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When will the penny drop?

Money, financial literacy and risk in the digital age

2017 report

Allianz

MASTHEAD

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ACADEMIC SUPERVISION

This survey and subsequent report were conducted and written by the International Pensions unit of Allianz and supervised by Annamaria Lusardi, professor at the George Washington University and director of the Global Financial Literacy Excellence Center.

How financially literate are Europeans?

Everyone every day makes important financial decisions. Whether you are a CEO negotiating a multi-billion euro deal, a young couple about to take out a housing loan or a student calculating the best deal for her lunch money, daily financial decisions are a given.

In today's world, ever more is being demanded of us as individuals in this regard. Deregulation, globalization and technological progress mean we face a wide array of financial choices. In many European countries, population aging has shifted the responsibility for decisions concerning complex issues, such as health and retirement, onto individuals.

Such decisions involve identifying our needs and choosing the most suitable solution from a vast range of sophisticated products. How each of us deals with this challenge will have an important bearing on the financial wellbeing we will experience throughout life.

In terms of retirement, for example, using an inappropriate financial instrument to accumulate wealth during working years or an incorrect strategy to spend down that wealth can have dramatic consequences in later years. Such costs may not only be high for individuals, but also for entire societies that may need to support their aging populations.

IF THE PENNY DROPS

According to the *Cambridge Dictionary*, "If the penny drops, you suddenly understand something." In German, the phrase "Wenn der Groschen fällt" has the same meaning. Originally used with allusion to the mechanism of a penny-in-the-slot vending machine, it describes what in modern terms is called an "aha moment," a point when one suddenly has an insight or realization.

TEN SNAPSHOT FINDINGS ON FINANCIAL LITERACY IN TEN EUROPEAN COUNTRIES

- More than ten years and a financial crisis after the first waves of financial literacy surveys, the results of this study confirm little has changed *(page 8)*
- Austria, Germany and Switzerland top the ranking in financial and risk literacy, while France, Portugal and Italy rank at the bottom, although similar patterns exist between countries *(page 8)*
- Risk-related concepts are the most difficult to grasp in all countries and the least understood, especially the concept of risk diversification *(page 9)*
- Women still lag behind men in terms of financial literacy, particularly in risk-related questions *(page 10)*
- A university degree does not automatically make someone a financial expert – although it helps *(page 12)*
- Millennials (under 35) have the lowest financial and risk literacy, though this may change later in life *(page 14)*
- Overall, people make poor financial decisions when set in real-life context *(page 23)*
- Longevity risk is the easiest to grasp: elderly respondents performed better than younger ones, still 40% gave the wrong answer *(page 21)*
- Diversification risk is the most difficult to understand: only 28% of respondents Europe-wide could identify the most suitable financial product *(page 20)*
- People with a good grasp of financial and risk concepts are twice as likely as those without to make better financial decisions *(page 24)*

FINANCIAL DECISIONS IN THE DIGITAL AGE

The digital transformation sweeping the financial industry should enable people to take greater control over their financial decisions. New technologies mean individuals can access a wealth of information on different products that can be highly customized to better serve their needs. Searching for, comparing and buying products can all now be done easily online – anywhere, anytime.

However, such a wealth of choices can also be daunting and yet another reason for many people to balk at making important financial decisions. This can also make it difficult for financial service providers to engage with consumers and develop and digitally deliver products that meet their needs.

It is therefore important for both policymakers and the financial industry to understand the extent to which people appreciate basic financial concepts and, in particular, risk as well as identify groups where these skills fall short. For this reason, Allianz has partnered with Professor Annamaria Lusardi in one of the largest financial and risk literacy studies ever undertaken in western Europe.

Professor Annamaria Lusardi

Denit Trust Endowed Chair of Economics and Accountancy at the George Washington University School of Business and director of the Global Financial Literacy Excellence Center

KNOWLEDGE WILL DELIVER BETTER RESULTS

"Financial literacy is an essential skill to thrive in today's changing economic environment. This is particularly the case for European countries, which are facing low interest rates and new financial and pension products and labor markets. Dealing with the changing nature of this situation requires lifelong learning.

Few studies exist that can provide a comparison of financial literacy among European countries. So, I am particularly happy to collaborate with Allianz not only on an extended measure of financial literacy, which incorporates knowledge of risk and concepts related to risk, but also that links financial literacy to financial decision-making.

It is particularly important to have accurate information about financial literacy to better serve the needs of different groups of the population and also design programs, products and policies that are evidence-based. The aim is to combine the expertise of academics and the financial industry so as to be better able to help individuals build an improved future for themselves, their family and society as a whole."

Anna Lusardi

SURVEY METHODOLOGY

In November 2016, Allianz surveyed 1000 people in each of 10 western European countries (Austria, Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Switzerland and the United Kingdom). The process was conducted online on a sample provided by the survey research company SSI (Survey Sampling International – www.surveysampling.com). The samples are representative of the population of each country with respect to age, sex and geography.[1] The questionnaire has been developed with the scientific support of Professor Lusardi, translated into the local languages by native-speaking professional translators and further refined by native-speaker professionals in communication to optimize the comprehensibility of the questions.[2]

Financial literacy was measured using questions assessing knowledge of fundamental concepts for financial decision-making *(see Appendix A)*. The questions were designed and developed by Professor Annamaria Lusardi and Professor Olivia Mitchell of the University of Pennsylvania and first administered to a sample of US respondents in 2004. This set of questions has since then been used in several other studies worldwide. The risk questions were designed by Professor Lusardi and Professor Peter Tufano of the University of Oxford and used in the 2009 TNS Global Economic Crisis Study.[3] Using questions included in previous academic work offers a unique opportunity to better understand how financial and risk literacy has evolved over the past five to 10 years *(see Appendix B)*.

The relationship between financial literacy and relevant financial outcomes (like borrowing behavior, planning and saving for retirement or investing behavior) is well documented in academic literature. This current study goes further by adding questions relating to risk concepts. It also examines the extent to which people who have a good understanding of financial and risk concepts are also better at recognizing the right financial product for a specific financial need in real-life situations *(see Scenario Description pages 18-20)*.

1 Post-stratification weights, using country-level population statistics on age and education are used for each country, to correct for possible nonresponse errors

2 To take the UK version of the survey, go to **http://bit.ly/2iOrnLQ**.

3 For details, see Lusardi, Annamaria, Schneider, Daniel J. and Tufano, Peter (2011), "Financially Fragile Households: Evidence and Implications" in *Brookings Papers on Economic Activity*, pp. 83-150 (Spring 2011)

Personal finance – a global crusade

Financial literacy emerged as an important key public policy challenge in the mid-2000s. Such was its momentum that *The Economist* in 2008 referred it as a "global crusade … to teach personal finance to the masses." Many studies have been conducted on the topic, revealing a widespread lack of understanding of basic financial concepts.

For example, Annamaria Lusardi and Olivia S. Mitchell first designed the three financial literacy questions used as part of this survey for a special module of the *2004 Health and Retirement Study (HRS)* in the United States. The findings of the 2004 study and subsequent studies revealed a low level of financial knowledge among the US population. Similar surveys undertaken in other countries, including Germany, Italy, the Netherlands, New Zealand, Russia and Sweden, concluded that even in countries with higher overall levels of financial literacy, there are still large socio-economic groups lacking a basic understanding of financial concepts.

BRINGING RISK INTO FOCUS

From previous surveys, it emerges that "risk" in particular is one of the most difficult concepts for people to grasp. Where this current survey differs is that it digs deeper into the understanding of "risk" in Europe.

The three fundamental financial literacy questions on interest rates, inflation and risk diversification (known as "The Big Three") were included in the survey. In addition, two questions **on risk concepts** (namely, the concept of expected value and the trade-off between risk and return) were featured *(see Appendix A)*, to provide one of the richest surveys conducted on financial and risk literacy in western Europe.

STRUCTURE OF THIS REPORT

Section II describes the results of both question sets, and aggregates the results of "basic financial" literacy (the questions on interest rate and inflation) and "risk" literacy (which includes the two new questions on expected value and trade-off between risk and return, as well as the one on risk diversification from The Big Three).[4]

Furthermore, a scenario-based approach has been developed to investigate how people approach financial decisions and the role financial knowledge has on them. **Section III** presents the results of this analysis.

When dealing with data on ten European countries that differ in their economic and cultural structure, a balance has to be struck between reporting in detail the results for the single countries and providing a more aggregate picture. This report has a stronger focus on the (surprisingly many) similarities emerging from the data rather than on the differences across countries. Specific country reports will follow in the future.

4 This is a slightly different aggregation criterion compared to the majority of previous studies which bind together only the answers to the "Big Three" questions to investigate financial literacy. In this study, the question on diversification is included as part of the risk questions and the remaining two are considered "basic" financial literacy questions.

Measuring financial literacy

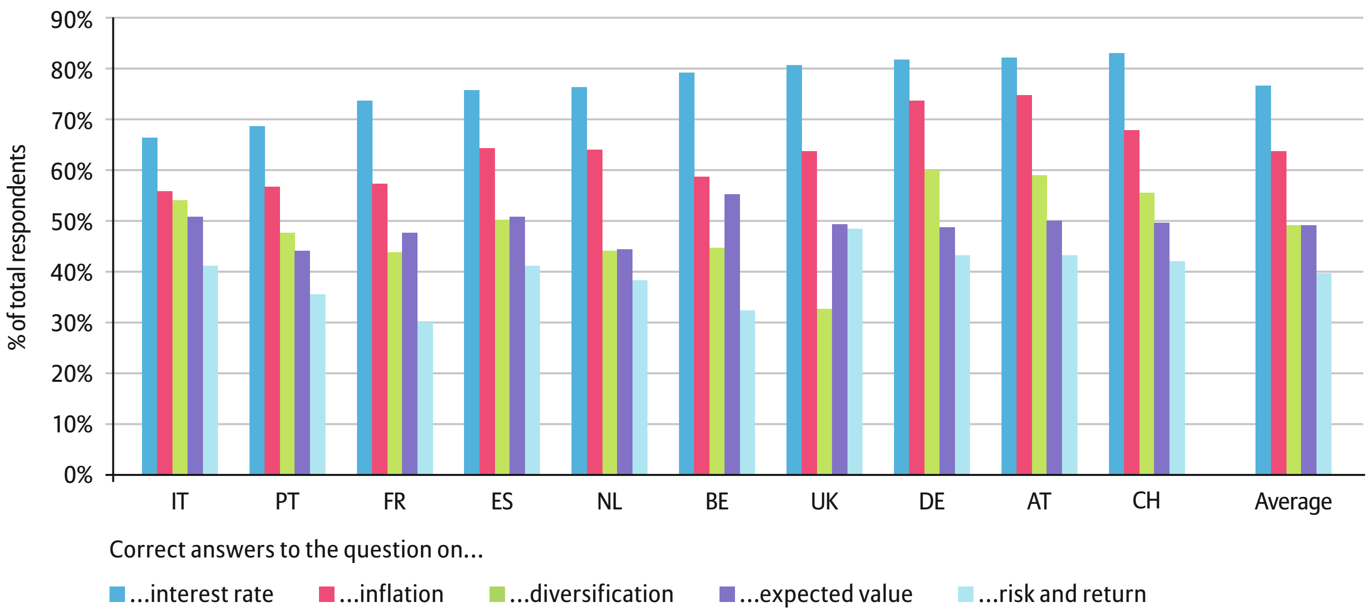
This section describes the results of the survey on the five financial and risk questions, as well as identifies the groups which know the least.

When the first studies measuring financial literacy came out more than a decade ago, the widespread lack of financial knowledge they revealed sparked a mixture of surprise and concern. More than ten years and a financial crisis later, the results of this Allianz study confirm little has changed. Significant gaps in the understanding of finance-related concepts, which are considered key for making sound financial decisions, still exist *(see Figure 1)*.

The data revealed that in each of the ten countries analyzed, basic concepts relating to interest rates and inflation are the easiest to grasp. On average, about three quarters of the respondents throughout Europe answered the interest rate question correctly and 63% answered the inflation question correctly. Nonetheless, it is surprising that, despite all of the attention devoted to financial topics as a side-effect of the financial crisis, the share of correct answers matches closely to results obtained in earlier studies *(see table in Appendix B)*.

The share of correct answers drops dramatically in all countries when it comes to the more complicated questions about risk. On average, less than 50% of respondents answered those questions correctly, although there are many cross-country differences in the response rates. In particular, the risk/return relationship appears the least understood in most countries.

Figure 1: Share of correct answers to the financial and risk literacy questions by country



Source: Allianz, International Pensions 2017

FINDING

People "don't know" about risk

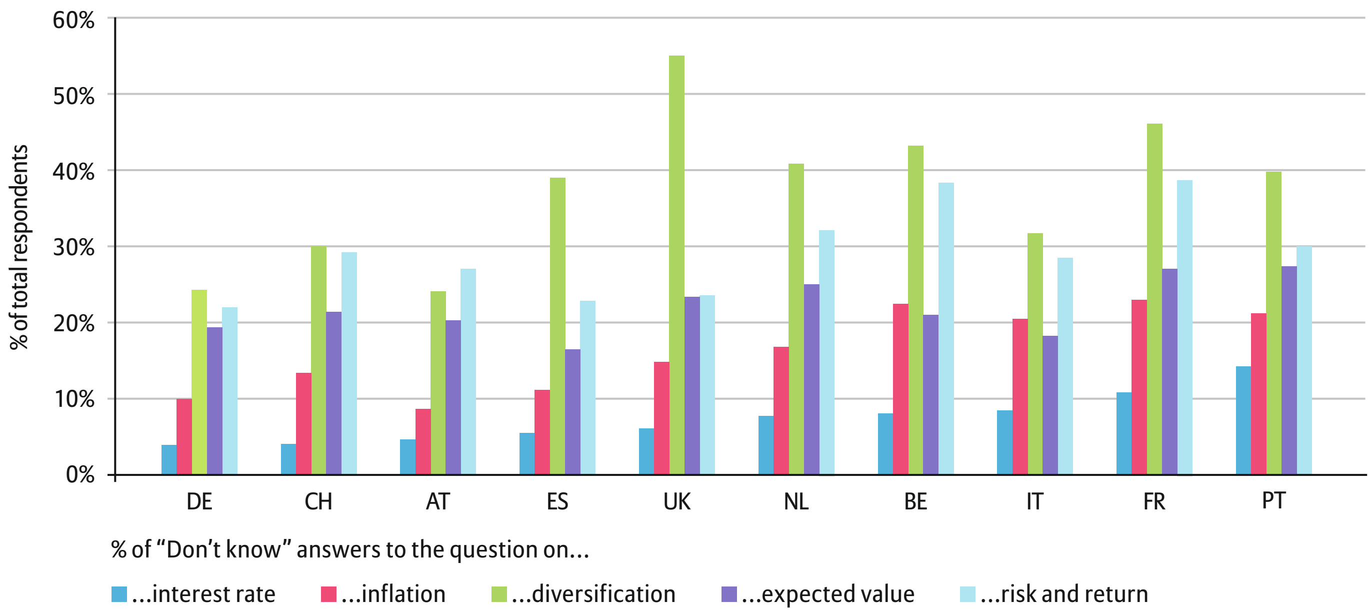
5 See, for example, Lusardi, Annamaria and Mitchell, Olivia (2014) "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature*, 52(1), pp. 5-44.

The lower share of correct answers to risk questions was due to the significant share of respondents answering "Don't know," rather than answering the question incorrectly. This is worrying information as previous studies have found that "Don't know" answers reveal a much deeper lack of knowledge than wrong answers.[5] The current data indicates a massive lack of understanding of risk and the workings of risk.

The question that received the highest share of "Don't know" answers was on risk diversification *(see Figure 2)*. This pattern is observed in all countries in the study, although the magnitude varies considerably, from a minimum of 24% of "Don't know" answers in Germany, to a maximum of 56% in the UK. Also note that this question was the only one that did not require participants to make any calculations, so lack of understanding is not simply due to lack of numeracy.

A possible explanation may relate to the wording: this was the only question which explicitly referred to financial market instruments, specifically "stock" and "stock mutual fund" and was heavy in financial jargon. Thus, this question may measure both knowledge of what stocks and mutual funds are and knowledge of risk diversification We also note that women were more likely to answer "Don't Know," a feature observable in all countries and remarkably in line with all previous studies on financial literacy. This is partially responsible for the lower performance of women compared to men. The next section provides a more in-depth analysis of this gender gap in financial knowledge.

Figure 2: Share of "Don't know" answers



Source: Allianz, International Pensions 2017

FINDING

Women still behind in financial literacy

6 See, for example, Lusardi, Annamaria and Mitchell, Olivia (2014) "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature*, 52(1), pp. 5-44.

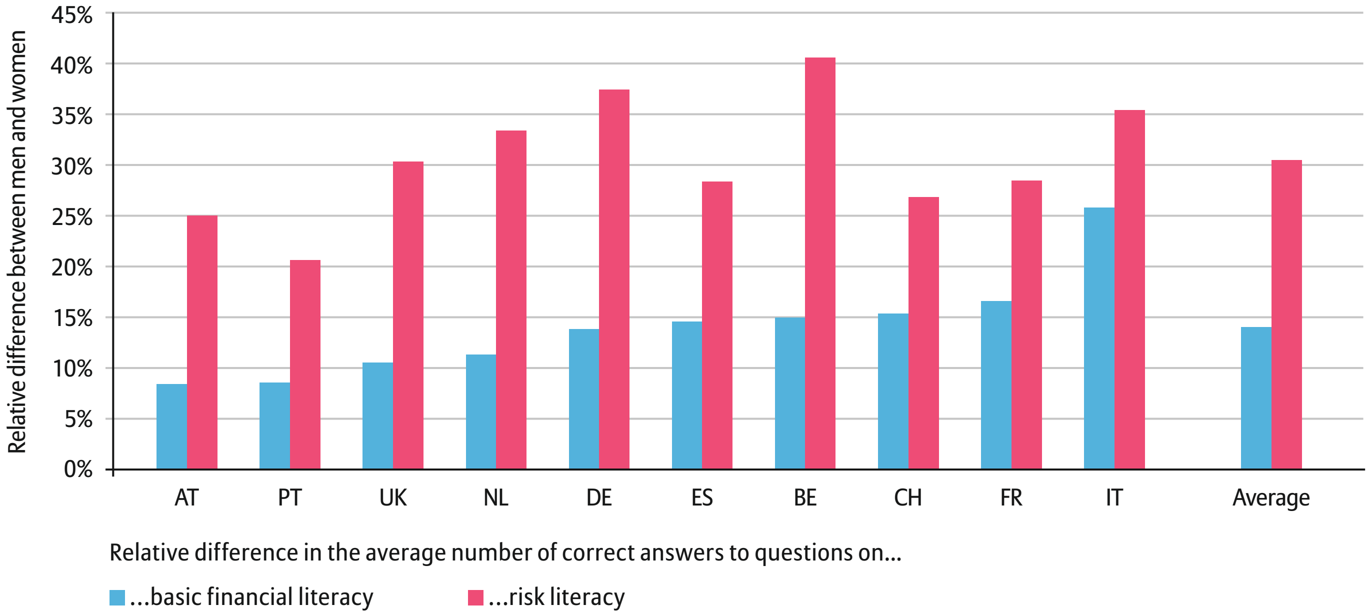
Previous studies have revealed that men systematically outperform women when it comes to financial literacy.[6] The results of this study also show that the gender gap persists across countries, age and education groups.

The Allianz survey revealed that the gender gap is much higher in the case of risk-related questions than in the case of the basic financial literacy questions. Across all countries, the average number of right answers of men is 14% higher than those for women on the two financial literacy questions, while it is 31% higher for the three risk-related questions *(Figure 3)*.

There is also a wide variation across countries. The gender gap in basic financial literacy questions stands out most strongly in Italy, where men answered correctly on average, men answered 25% more questions correctly than women. In comparison, in Austria, correct answers provided by men outnumbered those of women by only 8%.

When it comes to risk literacy questions, Belgium is the country with the highest gender gap, followed by Germany. Portugal, at the other end of the distribution, is the country where both genders have a similar, albeit low, understanding of risk concepts.

Figure 3: Relative gender gap by countries and literacy questions



Source: Allianz, International Pensions 2017

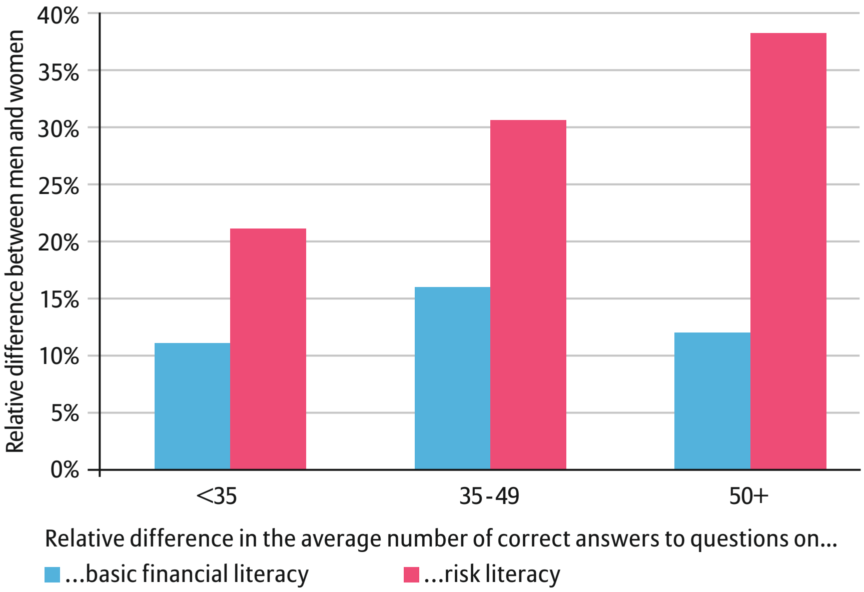
REASONS BEHIND THE GENDER GAP

Findings of our survey show that a gender gap persists in financial literacy across all ten European countries. Moreover, the gap persists across age and education levels. Identifying what drives this is beyond the scope of this study, although one possible explanation found in the literature is confidence.

Overall women are less confident in their financial knowledge than men and this may be the reason for the higher share of women answering "Don't know" when the option is provided *(see on page 9)*. The average share of women answering "Don't know" to the five questions is twice as large as the average share of men.

Interestingly, the gender gap is smallest among the young (aged 18 to 35) than in the general population in most countries, particularly when it comes to the three risk-related questions *(Figure 4)*. There are two possible ways to view this result. One is that young generations are becoming progressively more aware of the importance of financial literacy and closing the gap. Another view is that the gap may increase as skills and competencies develop at a different pace with age, with men more than women increasing their knowledge and understanding of financial issues.

Figure 4: Relative gender gap by age groups and literacy questions



Source: Allianz, International Pensions 2017

FINDING

Education is good for financial ability

7 Lusardi, Annamaria and Mitchell, Olivia (2014) "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature*, 52(1).

Education and financial literacy tend to go hand in hand.

A pattern emerges when the share of people who gave zero correct answers to the two basic financial literacy questions is contrasted with those who answered both correctly. The share of those with no correct answer is the highest among people with the lowest educational attainments (up to 10 years of schooling) *(Figure 5)*.

About two-fifths of this educational group answered both questions correctly. The share rises to 54% in terms of those who have attained some college and vocational training (medium education).

Yet, people with a university education or higher are, on average, the most knowledgeable: 68% of this group answered both questions correctly. Still, a university education does not make people financial experts. Whereas people with a university degree also perform best in the more difficult risk literacy questions, only about 20% managed to get all three of these questions right *(Figure 6)*.

These results are inversely correlated to the perception of the value of advice. Whereas 63% of highly educated people think that they could benefit from professional advice, only 55% of lower educated respondents think so. These are in line with previous research showing that, in practice, financial advice acts as a complement rather than a substitute for financial knowledge.[7] People who think they are unlikely to benefit from professional advice on financial matters are, however, far more likely to need it.

Figure 5: Number of correct basic financial literacy questions by educational attainment

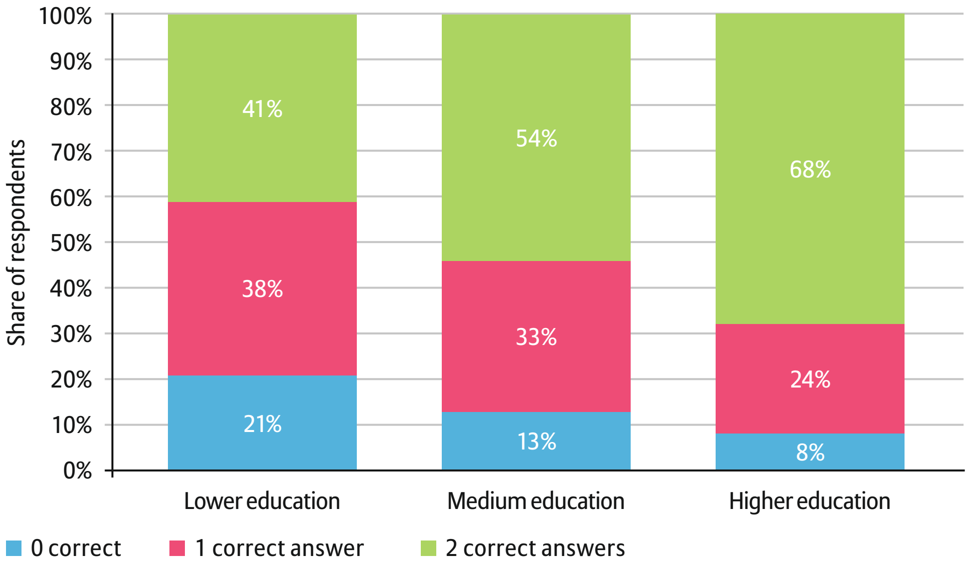
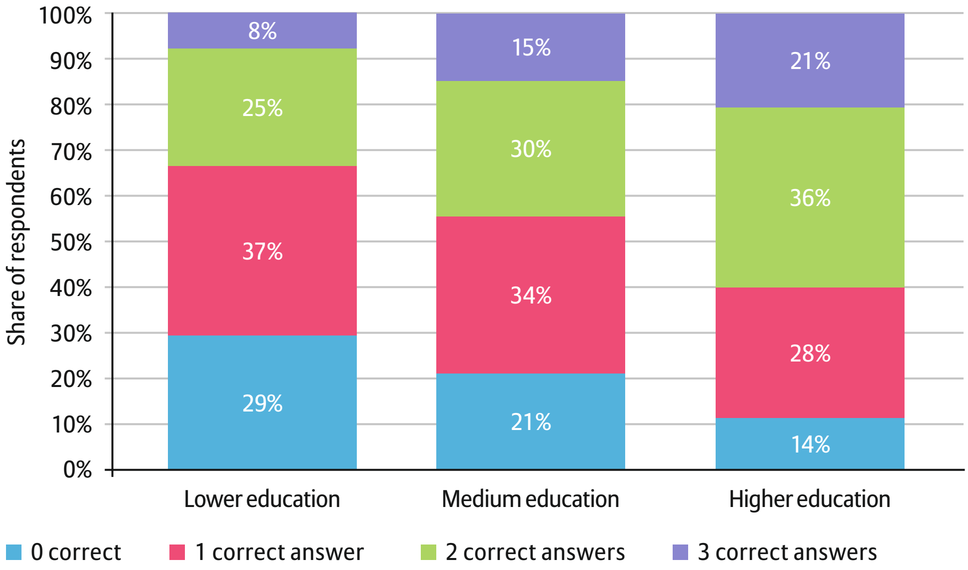


Figure 6: Number of correct risk financial literacy questions by educational attainment



The level of educational attainment per respondents was standardized using the **International Standard Classification of Education (ISCED)** scale.[8]

Source: Allianz, International Pensions 2017

8 The **ISCED** is a United Nations statistical framework for organizing information on education. ISCED 2 (Low education) equals lower secondary education or second stage basic educations. ISCED 5 (High education) is the first stage of tertiary education, such as college or university education. ISCED 3 and 4 (Medium education) refer to upper secondary education and post-secondary non-tertiary education respectively.

FINDING

Millennials yet to catch up

FINANCIAL LITERACY VARIES STRONGLY WITH AGE.

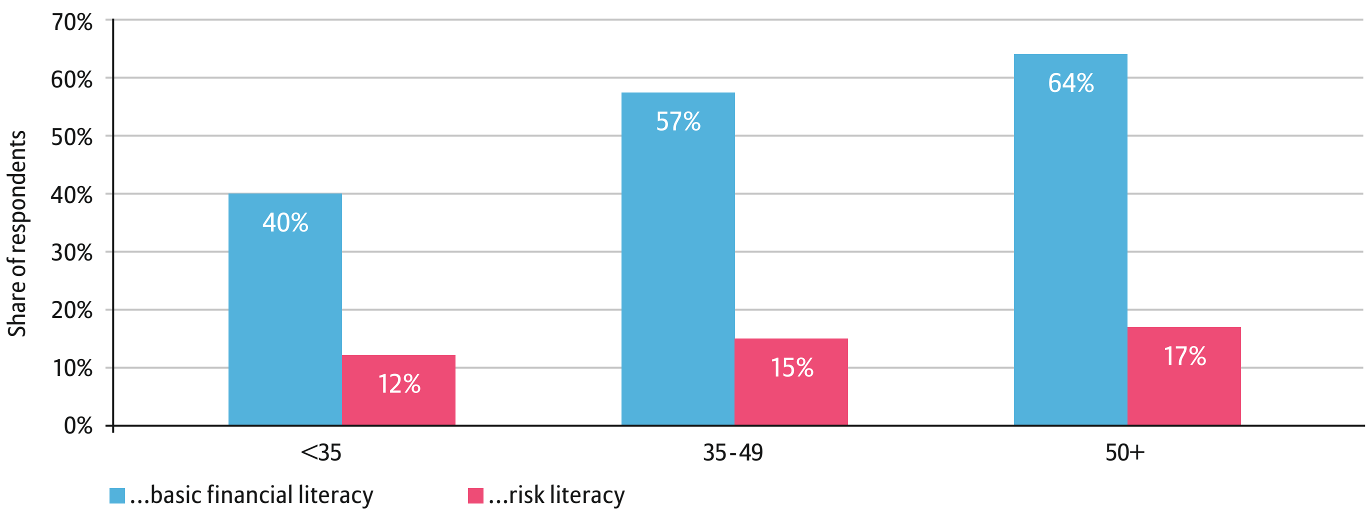
The Allianz survey reveals a wide age gradient when it comes to the questions on basic financial concepts. In each of the 10 countries analyzed, the share of respondents able to correctly answer both questions is significantly smaller among the millennials (those younger than 35 years) than among those aged 50 or older. That is mainly due to the fact that many young respondents cannot answer the question on inflation: across all the countries, only 49% of the under-35 know how inflation works, compared to 65% of those aged 35 to 49 and 75% of the 50+.

When it comes to the risk questions, the share of respondents answering all questions correctly is smaller among those aged under 35 than among older age groups, though in this case the average masks different patterns in different countries. On the questions looking at the expected value and the trade-off between risk and return younger respondents performed better than older ones in several countries, but those aged under 35 were consistently worse than the 50+ group on the question on risk diversification *(Figure 7)*.

Part of the explanation might relate to the inexperience the millennial generation has with financial products. Many respondents in this age group are years away from making a major financial decision, such as buying a house or a car or taking out a life insurance policy.

Less than 20% of millennial respondents have tried to figure out how much money they might need for retirement. This is also reflected in financial product use: in Germany and Austria, for instance, 41% and 38% of millennials respectively report that they do not use a long-term financial savings product (for example, term-deposits, mutual-funds or life insurance).

Figure 7: Share of respondents with all correct answers by age groups and literacy questions



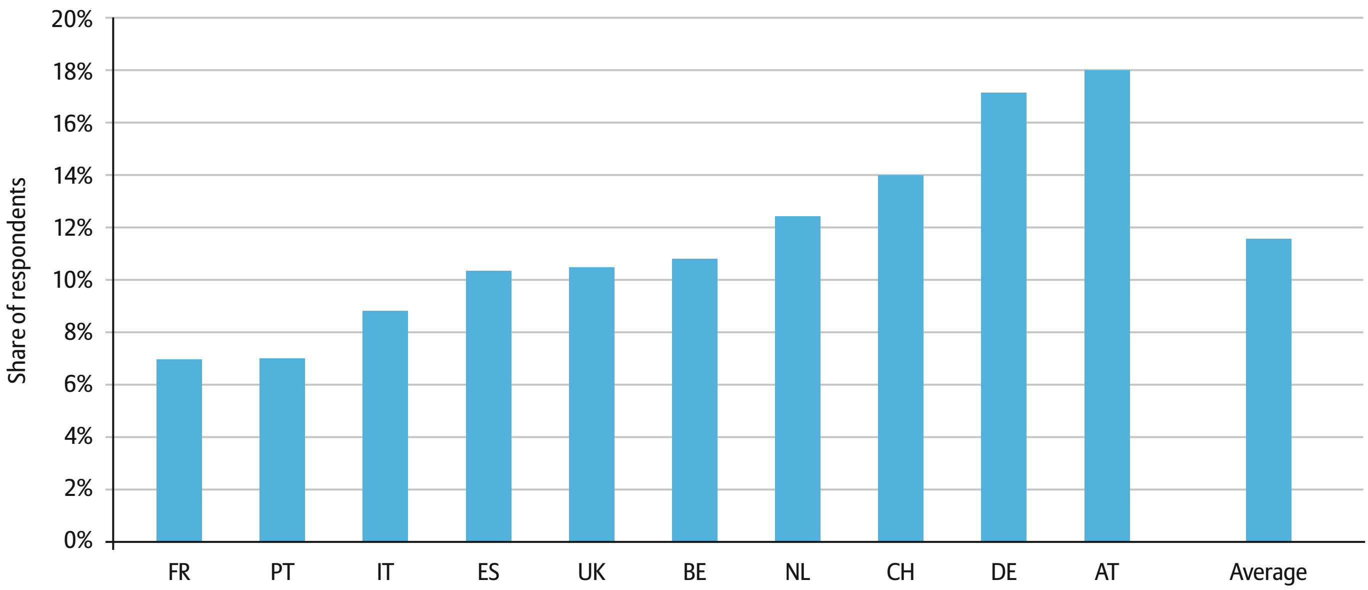
Source: Allianz, International Pensions 2017

Who is financially and risk literate in Europe?

The Allianz survey has shown that there are big differences in how people grasp basic financial and risk concepts, the latter being the most complicated to understand across countries and educational levels. To analyze the relationship between theoretical knowledge and practical decision-making, the results were aggregated into a single index reflecting whether respondents can be considered as financially and risk knowledgeable or not.

For this, an individual is considered financially and risk literate if he or she can answer all five questions correctly. Based on this definition, Austria and Germany have the populations with the highest financial knowledge among the countries included in our study, closely followed by Switzerland. France, Portugal and Italy are the countries with the populations that perform poorest in terms of financial and risk literacy *(Figure 8)*.

Figure 8: Share of respondents with five correct answers to the basic financial and risk literacy questions

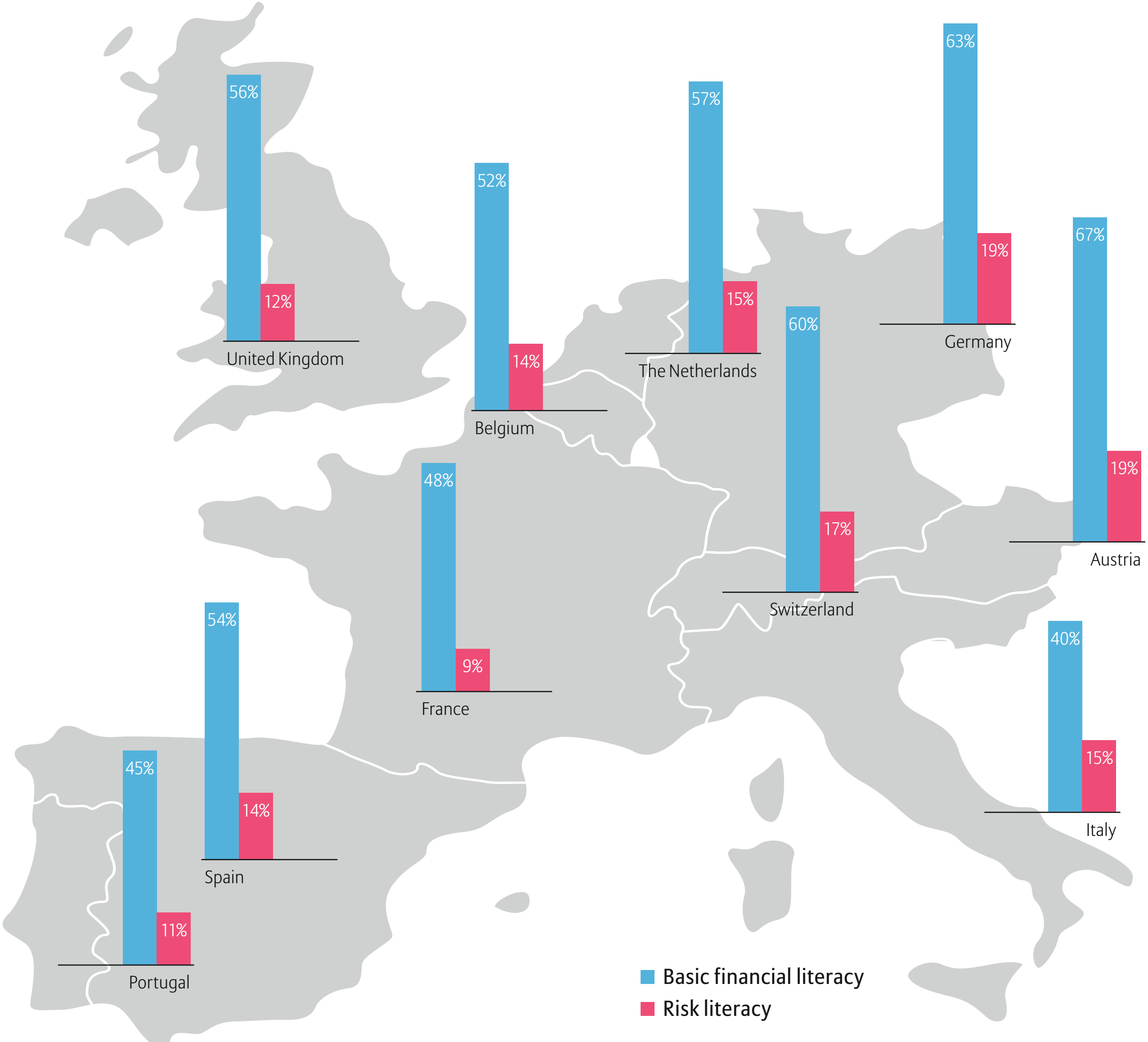


Source: Allianz, International Pensions 2017

MAP

Financial and risk literacy across Europe

This map depicts the share of respondents who answered all questions correctly. The low share of people with financial knowledge is mostly due to difficulties with the risk concepts. France compares poorly to its peers as less than 10% of respondents answered all risk-related questions correctly. On the other hand, Germany and Austria top the ranking when it comes to the share of respondents answering all three risk questions right.



Source: Allianz, International Pensions 2017

Do people with greater financial knowledge make better financial decisions?

The third part of this study deals with the question of how financial and risk literacy affects financial decision-making. This question might appear trivial – after all, people with a better understanding of financial concepts should be more capable of making saving, investment and financial product decisions.

However, this is still a litmus test financial literacy must undergo to show whether people with a high level of financial literacy are better equipped to make financial decisions. By allowing people to avoid saving and investment mistakes, financial literacy could also have an impact on the financial wellbeing of consumers.

MONEY DOWN THE DRAIN

According to Allianz Economic Research, over the past four years German households missed out on investment income of €200 billion ($208 billion) due to overcautious savings behavior.[9] In their 2015 paper, Annamaria Lusardi and Peter Tufano show that people have considerable problems managing their credit card debt. People with low levels of debt literacy tend to incur higher fees, undertake transactions with a higher cost and borrow at higher rates. They show that the costs of this "debt ignorance" amount to about one third of the charges and fees paid by less knowledgeable individuals.[10]

Under-diversification of portfolio investments represent another source of financial harm to households. According to Laurent Calvet, professor of Finance at EDHEC Business School, in the case of Sweden, five percent of retail investors return losses due to ill-diversified portfolios amounting to $2200 per year.[11] Several studies, such as the presidential address by John Y. Campbell to the American Finance Association in 2006, have also stressed that the welfare costs of financial mistakes can be substantial.

RISK SCENARIO DESCRIPTIONS

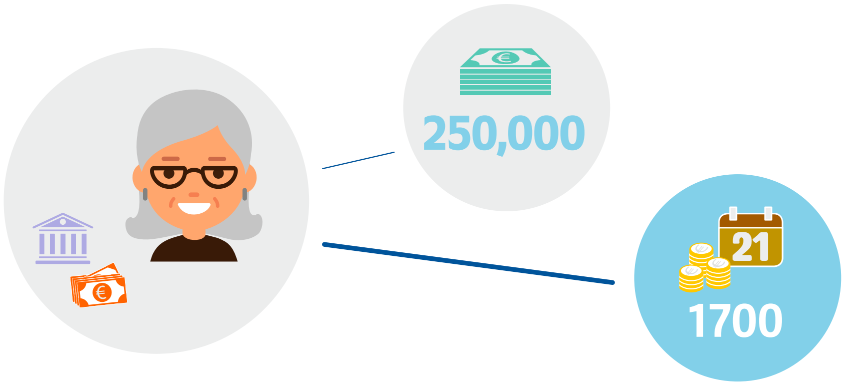
In the end, it is financial decisions that matters. Knowledge of a few basic financial concepts is of little use if people are unable to translate knowledge into decision-making.

Therefore one objective of this Allianz study was also to assess whether people can use financial knowledge in real-life situations. In the survey, participants were confronted with real-life scenarios, in which people must make a financial decision to achieve a well-defined financial goal. The respondents then had to select from among financial products the one most appropriate for that scenario. The products were presented in such a way that there was only a single correct.

9 Allianz Economic Research 2016, *Allianz Global Wealth Report 2016*

10 Lusardi, Annamaria, and Tufano, Peter. 2015 . "Debt Literacy, Financial Experiences, and Overindebtness," *Journal of Pension Economics and Finance*, 14(4): 329-365

11 Calvet, Laurent E., John Y. Campbell, and Paolo Sodini. 2007. "Down or out: assessing the welfare costs of household investment mistakes," *Journal of Political Economy* 115(5): 707-747



SCENARIO: LONGEVITY RISK

Alexa is 66 years old and about to retire. She is still in good health and is looking forward to enjoy her retirement. She owned a small restaurant and was self-employed for her entire working life. Recently, she sold the restaurant and put the proceeds into a bank account, which she considers sufficient to cover unforeseen expenses. She does not have a partner or close relatives.

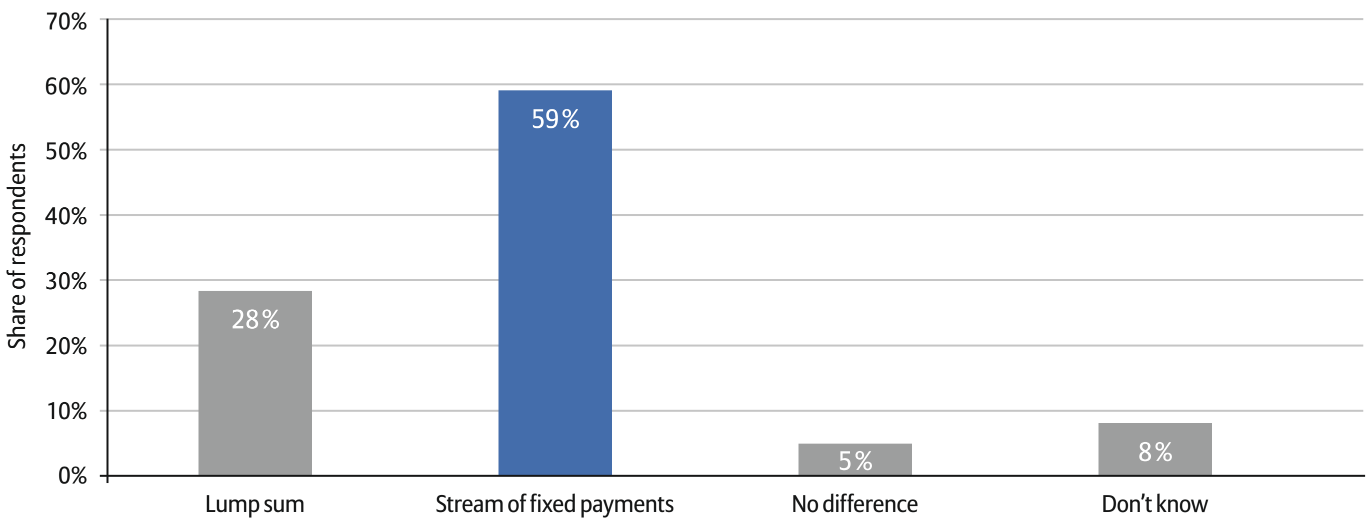
In addition, she paid into a retirement savings product which is about to come due. The product provider offers her two options to access her savings:

1. Alexa can receive €250,000 as a lump sum payment right now (in other words, a single 250,000 payment), or
2. **Alexa can receive €1700 as a stream of monthly fixed payments over her entire lifetime until death**

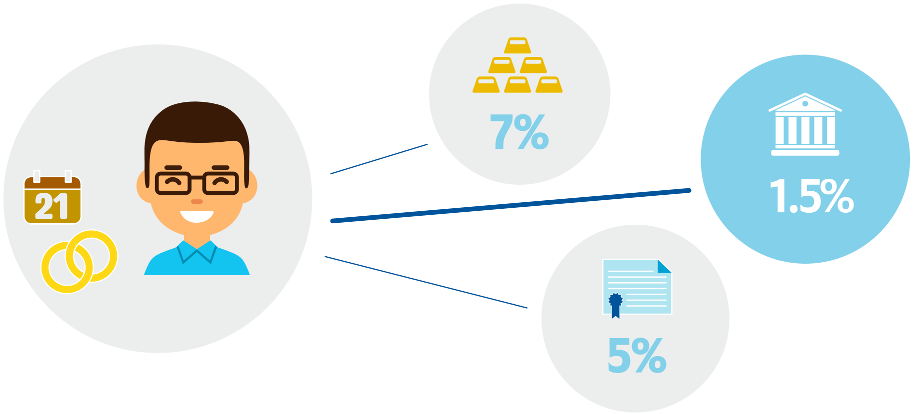
Alexa wants to be sure she has enough money until she dies. Which payout method would you recommend?

- ☐ Take the lump sum
- ☐ **Take the stream of fixed payments**
- ☐ Does not make any difference
- ☐ Don't know

Figure 9a: Distribution of answers to the longevity risk scenario (average across all countries)



Source: Allianz, International Pensions 2017



SCENARIO: LIQUIDITY RISK

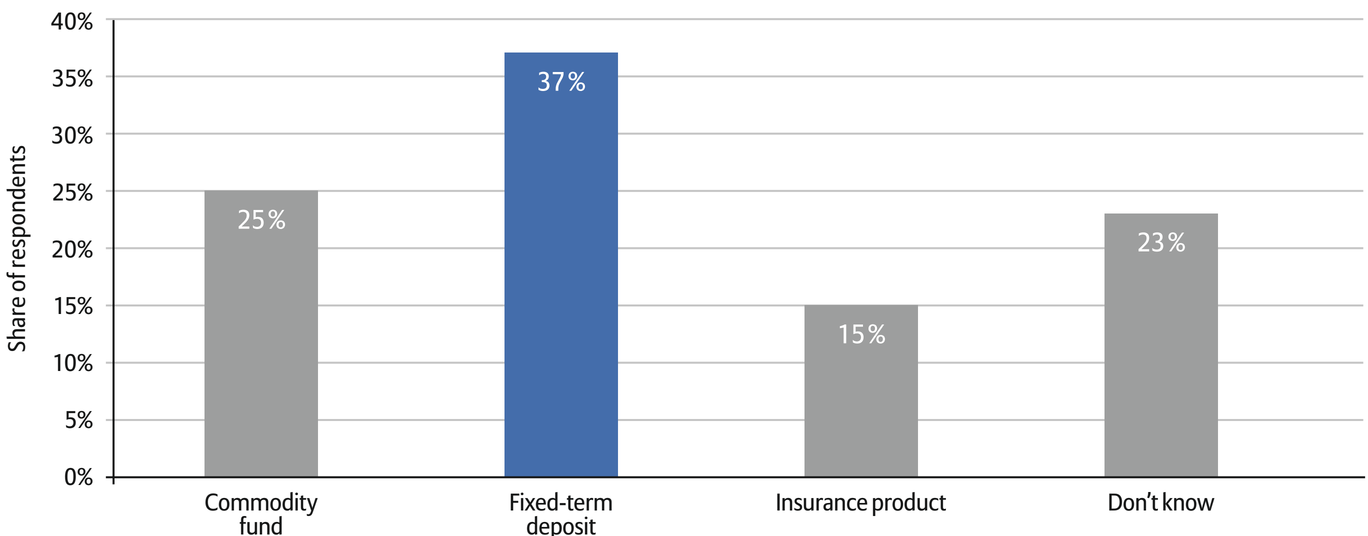
Your friend Bob is excited. His daughter will be marrying in two years and he promised to pay for the wedding festivities. He wants to set aside the money today and does not want to keep the money in his bank account. Bob considered the current investment offers from his bank on the Internet and came up with three interesting products:

1. A commodity fund which invests in gold and which, despite large fluctuations in the last two years, achieved an annual return after costs of 7%.
2. **A two years fixed-term deposit with a fixed interest of 1.5% per annum.**
3. An insurance product with a guaranteed interest rate of 2.5% per year and entails an entry cost of 5% of the invested capital.

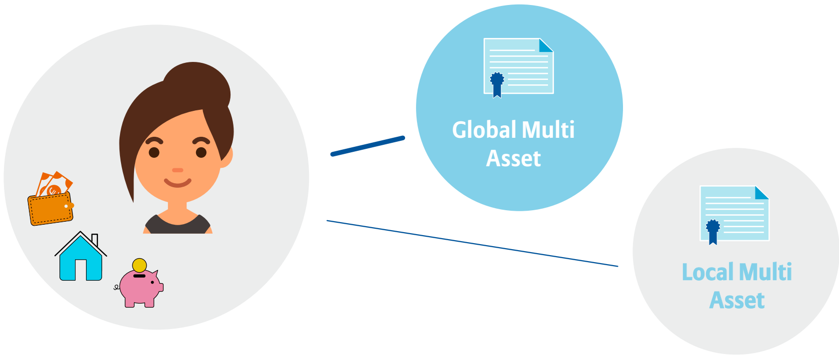
Which option would you recommend?

- ☐ Commodity fund
- ☐ **Fixed-term deposit**
- ☐ Insurance product
- ☐ Don't know

Figure 9b: Distribution of answers to the liquidity scenario (average across all countries)



Source: Allianz, International Pensions 2017



12 The nationality and currency of the country was changed to match the country in which the survey was being conducted. In the rest of the text, everything that is italicized was changed to match the country surveyed.

13 For countries outside the Euro area it has been mentioned that the fund was hedged against currency risk.

14 Benchmark localized to fit the respective country indices

SCENARIO: UNDERDIVERSIFICATION RISK

Helen is 40 years old. She is an employee at a large *German*[12] company. She has a regular and secure income. She owns her own apartment and has no outstanding debt. She is already well prepared with a retirement savings plan and has set aside a little bit of money for a rainy day fund.

She unexpectedly received an inheritance of €10,000.[12] As she does not need the money immediately, she plans to invest the money long-term and is willing to take some risk in order to achieve a higher return. Her advisor presented her two investment options (see answers). She is unsure and asks you for advice of what to do.

☐ Product name Global Multi Asset

Investment objective:
The fund invests 75% of its portfolio in international stocks and 25% in the market for European bonds with an investment-grade rating.[13]

- Expected return (p.a.): 6.40%
- Expected volatility (p.a.): (Price fluctuation) 7.50%
- Expected years with negative returns: One year in five years
- Benchmark stocks: MSCI World Index
- Benchmark bonds: Barclays Euro Aggregate Index[13]
- Total expense ratio (costs): 0.75%

☐ Product name *German* Multi Asset

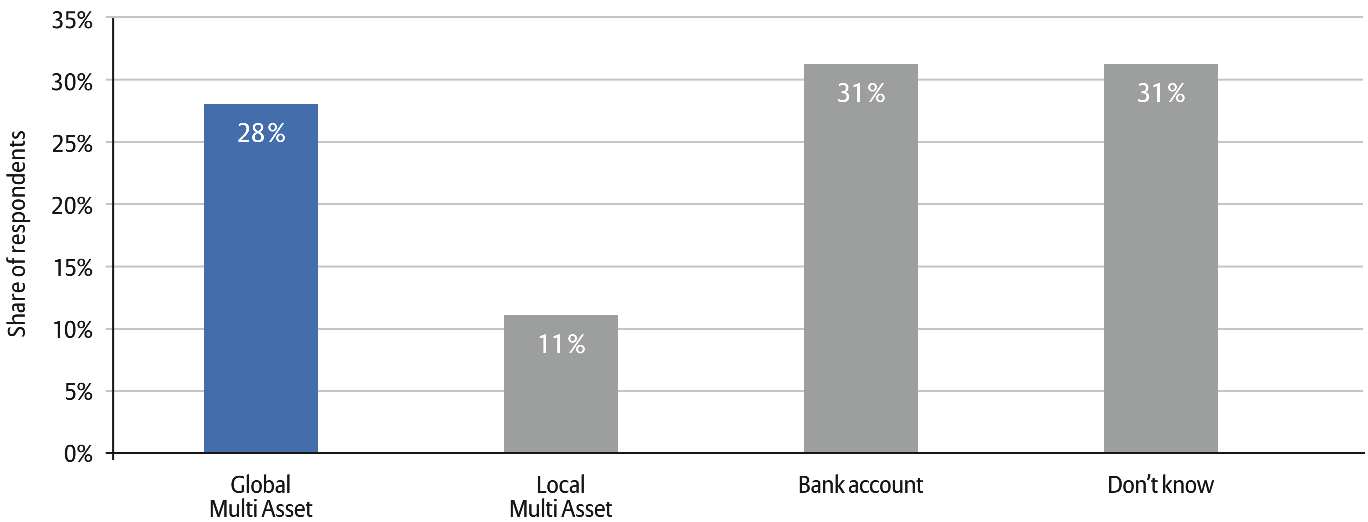
Investment objective:
The fund invests 75% of its portfolio in *German* stocks and 25% in the market for *German* bonds with an investment-grade rating.

- Expected return (p.a.): 5.00%
- Expected volatility (p.a.): (Price fluctuation) 7.50%
- Expected years with negative returns: One year in four years
- Benchmark stocks: *DAX Index*[14]
- Benchmark bonds: *REX Index*[14]
- Total expense ratio (costs): 0.75%

☐ Neither option 1, nor option 2. Rather keep the money in bank account

☐ Don't know

Figure 9c: Distribution of answers to the underdiversification scenario (average across all countries)



Source: Allianz, International Pensions 2017

Scenario results

LONGEVITY RISK

Whether people can identify the right financial product is of particular interest in the context of today's pension reform discussions. As retirement income levels from traditional statutory pension pillar decline, responsibility for decisions relating to the spending down of retirement savings (decumulation) are increasingly being placed on individuals. Therefore an understanding of how retirement income solutions can be designed to protect individuals from outliving their assets is important for the financial wellbeing of generations of retirees to come.

In all the countries, the longevity scenario was the one with the highest share of correct answers. On average, 59% of the respondents correctly identified the most suitable financial solution. As noted, awareness of longevity risk is especially important for people in or close to retirement and the share of correct answers was generally highest among respondents aged 50+. In Austria and the United Kingdom, however, only 53% of respondents aged 50+ were able to identify a lifelong income stream as an appropriate solution. In comparison, in Switzerland and the Netherlands respectively, 71% and 76% of elderly respondents answered the question correctly. Both countries have a long history of occupational and private pension provision.

LIQUIDITY RISK

In the scenario on liquidity the correct answer is the fixed-term deposit. The high volatility of the commodity fund would make it uncertain if the liquidity need could be met within such a short savings horizon. The high entry fees for the insurance product would not be recovered over the two-year period. Although the fixed-term deposit had a relatively low return, it perfectly matched the maturity of the savings goal.

In total, 37% of respondents identified the most suitable financial solution for this scenario. On a country level, respondents from Germany scored highest with 47% choosing the correct product. Belgian respondents scored poorest with 28%.

UNDERDIVERSIFICATION RISK

The last scenario dealt with diversification. As seen in Section II, the concept of risk diversification is poorly understood *(page 6)*. This scenario described a person willing to accept some risk to achieve a long-term saving objective. Two empirically observable investment mistakes are tested: non-participation in the stock market – do respondents opt for the capital market product – and, from the two options given, can the respondent identify the one with the better risk/return trade-off.

Diversification is important in today's low-yield environment as a common private savings strategy – just leave the money in the bank – yields next to nothing. Positive future saving outcomes are dependent upon whether people are capable of making investment decision that involve risk and understanding that, ultimately, this risk can benefit them in the long-term.

This scenario is important in the context of long-term saving decisions such as retirement preparation. Do people realize that a capital market investment – due to and not despite the risk involved – is likely to lead to a better savings outcome for their savings endeavor? In addition, if people do opt for such a choice, can they avoid unsystematic risk?

This scenario recorded the poorest results of the survey with only 28% of respondents able to identify the most suitable financial product. That respondents had problems can also be seen in the high share of "Don't know," which in Belgium reached up to 40%. The results can be partly attributed to the jargon in the answer, which contained words such as "risk," "return," "investment" and "benchmark." However, these are common in product information sheets and were deliberately included to make the scenario more realistic. At the other end of the spectrum, the UK – a market where fund solutions are more widespread than in other western European countries – performed best with 36% providing the correct answer.

HOPE FOR YOUNG SAVERS

Interestingly, younger respondents perform relatively well. As noted earlier, millennials perform worse in term of financial and risk literacy compared to older respondents. That is also reflected in the results for the longevity and the liquidity scenarios, where the share of correct answers is, on average, lower among those aged under 35 than among the 50+. However, in eight out of the ten countries, these results were inverted for the diversification scenario. In the case of Austria and Italy, the share of correct answers was 10 percentage points higher for people aged below 35 years than the age cohort 50+.

This is good news given that younger people are required to shoulder more responsibility for financing their own retirement than previous generations. To achieve this, they will need to develop a long-term strategy based on well-diversified portfolios. Even so, the share of respondents selecting the right product remains extremely low (on average, below 30%) even among the younger respondents. This is consistent with the finding that a vast majority of individuals are not well equipped to make sound financial decisions.

15 Respondents with low financial and risk knowledge are defined as those with **at most two correct answers** out of the five financial and risk literacy questions.

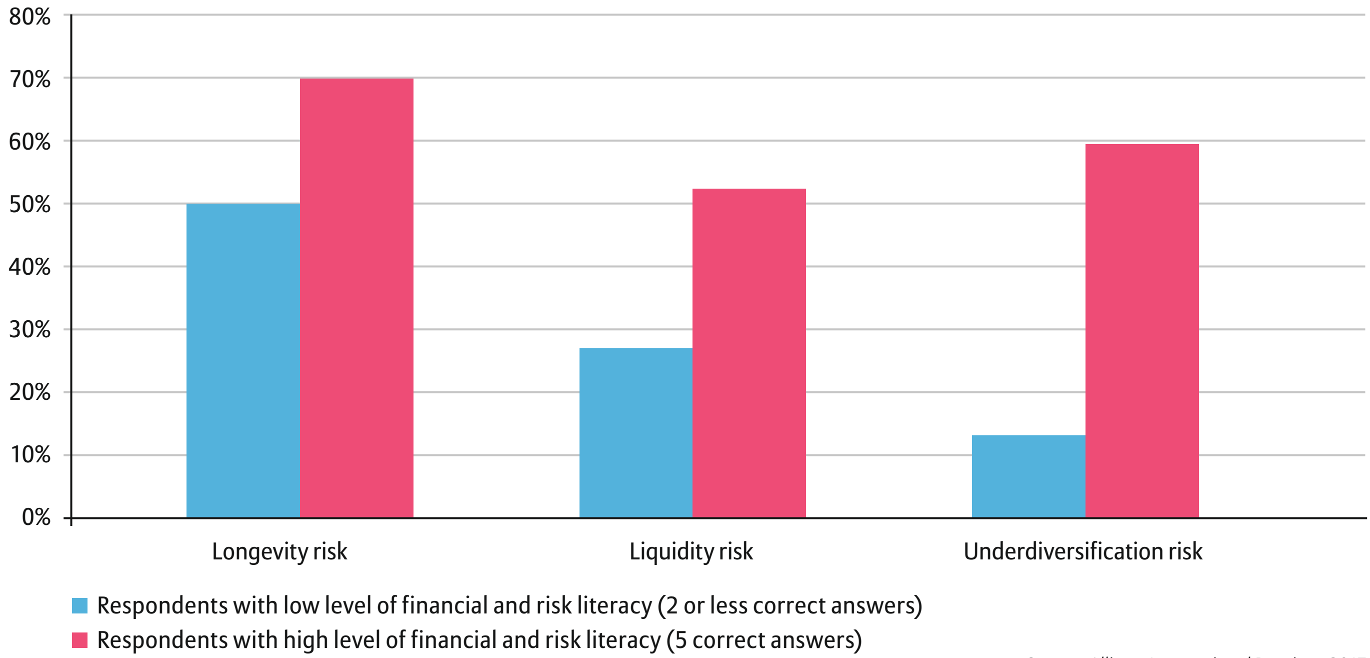
SCENARIO RESULTS AND FINANCIAL AND RISK LITERACY

Overall, the analysis of the three financial scenarios yielded the same sobering results as the findings about the financial and risk literacy questions. A quarter of Europeans were unable to identify the correct financial solution for even one of the three stated scenarios and 40% managed to get only one correct!

The financial and risk literate *(see definition on page 15)* perform better than the those with low literacy levels[15]: 63% of them were able to recognize the best financial product in at least two out of three cases, compared to 22% among the less knowledgeable respondents. As Figure 10 shows, the diversification scenario is the one with the biggest discrepancy between the financially and risk literate and those with limited knowledge of financial and risk concepts.

However, given that, as observed in Section II, those who are financially and risk literate are often also those who are better educated and with more experience, this might not come as a surprise. In the end, their ability to make better financial decisions might simply derive from their whole set of skills, rather than from their specific financial and risk knowledge. So, does financial and risk literacy make any difference of itself?

Figure 10: Share of correct answers by scenario and level of financial and risk literacy

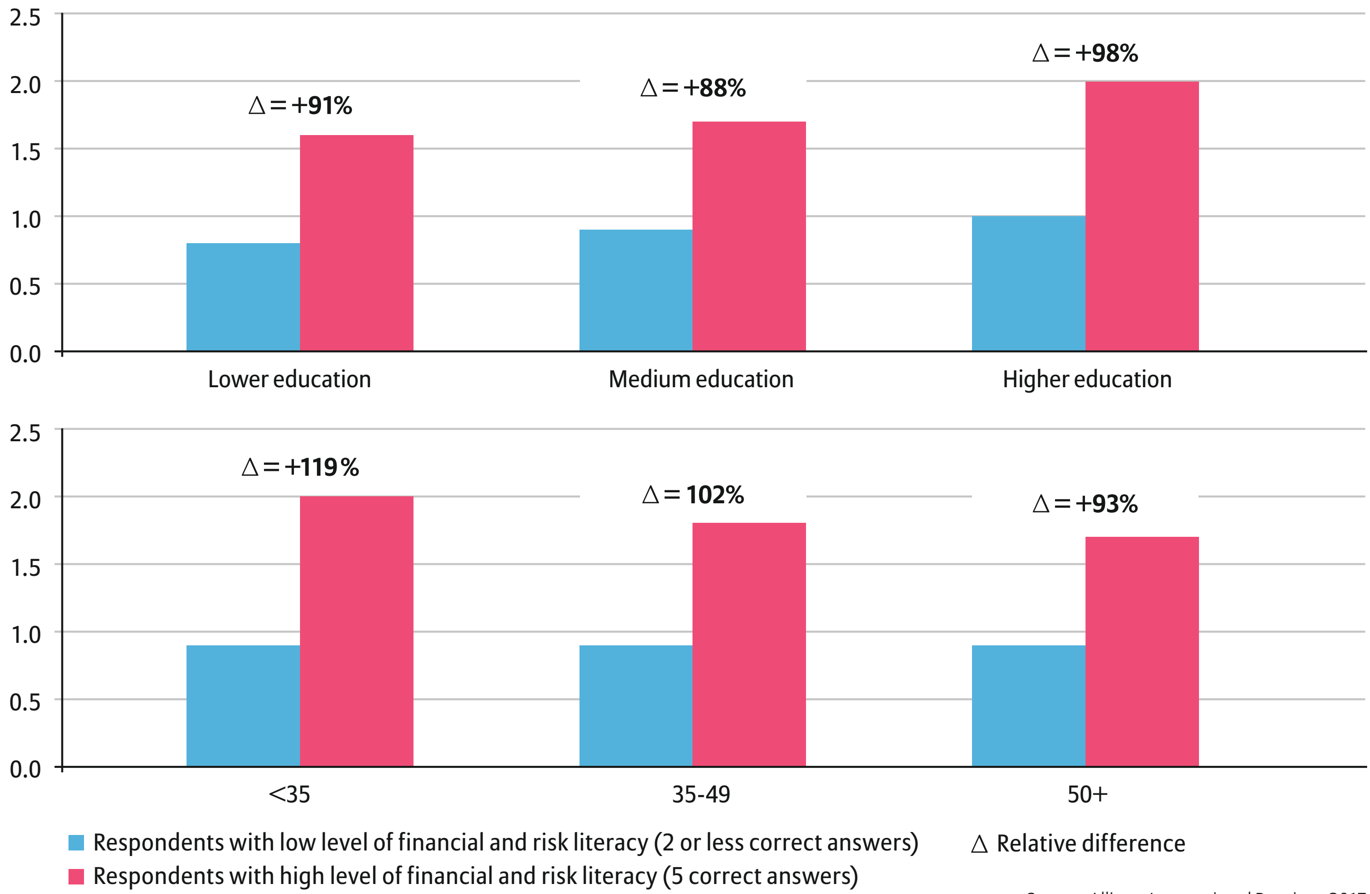


Source: Allianz, International Pensions 2017

The results of the Allianz study point towards a yes. Throughout Europe, for example, financially and risk literate respondents with lower educational attainments could correctly answer, on average, 1.6 scenarios, 91% higher than for respondents with the same educational level, but low financial and risk knowledge *(Figure 11)*.

Interestingly, the average number of correct scenarios is almost twice as high for the financially and risk literate, irrespective of their education level. Thus, having a good grasp of financial and risk concepts has an effect on the ability to make correct financial decisions *above and beyond the effect* of education. Similarly, when looking at the outcome in the scenario questions by age groups, financial and risk literacy more than compensate for the lack of experience of younger individuals, who, as a group, outperformed older respondents. Among less literate respondents, the average number of correct product choices does not noticeably vary with age.

Figure 11: Average number of correctly answered scenarios by education (upper panel) and age groups (lower panel)



Source: Allianz, International Pensions 2017

The penny is yet to drop on financial and risk literacy

Given the consequences to future well-being of today's financial decisions, the results of the Allianz survey are sobering. Despite the economic and cultural differences in the countries analyzed, the current study uncovers several common features.

As this report confirms, the penny is yet to drop in terms of the benefits of financial knowledge. Across western Europe, financial and risk literacy remains at low levels. Following the work of earlier studies, it appears the financial literacy of the population has not increased measurably since the financial crisis. On a relative basis, the German speaking countries of Austria, Germany and Switzerland perform relatively well. In general, the understanding of basic financial concepts is lowest in Portugal, Italy and France.

While people across the ten countries analyzed in this study tend to understand the concept of interest rate relatively well (76% of all respondents) and a large share of the population has an idea on how inflation can eat the purchasing power of savings (63%), knowledge relating to risk diversification is still scarce (49%). This is confirmed when other dimensions of risk understanding were tested. Less than half of respondents had an idea of how to compute expected returns (49%) and an even lower share correctly assessed risk and return (40%).

RISK LITERACY LACKING IN EUROPEAN POPULATIONS

The lack of risk literacy could have a detrimental effect on the saving outcome and financial wellbeing of today's savers. This is particularly true in the current low yield environment. While simple saving vehicles, such as bank accounts, still yielded interest income for savers before the financial crisis, the opportunity costs of "doing nothing" are much higher today.

Yet, many people are not well equipped to engage with sophisticated financial products which might be more suitable. Women, people with low educational levels and younger respondents are all lagging behind when it comes to understanding risk. While that might not be a big surprise – it has already been shown in older studies that these groups have lower literacy levels – it is unsettling to see no improvement. It is also a concern that these groups are more likely to perceive professional financial advice as useless even though they would most benefit from it.

It is of little comfort that those aged under 35 might improve their literacy after gaining more experience with financial products. Indeed, by the age of 35 many important long-term financial decisions (like retirement savings) should already have been taken. Delaying them or choosing inappropriate products might have negative long-term consequences, which might not be realized until later in life.

16 For "home bias," see French, Kenneth; Poterba, James (1991). "Investor Diversification and International Equity Markets," *American Economic Review*. 81 (2): 222–226

FINANCIAL KNOWLEDGE HELPS

Section III shows some evidence that financial and risk literacy provides an important tool for savers to navigate across different products and find the right solution to a particular financial problem. Overall, the analysis of financial scenarios yielded the same sobering results than the mere theoretical financial and risk literacy questions: on average, about a quarter of the respondents failed to identify the correct financial solution to any of the problems proposed.

While the scenario representing the longevity risk was easiest to answer, the Allianz survey highlights a dramatic problem among people approaching retirement. According to the survey, a large share of people close to retirement are still unable to decide for a decumulation strategy that would shield them from longevity risk (39%).

At the other end of the spectrum is the scenario dealing with risk diversification. Only a little more than a quarter of respondents were able to identify that a capital market investment would lead to a better outcome for their savings endeavor and avoid at the same time the typical "home-bias" mistake.[16] While millennials did generally better in this scenario than respondents aged 50+ , the share of those avoiding a particularly costly financial mistake is worryingly low.

Finally, the scenario approach designed for this study provides evidence that people with a good grasp of financial and risk concepts do in fact make better financial decisions. It indicates that financial literacy has an effect on decision-making above and beyond other personal characteristics like education or age.

HELPING PEOPLE TO GET RIGHT ON THE MONEY

As stated earlier, the higher level of financial responsibility now demanded of individuals, combined with easier accessibility to an ever-expanding choice of products comes as both a blessing and a curse. There are people well equipped to navigate this world of new products, low costs and low advice financial services, and to tailor financial solutions to suit their needs.

Yet, a considerable share of the population still lacks basic knowledge on general concepts that are the cornerstone of every financial decision and show no sign that they are beginning to acquire that knowledge. These people might be prone to make mistakes in saving, investment and retirement decisions, the results of which may only come to light decades from now.

This is particularly true for women and younger people, where knowledge of many financial and, in particular, risk concepts is lacking. Efforts to improve the overall financial literacy of societies should step up the focus on these groups. In some cases, a change of language may better communicate financial and risk concepts. In addition, financial education programs targeted at these groups, as well as the development of education and advice tools particularly designed for this demographic, might yield impact regarding better investment results for both individuals and societies.

Appendix A

17 Although the diversification question belongs to the "Big Three" questions in financial literacy, we have included it in the risk-related concept category in our analysis.

FINANCIAL LITERACY QUESTIONS (THE "BIG THREE")[17]

Compound interest

Suppose you had €100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?

☐ **More than €102**

☐ Exactly €102

☐ Less than €102

☐ Don't know

☐ Refuse to answer

Inflation

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?

☐ More than today

☐ Exactly the same

☐ **Less than today**

☐ Don't know

☐ Refuse to answer

Diversification

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

☐ True

☐ **False**

☐ Don't know

☐ Refuse to answer

RISK LITERACY

Expected return

For the same amount of money, you can enter either one of two lotteries: Lottery A pays a prize of €200 and the chance of winning is 5%. Lottery B: pays a prize of €90,000 and the chance of winning is 0.01%. If you do not win, you do not receive any money. Which lottery pays the higher average amount?

☐ **Lottery A**

☐ Lottery B

☐ These two lotteries pay the same average amount.

☐ Don’t know

☐ Refuse to answer

Risk and return

You can invest in two projects. Project A will either deliver a return of 10% or 6% with either outcome equally likely. Project B will either deliver a return of 12% or 4% with either outcome equally likely. Which of the following is true? Compared to Project B, Project A has...

☐ Higher return and lower risk

☐ **Same average return and lower risk**

☐ Lower return and higher risk

☐ Don‘t not know

☐ Refuse to answer

Appendix B

Allianz results in comparison: Correct answers of interest rate question

	Netherlands	Germany	United Kingdom	Italy	Switzerland
Allianz result	**76.1%**	**81.6%**	**80.3%**	**66.1%**	**82.7%**
Benchmark result	**84.8%**	**82.4%**	**77.0%**	**40.0%**	**79.3%**
Benchmark study	Alessie, van Rooij and Lusardi (2011)	Bucher-Koenen and Lusardi (2011)	Atkinson and Messy (2012)	Fornero and Monticone (2011)	Brown and Graf (2013)
Year of data	2010	2009	2011	2006	2011

Allianz results in comparison: Correct answers of inflation question

	Netherlands	Germany	France	Austria	Italy	Switzerland
Allianz result	**64.0%**	**73.4%**	**57.0%**	**74.7%**	**55.8%**	**67.5%**
Benchmark result	**76.9%**	**78.4%**	**61.2%**	**71.0%**	**59.3%**	**78.4%**
Benchmark study	Alessie, van Rooij and Lusardi (2011)	Atkinson and Messy (2012)	Arrondel, Debbich and Savignac (2013)	Silgoner and Weber (2015)	Fornero and Monticone (2011)	Brown and Graf (2013)
Year of data	2010	2009	2011	2014	2006	2011

Allianz results in comparison: Correct answers of risk diversification question

	Netherlands	Germany	Austria	Switzerland
Allianz result	**44.0%**	**59.9%**	**59.0%**	**55.4%**
Benchmark result	**51.9%**	**61.8%**	**61.0%**	**73.5%**
Benchmark study	Alessie, van Rooij and Lusardi (2011)	Atkinson and Messy (2012)	Silgoner and Weber (2015)	Brown and Graf (2013)
Year of data	2010	2009	2014	2011

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Abbreviations

AT ...... Austria
BE ...... Belgium
CH...... Switzerland
DE...... Germany
ES ...... Spain
FR ...... France
HRS..... Health and Retirement Study
ISCED International Standard Classification of Education
IT....... Italy
NL...... Netherlands
PT ...... Portugal
SSI...... Survey Sampling International
UK...... United Kingdom

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