also given a value of 1 to a correct response and 0 in all other cases. In the case of a country with fewer than 8 financial knowledge questions we have rescaled each score as necessary (typically multiplying by a factor of 8/7).

We have not attempted to incorporate additional information about those people who stated that they did not know the answers to particular questions in our overall measure because we are interested in counting correct responses. However, we recognise that there may be value in undertaking additional analysis of the types of people who gave 'don't know' responses compared to those who have provided an incorrect answer, in order to identify who is most likely to be over-confident. This is something we will explore in further research.

Table 6. Creating a knowledge score

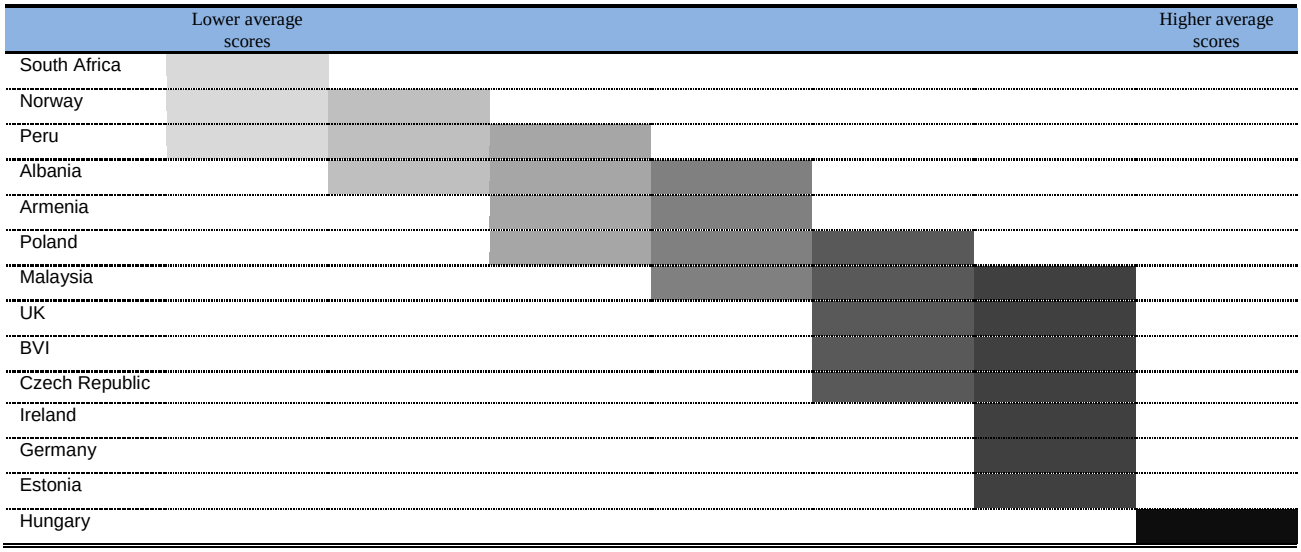
Question	Discussion	Value towards final score
Division	This is open response and a correct answer is therefore a good indicator of applied numeracy	1 for correct response. 0 in all other cases.
Time-value of money	This is multiple response and very context specific	1 for responses c, d, e unless country tells us otherwise
Interest paid on a loan	This is open response and a correct answer is therefore a good indicator of understanding	1 for correct response. 0 in all other cases.
Calculation of interest plus principle	This is open response and a correct answer is therefore a good indicator of applied numeracy	1 for correct response. 0 in all other cases.
Compound interest	This is multiple response. We assume that if the respondent couldn't calculate 2% they also cannot calculate 5*2%.	1 for a correct response IFF the previous response was also correct. 0 in all other cases.
Risk and return	This is a yes/no question so it is relatively easy to guess	1 for a correct response. 0 in all other cases.
Definition of inflation	This is a yes/no question so it is relatively easy to guess	1 for a correct response. 0 in all other cases.
Diversification	This is a yes/no question so it is relatively easy to guess	1 for a correct response. 0 in all other cases.

[13] This argument is based on the fact that a score that counts correct answers may be misinterpreted; people may assume it is equally difficult to gain one additional point from anywhere on the scale when in fact some questions are more difficult than others.

Whilst we are cautious about making firm conclusions about the similarities and differences of countries from the pilot data because of the different questions used in some cases, we have employed a statistically conservative approach to analysing across the countries in order to look for general patterns. We have used an approach that looks at the average scores for each country, and then groups the countries according to whether or not their results are significantly different. This approach does not in any way correct for the variation in questions asked, but on the assumption that they are largely equivalent, it attempts to identify groups of similar countries. Countries within the same subset do not have significantly different average scores. Countries that are present in more than one subset have scores that are between the two groups – i.e. they are not significantly different from either group.

In Figure 1 below, we see that the 14 countries fall into 7 groups based on levels of financial knowledge, although there is considerable overlap, with only 5 countries falling neatly into one group. The figure shows that average scores in South Africa put this country in the lowest scoring group, similar only to Peru (and Norway, although the questions used in Norway were rather different). At the other end of the figure, Malaysia, the UK, BVI, Czech Republic, Ireland, Germany and Estonia also have similar scores, but with a significantly higher average. Hungary appears to be uniquely high scoring, but it should be remembered that this will partly be capturing the changes made to one of the more difficult questions.

Figure 1. Country groupings by average financial knowledge scores



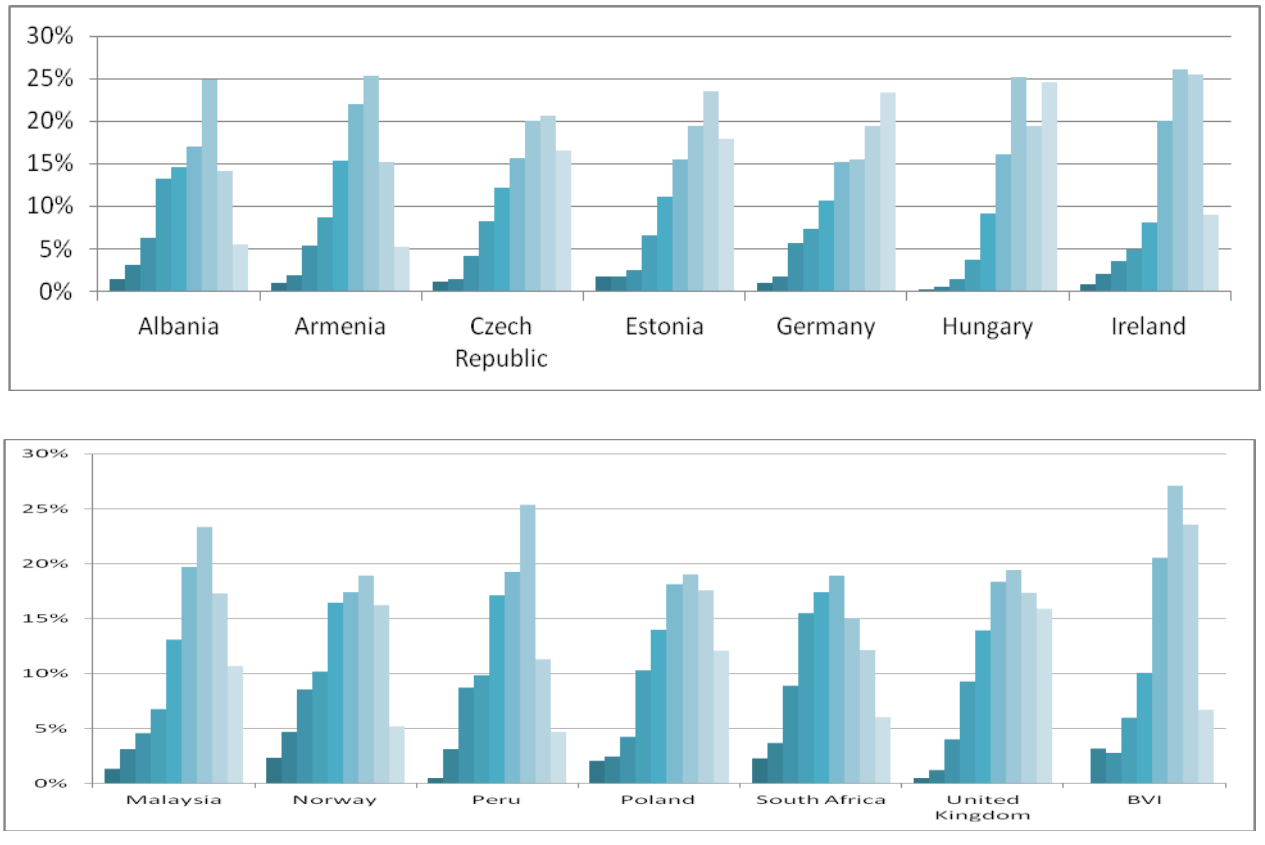
Shaded boxes indicate homogenous groups of countries, computed in IBM SPSS19 using Scheffe Homogenous Subsets on knowledge scores rounded to the nearest whole number. The order of the countries in this figure reflects average financial knowledge scores. Average scores range from 4.6 to 6.1.

The distribution of scores is also interesting (Figure 2). The modal (the most frequently achieved) score in many countries is 6 (Albania, Armenia, Hungary, Ireland, Malaysia, Norway, Peru, Poland, UK, BVI), whilst some countries have a modal score of 7 (Czech Republic, and Estonia). Just one country, Germany, has the maximum value as the modal value.

By looking at the distribution we can see that some countries, such as Albania, Norway, and South Africa have a relatively large proportion of the population scoring between 0 and 2. However, there is no country with an exceptionally large proportion of respondents scoring less than 3, indicating that there is no country where almost everyone is lacking financial knowledge. Despite this, every country has some proportion of the population that has achieved a relatively low score on the knowledge test, showing that there is room for improvement in all countries.

Countries such as the Czech Republic, Estonia and Germany with a negatively skewed distribution can be reassured that the majority of their population has basic financial knowledge.

Figure 2. Distribution of knowledge scores

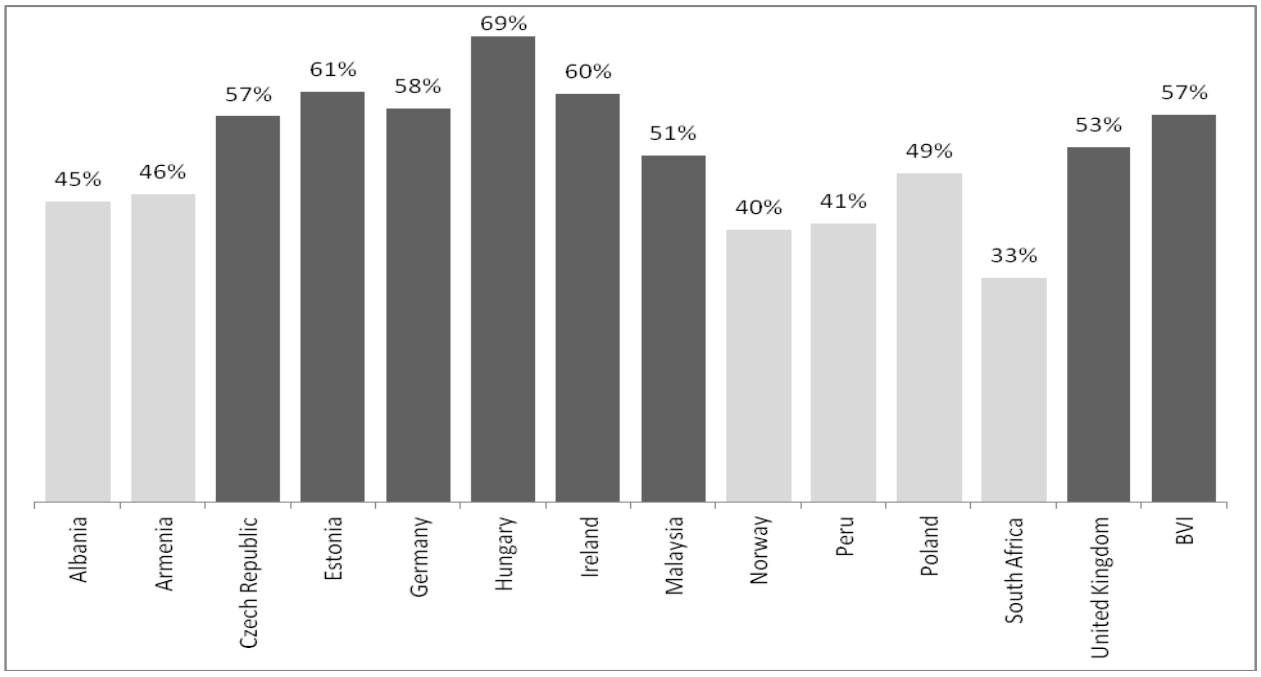


Scores from 0 (far left column for each country) – 8 (far right column for each country).

The following chart (Figure 3) focuses specifically on the percentage of respondents that gained a high score of between 6 and 8 in each country. As well as being the modal value in many countries, the choice of cut-off represents 75% of the available points; a level at which respondents may be considered to have a high level of knowledge about the subjects tested. We can see from the chart that in 6 countries (Albania, Armenia, Norway, Peru, Poland and South Africa) fewer than half of the respondents gained such a score.

Figure 3 also highlights that a significant proportion of the population in every country (at least 30%) could benefit from additional financial knowledge.

Figure 3. Financial knowledge: Percentage scoring 6 or more



Base: all respondents. Lighter shaded columns indicate countries where fewer than 50% achieved a score of 6 or more.

FINANCIAL BEHAVIOUR

Behaviour is an essential element of financial literacy; and arguably the most important. The positive outcomes from being financially literate are driven by behaviour such as planning expenditure and building up a financial safety net; conversely, certain behaviours, such as over-using credit, can reduce financial wellbeing. In this section, we therefore focus on a wide range of behaviours, with an emphasis on those that can enhance or reduce financial wellbeing.

Financial behaviour across different domains

The core OECD INFE financial literacy questionnaire asks the respondents about their behaviour using different question styles, in order to capture the maximum amount of information. From the responses to these questions, we can derive information about the ways in which people manage their money, including whether they consider carefully whether they can afford something, whether they typically pay bills on time, if they report that they keep a close watch over their finances. We can also investigate whether they attempt to save and set long term goals, if they are personally (or jointly) responsible for a household budget, how they choose financial products and if they have recently borrowed to make ends meet.

Four of the questions use a qualitative scale, enabling people to provide more information about the frequency of their behaviour. These scaled questions have been asked in the same way in each of the pilot countries except Norway and South Africa[14]. Comparisons across the majority of countries should therefore be robust.

A financially literate person will always have an idea of the amount of money they can afford to spend on a purchase, even if higher income individuals only need to know approximately. The first of the behaviour statements shows that people typically did consider whether they could afford potential purchases (Table 14, Annex). This is especially the case in Armenia, Malaysia and Peru. However, in Norway 14% percent of respondents put themselves below the midpoint – indicating that they tended not to consider their purchases; 1 in 10 UK respondents also put themselves at this end of the scale. It is also interesting that in Estonia and Poland around one in 5 respondents put themselves at the midpoint on the scale, suggesting that they were aware that they sometimes made purchases without considering affordability.

Financial literacy also requires organisational skills in order that individuals meet their financial commitments and thus avoid problems such as reduced access to affordable credit or fines for non-payment. The survey therefore asks each respondent whether they usually pay their bills on time (Table 15, Annex). Most respondents reported that they did – putting themselves at 4 or 5 on the scale. However, a sizeable proportion of respondents in South Africa (15%) and Norway (15%) indicated that they never or rarely did so (less than 3 on the scale)[15]. A further 1 in 5 respondents in South Africa (19%) as well as 19% of respondents in Malaysia put themselves at the midpoint, suggesting that they too were not paying many bills on time. These negative responses may be due to a variety of reasons including lack of money, lack of

[14] In Norway the questions were asked on a 7 point scale: recoded as follows for the purpose of comparisons: 1=1 (2, 3=2) (4=3) (5, 6=4) (7=5). In South Africa, a 5 point scale was used, but each of the scale points was given a verbal description. Note that Armenia labelled the scale in reverse, and asked the questions alongside some of the attitudinal questions.

access to electronic payment facilities or a tendency to be disorganised or unwilling to meet responsibilities on time, but in all cases they suggest that a sizeable proportion of consumers could be either encouraged or supported to improve this behaviour.

A third behaviour statement asks respondents how often they keep a close personal watch on their financial affairs (Table 16, Annex). Keeping an eye on financial affairs is important for a variety of reasons. For those who use financial products, it is essential to be aware of anticipated withdrawals from an account and to check statements in order to address mistakes or fraudulent activity, such as duplicate amounts being withdrawn through computer error or unauthorised use of credit cards. Even those who do not use financial products need to oversee their financial affairs in order to keep their savings safe, smooth their expenditure and pay bills on time.

Very few people claimed that they never keep an eye on their own finances – ranging from 1% in Norway, Ireland, Germany and Peru to 8% in Hungary. However, in almost all the pilot countries more than one in ten respondents put themselves in category 3 – suggesting that were aware they could do more. In South Africa around a third of all respondents (32%) put themselves on the lower part of the scale (1, 2, or 3) suggesting a considerable need to help people see the value of watching over their own finances.

In Peru, this question produced a very clear clustering effect; people tended to report that they either *always* kept a close personal watch (68%), or that they hardly ever did (point 2 on the scale: 19%).

The final statement in this set relates to acting on longer term plans (Table 17, Annex). It asks whether respondents 'set long term financial goals and strive to achieve them'; it does not specify how far away the goal should be, or how easy it might be to achieve. Long term financial goals may be related to accruing money for specific expenses, such as education fees or a wedding. Alternatively they could relate to investment strategies, saving for retirement, business ideas or career progression. The second phrase in this statement indicates that the respondent should be attempting to reach their goal, rather than simply thinking about it.

Despite the fact that everyone can benefit from considering their longer term financial needs this particular behaviour does not appear to be widespread. As many as one in five people in the United Kingdom (22%) said that they never set a long term financial goal and worked to achieve it.

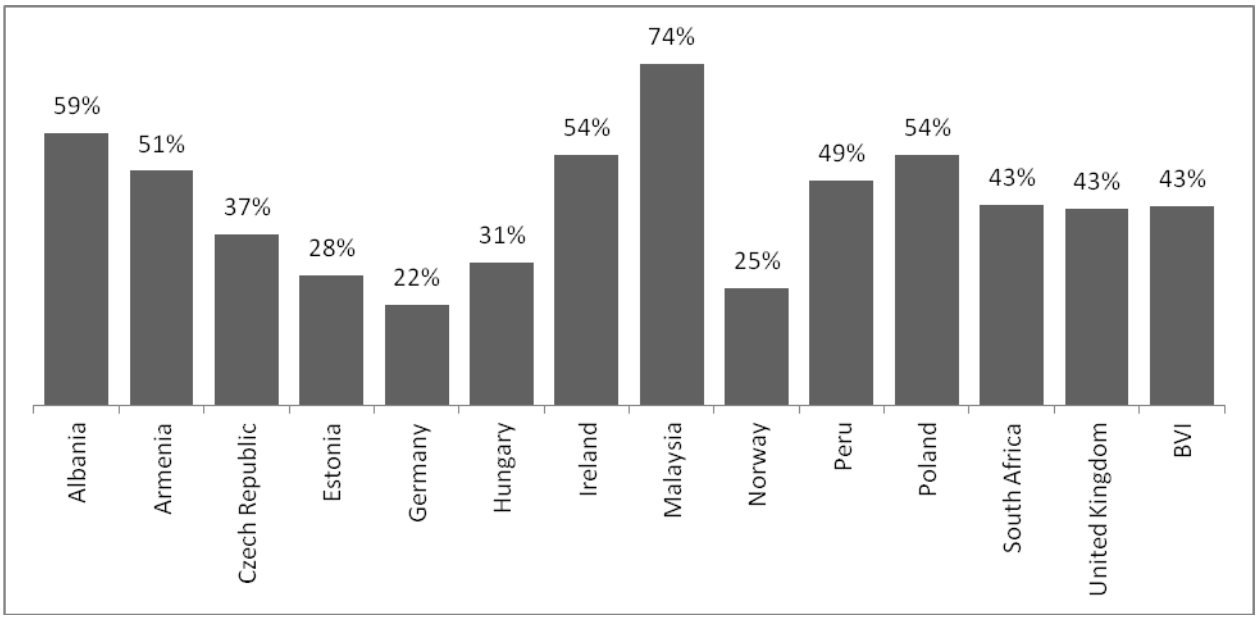
It appears that Peruvians (55%), British Virgin Islanders (45%) and Armenians (43%) are the most likely to set long term goals. More than 1 in 10 Estonians responded that they didn't know whether this statement applied to them, perhaps indicating disengagement with long term planning. A further ¼ placed themselves at 1 or 2 on the scale – suggesting that setting goals is not something that they do.

A sizeable proportion of respondents in each country (ranging from 12% to 26%) put themselves at the midpoint on this scale. This could be classified as 'sometimes'. Interpreted in this way, it indicates that people do not consistently work towards long term goals.

[15] It is possible that people chose the 'Never' category because they had no bills to pay. In Norway such people could have simply skipped the question.

Further behaviour questions provide us with information about the extent to which an individual takes responsibility for household finances and budgeting[16]. We have combined the responses to two questions that assess how many people report that they a) have either personal or joint responsibility for day to day money management decisions in their household and b) live in a household with a budget (Figure 4). We have combined these two questions to ensure that we do not consider someone to be actively using a budget if they do not take on any responsibility for household finances[17]. The combination of the two sets of responses shows a very wide variation across country, with fewer than 1/4 of respondents in Germany and Estonia being personally or jointly financially responsible and budgeting through to almost 3/4 of those in Malaysia (74%)[18].

Figure 4. Responsible and has a household budget



Base: all respondents.

Saving behaviour is considered to be an important component of financial literacy, building financial security and reducing the reliance on credit. As the actual amount that a person can save, and the length of time they can keep money to one side varies immensely, the financial literacy measure focuses exclusively on whether or not respondents save money. Respondents were asked 'In the past 12 months have you been saving money in any of the following ways?' The questionnaire then lists a variety of ways in which people typically save, in order to prompt recollection of any type of saving. This was tailored to the country context but typically included saving money at home, using informal savings clubs, putting money into savings accounts and buying investments. For the purpose of the international comparison we have derived a variable that counts all kinds of saving as active saving[19], except for the passive approach of

[16] The term budget was explained to the respondent to ensure that they did not misinterpret it.

[17] This measure will not capture those people who budget their own money but do not take responsibility for the household as both the questions relate to household money management.

[18] Data from Armenia indicates that everyone takes some responsibility for household money management.

[19] The measure of savings used by the Czech Republic includes a product known as 'pension insurance'. Whilst this has some of the characteristics of a pension, it is widely considered to be a standard savings vehicle by Czech consumers.

building up a balance in a current account. This is an appropriate indicator of behaviour, since it indicates that saving was intentional rather than a default position due to income exceeding outgoings.

As we can see from Table 7, discussing savings is a sensitive issue in some countries. In Poland a very large proportion claimed that they didn't know, which almost certainly indicates an unwillingness to divulge such information.

Malaysia clearly has a culture of saving, 97% of respondents reported that they had been saving in the past 12 months and nobody appeared to feel that this was sensitive information. Conversely, in Hungary, people were very unlikely to have been saving (just 27% responded positively), although again, nobody refused to answer.

Table 7. Actively saving or buying investments in the past 12 months

(Row percentages by country, weighted data, all respondents)

	Refused[20]	Don't know	No	**Yes***
Albania	2%	4%	52%	**42%**
Armenia			64%	**36%**
Czech Republic	19%**	3%	6%	**72%**
Estonia	2%	4%	58%	**36%**
Germany		-	13%	**86%**
Hungary		2%	71%	**27%**
Ireland	1%	1%	46%	**53%**
Malaysia		-	2%	**97%**
Norway		-	29%	**71%**
Peru	-	1%	36%	**62%**
Poland	12%	21%	16%	**51%**
South Africa	14%	9%	24%	**53%**
United Kingdom	1%	2%	29%	**68%**
BVI			17%	**83%**

*As this is capturing saving activity (as opposed to saving holdings), building up a balance in a current/payment account is not considered to be an indicator of this behaviour. If respondents were building up a balance in their current account and undertaking other savings activities they will be counted in this measure. **This percentage also includes those who did not choose any option

The way people behave when choosing financial products is also an important aspect of their overall financial literacy. If people attempt to make an informed decision by shopping around or using independent advice they are more likely to choose appropriate products that meet their needs in a cost effective way, less likely to buy something inappropriate, and less likely to be subject to mis-selling or fraud.

People do not typically choose financial products on a weekly, or even monthly, basis. The survey therefore asks about a product chosen in the last 2 years (excluding simple renewals)[21]. It is important to note that this measure is specific to choosing products, and does not capture information about people who checked that their existing products were still suitable, unless they went on to shop for something new.

[20] Note that in all cases, across all questions the term 'refused' refers to non-response, which may also include those people who did not provide a valid answer, but did not actively refuse.

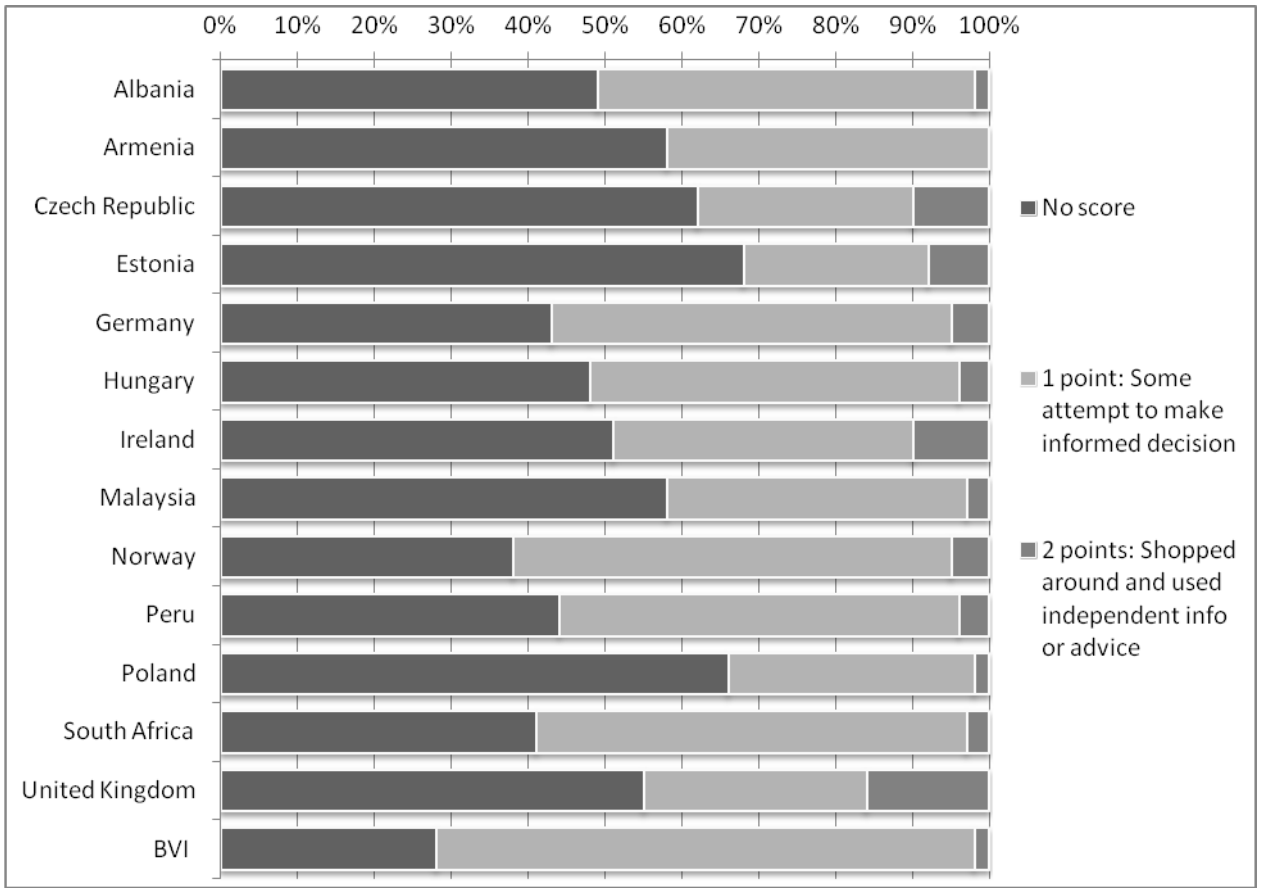
[21] The score should be seen as a conservative estimate since some of those who refused may actually have shopped around- i.e. their score could actually be higher. We do not have information from every country to enable us to differentiate between those who did not choose a product, and those who refused to answer this question.

Neither does it capture intention to behave – such as how they think they might choose a product in the future.

The possible approaches to choosing financial products may vary by country (and countries were able to add their own options to the survey), but shopping around and gathering information are the behaviours that we are most interested in. In the derived variable used in the final score, respondents are considered to have made some attempt to make an informed decision if they tried to compare across providers (even if they found out that there were no other providers), or if they sought information from someone.

We can see from Figure 5 that consumers in Germany, Ireland and the United Kingdom were most likely to have made active financial product choices by shopping around and using independent information or advice.

Figure 5. Shopping around for financial products

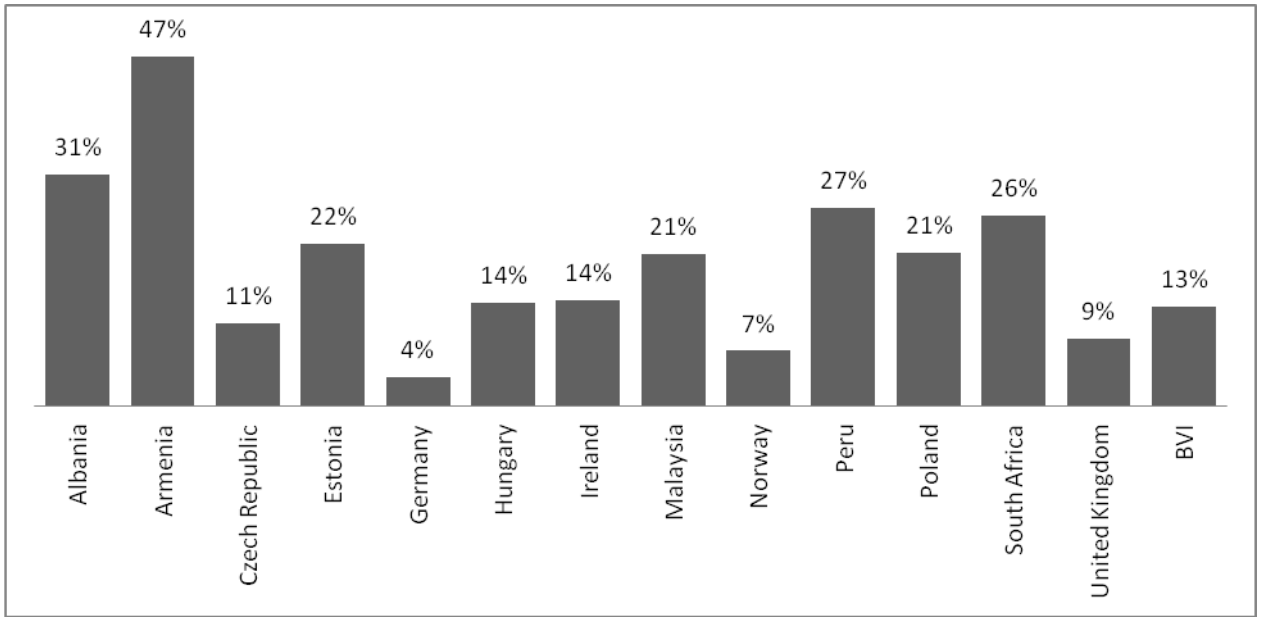


Base: all respondents. Respondents who fall into the 'no score' category include those who chose a product without attempting to make an informed decision and those who had not chosen a product.

Financially literate people will have strategies to smooth income flows and a tendency to avoid using credit for essentials such as food and utilities. The extent to which these strategies are successful will depend on the predictability of their income and expenditure as well as the extent to which they have the necessary skills. We recognise that it is not always possible to prevent shortfalls in income, but a reliance on credit for basic living can become very dangerous and impossible to escape. We have therefore created a variable to identify people who reported that sometimes their income didn't meet their needs, and that the last time this happened they had to borrow to make ends meet.

Figure 6 shows that on the whole, respondents were unlikely to have resorted to credit use to make ends meet. However, almost a half of Armenians had done so in the last 12 months (47%), indicating a worrying vulnerability to income fluctuations and risk of facing spiralling debt problems.

Figure 6. Borrowing to make ends meet



Base: all respondents. This variable combines the responses to two questions: Sometimes people find that their income does not quite cover their living costs. In the last 12 months, has this happened to you? & If so what did you do to make ends meet the last time this happened? Note that the question does not record all the strategies used to make ends meet in the course of 1 year, but only on the last occasion this occurred. The measure captures borrowing informally and formally, including (but not limited to) from family, pawn brokers, savings and loans club as well as relying on an overdraft, taking a bank loan and taking money from a flexible mortgage, It does not include late payment of bills.

A score for financial behaviours

In order to produce an overall behaviour score we have combined information from the results described above. This looks at the number of behaviours that are in evidence for each person, with the caveat that respondents who refused to answer particular questions may appear to be lower scoring than is actually be the case[22].

We have managed to capture a wide range of financial behaviours at an international level. By incorporating all of these measures into an overall score we can ensure a nuanced indicator that provides a good indication as to the extent to which individuals are behaving in a financially literate way.

[22] There are various other ways in which missing data could be handled, including deleting the observations or replacing missing information with imputed variables. Our approach will tend to underestimate overall scores, a conservative approach which we believe is appropriate for a pilot study.

We have created the score between 0 and 9 as shown in Table 8:

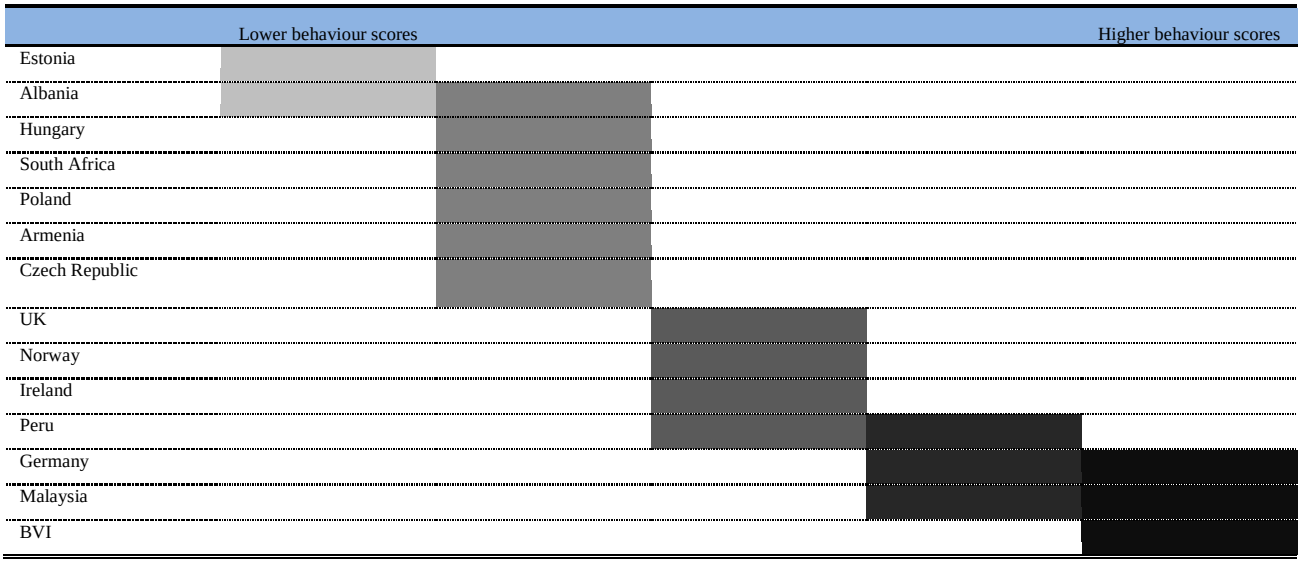
Table 8. Creating a behaviour score

Behaviour	Discussion	Value towards final score
Considered purchase	This is a scaled response.	1 point for respondents who put themselves at 4 or 5 on the scale. 0 in all other cases.
Timely bill payment	This is a scaled response.	1 point for respondents who put themselves at 4 or 5 on the scale. 0 in all other cases.
Keeping watch of financial affairs	This is a scaled response.	1 point for respondents who put themselves at 4 or 5 on the scale. 0 in all other cases.
Long term financial goal setting	This is a scaled response.	1 point for respondents who put themselves at 4 or 5 on the scale. 0 in all other cases.
Responsible and has a household budget	This is a derived variable, created from the responses to two questions.	1 point if personally or jointly responsible for money management and has a budget. 0 in all other cases.
Active saving	This question identifies a range of different ways in which the respondent may save. People who refused to answer score 0.	1 point for any type of active saving (excluding letting money build up in a current account as this is not *active*). 0 in all other cases
Choosing products	This is a derived variable drawing information from 2 questions. It is only possible to score points on this measure if the respondent had chosen a product: those with no score on this measure have either refused to answer, not chosen a product, or not made any attempt to make an informed decision.	1 point for people who had tried to shop around or gather any information. 2 points for those who had shopped around and gathered independent information. 0 in all other cases.
Borrowing to make ends meet	This is a derived variable that combines a question about running short of money and one that identifies a range of different ways in which the respondent made ends meet the last time they ran short of money. The derived variable indicates people who are making ends meet without borrowing (refusals will score 1).	0 if the respondent used credit to make ends meet. 1 in all other cases.

As with the knowledge scores, we have used a statistical approach to group countries according to their average financial behaviour scores (Figure 7). This provides an indicator of the extent to which individuals are exhibiting behaviour relating to the various aspects of financial literacy discussed above.

We see that some countries have relatively similar financial behaviour scores; the analysis indicates there are 5 groups of countries with similar average scores. Estonia exhibits significantly lower levels of behaviour than all other countries except Albania. The highest numbers of positive financial behaviours are apparent in Germany, Malaysia and BVI.

Figure 7. Country groupings by average financial behaviour scores

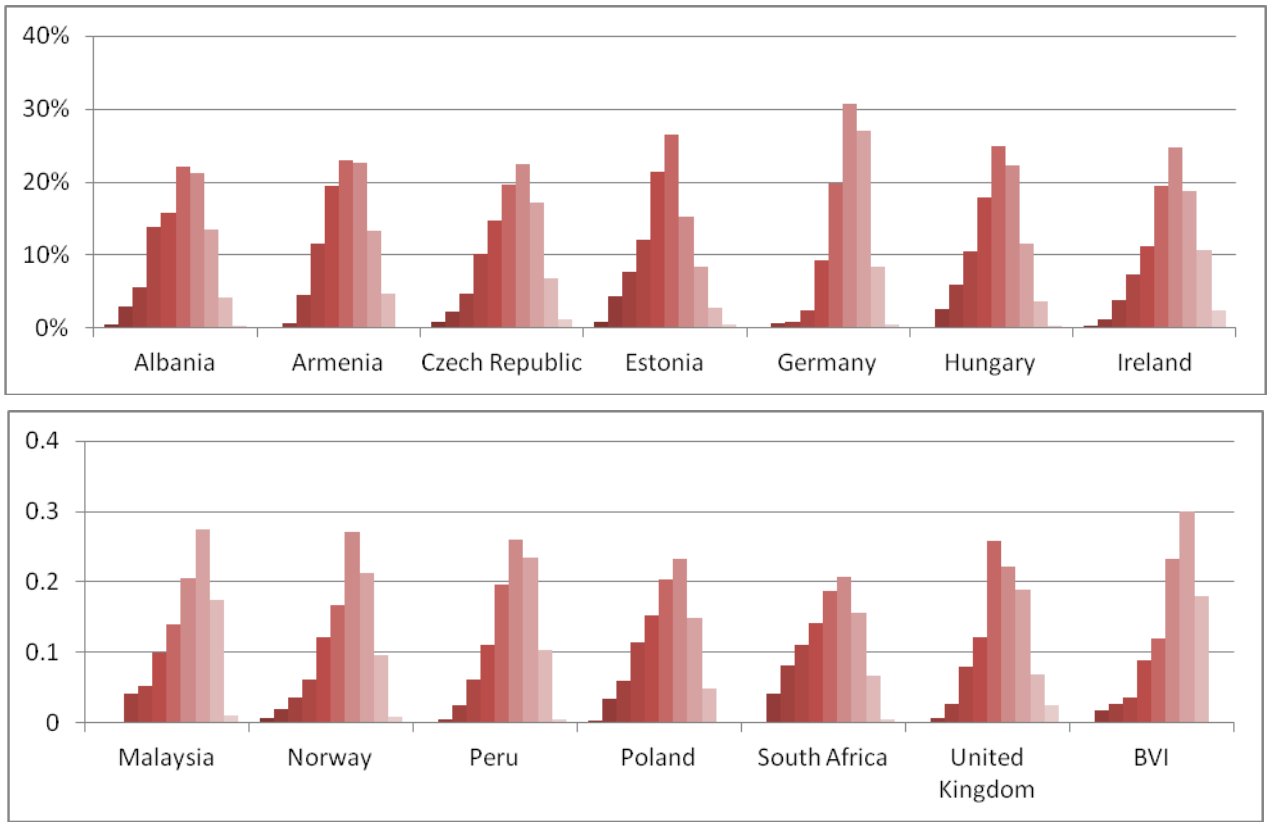


Shaded boxes indicate homogenous groups of countries, computed in IBM SPSS19 using Scheffe Homogenous Subsets. Average scores range from 4.5 to 6.1.

It is also noteworthy that Germany and Malaysia had nobody who scored zero (identifying those with no positive financial behaviours), and just two countries had nobody who achieved a maximum score (Armenia and BVI) (Table 18, Annex).

Figure 8 shows that large proportions of respondents in Germany, Malaysia and BVI have scored relatively highly (characterised by a lighter colour on the bar charts). However, the distributions all tend towards a steep bell shape, indicating that there is a large proportion of the population of most countries who only exhibit around half of the positive behaviours identified. South Africa has the flattest distribution, showing that there is a wider range of behaviour in evidence across the country.

Figure 8. Distribution of financial behaviour scores

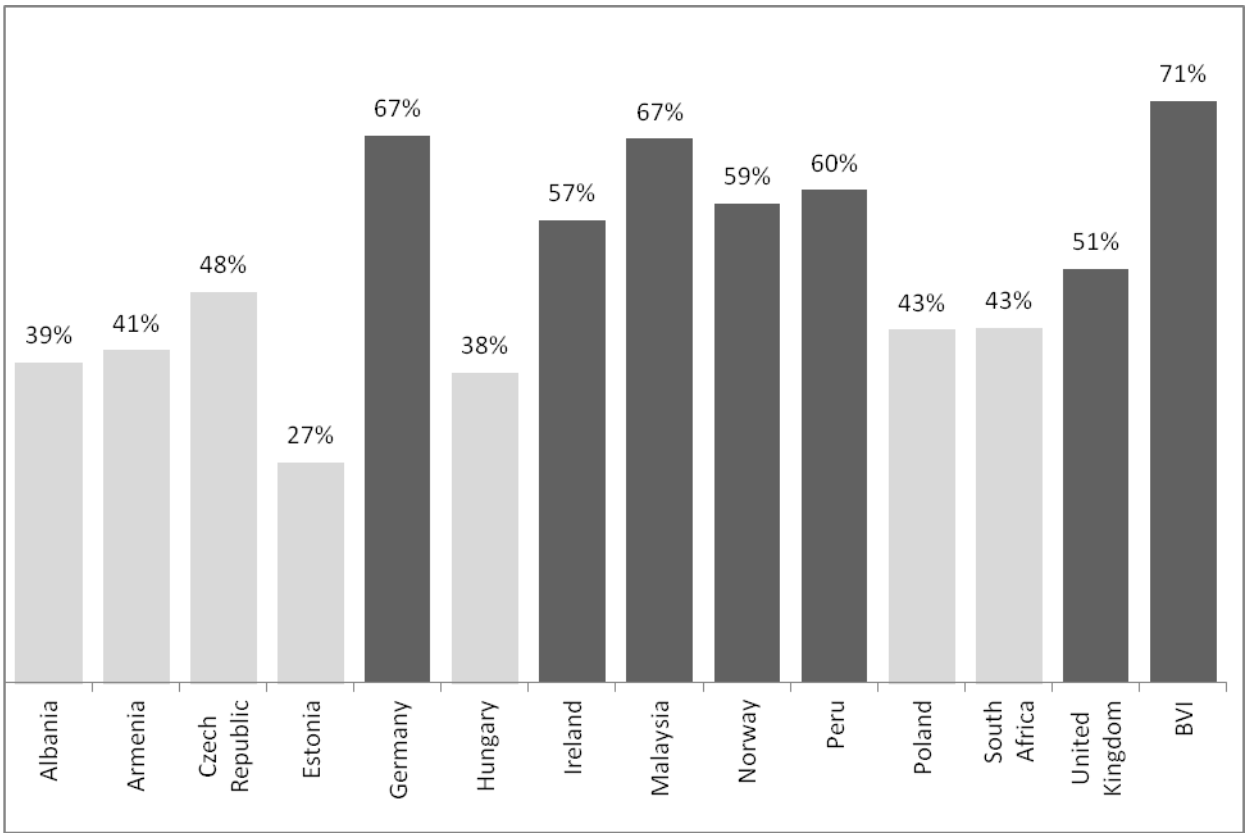


Scores from 0 (far left column for each country) – 9 (far right column for each country).

Based on the distributions presented above and the fact that financial products are not chosen on a regular basis, we consider 6 out of 9 to be a high score on this component of financial literacy. Additional analysis focusing on the percentage of respondents who exhibited at least 6 positive behaviours shows that only half of the countries have a majority of people gaining such a high score (Figure 9).

The findings also highlight a large proportion of individuals who could benefit from initiatives designed to change their behaviour. In almost every country surveyed, at least 3 in 10 respondents exhibited fewer that 6 of the 9 positive behaviours discussed.

Figure 9. Financial behaviours: Percentage scoring 6 or more



Base: all respondents. Lighter shaded columns indicate countries where fewer than 50% achieved a score of 6 or more.

FINANCIAL ATTITUDES

Attitudes and preferences are considered to be an important element of financial literacy. If people have a rather negative attitude towards saving for their future, for example, it is argued that they will be less inclined to undertake such behaviour. Similarly, if they prefer to prioritise short term wants over longer term security then they are unlikely to provide themselves with emergency savings or to make longer term financial plans. In the section that follows, we therefore report the responses to three attitudinal statements focusing on attitudes towards money, and particularly towards planning for the future.

Attitudes and preferences: short term or longer term?

The core questionnaire includes three scaled attitudinal questions: 'I find it more satisfying to spend money than to save it for the long term', 'I tend to live for today and let tomorrow take care of itself', and 'Money is there to be spent'. Detailed results from each of the attitude statements are reported in Tables 19, 20 and 21 in the Annex.

Around a third of respondents in Germany, Hungary, Poland and the UK put themselves at the midpoint of the first statement 'I find it more satisfying to spend money than to save it for the long term' – suggesting that they found equal satisfaction in spending and saving. People in South Africa were the least likely to give a neutral response: just 14% put themselves at 3 on the scale, compared with 35% of UK respondents. Armenians were the most likely to report that they completely agreed that spending was more satisfying (56%), whilst Peruvian respondents were most likely to completely disagree with the statement (50%), followed by BVI (41%).

The responses to the second attitude statement show that in most countries, respondents tend *not* to live for the day (Table 20). In Armenia, Czech Republic, Hungary and Peru, over half of the respondents completely disagreed with the statement. Despite this, almost 1 in 5 respondents in Armenia and Poland completely agreed with this statement showing considerable polarisation in Armenia.

The third attitude statement relates specifically to people's attitude towards money (Table 21). Here a large proportion of people were ambivalent (42% of Hungarians put themselves at 3 on the scale). Peruvians were the most conservative, with 31% completely disagreeing that money is there to be spent. In contrast, just 1% of Armenians and 4% of Polish respondents disagreed with the statement; indeed in Armenia 74% completely agreed.

Combining the various attitudes

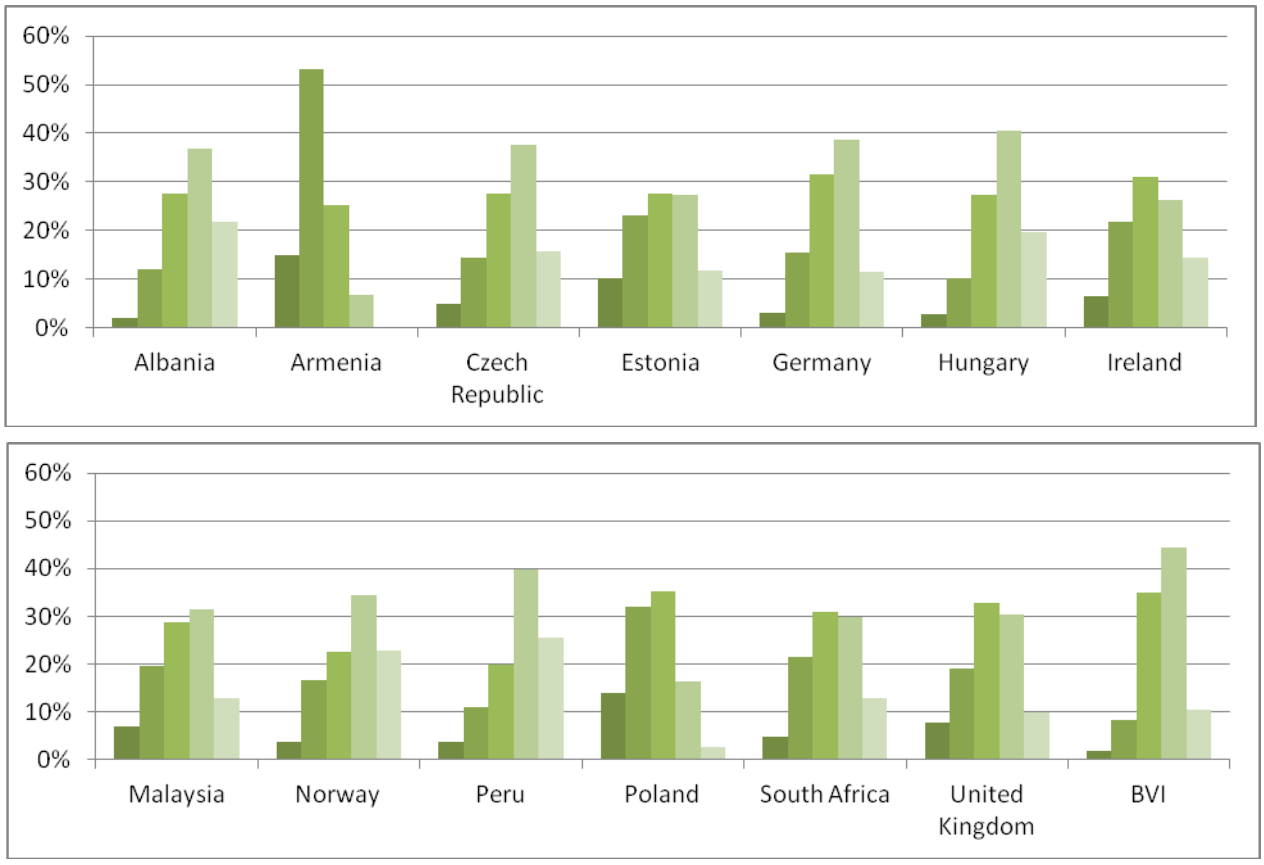
We have created a score for the attitude questions by adding together the responses to each of the three questions, and then dividing by 3. Initial exploratory factor analysis indicates that these questions capture an underlying attitude, and so this simple approach tells us whether the respondent tends towards short-term gratification, or long term security. We have used only the first question for Norway in order to

compare similar attitudes in our international comparison[23], some caution is therefore necessary when comparing scores from the other countries with the Norwegian score.

The average score varies significantly across countries (Table 22, Annex). The highest average attitudinal score across the 3 attitudes is 3.7 (Albania and Peru) suggesting that respondents in these countries are more likely than other pilot countries to have a positive attitude towards planning for the future.

The distribution of (rounded) scores is shown below (Figure 10). We can see that Estonia has a rather flat distribution compared with the other countries (indicating a wide range of attitudes in the country). Armenia has a very pointed distribution, showing that many people have the same attitudes. Poland exhibits large clusters of people who typically put themselves at 1 or 2 on the scale, whilst Albania, Hungary, and Peru there is a much more positive attitude towards the long term.

Figure 10. Distribution of financial attitude scores



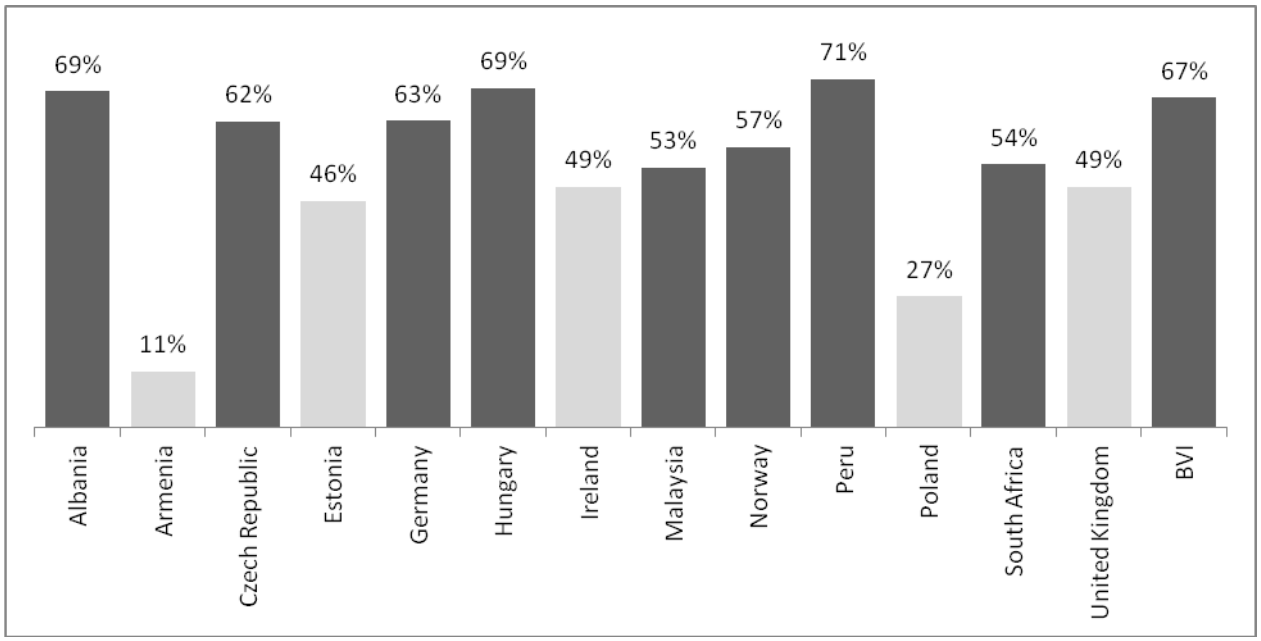
Scores from 1 (far left column for each country) – 5 (far right column for each country).

[23] Norway included a second attitude statement in their questionnaire: 'credit can be used for food and overhead costs'. The vast proportion disagreed with this; just 15% agreed to some extent. This has not been included in the score as it is capturing something different.

As with the previous scores, we have also focused in on those with higher scores (Figure 11). In this case, the higher scores identify those individuals with attitudes towards planning for the future that are considered to be positively related to financial wellbeing (which we call 'positive attitudes').

We have identified people whose average response across the attitude statements is greater than 3, even if only by a small percentage[24]. It shows that in most of our pilot countries, people generally had positive attitudes towards financial matters. . However, in Armenia and Poland this was not the case; in Armenia just over 1 in 10 respondents had positive attitudes and in Poland just over a quarter (27%) of respondents had generally positive attitudes.

Figure 11. Percentage of respondents with average score over 3



Base: all respondents. Lighter shaded columns indicate countries where fewer than 50% gave an average response of 3 or more.

[24] If 3 is the midpoint, then these people are neutral. In order to have scored above 3 on average, they must have put themselves at 4 on the scale on at least one of the three questions: in the case of Norway, they must have put themselves at 4 or 5 on the single question used in the analysis.

RELATIONSHIP BETWEEN BEHAVIOUR AND THE OTHER SCORES

The literature often uses financial knowledge as a predictor of positive outcomes, which rely on behaviours that are consistent with financial wellbeing – exactly the types of behaviours captured in our measure of financial literacy. We have therefore undertaken some very preliminary analysis to see whether behaviour scores increase with knowledge scores in each country.

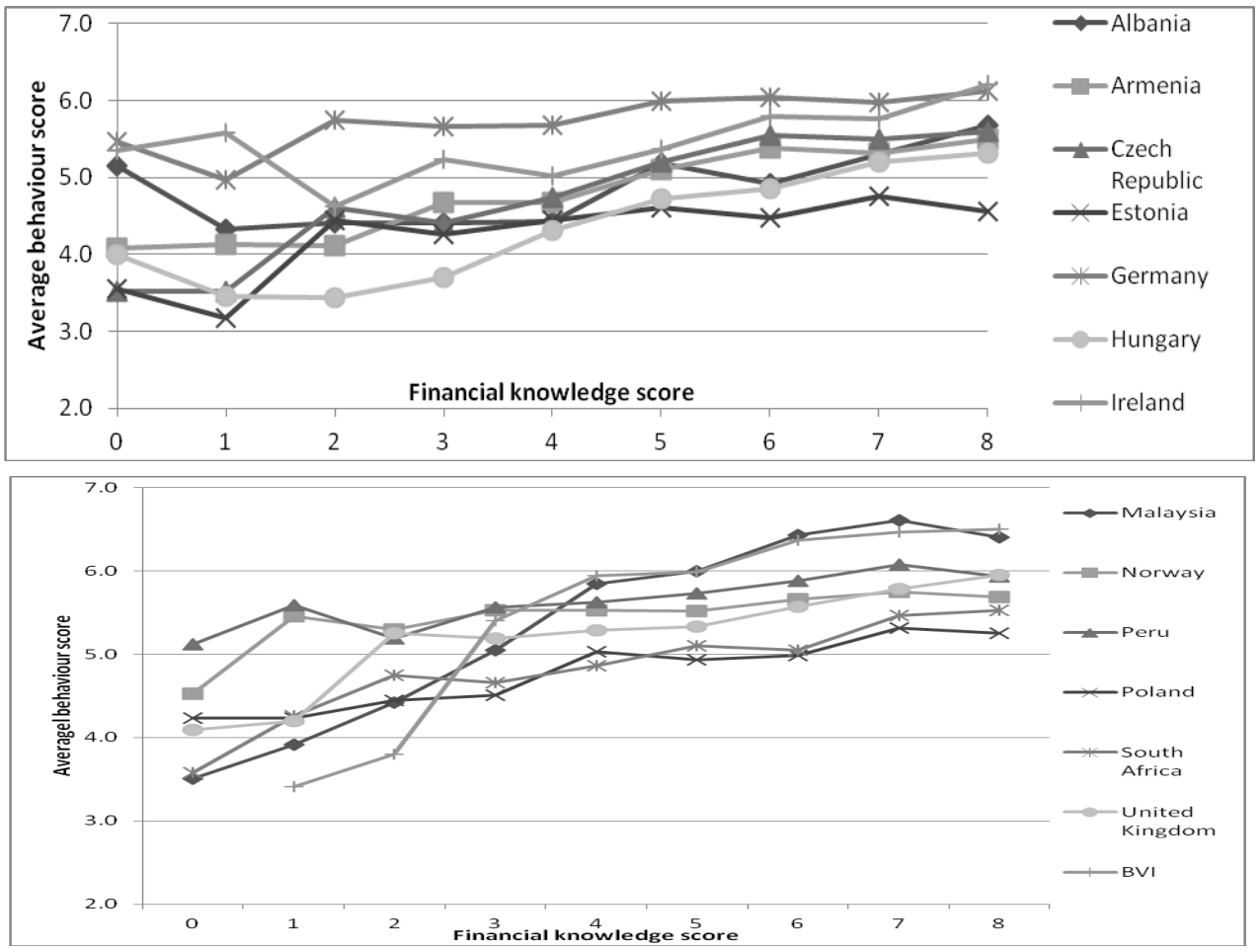
Figure 12 shows that across the countries surveyed there is a positive relationship between knowledge and behaviour – higher knowledge scores are associated with higher behaviour scores[25]. However, the relationship does vary by country. For example, we can see that in Germany and Peru average behaviour scores only increase by 1 point across the range of knowledge scores, and there is almost no increase in average behaviour scores by knowledge over a score of 2 in Estonia. Conversely, in Malaysia behaviour increases sharply with increased levels of knowledge, so that average behaviour scores amongst those with a high level of knowledge are almost double those of people with low levels of knowledge.

These graphs also show that even people with very low levels of knowledge exhibit some positive financial behaviour. Whilst it is reassuring that they are financially active, it is very likely that they could benefit from additional knowledge in order to improve the quality of their decision making on matters such as choosing appropriate financial products or saving for the future.

[25] The apparent dip in behaviour as knowledge moves from 0 to 1 should not be a concern: it is the result of analysing a very small number of people who had a score of 0.

Figure 12. Relationship between financial knowledge and behaviour

Average behaviour score by financial knowledge score



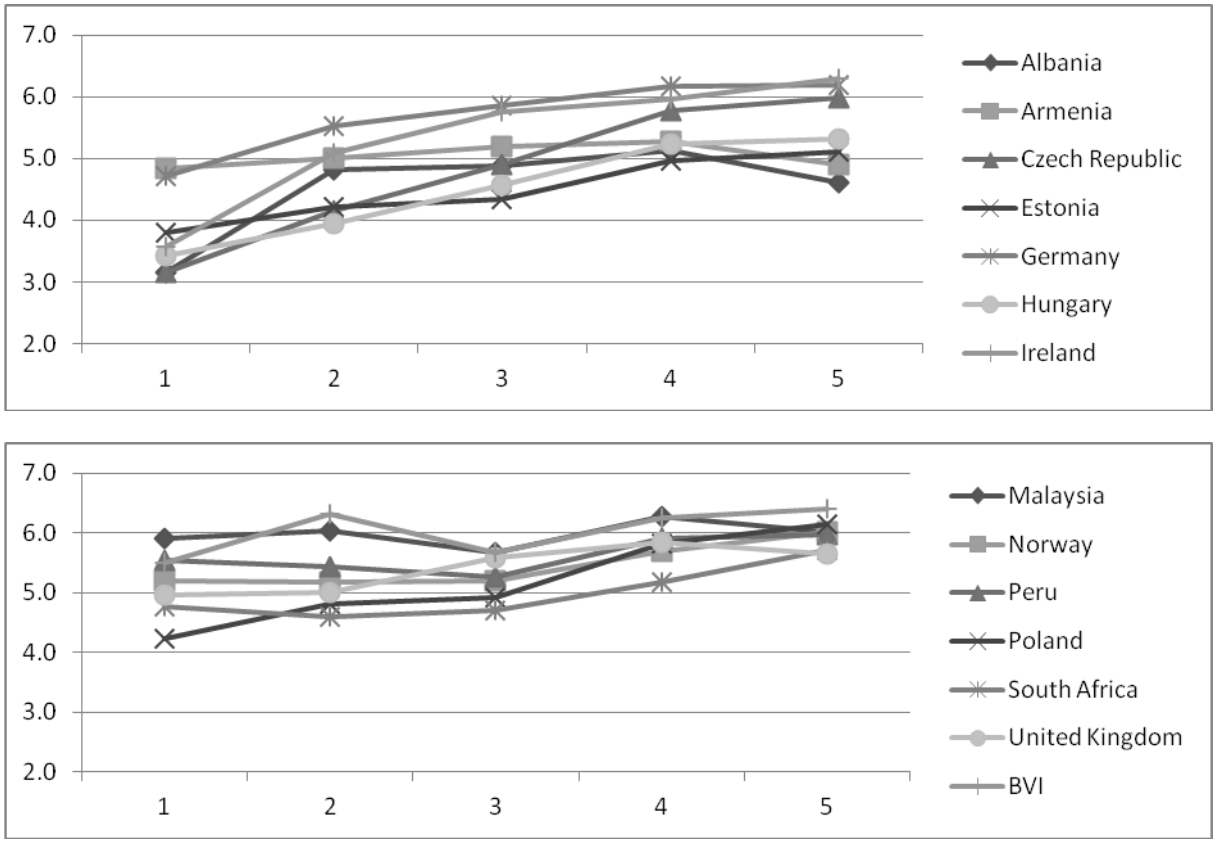
It is also argued that those with positive attitudes towards the long term are more likely to behave in ways that are consistent with achieving long term goals, so again we have looked to see whether behaviour scores increase with attitude scores.

Figure 13 indicates a generally positive association between attitudes and behaviour: people with attitudes that tend towards short term gratification have lower behaviour scores than those with an attitude score over 3.

There appears to be little relationship between attitudes and behaviour in BVI, and relatively little in Armenia. At the other extreme, behaviour increases notably with attitudes in Czech Republic and Ireland: for example, the graph shows how average behaviours scores in the Czech Republic vary from 3 to 6 depending on whether individuals have an attitude score of 1 (indicating a preference for the short term) or 5 (indicating a positive attitudes towards the longer term).

Figure 13. Relationship between attitudes and financial behaviour

Average behaviour score by attitude score



COMBINED MEASURES OF FINANCIAL LITERACY

Financial literacy is a combination of knowledge, attitude and behaviour, and so it makes sense to explore these three components in combination. In this chapter we do so in two ways- firstly by looking at whether people achieve high scores on several components, and secondly by adding the scores together. As these measures combine information from the scores developed in the previous chapters, the reader should apply the same caution when comparing countries that have made changes to the core questionnaire with other countries.

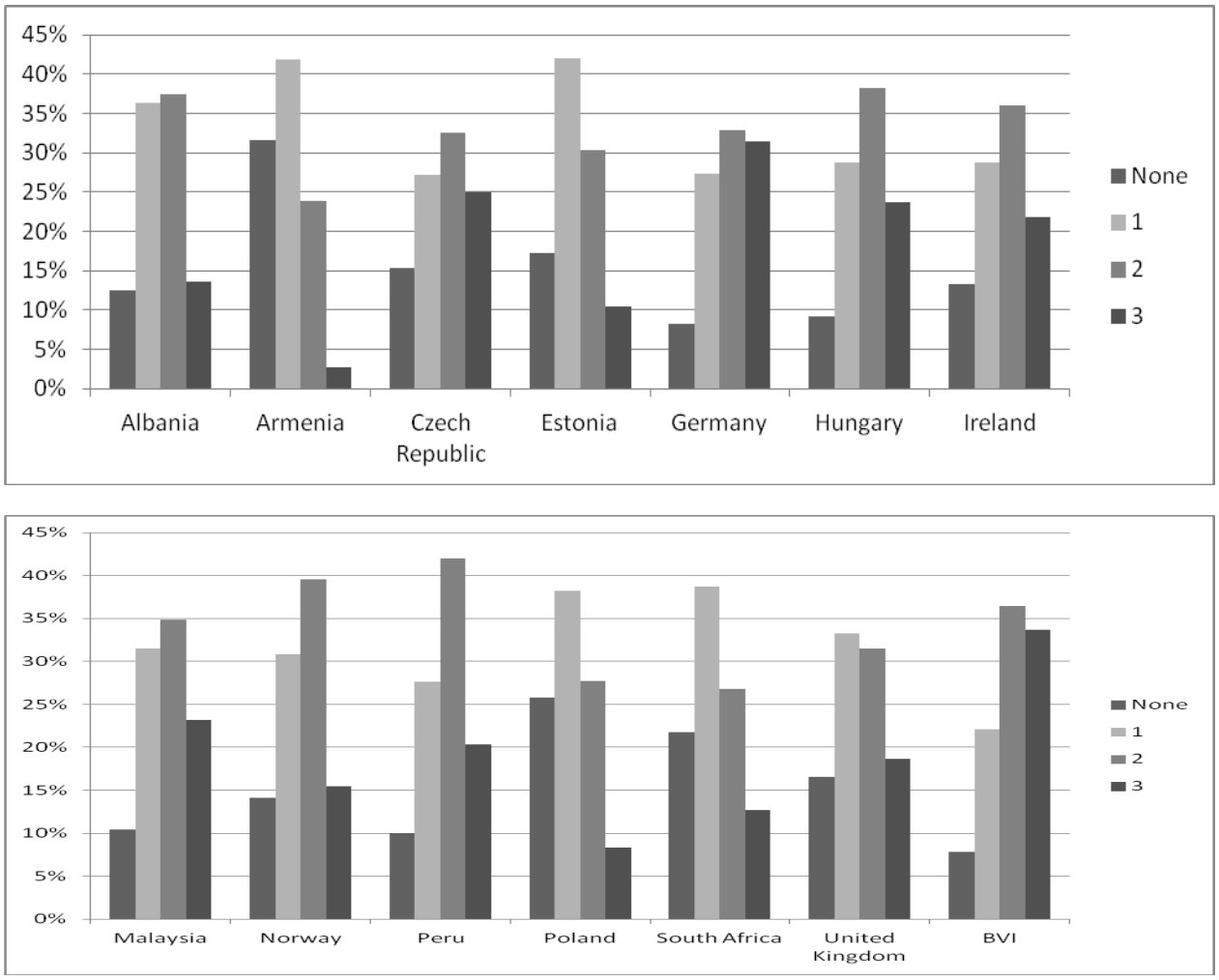
Segmenting the population

We have segmented the population of each country according to whether they gained a high score in 0, 1, 2 or 3 of the three components described above. Figure 14 shows quite clearly that there are two typical patterns. Whilst all countries have people in each of the clusters, some tend to have the highest proportion in the cluster with one high score, whilst for others the highest proportion has two high scores. Germany and BVI stand out for having large portions of the population scoring highly on each component, indicating a high overall level of financial literacy, whilst Armenia, Poland and South Africa have relatively large proportions of the population with low levels of financial literacy across the three measures.

It is of some concern that, typically, more than 10% of the population in each country have no high scores – the exceptions being Germany, Hungary, Peru and BVI.

Figure 14. Financial Literacy Segments

Number of high scores (far left 0 high scores; far right: 3 high scores)



Developing an overall measure of financial literacy

In order to assess overall levels of financial literacy, we have summed the three scores reported above for knowledge, behaviour and attitudes. This gives a simple measure that takes into account the various aspects of financial literacy, including financial planning for the future, choosing financial products and managing money on a day-to-day basis. The score can take a minimum value of 1, and a maximum value of 22.

As the three scores have different maximum values, the combined score is implicitly weighted. The most heavily weighted factor is behaviour. This is appropriate: behavioural questions make up a large part of the questionnaire because financial behaviour is seen as a key component in financial literacy[26]. Financial knowledge also makes up a large percentage of the final score. Financial knowledge and behaviour are the two aspects of financial literacy most typically targeted by financial education initiatives.

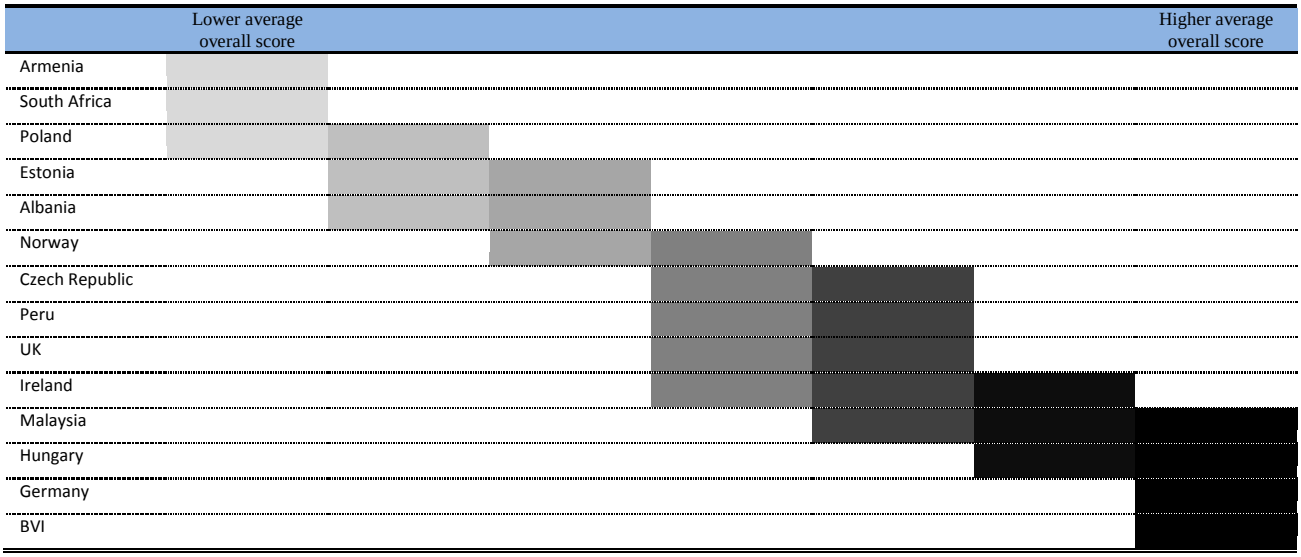
[26] Exploratory factor analysis also suggests that knowledge and behaviour should be weighted more heavily than attitudes.

The score also contains a small component of attitudes towards money, and particularly towards planning for the future.

Figure 15 shows that the countries can be grouped into 7 subsets with largely similar overall scores. Armenia, South Africa and Poland show the greatest room for improvement, whilst Malaysia, Hungary, Germany and BVI have statistically similar, high scores.

Taking an average of the country scores (not shown)[27], we find that countries typically score around 13.7. Scores in the Czech Republic, Germany, Hungary, Ireland, Norway, Malaysia, Peru, the UK and BVI are above this average.

Figure 15. Country groupings by average overall financial literacy scores



Shaded boxes indicate homogenous groups of countries, computed in IBM SPSS19 using Scheffe Homogenous Subsets. Average scores range from 12.4 to 15.1.

[27] This average figure gives each country equal weight, regardless of population or sample size.

VARIATIONS BY SOCIO-DEMOGRAPHICS

We have used several approaches to look at the association between socio demographic factors and the financial literacy of consumers. Firstly, we have created tables that show the proportion of people within a particular demographic who fall into each segment described above. We have also looked at the average overall score for each demographic; and finally we have used multivariate linear regression analysis to explore the associations across several demographic categories simultaneously.

For this analysis, we have focused on key socio-demographic information: gender, age, education level, work status and income. We have also taken into consideration attitude towards risk and income stability, as initial discussion with participating countries suggested that these may be important explanatory factors in understanding variations in financial literacy.

We have paid particular attention to variations in gender, to inform ongoing research on the financial education needs of women. To our knowledge, this is the first time that such analysis has been undertaken at the international level.

We intend to undertake further analysis in the coming year to explore the extent to which other variables may explain levels of knowledge, behaviour and attitudes as well as overall levels of financial literacy.

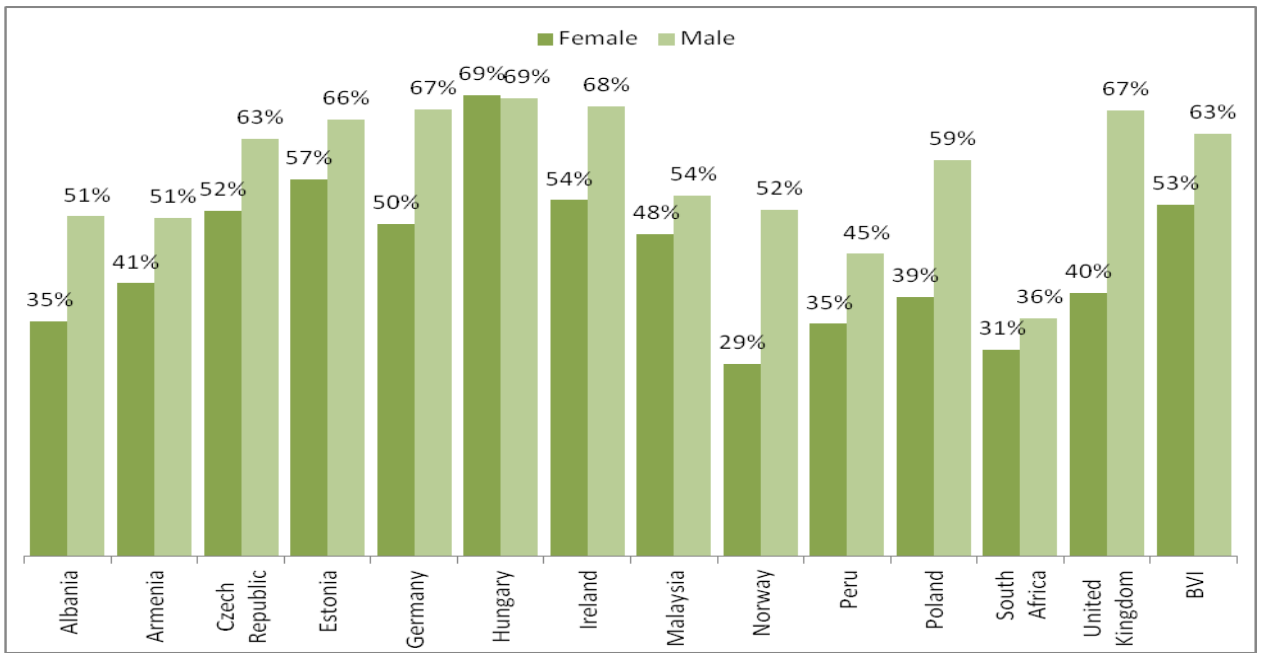
Gender

We can see from Figure 16 that a larger proportion of male respondents than female respondents gained high scores in knowledge in 13 of the countries studied. This is particularly marked in Norway, Poland and the UK with more than a 20 percentage point difference. There was no difference in the proportion of men and women gaining high scores in Hungary – this is an important finding that cannot be explained by the different wording of one question.

In 8 of the countries surveyed, fewer than half of women gained a high knowledge score; in comparison there are just 2 countries where less than 50% of men achieved such a score. It appears that in almost all countries where the average level of knowledge was relatively high, women were less knowledgeable than their male counterparts.

We intend to investigate these findings in greater detail, and to look at the strategies in place within countries to understand why they appear to be enhancing the knowledge of men rather more quickly than that of women.

Figure 16. High knowledge score by gender

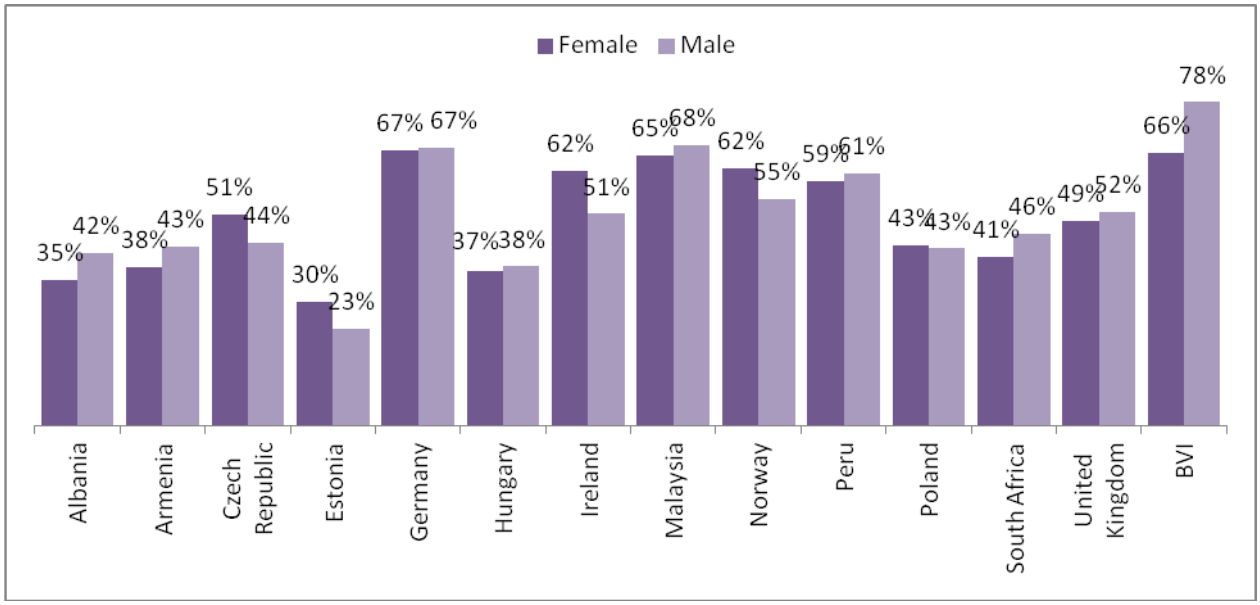


Base: all respondents.

There were no differences in the proportions of men and women gaining high behaviour scores in Germany and Hungary (Figure 17) and only 2 countries show a difference of more than 10 percentage points (Norway and Ireland). In some countries, more men than women gained high marks (Albania, Armenia, Malaysia, South Africa and the UK), whilst in others (Czech Republic, Estonia, Ireland and Norway) women were more likely than men to achieve a high score.

It is intriguing that this preliminary analysis suggests that the gender differences that are so apparent in the knowledge component are not entirely reflected in financial behaviours. This may be because many financial behaviours are undertaken at a household level – such as saving or choosing products - whilst knowledge is entirely at the household level. Even when the survey is designed to collect information about individuals it is inevitable that their behaviours will reflect household decisions. We will explore this further in future analysis, including looking at differences in single adult households.

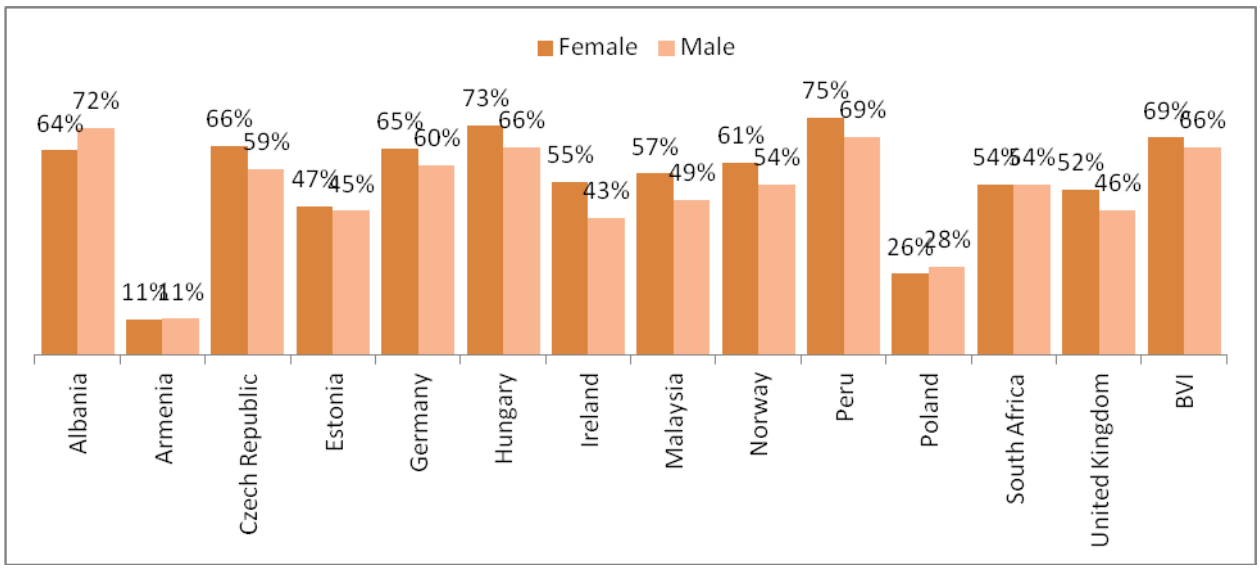
Figure 17. High behaviour score by gender



Base: all respondents.

Analysis of the average attitude scores (Figure 18) shows that in most countries women were more likely than men to have high attitude scores – showing that they typically had a more positive attitude towards the longer term. Only in Albania and Poland were men more likely than women to have attitudes that tended towards longer term preferences. In Armenia and South Africa there was no difference in attitudes by gender.

Figure 18. High attitude score by gender

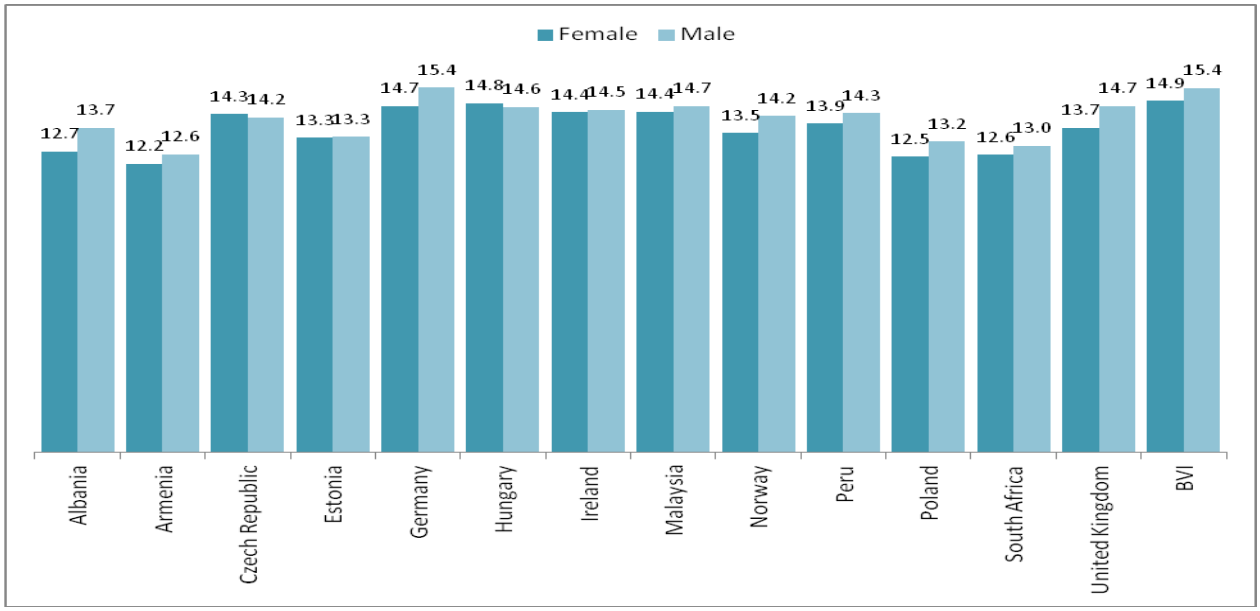


Base: all respondents.

In Albania, Estonia, Germany, Poland and the UK women were more likely than men to have no high scores (Table 23). This is not the case in other countries. In Hungary, men are over-represented in the lowest segment (showing that they were more likely than women to have no high scores), and the gender spread of the other categories is similar to the population as a whole. In South Africa, women were slightly more likely to have just one strength, and less likely to fall into the highest category.

Figure 19 below shows that in some, but not all countries there was a small variation in overall score by gender. In no country did women score significantly more than men; almost certainly because of the large differences in levels of knowledge in most countries. The Czech Republic, Estonia, Hungary, Ireland and Malaysia exhibit no significant gender difference in overall score. Conversely, women scored significantly less in Albania, Armenia, Germany, Norway, Poland, South Africa, the UK and BVI.

Figure 19. Mean overall score by gender



Base: all respondents.

Age

We might expect financial literacy to increase with age, as people become more knowledgeable, and their attitudes and behaviours change accordingly. However, there are two mediating factors that may reduce the financial literacy of the eldest respondents:

- There is likely to be a cohort effect that impacts on older consumers. Older people, with experience of a very different financial marketplace may find it difficult to keep up with the fast pace of change in the financial market place, including the introduction of new technologies.

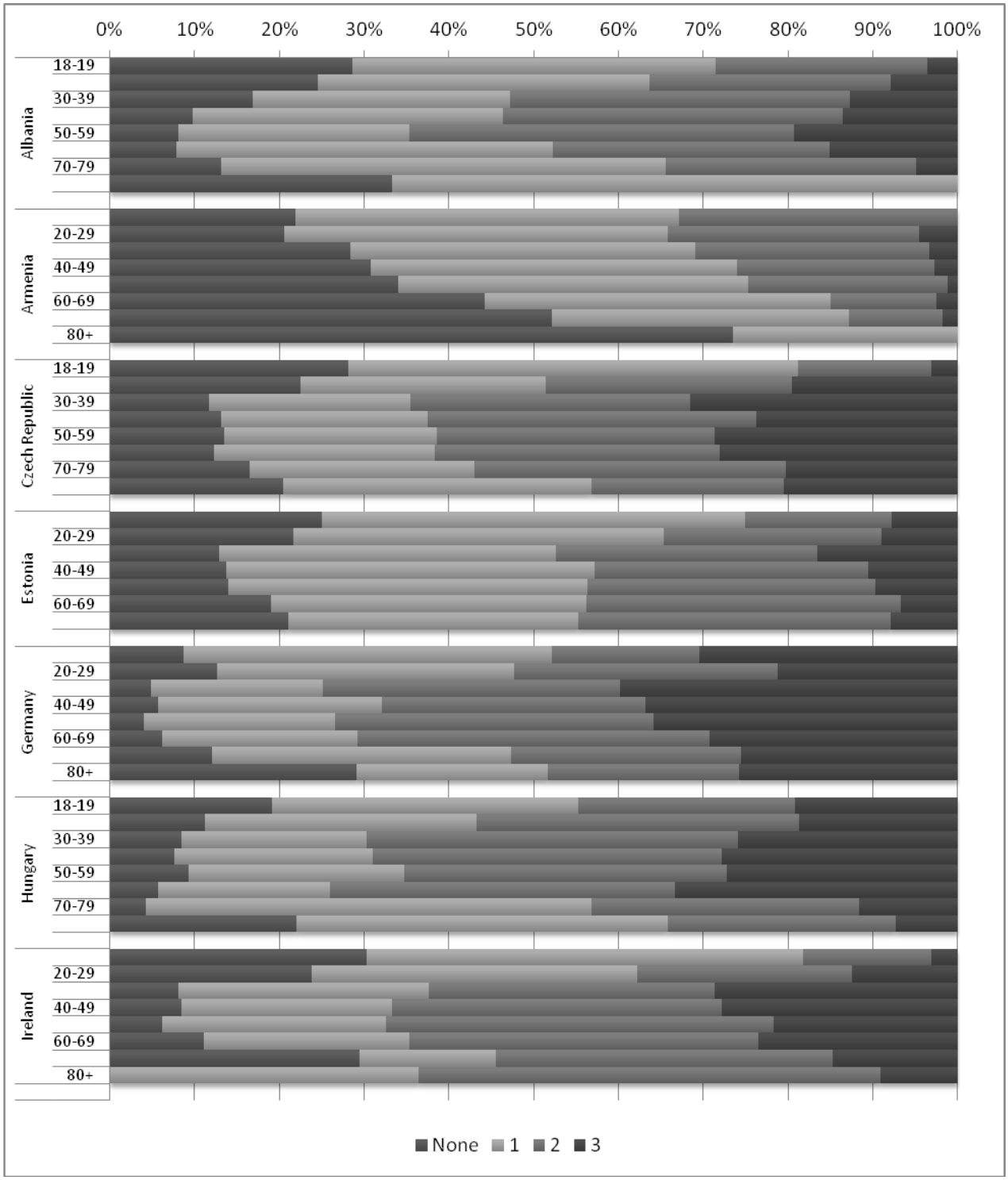
- Cognitive deterioration may reduce the extent to which the oldest consumers can retain and apply financial knowledge.

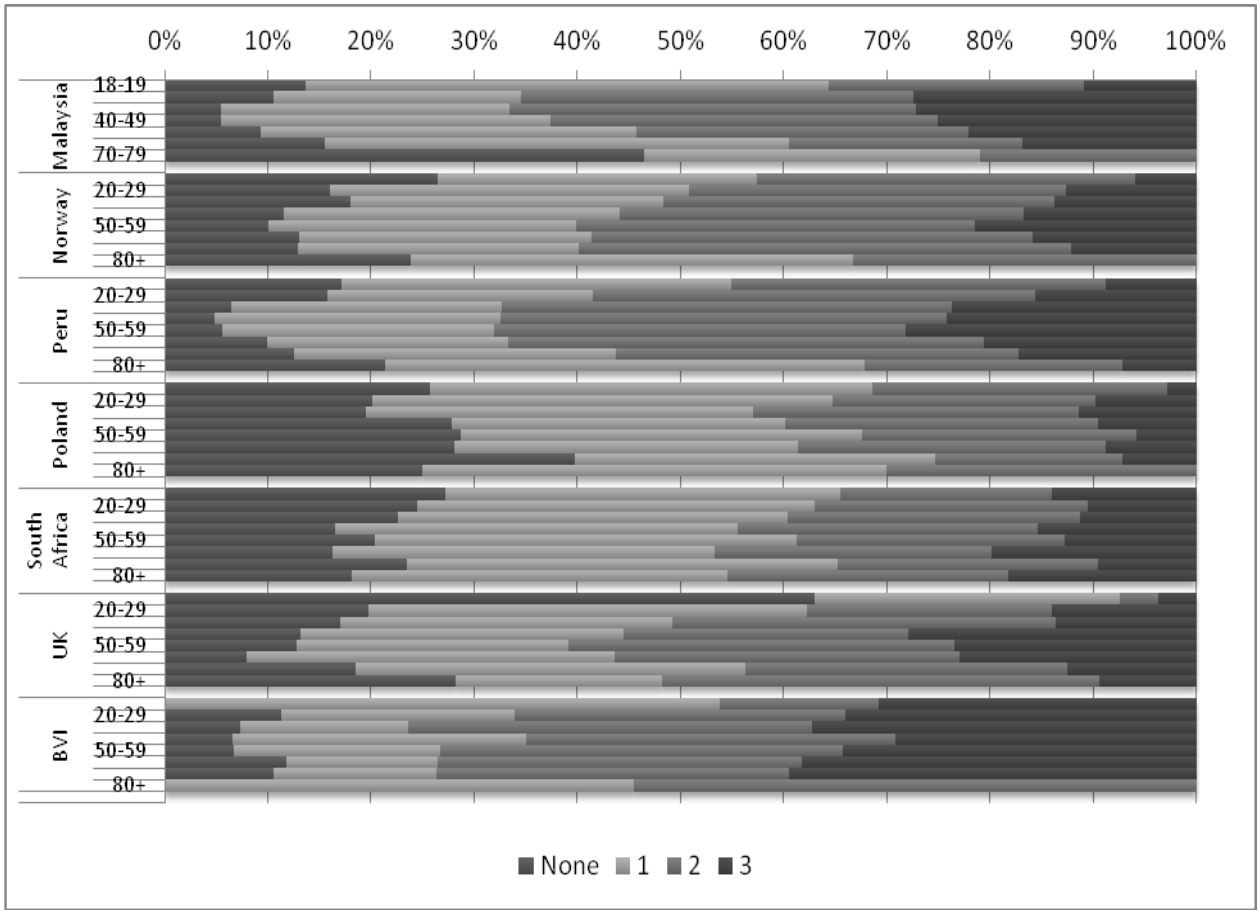
In Figure 20 we see that respondents with 3 high scores were most likely to be aged around 30-60. Conversely, the youngest and oldest respondents were most likely to have no high scores[28]. However, this pattern is less apparent in Armenia, Poland and South Africa. In Armenia, the number of people with no high scores rises steeply with age, whilst in Poland and South Africa there is no clear relationship.

[28] Note that if there was no difference by age we would expect the same sized bands of colour for each row. Statistical tests confirm that in every country except BVI, average overall scores (not shown) vary significantly by age.

Figure 20. Financial literacy segments by age

Proportion in each segment, by age (Equivalent to row percentages by country)





Base: all respondents. Each bar reports the proportion of people within that age group who fall into each of the financial literacy segments.

Income

A high level of financial literacy is possible at all income levels. Income itself does not impact on the ability of someone to gain knowledge, to form attitudes conducive to their own financial wellbeing or to exhibit positive behaviours. However, low income is often seen as an explanation for certain behaviours – such as borrowing to make ends meet, and used as a reason not to undertake actions such as saving or making long term plans. Furthermore, low income may also be associated with other socio-demographic factors that have been shown to be associated with financial literacy, such as age[29].

The financial literacy questionnaire includes a single question to give a general impression of the household income of each respondent. As it is often difficult to get people to divulge income, the question was left quite general in order to maximise responses. This question was fine-tuned by participating countries to ask whether income fell into one of three bands, reflecting income at, below or above national medians. In the results below we only analyse data amongst the section of the population who responded to this question[30].

[29] It is for this reason that we also report the findings from initial regression analysis to explore whether income is associated with levels of financial literacy even after controlling for other factors.

[30] In the regression analysis that follows, we have included a 'dummy' variable to identify those who refused to state their income, to check whether they are systematically different.

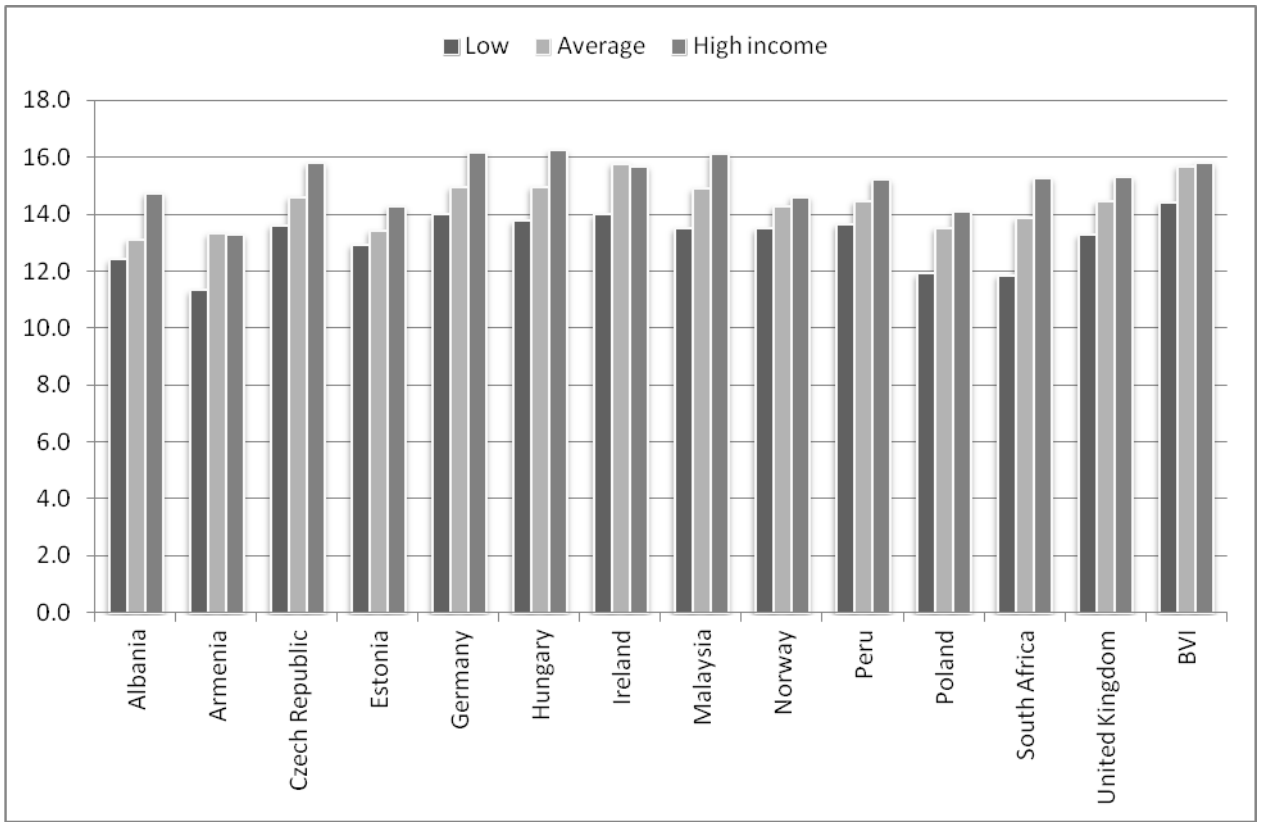
The segment with no high scores includes a high proportion of people with low incomes (Table 24). Conversely, high income respondents are typically over-represented in the segment with 3 high scores.

Overall the pattern indicates that respondents from the higher income households in each country were more than likely to be in the highest scoring segments. This pattern is less marked in Estonia and Norway but particularly noticeable in the Czech Republic, Hungary, Ireland, Malaysia and South Africa.

Further analysis by income confirms that in general higher income is associated with higher average scores (Figure 21)[31]. However, in Armenia and Ireland, middle income consumers were, on average, the most financially literate and in Norway there was very little difference between the middle, and high income consumers.

It is quite possible that these differences are driven in whole, or in part, by mediating variables such as age or education level; we know that income varies by both age and education. However, this does not reduce the importance of the findings. Improving financial literacy amongst the poorest would clearly be welfare enhancing, helping them to make better use of their money, reducing the likelihood that they will make inappropriate decisions or ill-informed choices and potentially helping them to identify ways of increasing their income. It is also worth noting that the poorest consumers have less flexibility to 'learn by doing', as they cannot afford to make mistakes.

Figure 21. Average overall score by income



Base: all respondents with valid data on income. Caution necessary: Just 31 Armenian respondents had high income and 61 respondents in Ireland.

[31] Additional analysis indicates that the differences in scores by income are significant in every country.

Analysis by income stability (not shown) indicates that there were significant differences in average overall scores by income stability in every participating country except Hungary and Ireland. In all countries the average score was higher amongst those that reported that their income was regular and predictable, than those who said their income varied or that sometimes they did not receive it on time, if at all.

Education level

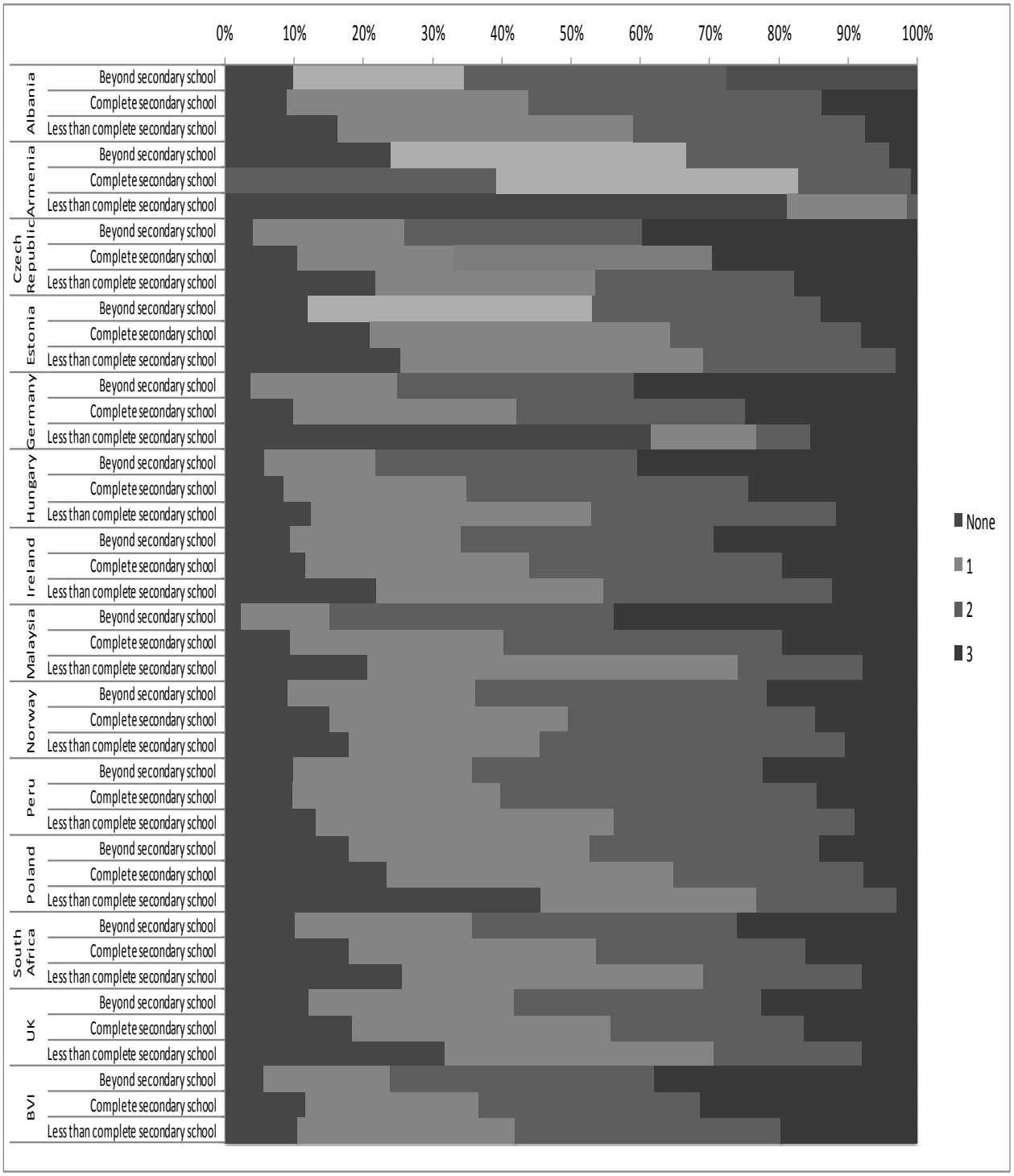
The core questionnaire captures detailed information about each respondent's highest level of education. For the purpose of an international comparison, we have combined several categories in order to provide insight into how financial literacy varies according to whether an individual has or has not completed secondary school, or has continued formal education beyond secondary school level.

We can see that there is a relationship between increased levels of education and high financial literacy scores in every country (Figure 22). In Germany the relationship is particularly strong, and Malaysia and Poland also have show a clear pattern with higher educated individuals more likely to have high financial literacy scores.

This initial analysis suggests that general levels of education impact on more than just knowledge. It is particularly striking in Armenia, Poland and Germany that many individuals with low levels of education had no high scores (Figure 22). However, it should also be noted that some people have achieved high scores despite low levels of education, indicating that high levels of financial literacy levels are possible even amongst those who have not completed formal education.

Figure 22. Financial literacy segments by education

Proportion in each segment, by education (Equivalent to row percentages by country)

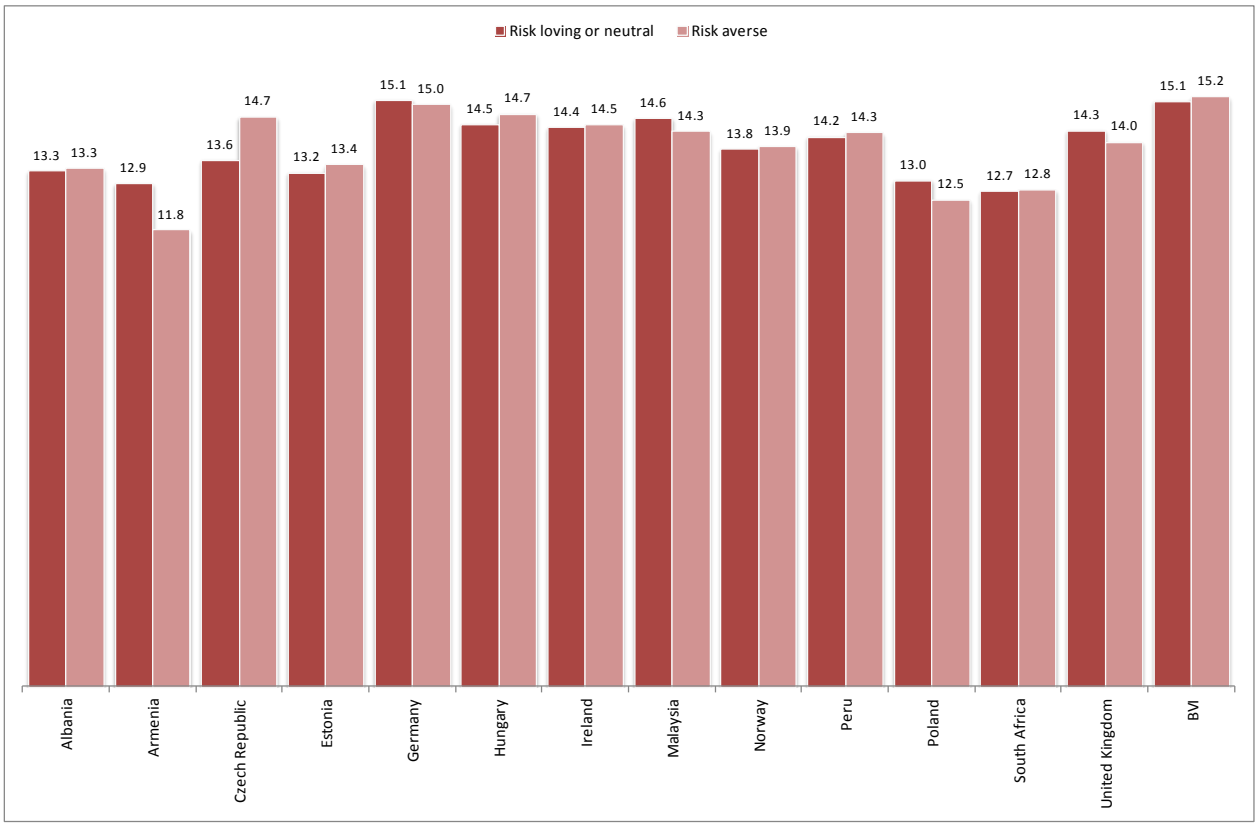


Base: all respondents with valid data on education. Caution necessary on small bases for less than complete: Armenia (65) Germany (11) BVI (86).

Attitude to risk

During the initial stages of the questionnaire design, attitude to risk was identified as an important explanatory variable for measures of financial literacy. We have therefore looked at the average scores of those who disagreed (i.e. responded 4, or 5 on the scale) to the risk statement 'I am prepared to risk some of my own money when saving or making an investment' (Figure 23). Only the Czech Republic exhibits a noteworthy difference in scores by this attitude – risk averse respondents scored significantly more. However, statistical tests indicate that the relatively small differences in scores in Armenia and Poland are also statistically significant. Interestingly, it was the risk tolerant who scored slightly higher, on average, in Poland.

Figure 23. Average overall scores by risk aversion



Base: all respondents

Multivariate analysis

We know that various characteristics are associated with financial literacy. However, these characteristics are not observed in isolation and so it is useful to be able to undertake multivariate analysis to understand the full picture. Judging by the findings discussed above, it is also likely that the extent to which scores are associated with characteristics will depend on the country being analysed.

We have therefore run a series of regression analyses for each country.

The first set of analyses controls for characteristics that cannot be chosen or influenced by the participant (age and gender, table not shown). This preliminary check indicates that once the impact of age has been taken into account, men score significantly higher than women in 9 of the pilot countries; there is

no country where women score significantly higher than men. Financial literacy also appears to typically increase with age up to the age of 69 although in Malaysia respondents over the age of 60 have significantly lower scores than those aged 20-29 (after controlling for gender differences). In Armenia, young adults aged 18 -39 have significantly higher levels of financial literacy than other age groups, once gender differences are controlled for.

The second set of analyses focuses on a wider range of socio-demographic and personal characteristics that may be associated with financial literacy (gender, age, income, education, attitude to risk: Table 9). Gender remains significant in 8 of the survey countries even after controlling for these other factors. Only in South Africa do the other factors appear to outweigh any apparent differences by gender.

It is interesting that once we control for other factors such as education and income, older participants appear to be more financially literate in several of the pilot countries - this indicates that it is not simply the impact of age, but factors associated with it (such as reduced income or lower levels of education) that result in lower scores. For example, in Ireland, individuals on a low income have significantly lower scores, as do those with incomplete schooling, and once this is taken into account, scores are significantly higher amongst all adults over 30 than amongst younger adults.

In every pilot country, education is significantly related to overall scores, even after controlling for income, age and gender. In every country except the Czech Republic[32], scores are significantly higher amongst respondents that have continued their education compared with those who stopped when they completed secondary school even after controlling for other factors.

The influence of risk aversion on financial literacy varies by country. We have identified those people who disagreed that they were prepared to risk some of their own money when saving or making an investment (putting themselves at 4 or 5 on a scale from 1 to 5). In Armenia, risk averse people are less likely to be financially literate than their risk tolerant counterparts; whilst in Czech Republic, Hungary and South Africa, a risk averse attitude is associated with higher levels of financial literacy. This is something that we intend to explore further in the future, particularly to understand which aspects of financial literacy are most strongly associated with attitudes to risk.

32. In the Czech Republic the relationship between education and financial literacy is also positive although it is not statistically significant once factors such as age and income are taken into account.

Table 9. Regression results indicating significant variables and direction of association

The dependent variable is the overall financial literacy score at country level.

	Gender	Age	Income	Income stability	Education	Risk aversion
Albania	Male (+)	u20 (-) 30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+)	High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
Armenia	Male (+)	60-69 (-) 70-79 (-) 80+(-)	Low (-)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	Risk averse (-)
Czech Republic		u20 (-) 30-39 (+) 50-59 (+) 60-69 (+)	Low (-) High (+)		Incomplete schooling (-)	Risk averse (+)
Estonia		30-39 (+)	High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
Germany	Male (+)	30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+)	Low (-) High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
Hungary		30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+) 80+(-)	Low (-) High (+)		Incomplete schooling (-) Education beyond secondary school (+)	Risk averse (+)
Ireland	Male (+)	u20 (-) 30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+) 70-79 (+) 80+(+)	Low (-)		Incomplete schooling (-) Education beyond secondary school (+)	
Malaysia		u20 (-) 30-39 (+) 40-49 (+)			Incomplete schooling (-)	

	Gender	Age	Income	Income stability	Education	Risk aversion
		50-59 (+) 70-79 (-) 80+(-)			Education beyond secondary school (+)	
Norway	Male (+)	u20 (-) 50-59 (+) 60-69 (+) 70-79 (+)	High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
Peru		u20 (-) 30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+)	Low (-) High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
Poland	Male (+)		Low (-)		Incomplete schooling (-) Education beyond secondary school (+)	
South Africa		30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+)	Low (-) High (+)		Incomplete schooling (-) Education beyond secondary school (+)	Risk averse (+)
United Kingdom	Male (+)	u20 (-) 30-39 (+) 40-49 (+) 50-59 (+) 60-69 (+) 70-79 (+) 80+(+)	Low (-) High (+)	Stable (+)	Incomplete schooling (-) Education beyond secondary school (+)	
BVI	Male (+)				Education beyond secondary school (+)	

Explanatory variables considered significant with p values of 0.05 or less. (+) & (-) signs in parenthesis signify a positive or negative association. Age comparison is 20-29.

CONCLUSION AND NEXT STEPS

This paper shows that it is possible to apply the same set of questions to very different populations around the world and create simple, meaningful indicators of financial literacy. Combining each of the indicators provides a way of capturing overall levels of financial literacy.

The findings highlight reasons for concern. It appears that most people have some very basic financial knowledge, but understanding of other, everyday financial concepts such as compound interest and diversification is lacking amongst sizeable proportions of the population in every country. There is also some indication that certain respondents are over-confident, in that they have given incorrect responses rather than admitting that they do not know the answer. Furthermore, some countries need to work particularly hard to ensure that women are not left behind: women have lower levels of financial knowledge than men in almost every country studied.

This exercise shows that, with the exception of BVI (29%), in all of the countries surveyed at least 3 in 10 respondents failed to score at least 6 on the behaviour measure. This suggests that certain people could benefit from initiatives designed to change their behaviour. In some countries such an effort would be consistent with consumer attitudes that are largely positive towards longer term plans, whilst in others policymakers would need to take into account the short term preferences of the majority of the population.

Analysis of the relationship between behaviour and knowledge suggests a positive association in every country: when knowledge increases so does behaviour. This does not prove causation, and much more research is needed to understand the relationship between these variables. It may be that improved knowledge leads to more active participation in financial markets and more positive behaviours, but it is also possible that people who need to do something seek information, thus increasing their knowledge. Alternatively, knowledge and behaviour may be mutually reinforcing, so that people do something, learn a little, do more and continue to improve their level of knowledge in a continuous cycle.

There is also a positive association between attitudes and behaviour. People with a positive attitude towards the longer term are more likely to be exhibiting financial behaviours than those with a preference for the short term. This relationship also warrants further investigation.

Analysis by socio-demographics suggests that inequality in opportunities may be preventing individuals from being more financially literate. In particular, low levels of education and income are associated with lower levels of financial literacy, suggesting that certain groups may currently be excluded from activities and learning opportunities that would improve their financial wellbeing. The evidence also suggests the need to support women in several of the countries studied.

It is clear that the data collected for this pilot exercise provides the first ever rich and detailed insight into the financial literacy of diverse populations. We intend to analyse the data in much more detail to address issues raised in this initial analysis, such as the relationship between risk aversion and financial literacy, and to further explore areas such as:

- which aspects of knowledge and behaviour people struggle with most;
- the issue of confidence in relation to financial knowledge (by analysing the 'don't know' responses);
- the relationship between knowledge and specific behaviours
- the relationship between attitudes and specific behaviours
- the relationship between financial literacy and individual's socio-demographic characteristics, with a particular focus on gender, age and education;
- the extent to which people are financially included and active consumers;
- the extent to which the measures of financial literacy can be used to predict outcomes such as having sufficient savings to cover unexpected income shocks.

The results of this analysis provide evidence from which the participating countries can identify needs and gaps and develop appropriate national policies and strategies. The data provides a sound empirical evidence base from which to inform the current revision and elaboration of OECD recommendations on financial education, including the new high-level principles on national strategies for financial education (2012 Forthcoming). It will also enable us to inform the development of targeted financial education programmes.

It is intended that this pilot study will lead to a regular programme of data collection, analysis and reporting. The countries that participated in this pilot exercise will be encouraged to repeat the survey in 3 to 5 years time and for other countries to use the questionnaire to conduct their own survey. By analysing the data in a consistent way, we can develop a large dataset of indicators across countries and over time. Alongside this, we will continue to encourage programme evaluation, and other research to provide a detailed picture of financial literacy and the impact of financial education within each country.

ANNEX

Table 10. Participating country contacts and details of sample

Country	Contact	Organisations involved	Survey details
Albania	Oneda Andoni; Head of Foreign Relations, European Integration and Communication Department.	Carried out by Bank of Albania with the assistance of the Institute of Statistics	• Age 18+ • Useable sample 1,000 • Three step random sample: 1) Primary Select ion Unit 2) Families selected 3) Random selection of adult. • Face-to-face interviews • Main fieldwork in early 2011 • Only using INFE core questionnaire • Weights created based on socio-demographic data.
Armenia	Sevak Mikayelyan; Analyst, Consumer Protection and Market Conduct Division Central Bank of Armenia	Statistics Department of the Central Bank of Armenia	• Age 18+ • Useable sample 1,545 • Stratified sample: 1 stage in urban areas and 2 stages in rural areas. The sample size of each selected areas was defined proportional to population size • Face-to-face interviews • Main Fieldwork October to November 2010. • Only using INFE core questionnaire • Weights created based on socio-demographic data.
Czech Republic	Dusan Hradil; Ministry of Finance	Czech National Bank, Ministry of Finance STEM/MARK	• Age 18+ • Useable sample 1,005 (1,047 responded, but some incomplete scripts) • Face-to-face interviews • INFE core questionnaire combined with others: total 80 questions • Weights created based on socio-demographic data. • Piloted prior to full scale survey (main survey September 2010) Report available in Czech http://www.mfcr.cz/cps/rde/xchg/mfcr/xsl/ft_finvzd_vyzkum_gramot.html
Estonia	Leonore Riitsalu; Consumer Education Project Manager Financial Supervision Authority	Ministry of Finance	• Age 18+ • Useable sample 993 • Multi-stage probability random sampling • by regions and types of settlement (urban/rural) • Face-to-face interviews • Main Fieldwork November to December 2010. • INFE core questionnaire combined with 10 others • Weights created based on socio-demographic data

Germany	Michael Schiedermeier; Deutsche Bundesbank	Deutsche Bundesbank, GfK SE	• Age 18+ • Useable sample 1,005 • Random sample based on the ADM-Basis for CATI samples, all private phone numbers whether or not registered in directories. • Telephone interviews 1,441 calls were made • Main fieldwork November 2010 until January 2011 • Weights created based on socio-demographic data
Hungary	Mr. György Szalay; Head of Financial Literacy Centre	Central Bank of Hungary, GfK Hungaria	• Age 18+ • Useable sample 998 • (gross sample 3131) • Face-to-face interviews • Only using INFE core questionnaire • Weights created based on socio-demographic data, individuals in household, number of telephone lines.
Ireland	Verona Hanlon; Assistant Director Public Awareness & Financial Education Education & Advocacy National Consumer Agency	National Consumer Agency , Ipsos MRBI	• Age 18+ • Useable sample 1,010 • Stratified random sampling, sampling points selected proportion to population, random selection of adult in household • Face-to-face interviews • Piloted prior to full scale survey (main survey October to November 2010) • Only using INFE core questionnaire • Weights created based on socio-demographic data
Malaysia	Nizam Ibrahim; Jabatan Konsumer dan Amalan Pasaran Bank Negara Malaysia	Bank Negara Malaysia	• Age 18+ • Useable sample 1,046 • Multi Stage Stratified Random Sampling. Response rate 65% • Face-to-face interviews • Data collection period September to October 2010 • INFE Questions combined with others on household indebtedness and levels of literacy • Weights created based on socio-demographic data
Norway	Christian Poppe; National Institute for Consumer Research Ellen Nyhus; University of Agder	Data collected by TNS Gallup for University of Agder (UiA) and the National Institute for Consumer Research (SIFO). Funding from: Finansmarkedsfondet Skipskredittfondet Odinfondene Finanstilsynet	• Age 18+ • Useable sample 2122 • Web panel (robustness checks are possible as certain questions have also been added to a telephone omnibus). • Weights created based on socio-demographic data
Peru	Hugo Viladegut; Department of Education and Financial Inclusion Superintendencia de Banca		• Age 18+ • Useable sample 2254 • Weights created based on socio-demographic data

Poland	Aleksander Rychwalski; Department of Education Polish Financial Supervision Authority	Polish Financial Supervision Authority	• Age 18+ • Useable sample 1008 • Telephone omnibus survey • Questions used as part of a longer survey and also incorporating additional knowledge questions from INFE supplementary questions • Fieldwork September to December 2010 • Weights created based on socio-demographic data
South Africa	Lyndwill Clarke; Head, Consumer Education, FSB	FSB, Human Sciences Research Council	• Original sample of Age 16+ reweighted to be a sample of adults aged 18+. • Complex stratified multi-stage sample • Useable sample 3,112 • Face-to-face interviews • Fieldwork November to December 2010. • Weights created based on socio-demographic data
UK	Linda Groves; Money Advice Service	Money Advice Service	• Age 18+. • Useable sample 1579 • Fieldwork September 2010. • Only using INFE core questionnaire • Weights created based on socio-demographic data
BVI	Elise Donovan; BVI Financial Services Commission	Financial services Commission; Development Planning Unit. Interviews undertaken by students of the H. Lavity Stoutt Community College.	• Age 18+. • Useable sample 535. • Sample drawn from a random pool of anonymous telephone numbers: 1489 calls made. • Telephone interviews. • Only using INFE core questionnaire • Data unweighted; tested for representativeness across key socio-demographics

Table 11. Financial knowledge: division, time-value of money, interest paid on a loan

Responses to knowledge question (Column percentages by country, weighted data, all respondents)

	Division				Time-value of money				Interest paid on a loan			
	Refused	Don't know	Incorrect	**Correct**	Refused	Don't know	Incorrect	**Correct**	Refused	Don't know	Incorrect	**Correct**
Albania	1%	10%	-	**89%**	4%	25%	9%	**61%**				
Armenia	-	4%	10%	**86%**	1%	9%	6%	**83%**	-	7%	5%	**87%**
Czech Republic	2%	3%	2%	**93%**	1%	6%	13%	**80%**	3%	8%	1%	**88%**
Estonia	2%	3%	2%	**93%**	2%	7%	5%	**86%**	3%	9%	4%	**84%**
Germany	1%	5%	10%	**84%**	-	4%	35%	**61%**	1%	7%	3%	**88%**
Hungary		2%	2%	**96%**	-	5%	16%	**78%**	-	3%	1%	**95%**
Ireland		4%	3%	**93%**	-	7%	35%	**58%**	6%	6%	1%	**88%**
Malaysia	1%	5%	1%	**93%**	2%	14%	23%	**62%**	1%	6%	1%	**93%**
Norway*	-	20%	18%	**61%**	1%	3%	10%	**87%**	1%	16%	23%	**61%**
Peru	1%	3%	6%	**90%**	2%	7%	28%	**63%**				
Poland	4%	1%	4%	**91%**	1%	8%	14%	**77%**	1%	3%	11%	**85%**
South Africa	1%	10%	10%	**79%**	4%	13%	34%	**49%**	1%	12%	22%	**65%**
United Kingdom	-	8%	17%	**76%**	-	6%	33%	**61%**	-	8%	2%	**90%**
BVI		14%	**2%**	**84%**	1%	16%	9%	**74%**	1%	28%	5%	**60%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded. *The results reported for Norway under the Division column actually refer to an alternative questions posed: What is the nominal interest rate. Norway also slightly reworded the time value of money question, as they had not asked the previous question. Under interest for Norway we report responses to: What is meant by the effective interest rate.

Table 12. Financial knowledge: interest plus principle, compound interest

Responses to knowledge question (Column percentages by country, weighted data, all respondents)

	Calculation of interest plus principle				Compound interest AND Correct response to previous question *	
	Refused	Don't know	Incorrect	**Correct**	No	**Yes**
Albania	2%	45%	13%	**40%**	90%	**10%**
Armenia	1%	14%	33%	**53%**	82%	**18%**
Czech Republic	6%	20%	14%	**60%**	68%	**32%**
Estonia	4%	20%	12%	**64%**	69%	**31%**
Germany	2%	17%	18%	**64%**	53%	**47%**
Hungary	-	18%	20%	**61%**	54%	**46%**
Ireland	-	15%	9%	**76%**	71%	**29%**
Malaysia	1%	29%	16%	**54%**	70%	**30%**
Norway	-	3%	22%	**75%**	46%	**54%**
Peru	4%	20%	36%	**40%**	86%	**14%**
Poland	2%	2%	36%	**60%**	73%	**27%**
South Africa	4%	28%	24%	**44%**	79%	**21%**
United Kingdom	-	19%	19%	**61%**	63%	**37%**
BVI		27%	10%	**63%**	80%	**20%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.*Note that the compound interest question is only considered to be correct if respondents showed their ability to calculate interest plus principle in the previous question.

Table 13. Financial knowledge: risk and return, inflation, diversification

Responses to knowledge question (Column percentages by country, weighted data, all respondents)

	Risk and return				Definition of inflation				Diversification			
	Refused	Don't know	False	**True**	Refused	Don't know	False	**True**	Refused	Don't know	False	**True**
Albania	2%		21%	**77%**	2%		17%	**81%**	3%		34%	**63%**
Armenia	1%	16%	16%	**67%**	0%	10%	33%	**57%**	1%	12%	28%	**59%**
Czech Republic	3%	10%	7%	**81%**	2%	13%	14%	**70%**	4%	34%	7%	**54%**
Estonia	1%	22%	4%	**72%**	1%	11%	2%	**85%**	2%	35%	6%	**57%**
Germany	1%	4%	16%	**79%**	0%	3%	10%	**87%**	1%	11%	28%	**60%**
Hungary	-	7%	6%	**86%**		3%	6%	**91%**	-	25%	14%	**61%**
Ireland	-	10%	6%	**84%**	-	8%	3%	**88%**	1%	34%	18%	**47%**
Malaysia		11%	8%	**82%**		14%	12%	**74%**		27%	29%	**43%**
Norway**	1%	20%	**18%**	61%	1%	16%	15%	**68%**	1%	37%	**51%**	11%
Peru	2%	16%	13%	**69%**	1%	4%	9%	**86%**	3%	29%	17%	**51%**
Poland	2%	37%	13%	**48%**	1%	12%	6%	**80%**	1%	31%	12%	**55%**
South Africa	1%	7%	19%	**73%**	1%	8%	13%	**78%**	1%	9%	42%	**48%**
United Kingdom	0%	9%	14%	**77%**	0%	3%	4%	**94%**	0%	22%	23%	**55%**
BVI**		6%	11%	**83%**		7%	6%	**87%**		39%	**41%**	20%

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.* If the respondent did not know how to calculate simple interest over 1 year, it is unlikely that they could calculate 5 times this amount, and therefore we have assumed that a correct answer to the follow-up question is a guess.**For Risk and Return Norway asked When you buy shares you lend money to the company. False was the correct response. For diversification Norway and BVI asked Buying a single company's stock usually provides a safer return than a stock mutual fund: note that in this case False is the correct response.

Table 14. Behaviour: Before I buy something I carefully consider whether I can afford it

(Row percentages by country, weighted data, all respondents)

	Refused	Don't know	Never	2	3	4	Always
Albania	-	1%	4%	4%	4%	16%	70%
Armenia			1%	2%	6%	9%	81%
Czech Republic	1%	1%	2%	3%	18%	21%	54%
Estonia	-	4%	4%	4%	21%	20%	47%
Germany			4%	3%	11%	23%	59%
Hungary		-	2%	2%	10%	18%	68%
Ireland	-	-	2%	3%	12%	20%	63%
Malaysia	-		1%	1%	6%	14%	78%
Norway	1%	-	2%	12%	13%	41%	31%
Peru		-	1%	2%	6%	11%	80%
Poland	-	1%	4%	5%	20%	23%	47%
South Africa	1%	-	3%	3%	10%	21%	62%
United Kingdom		-	6%	4%	13%	15%	62%
BVI		4%	2%	2%	5%	15%	72%

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 15. Behaviour: I pay my bills on time

(Row percentages by country, weighted data, all respondents)

	Refused	Don't know	Never	2	3	4	Always
Albania	-	3%	3%	6%	11%	30%	48%
Armenia			1%	1%	5%	13%	81%
Czech Republic	2%	-	1%	2%	9%	20%	65%
Estonia	1%	3%	1%	2%	10%	19%	64%
Germany			-	-	3%	13%	83%
Hungary	1%	1%	2%	2%	12%	16%	66%
Ireland	0%	-	1%	3%	11%	20%	64%
Malaysia	3%		4%	5%	19%	30%	39%
Norway	1%	-	5%	10%	5%	29%	50%
Peru	-	-	1%	1%	12%	18%	68%
Poland	1%	1%	2%	4%	14%	21%	57%
South Africa	2%	3%	9%	6%	19%	26%	35%
United Kingdom		0%	3%	1%	6%	9%	80%
BVI		4%	1%	2%	10%	19%	64%

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 16. Behaviour: I keep a close personal watch on my financial affairs

(Row percentages by country, weighted data, all respondents)

	Refused	Don't know	Never	2	3	4	Always
Albania	-	1%	3%	8%	17%	**35%**	**36%**
Armenia			4%	4%	11%	**16%**	**65%**
Czech Republic	1%	-	3%	5%	15%	**25%**	**51%**
Estonia	1%	2%	2%	4%	14%	**23%**	**55%**
Germany			1%	2%	9%	**23%**	**64%**
Hungary	-	-	8%	5%	15%	**16%**	**54%**
Ireland	-		1%	3%	10%	**21%**	**64%**
Malaysia	2%		2%	2%	15%	**29%**	**50%**
Norway	1%	-	1%	3%	6%	**34%**	**55%**
Peru	-	1%	1%	19%	2%		**68%**
Poland	1%	1%	2%	4%	12%	**23%**	**58%**
South Africa	2%	1%	7%	8%	17%	**28%**	**37%**
United Kingdom	-	-	4%	3%	12%	**15%**	**65%**
BVI		**4%**	**3%**	**2%**	**11%**	**20%**	**59%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 17. Behaviour: I set long term financial goals and strive to achieve them

(Row percentages by country, weighted data, all respondents)

	Refused	Don't know	Never	2	3	4	Always
Albania	-	6%	15%	27%	22%	**19%**	**12%**
Armenia			15%	9%	18%	**15%**	**43%**
Czech Republic	4%	1%	18%	15%	26%	**18%**	**19%**
Estonia	2%	11%	12%	13%	21%	**19%**	**22%**
Germany	-		11%	6%	22%	**25%**	**36%**
Hungary		1%	13%	10%	24%	**21%**	**31%**
Ireland	1%	1%	12%	11%	20%	**23%**	**33%**
Malaysia	2%		7%	7%	20%	**34%**	**30%**
Norway	1%	1%	4%	18%	18%	**39%**	**19%**
Peru	1%	1%	9%	5%	12%	**16%**	**55%**
Poland	1%	2%	14%	16%	22%	**21%**	**25%**
South Africa	2%	2%	12%	9%	19%	**24%**	**32%**
United Kingdom		1%	22%	9%	25%	**15%**	**27%**
BVI		**6%**	**5%**	**3%**	**17%**	**23%**	**45%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 18. Average behaviour score by country

	Mean	Min	Max
Albania	4.9	0	9
Armenia	5.0	0	8
Czech Republic	5.2	0	9
Estonia	4.5	0	9
Germany	5.9	1	9
Hungary	4.9	0	9
Ireland	5.6	0	9
Malaysia	6.0	1	9
Norway	5.5	0	9
Peru	5.7	0	9
Poland	5.0	0	9
South Africa	5.0	0	9
United Kingdom	5.5	0	9
BVI	6.1	0	8

Table 19. Attitude: I find it more satisfying to spend money than to save it for the long term

	Refused	Don't know	Completely agree	2	3	4	Completely disagree
Albania	1%	2%	7%	10%	20%	24%	37%
Armenia			56%	15%	21%	4%	4%
Czech Republic	2%	2%	10%	14%	26%	18%	27%
Estonia	2%	6%	19%	14%	21%	9%	30%
Germany	-	-	8%	12%	30%	20%	29%
Hungary	-	1%	5%	8%	30%	19%	37%
Ireland	-	-	15%	20%	27%	14%	24%
Malaysia	1%		19%	16%	18%	11%	35%
Norway	-	1%	4%	17%	21%	35%	23%
Peru	-	1%	11%	8%	15%	15%	50%
Poland	-	3%	28%	17%	33%	11%	8%
South Africa	1%	1%	11%	26%	14%	28%	20%
United Kingdom	-	1%	17%	12%	35%	14%	21%
BVI		6%	6%	8%	20%	19%	41%

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 20. Attitude: I tend to live for today and let tomorrow take care of itself

	Refused	Don't know	Completely agree	2	3	4	Completely disagree
Albania	1%	2%	3%	9%	18%	**25%**	**41%**
Armenia			19%	10%	11%	**7%**	**53%**
Czech Republic	1%	1%	8%	9%	13%	**18%**	**51%**
Estonia	1%	3%	16%	12%	18%	**14%**	**35%**
Germany	-	-	8%	7%	20%	**19%**	**46%**
Hungary	-	-	6%	8%	18%	**16%**	**52%**
Ireland	-	-	12%	16%	18%	**19%**	**35%**
Malaysia	1%		10%	13%	20%	**16%**	**41%**
Norway							
Peru	-	1%	11%	5%	11%	**15%**	**58%**
Poland	-	1%	19%	14%	20%	**21%**	**24%**
South Africa	1%	-	7%	19%	14%	**35%**	**25%**
United Kingdom		1%	15%	11%	24%	**16%**	**34%**
BVI		**6%**	**9%**	**6%**	**14%**	**21%**	**44%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 21. Attitude: Money is there to be spent

	Refused	Don't know	Completely agree	2	3	4	Completely disagree
Albania	1%	4%	15%	9%	25%	**21%**	**24%**
Armenia			74%	13%	11%	**1%**	**1%**
Czech Republic	2%	2%	14%	19%	35%	**13%**	**16%**
Estonia	1%	7%	28%	16%	24%	**9%**	**16%**
Germany	-		21%	14%	39%	**12%**	**14%**
Hungary	-	-	12%	13%	42%	**14%**	**19%**
Ireland	-	-	14%	23%	33%	**12%**	**18%**
Malaysia	1%		21%	22%	29%	**11%**	**15%**
Norway							
Peru	1%	2%	19%	11%	23%	**14%**	**31%**
Poland	-	1%	38%	24%	25%	**8%**	**4%**
South Africa	1%	-	14%	26%	18%	**22%**	**17%**
United Kingdom	-	1%	21%	15%	34%	**12%**	**17%**
BVI		4%	**21%**	**13%**	**32%**	**14%**	**17%**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 22. Average combined attitude scores

	Average combined score
Albania	**3.7**
Armenia	**2.3**
Czech Republic	**3.4**
Estonia	**3.1**
Germany	**3.4**
Hungary	**3.6**
Ireland	**3.2**
Malaysia	**3.2**
Norway	**3.6**
Peru	**3.7**
Poland	**2.6**
South Africa	**3.2**
United Kingdom	**3.1**
BVI	**3.5**

A dash [–] refers to more than 0 but less than 0.5%. Empty cells have no relevant observations, including those where the response was not recorded.

Table 23. Financial literacy segments by gender

Proportion in each segment (Row percentage by country)

		No Strengths	One strength	Two strengths	Strong on all components	All respondents (Unweighted count of non missing data)
Albania	Female	19%	38%	33%	11%	410
	Male	8%	35%	41%	16%	590
	All	13%	36%	38%	14%	1000
Armenia	Female	33%	44%	20%	2%	1042
	Male	29%	39%	28%	4%	503
	All	32%	42%	24%	3%	1545
Czech Republic	Female	16%	26%	32%	26%	532
	Male	15%	28%	33%	24%	473
	All	15%	27%	33%	25%	1005
Estonia	Female	19%	40%	30%	11%	580
	Male	15%	44%	31%	10%	413
	All	17%	42%	30%	10%	993
Germany	Female	10%	27%	34%	29%	548
	Male	6%	28%	32%	34%	457
	All	8%	27%	33%	32%	1005
Hungary	Female	7%	31%	36%	25%	533
	Male	11%	26%	41%	22%	465
	All	9%	29%	38%	24%	998
Ireland	Female	14%	26%	37%	23%	581
	Male	13%	32%	35%	20%	429
	All	13%	29%	36%	22%	1010
Malaysia	Female	11%	32%	33%	25%	423
	Male	10%	31%	37%	22%	623
	All	10%	32%	35%	23%	1046
Norway	Female	14%	32%	41%	13%	1126
	Male	14%	30%	38%	18%	991
	All	14%	31%	40%	15%	2117
Peru	Female	11%	28%	44%	18%	798
	Male	10%	28%	41%	22%	1456
	All	10%	28%	42%	20%	2254
Poland	Female	30%	39%	26%	6%	639
	Male	22%	38%	30%	11%	369
	All	26%	38%	28%	8%	1008
South Africa	Female	21%	44%	25%	10%	1798
	Male	23%	33%	28%	15%	1219
	All	22%	39%	27%	13%	3017
UK	Female	19%	36%	30%	15%	840
	Male	14%	30%	34%	22%	739
	All	17%	33%	32%	19%	1579
BVI	Female	10%	25%	33%	32%	305
	Male	5%	18%	40%	36%	230
	All	8%	22%	36%	34%	535

Table 24. Financial Literacy Segments by Income

Proportion in each segment, by household income (Row percentages by country).

		Number of high scores across three components				
	Income level	**No high scores**	**1**	**2**	**3**	**All respondents (Unweighted count of non missing data)**
Albania	Low	**19%**	**44%**	**33%**	**4%**	**380**
	Average	**12%**	**39%**	**39%**	**10%**	**321**
	High	**5%**	**26%**	**40%**	**29%**	**283**
	Total	**12%**	**37%**	**37%**	**14%**	**984**
Armenia	Low	**46%**	**39%**	**15%**	**1%**	**733**
	Average	**20%**	**45%**	**31%**	**4%**	**755**
	High	**23%**	**29%**	**46%**	**3%**	**31**
	Total	**32%**	**42%**	**24%**	**3%**	**1519**
Czech Republic	Low	**21%**	**29%**	**32%**	**19%**	**451**
	Average	**11%**	**26%**	**35%**	**28%**	**332**
	High	**7%**	**21%**	**34%**	**38%**	**139**
	Total	**15%**	**26%**	**33%**	**25%**	**922**
Estonia	Low	**19%**	**41%**	**31%**	**8%**	**363**
	Average	**16%**	**42%**	**32%**	**10%**	**375**
	High	**11%**	**46%**	**26%**	**17%**	**151**
	Total	**16%**	**42%**	**31%**	**11%**	**889**
Germany	Low	**10%**	**40%**	**29%**	**20%**	**249**
	Average	**9%**	**26%**	**35%**	**30%**	**347**
	High	**4%**	**19%**	**34%**	**44%**	**384**
	Total	**8%**	**28%**	**33%**	**32%**	**980**
Hungary	Low	**14%**	**35%**	**36%**	**15%**	**319**
	Average	**8%**	**25%**	**41%**	**26%**	**367**
	High	**6%**	**16%**	**37%**	**41%**	**141**
	Total	**10%**	**28%**	**38%**	**24%**	**827**
Ireland	Low	**15%**	**32%**	**37%**	**17%**	**558**
	Average	**5%**	**22%**	**42%**	**31%**	**176**
	High	**6%**	**20%**	**36%**	**38%**	**61**
	Total	**12%**	**28%**	**38%**	**22%**	**795**
Malaysia	Low	**16%**	**39%**	**32%**	**14%**	**431**
	Average	**8%**	**31%**	**34%**	**27%**	**410**
	High	**4%**	**17%**	**44%**	**36%**	**205**
	Total	**10%**	**32%**	**35%**	**23%**	**1046**
Norway	Low	**14%**	**32%**	**41%**	**13%**	**349**
	Average	**11%**	**31%**	**40%**	**18%**	**493**
	High	**12%**	**27%**	**40%**	**22%**	**905**
	Total	**12%**	**29%**	**40%**	**19%**	**1747**
Peru	Low	**13%**	**31%**	**40%**	**16%**	**822**
	Average	**8%**	**25%**	**45%**	**22%**	**793**
	High	**7%**	**20%**	**42%**	**31%**	**341**

	Number of high scores across three components					
	Income level	**No high scores**	**1**	**2**	**3**	**All respondents (Unweighted count of non missing data)**
	Total	**10%**	**27%**	**42%**	**21%**	**1956**
Poland	Low	**36%**	**37%**	**23%**	**4%**	**455**
	Average	**19%**	**43%**	**27%**	**12%**	**314**
	High	**11%**	**35%**	**41%**	**12%**	**144**
	Total	**26%**	**39%**	**27%**	**8%**	**913**
South Africa	Low	**27%**	**46%**	**20%**	**7%**	**1347**
	Average	**16%**	**31%**	**35%**	**18%**	**1327**
	High	**11%**	**25%**	**31%**	**33%**	**137**
	Total	**22%**	**39%**	**27%**	**13%**	**2811**
UK	Low	**21%**	**39%**	**31%**	**9%**	**478**
	Average	**14%**	**35%**	**29%**	**22%**	**453**
	High	**11%**	**25%**	**35%**	**29%**	**444**
	Total	**16%**	**33%**	**32%**	**20%**	**1375**
BVI	Low	**10%**	**25%**	**40%**	**24%**	**153**
	Average	**6%**	**15%**	**36%**	**42%**	**151**
	High	**5%**	**21%**	**31%**	**42%**	**153**
	Total	**7%**	**21%**	**36%**	**36%**	**457**

Caution should be taken when interpreting the results of the high income groups in Armenia and Ireland due to small bases.

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