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Playing with a squared ball: the financial literacy gender gap

Executive Summary



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- There is a persistent financial literacy gender gap. Out of the nine questions we asked to assess the level of financial literacy, the mean number of correct responses from women was 3.7 (median 4), while that of men was 4.5 (median 5). Consequently, there is a much higher proportion of women among the respondents with low financial literacy, i.e. with only 0-2 correct answers (30% vs 21%), and a much lower share in the high financial literacy category, i.e. with 7-9 correct answers (11% vs 19%). Many women play the financial game with a squared ball.
- However, there is one country in our sample with a “positive” gender gap, i.e. a higher proportion of women (22%) than men (10%) in the high financially literate category: Germany. There might be a cultural role at play here: A larger share of women in Germany reported being the sole financial decision-maker in their household, which could boost the level of financial literacy.
- But the gender gap is not the only sobering result. Overall, only 10% (France and the US) to 18% (Italy) of all respondents have high levels of financial literacy. In all countries, the share of respondents with low financial literacy is significantly higher, ranging from 20% (Spain) to 32% (the US).
- Consistent with our previous work on financial literacy, we find that it does increase with age. There was a higher concentration of high financial literacy amongst the older generations (Baby Boomers: 21%) compared to the rest (average 15%), and in particular compared to the younger generations of Gen-Z (6%) and Millennials (11%).
- What do different generations consider among the top criteria for long-term investment? Against expectations, only 10% of the total sample considered ESG (environmental, social and governance) responsibility, although multiple answers were allowed. Even more surprising: there was almost absolute homogeneity in the sample across ages for the disregard of ESG.
- To gauge the financial benefits of being financial literate, we constructed ideal typical portfolios by level of financial literacy and calculated past real returns for each country studied. The results are straightforward: Average annual returns for the last 20 years increase with the level of financial literacy. However, the difference in returns between average and high financial literacy is only marginal. The portfolios of these two investor types are already largely similar. This suggests that it is not necessary to become a proven financial expert to achieve good financial results; average financial knowledge is sufficient.

- On the other hand, the difference in annual average returns between low and average financial literacy is considerably higher, ranging from 0.8% in the US to 1.5% in Spain. The decisive step is the one from financial illiteracy to basic knowledge and understanding.
- How do these differences in returns translate into euros? Based on the amount of financial assets owned by the average household in the respective country, the annual surplus investment income per household ranges from EUR 1,750 (average financial literacy investor in Spain) to EUR 5,000 (high financial literacy investor in Australia). Over long investment periods – as is common in old-age provision – financial illiteracy costs a fortune, literally.
- To increase financial literacy, boosting confidence is as important as – or even more than – numeracy skills. Because of this attitude response of financial literacy, people (in contrast to AI) play an important role in overcoming financial inactivity and taking decisions. That is why we at Allianz have consciously decided to put “real” coaches at the center of our various financial literacy offers – be it the Squared Ball campaign for young female athletes or the Financial Workout for high-school students. In the end, the interpersonal aspect is the critical success factor for boosting financial literacy.
- Concretely, a successful financial literacy intervention, in particular those catering to women, should include a four-cornerstone approach to smooth the squared ball and level the playing field. First, it should tackle confidence and the paralyzing effect of not feeling knowledgeable when it comes to finance. Second, it should empower women to discuss any financial struggles openly without any shame factor, enabling them to come up with a plan to reach financial goal. Third, it should provide actionable steps towards building a savings fund for a rainy day or building a fund for investment. Lastly, it should enable women to understand the risks and return trade-off of the different financial assets available for investment and help them decide what is best for their life plan. In other words: Confidence. Budgeting. Saving. Investing.

Playing with a squared ball - the financial literacy gender gap

In June 2023, Allianz surveyed more than 1,000 people in seven developed economies (Australia, France, Germany, Italy, Spain, the UK and the US) in an online survey distributed by Qualtrics. The aim was to assess the levels of financial literacy, and analyze reported behaviors and attitudes, as well as levels of confidence and risk attitudes. We measured financial literacy using questions assessing knowledge of fundamental concepts for financial decision-making (see Appendix B), drawing from research and questions designed and developed by Professor Annamaria Lusardi and Professor Olivia Mitchell¹, along with other variables of interest.

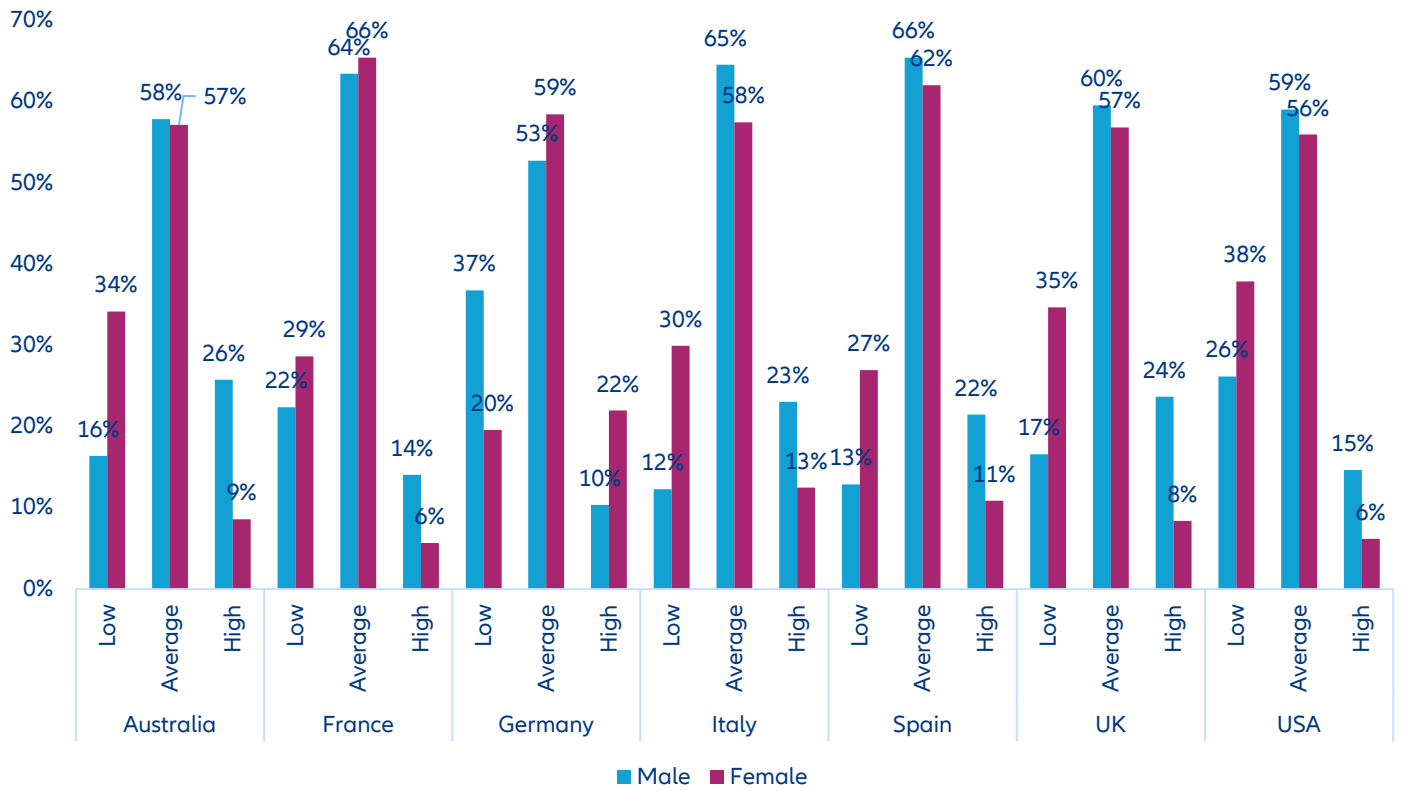
The relationship between financial literacy and financial outcomes such as consumption, debt, saving and investment is well established by the abundance of academic research (see following box). In this study, we examine the links between financial literacy, confidence, attitudes and perceived barriers to investing. Additionally, we make the case that becoming a financial guru is not the endgame, but rather having a firm grasp on the everyday financial concepts to lead a healthy financial life.

To build our financial literacy index, we used nine questions from the survey (see Appendix B). Following the bell curve-like distribution of correct answers in our sample, we constructed three different levels of financial literacy: low (0-2 correct answers), average (3-6 correct answers) and high (7-9 correct answers). This stratification will be mentioned repeatedly throughout the analysis. If educational attainment for women has surpassed that of men in many countries, why is there a persistent gender gap in financial literacy? When we look at the sample of 7,095 respondents (51% female), we find that the mean number of correct responses out of nine from women was 3.7 (median 4), while that of men was 4.5 (median 5).² The result is a much higher proportion of women among the respondents with low financial literacy and a much lower share in the high financial literacy category. This discrepancy is particularly pronounced in Australia and the UK; Germany, on the other hand, is the only country in our sample where women seem to be more financially literate than men (Figure 1). In Germany, the high financial literacy gap is 12pps but in favor of women. There might be a cultural role at play here – a larger share of women in Germany reported being the sole financial decision-makers in their household.

¹ Coppola, M., Langley, G., Sabatini, M., Wolf, R., & Global Financial Literacy Excellence Center. (2017). When will the penny drop. Allianz SE. http://docs.dpaq.de/11888-17_01_23_when_will_the_penny_drop_final.pdf³ Lusardi, A. (2015). Financial literacy: Do people know the ABCs of finance?. *Public understanding of science*, 24(3), 260-271.

² There is a statistically significant relationship between gender (c.i. = 99%) and the levels of financial literacy but the size of the effect is small (Cohen's $f=0.165$).

Figure 1: The champions of financial literacy
Levels of financial literacy by gender and country, in %



Source: Allianz Research.



Photo by Peter Glaser Unsplash

Playing the financial literacy game requires more than just technical skills

As a society, we have never been riddled with as many complex and disruptive financial concepts and products as we are today. To add to this, recent events have added an additional level of complexity – a cost-of-living crisis. With changes in pension regulation, the introduction of digital assets, new debt schemes, the popularity of cryptocurrencies etc. financial literacy – i.e. the knowledge and ability to use financial concepts in economic decision-making and planning³ – is all the more urgent.

Scholars highlight the importance of financial education in the context of recent economic crises: the subprime mortgage financial crisis, the Covid-19 pandemic, the Ukraine war and energy crisis, and the revival of inflation it brought with it. Concerns about the cost-of-living crisis, inadequate retirement provisions, financial vulnerability, and heterogeneity in savings across the income distribution are widespread issues that prompted the study of financial literacy and its effect on financial decision-making. Since the mid-2000s, policymakers embraced financial education as a solution to last generation's problems.⁴ However, the world has changed since 2008 and like other areas of study, it deserves to be revisited and renewed to tackle this generations' needs and problems.

Financial literacy is an important life skill not only for individuals, but for society as a whole: financially literate individuals are more likely to participate in the formal financial system, which can help the economy grow and maintain financial stability.⁵ Financially literate individuals are empowered to make better financial decisions and improve the efficiency of financial markets.⁶ Despite the evidence of its importance, only 21% of nations include financial and monetary management schools in their primary education curriculum. In addition, to support the efforts, caregivers and parents should also receive financial knowledge to reinforce personal finance education for their children.⁷

Multidisciplinary research on financial literacy from the Linköping University in Sweden criticizes some of the financial literacy interventions as ineffective to increase the levels of financial literacy for those deemed as financially illiterate. However, they highlight the existence of a third factor needed to improve outcomes: individual cognitive ability. There is a role that cognitive and emotional factors play for attaining financial literacy. Thus, the conclusion is that a driving force behind becoming financially literate is not only numeracy, but the emotional response to mathematics.⁸ It is therefore important that effective financial literacy interventions decouple the mathematics anxiety from the individual's daily engagement in financial decisions – or what in social media is more often quoted as a “money mentality”. As we will expose later in this paper, boosting confidence in individuals is as important as – or even more than – numeracy skills. Fernandez, et. al. (2014), suggest a financial education format that is tied to specific behaviors it intends to modify. Policies towards improving outcomes should take into account characteristics of behaviors that might affect the policymaker's mix of financial education, choice architecture, and regulation as tools to help consumer financial behavior.

³ Lusardi, A., & Mitchell, O. S. (2023). The importance of financial literacy: Opening a new field. NBER.

⁴ Fernandes, D. J., Lynch, J., & Netemeyer, R. G. (2014). Financial Literacy, Financial Education, and Downstream Financial Behaviors. *Management Science*, 60(8), 1861–1883. <https://doi.org/10.1287/mnsc.2013.1849>

⁵ Lusardi, A. (2015). Financial literacy: Do people know the ABCs of finance?. *Public understanding of science*, 24(3), 260-271.

⁶ Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature*, 52(1), 5-44

⁷ Global Financial Literacy Excellence Center (2020). S&P global FinLit survey. Washington, DC: Global Financial Literacy Excellence Center. Recovered from: <https://gflec.org/initiatives/sp-global-finlit-survey>

⁸ Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G., & Västfjäll, D. (2018). Financial literacy and the role of numeracy—How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioral and Experimental Economics*, 74, 18–25. <https://doi.org/10.1016/j.socec.2018.03.004>

What explains the significant and large gender gap in the other countries? Some studies consider the sources of knowledge and intelligence, i.e. our brains. For instance, a recent study looked at country-level gender inequality to examine if culture affects brain physiology and associated it with structural differences in the brains of women and men.⁹ To do this, they paired indices of gender inequality with a dataset of nearly 8000 MRI (magnetic resonance imaging) scans as cortical thickness is related to general intelligence. They found that in more gender-equal nations, there is no sex difference in cortical thickness. In contrast, in patriarchal societies, there are systematic differences in cortical thickness in the right hemisphere. Their hypothesis is that “social defeat” suppresses women’s cognitive development.¹⁰

The countries in our sample are biased towards the gender-equal side; thus, these results might not apply. But confidence and attitudes towards money (what finance bloggers or fin-fluencers call “money mindset”) play a role in financial literacy – as well as in financial decision-making. In this context, the “I don’t know” option is of particular interest. We found that gender and education had a statistically significant influence on the number of times participants chose to follow the “I don’t know” route. Women disproportionately answer questions with the response “I don’t know” instead of taking a chance and choosing one of the options provided. This can be interpreted as lack of confidence in one’s own knowledge and decision-making.

There is further research¹¹ comparing personality and intelligence that suggests that when people are confident in their intelligence, they are more open to learning, taking up challenges and realizing gains. Seeking out information and being resourceful is associated with intelligence. This adaptability is important to self-confidence and efficacy. It enables individuals to speak out and defend ideas – but also to learn. However, women are not traditionally taught to be outspoken. And while we are not suggesting any conclusion of intelligence can be taken from our online survey, we draw from these results to continue investigating that third factor – attitudes and confidence – that Fernandes, et.al. in their 2014 paper concluded should be considered when designing financial literacy interventions aimed to improve and nudge financial behavior.

As seen in Germany, one important factor is whether women are responsible for making financial decisions (Figure 2). We tested the theory against the data and found that there was a positive and statistically significant relationship between being a decision-maker and the level of financial literacy. As we will later discuss, money-management experience can also provide a boost for financial literacy. When women are free to navigate their finances, they become more open and savvy. The environment we navigate is just as important as the economics, the institutions and regulations.¹²

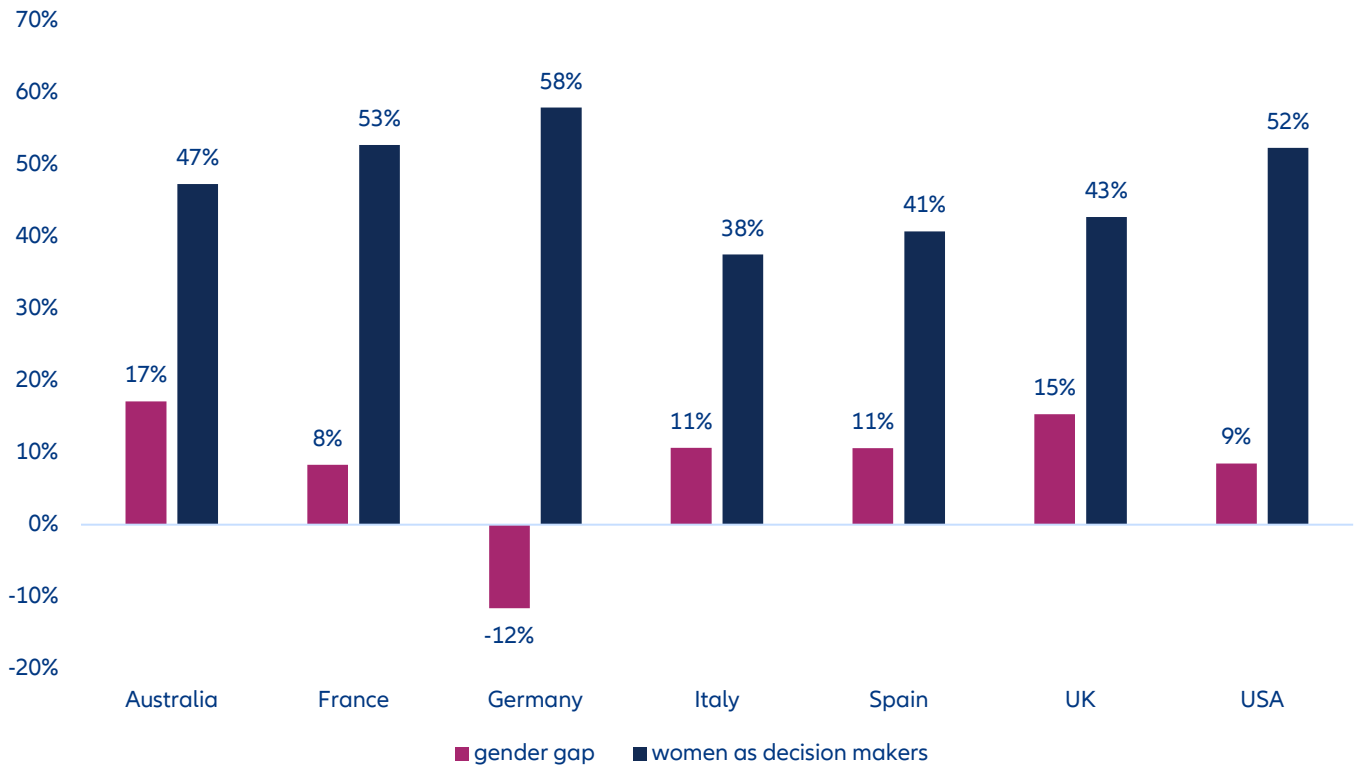
⁹ Zugman, André, et al. “Country-Level Gender Inequality Is Associated with Structural Differences in the Brains of Women and Men.” *Proceedings of the National Academy of Sciences*, vol. 120, no. 20, 2023, <https://doi.org/10.1073/pnas.2218782120>.

¹⁰ Nutrition and freedom to explore, as well as permission to be rebellious were also quoted as possible factors that might contribute to this.

¹¹ Anglim, Jeromy & Dunlop, Patrick & Wee, Serena & Horwood, Sharon & Wood, Joshua & Marty, Andrew. (2022). *Personality and Intelligence: A Meta-Analysis*. 10.31234/osf.io/ar6g3.

¹² Evans, A (2023). *The Great Gender Divergence*. Retrieved on June 12th 2023 from: <https://draliceevans.substack.com/p/does-patriarchy-suppress-cognitive>

Figure 2: Being the captain
High financial literacy gender gap, in pp and women that report being sole financial decision makers, in %

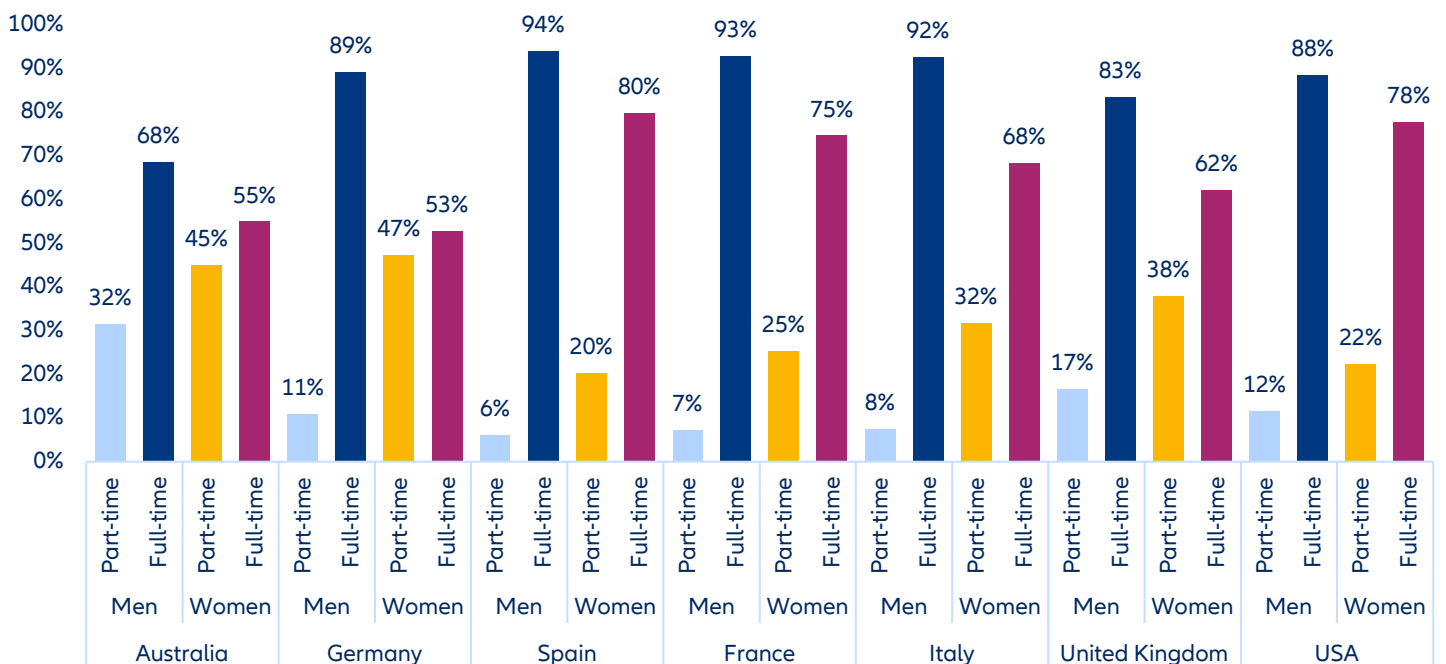


Source: Allianz Research

It certainly is no coincidence Germany has by far the highest share of female part-time workers (except for Australia). Although the employment rate for German women is (very) high at 77% – in Italy, for example, it

stands at 61% – almost half of them are employed only half-time. The reasons are obvious: German women still do most of the household work, perhaps also including managing the finances (Figure 3).

Figure 3: Part-time players
Part-time and full-time employment by gender as % of total employment

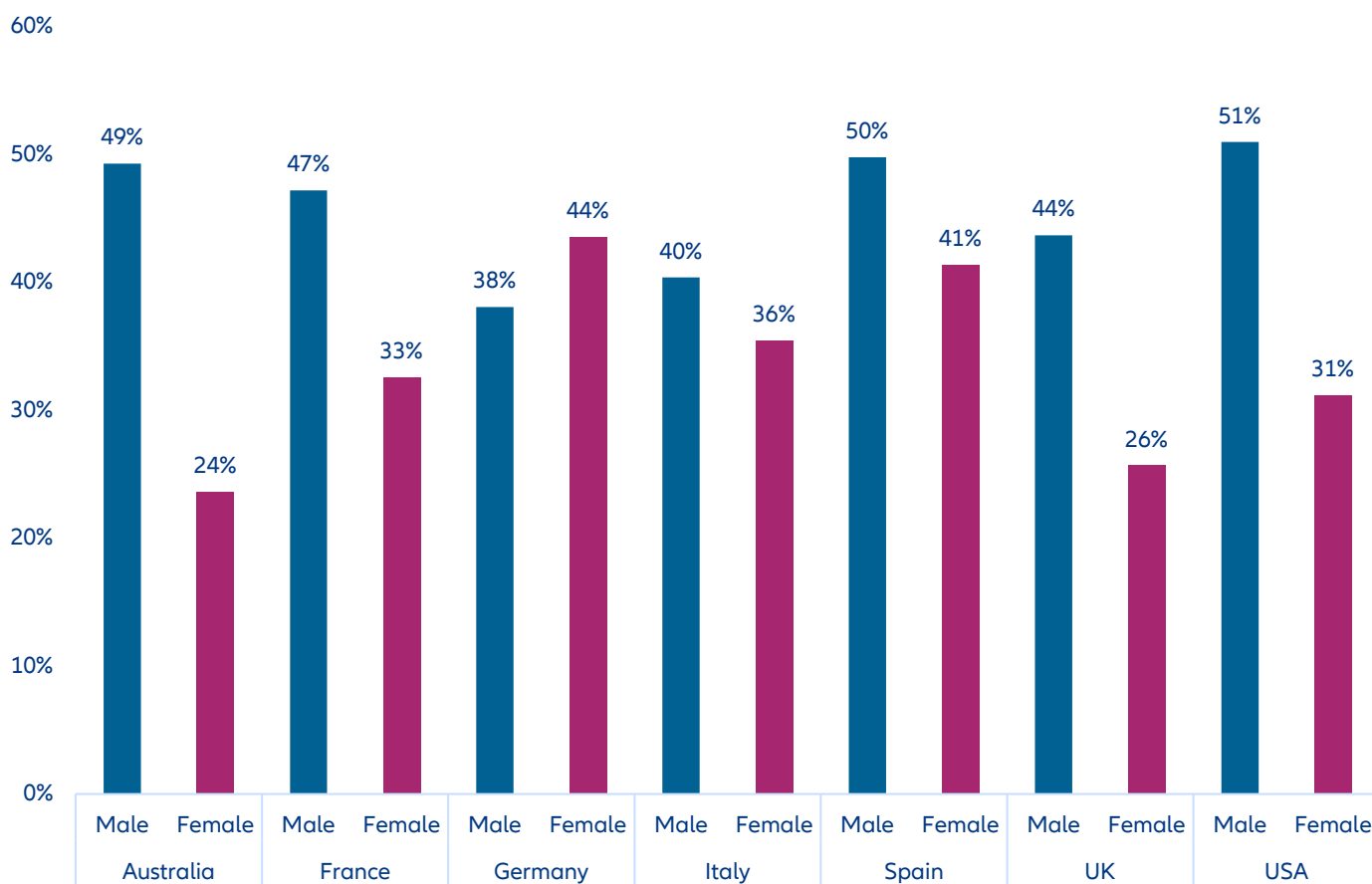


Sources: Eurostat, ONS, Australian Bureau of Statistics, US Department of Labor, Allianz Research

To draw a path for levelling the playing field for women in finance, we cannot ignore the structural inequalities that add another level of complexity to financial decisions: the pay gap and labor participation of women. Several factors explain or influence the gender pay gap in advanced economies: career preferences, the overrepresentation of women in lower-paid roles and consequent underrepresentation in higher-paid industries such as STEM (science, technology, engineering and mathematics), lower labor participation to accommodate for caring activities and shorter working lives.¹³

In our survey, we found that only 33% of women reported feeling confident about their finances, while 46% of men reported the same. But not all countries have this confidence gap: Once again, Germany stands out with more financially confident female respondents. Even the other continental European countries display relatively small confidence gaps compared to the Anglo-Saxon countries in our sample. One possible explanation might be the more generous social welfare available both in general and for young mothers in particular, arguably the financially most vulnerable group. For more details, see the next box on the German *Elterngeld* (Figure 4).

Figure 4: Landing in the confidence league
 “How do you feel about your financial situation?”, answers of feeling very and somewhat confident by gender, in %



Source: Allianz Research

¹³ Blau, Francine D., and Lawrence M. Kahn. 2017. “The Gender Wage Gap: Extent, Trends, and Explanations.” *Journal of Economic Literature*, 55 (3): 789-865.

The importance of Elterngeld¹⁴ for women

One angle to financial literacy that should be considered is keeping up with changes in regulation. In countries where individuals count on social protection programs, it is important to consider them when making financial provisions – or life plans. Such is the case of the Elterngeld benefit (parental allowance for the first 14 month after the birth of child) in Germany.

To meet the austerity targets of the finance ministry, the family ministry in Germany plans to halve the income limit for Elterngeld and to cancel it for couples with a taxable annual income of more than EUR150,000; currently, the income limit is EUR300,000. Fewer parents would be entitled to Elterngeld if the income limit is to be lowered. Today, this decision would affect 60,000 couples in Germany with an average income of around EUR177,000. The change in policy would cut spending in 2024 by EUR290mn compared to this year, to just under EUR8bn.

According to surveys by the Federal Statistical Office, parents spend on average more than one-fifth of their total expenses on their children. But persistently high inflation and the energy crisis have created a cost-of-living crisis for the working population, increasing expenses. Couples in Germany typically use the Elterngeld to financially bridge the first year after the birth of their children as there is high competition for places in both public and (costly) private daycare that can prevent both parents from swiftly returning to work.

According to the Bertelsmann Foundation, there is a shortage of 378,000 daycare places in Germany, a country whose population would be in decline if it were not for immigration. As an aging society, the country cannot afford to instill obstacles for couples that want to have children. Additionally, the limits on Elterngeld could work against the progress on gender equality and could subtract financial independence from women in an economically vulnerable time.

¹⁴ Parental benefits





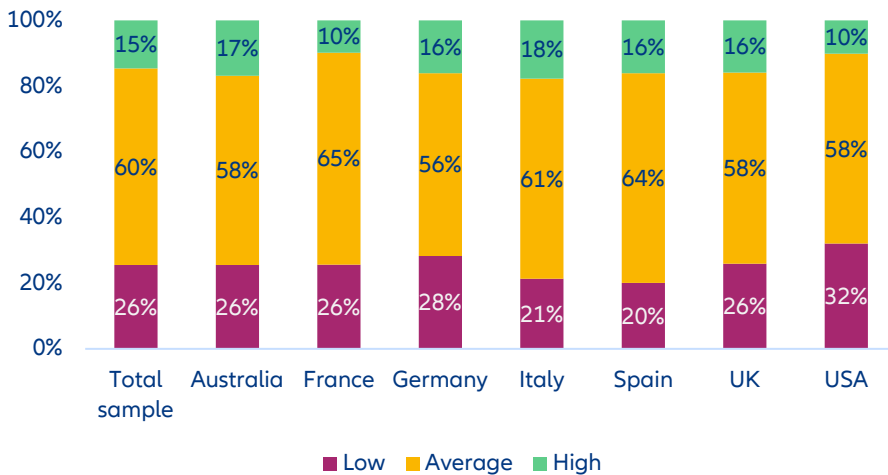
Photo by Lesly Juarez Unsplash

The financial literacy scoreboard - too many own goals

Apart from the gender gap, the financial literacy scoreboard looks not too pretty. Only 10-18% of all respondents have high levels of financial literacy, with Italy having the largest share of highly financially literate individuals (18% of Italian respondents), while

the US and France are in the lower range (10% of the respondents). In all countries, the share of respondents with low financial literacy is significantly higher; in the US, there are three times as many respondents with low financial literacy as those with high financial literacy (Figure 5).

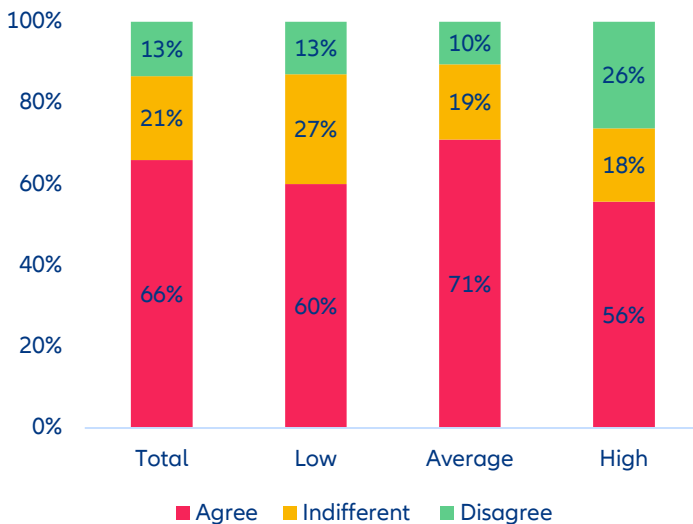
Figure 5: Scoring own goals for financial literacy
Levels of financial literacy by country, in %



Source: Allianz Research

Because of the important role that confidence plays in making financial decisions, we asked a couple of questions concerning financial confidence. When asked if respondents considered that they know more or less than the average investor, those that exhibited low levels of financial literacy had a larger share of respondents that reported to be indifferent to the question (27%). However, the real gap was revealed in those that considered themselves to be more money-savvy than the average investor. Those with low (13%) and average literacy (10%) strongly differed from those with high financial literacy (26%), who tend to disagree more with the statement “I know less than the average investor about financial markets and investing” (56% vs 66% of the total sample, Figure 6).

Figure 6: Confidence hall of fame
“I know less than the average investor about the financial markets and investing”, answers in % by level of financial literacy



Sources: Allianz Research

Similarly, when asked how they felt about their financial situation, the share of respondents that reported being very stressed was 18% for those with low financial literacy, 12% for those with average financial literacy and only 7% for those with high financial literacy. Although this is not a causality claim, we found that the share financially confident respondents increased with financial literacy (low: 31%, average: 40% and high: 49%).

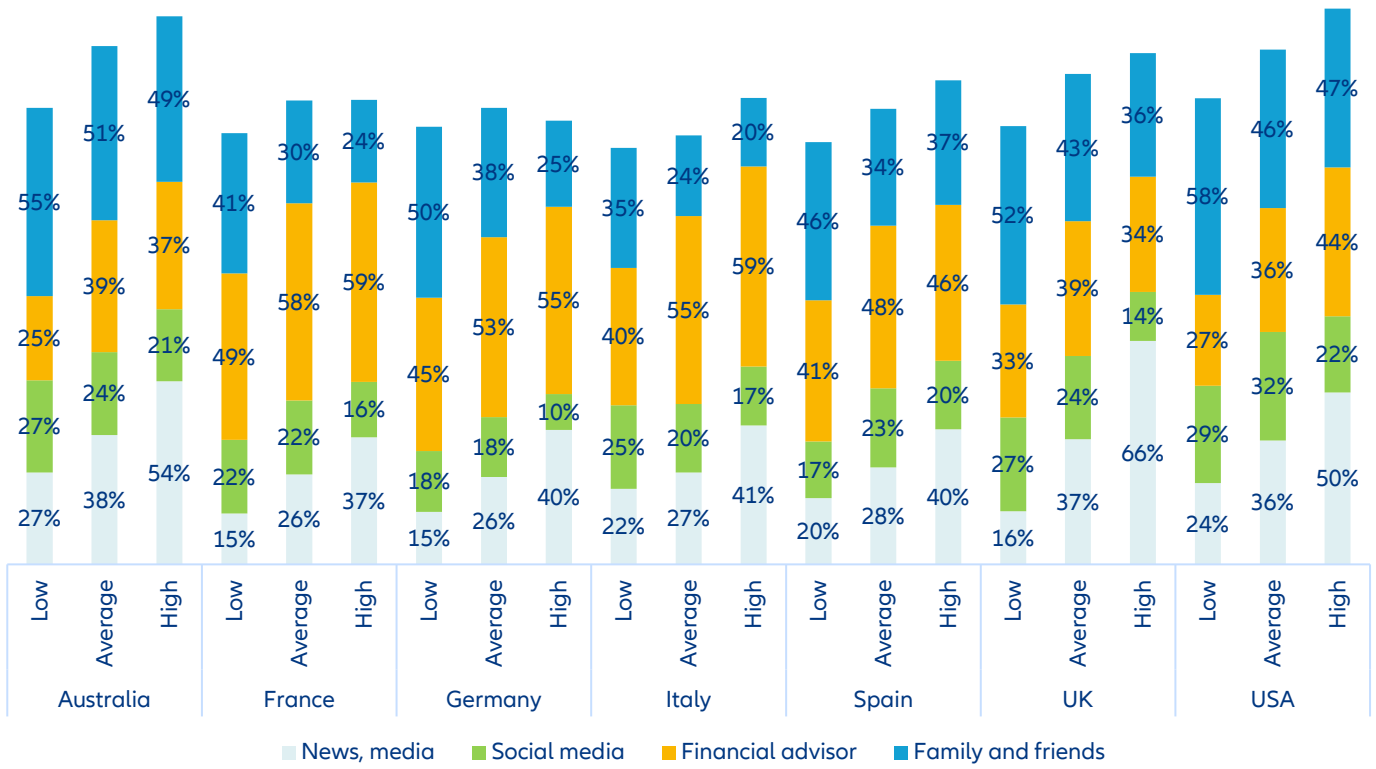
What we found in all countries is that individuals that exhibit high levels of financial literacy tend to be more news/media-driven, which might have implications for the re-balancing of investment portfolios or changing consumption and saving patterns as the better understand that times are a-changing. A larger share of those that exhibit lower levels of financial literacy prefer seeking guidance from family and friends – a choice that might be good for morale but not necessarily expertise. In France, regardless of the levels of financial literacy, a large share of the population seeks professional advice (56%); in Italy (53%) and Germany (51%), this share of respondents is also relatively high. But it is much lower in the three Anglo-Saxon countries in our sample, ranging from 34-37% (Figure 7).

Unsurprisingly, social media is mostly quoted as a source of financial advice amongst Gen-Z (39%) and Millennial (31%) respondents; for the total sample, the share is 22%. But even among younger respondents, social media is not the most preferred source of advice: For Gen-Z, family and friends (48%) rank higher, while for Millennials financial advisors (47%) as well as family and friends (43%) are more important.

The popularity of relying on family and friends could be related to the shame factor associated with asking for financial advice. Depending on an individual’s economic situation, money can be seen as a source of stress, security or freedom. Financial hardship in particular is an established source of shame as self-worth is often attached to net worth. This can create a vicious cycle: Shame can work as a driver, exacerbating financial hardship as it induces cognitive withdrawal. In this case, individuals might prefer discussing money matters with their next of kin, if at all. Research shows that shame helps set a poverty trap by creating self-reinforcing cycle of financial hardship.¹⁵

¹⁵ Gladstone, Joe J., et al. “Financial Shame Spirals: How Shame Intensifies Financial Hardship.” *Organizational Behavior and Human Decision Processes*, vol. 167, Nov. 2021, pp. 42–56, <https://doi.org/10.1016/j.obhdp.2021.06.002>.

Figure 7: Who's your coach?
 "Where do you get financial advice?" answers in % by country and level of financial literacy, multiple answers possible.



Source: Allianz Research

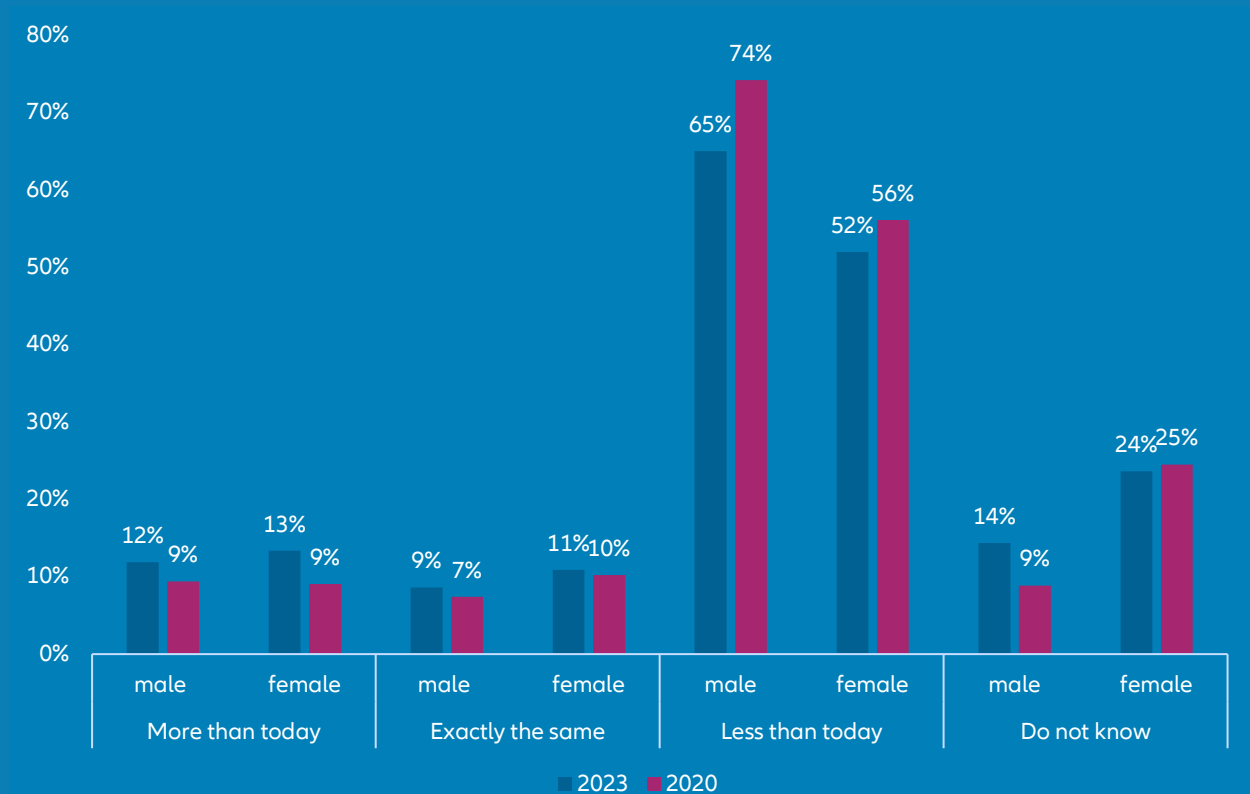


Learning from defeat?

We conducted our last financial literacy survey in autumn 2020. At the time, inflation was not yet an issue: The German inflation rate, for example, was still in negative territory (-0.5%) in September 2020. With recent developments, we would expect more respondents to be aware of the harmful effect of inflation? But to our great surprise, the opposite is true: When asked about how inflation affects savings, fewer respondents answered correctly in 2023 than three years ago (Figure 8).

Figure 8: Inflation? What inflation?

Imagine that the interest rate on your savings account was 5% per year and inflation was 7% per year. After one year, how much would you be able to buy with the money in this account? Answers in % by gender



Source: Allianz Research

Of course, we did not survey exactly the same households this time. But the differences are so large – 9pps in the case of male participants – that they are impossible to ignore. There is no question that most people understand that rising prices limit their ability to consume; as a result, despite increasing spending, there is less demand for goods and services. However, many do not seem to be fully aware of what this means for their own savings. More than a third of the participants are subject to the “money illusion”, not realizing that the value of money is not determined by the number printed on it but rather by its purchasing power, which is variable and decreases with positive inflation rates.

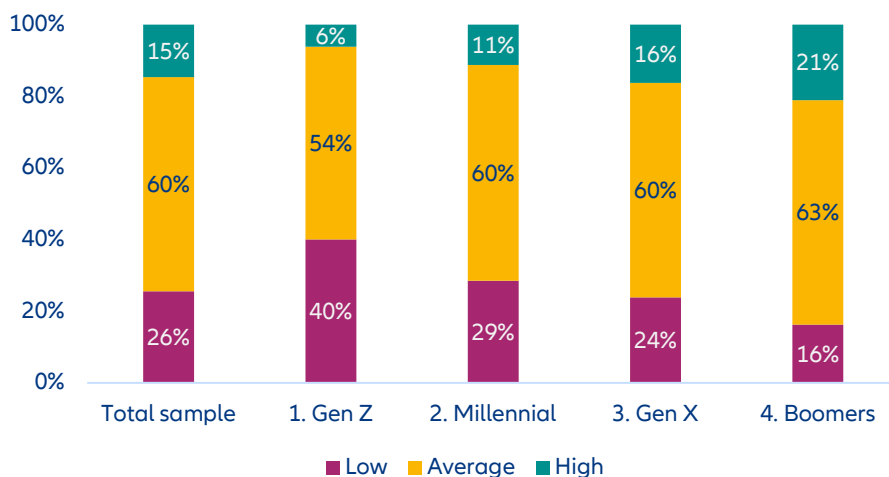
The fact that this proportion of participants has increased over the last few years – despite their own painful experiences of inflation and the non-stop media coverage – offers only one conclusion: Financial literacy is not something that people learn automatically if they are only exposed to a “real experiment”. Instead, negative experiences seem to lead to cognitive retreat. Increasing financial literacy therefore requires concerted efforts by all stakeholders to enable conscious and reflective engagement with the topic. Learning by experience apparently has only limited success in the area of financial literacy.

Old players know the game – financial literacy increases with age

The world that younger generations will inherit has radically changed in the last decades, even in terms of financial security. In previous generations, consumers in many countries relied on social security and employer-sponsored defined-benefit pension plans. Today, the policy shift to defined-contribution pension plans is almost complete; this gives households greater control but also greater responsibility over the long-term choices that they need to make to fund their retirement. This makes financial literacy all the more important.

Consistent with our previous work on financial literacy, we find that it increases with age. There was a higher concentration of respondents with high financial literacy among the older generations (Baby Boomers: 21%) compared to the rest (average 15%), and in particular compared to younger generations: Gen-Z: 6% and Millennials: 11% (Figure 9).

Figure 9: Experience beats youthful ardor
Levels of financial literacy by age, in %

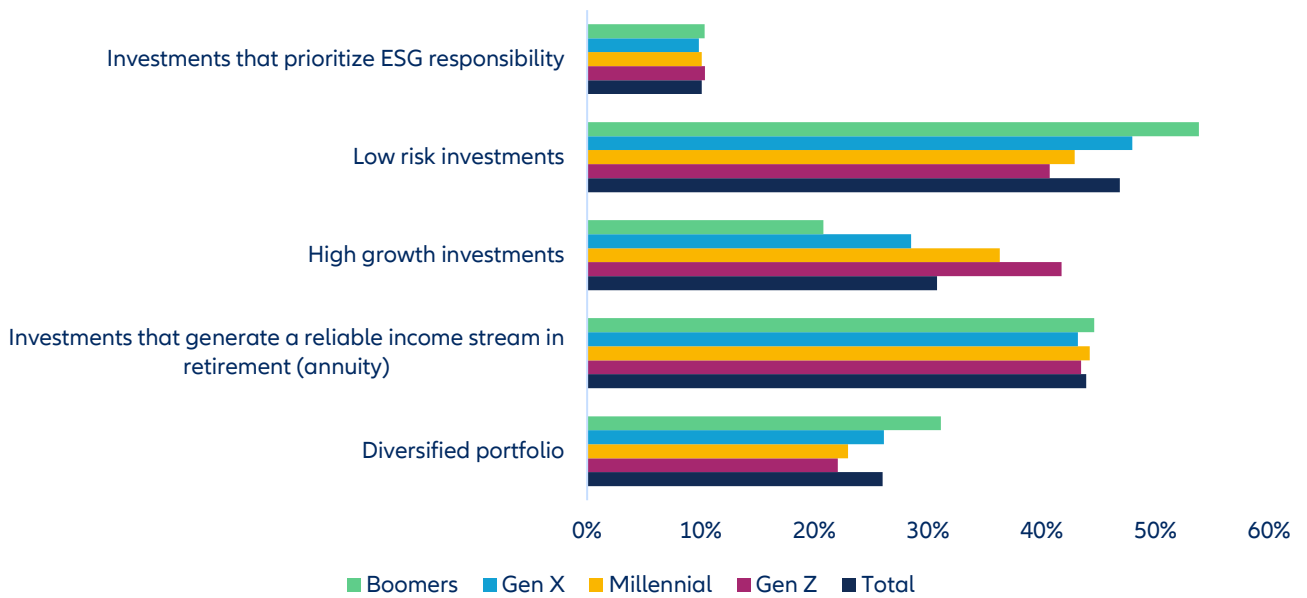


Source: Allianz Research

With the newfound autonomy in retirement products, it is worthwhile to look at what different generations – especially those that are either close to retirement or not at all – consider the top criteria for long-term investment. It is sobering that only 10% of the total sample considered ESG (environmental, social and governance) responsibility as a top criterion for investments. Against expectations, there was almost absolute homogeneity in the sample across ages. Instead, our respondents chose a different type of sustainability: a reliable income stream (44% of the total sample chose this option). Low risk was the preference of those approaching: 54% of Baby Boomers picked it as a top criterion. On the other hand, high-growth investments were a priority most often quoted among Gen-Z and Millennials (42% and 36%, respectively, Figure 10).

In this context, financial literacy interventions focused on young adults should place specific emphasis on sustainable finance. Winning the race against climate change needs a concentrated and united effort; reliable income streams will not be possible in a volatile and uncertain world so the trade-off between not prioritizing sustainable and green investments is life as we know it, not just financial returns.

Figure 10: Drafting green players
 “Top criteria I consider important when choosing retirement investments.” Answers in % by age, multiple answers possible.

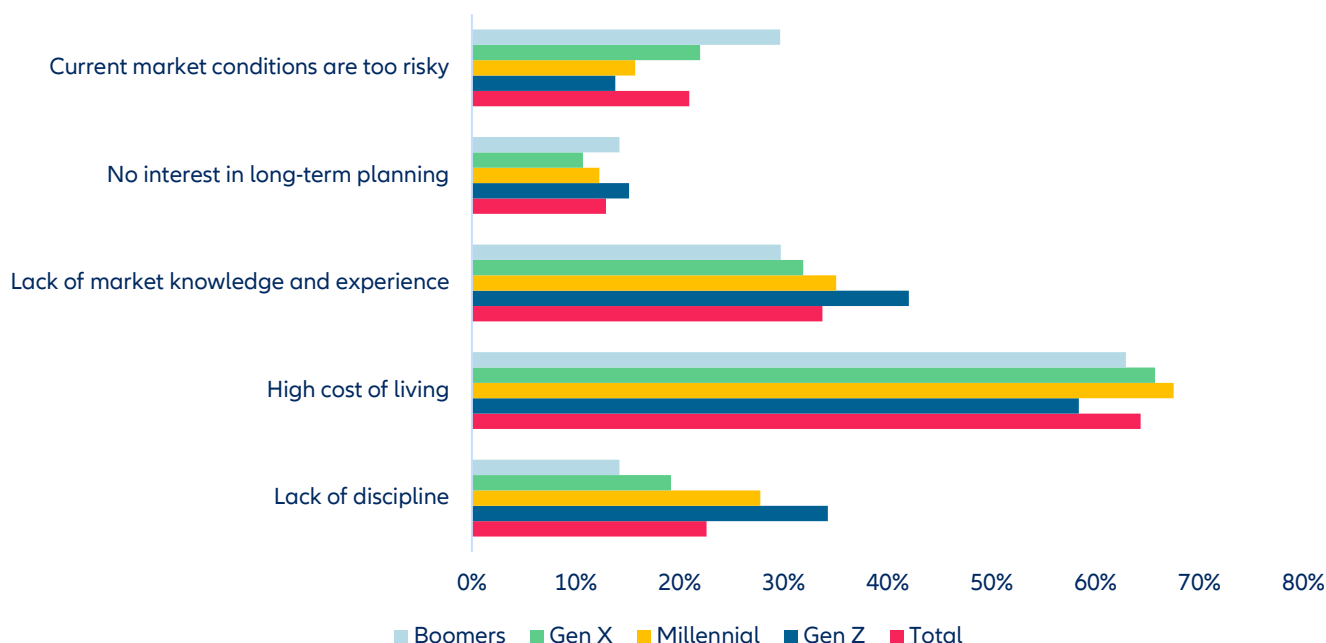


Source: Allianz Research

There are some aspects of finance and the economic environment that cannot be covered by a course in financial literacy: a cost-of-living crisis, graduating into an unfavorable labor market, the gender pay gap or even high energy costs. However, the goal of financial literacy is to enable individuals to weather the storm. We asked our respondents what they perceived to be barriers to long-term financial planning and investing. Unsurprisingly, the high cost of living was quoted as a factor that leaves little wiggle room to save and invest. Planning and budgeting and being careful with expenses may help create some space in some instances, but it might also create more unwanted stress – financial literacy interventions can shed some

light on how to invest even small amounts. The bigger impact that it could have is with those that consider lack of market knowledge and experience as a barrier – the second most popular option chosen (34% of the sample). Trading experience is not required to buy financial assets, but guidance on how these assets have performed in the past and the outlook for the future might boost morale for those interested in investing – especially for the 42% of Gen-Z that are about to start or just starting their careers and find that market knowledge is a barrier. Another barrier for long-term planning for 34% of this generation was a lack of discipline (Figure 11).

Figure 11: Bad season for all
Perceived barriers to long-term financial investing, answers in % by age, multiple answers possible



Source: Allianz Research

To end on a positive note: There is reason to hope for the next generations as they seem fully aware of the challenges ahead and the need to prepare. When we asked how they would change their savings behavior in the future, 58% of Gen-Z respondents said they would like to save more compared to pre-inflation times; 46% of Millennials said the same, compared to only 34% of the Gen-X respondents and 21% of the Baby Boomers. Experience comes with age, but the perma-crisis mode that Gen-Z faces is providing quite the educational experience.

Financial literacy matters most in crunch time

The ability to make informed financial decisions is always essential. Procrastination is never a good advisor but – as our survey shows – it is often the first “choice” for people with only little financial literacy. Lack of knowledge and mathematics anxiety lead to uncertainty, which in turn leads to the avoidance of decisions perceived as (too) difficult.

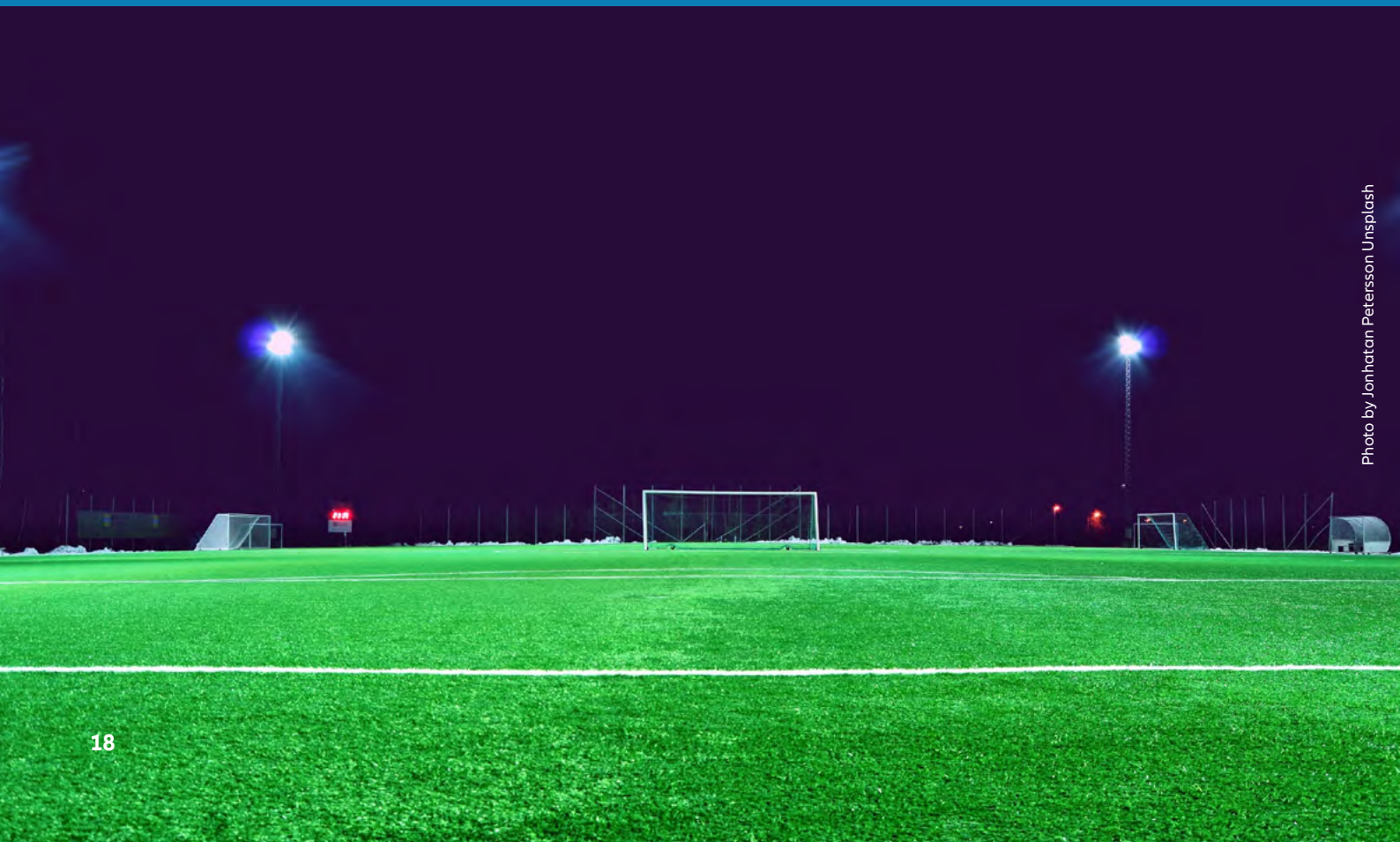
How high the costs associated with such behavior are depends to a not insignificant extent on circumstances. The past two decades have been “benign” years in this respect. The low and zero-interest-rate policies that have prevailed since the Global Financial Crisis fueled an “everything rally” on the financial markets. According to McKinsey, asset price inflation has created USD160trn in “paper wealth” since the turn of the millennium.¹⁶ In such an environment, almost all investment and savings decisions paid off, albeit to varying degrees. What’s more, inflation was not an issue in these years (which enabled the unprecedentedly expansive monetary policy in the first place) so even cash hardly lost value: Even if the money in the bank – or under the mattress – did not yield any returns, at least its purchasing power remained more or less intact.

This (anomalous) phase came to a spectacular end with Covid-19 and the Ukraine war. Since then, markets have been extremely volatile and a clear direction can hardly be predicted for the next few years. In such an environment, informed financial decisions have naturally become incomparably more important as the specter of losing money has become all too real: There is no longer any certainty of positive returns, regardless of how assets are invested. But above all, the default option – cash – is no longer an option. Because with inflation, doing nothing becomes really expensive. Even at a comparatively moderate inflation rate of 3% – which seems likely for the near future, given the numerous structural inflation drivers from demographics to de-globalization – money loses a quarter of its purchasing power after only ten years; after 20 years almost half is gone. At a rate of 4%, a third will have been consumed by inflation in ten years.

To paraphrase a famous advertising slogan, financial education has never been as valuable as it is today.

¹⁶ McKinsey Global Institute (2023), The future of wealth and growth hangs in the balance.

¹⁷ See The “five Ds” of structurally higher inflation ([allianz.com](https://www.allianz.com))



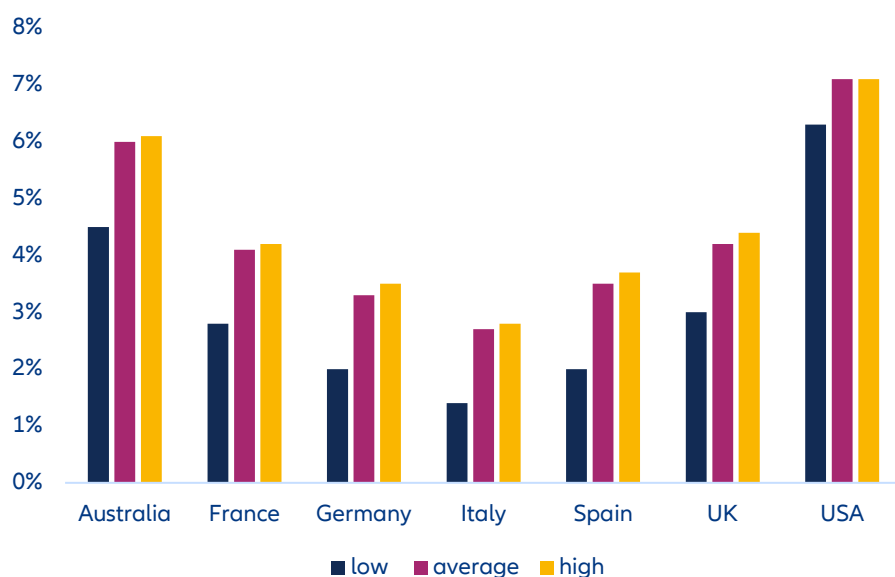
The kick-off of financial literacy

What difference does financial literacy actually make? The results of our survey, in which we also asked participants about their assessment of various asset classes in the current investment environment, allow us to construct an ideal type portfolio depending on the level of financial literacy. What is striking here is that those participants with low financial literacy most often choose cash as an investment. Moreover, with a share of 38%, the group of undecideds – who ultimately leave their money untouched in their current accounts – is also by far the largest among them (average financial literacy: 15% and high financial literacy: 7%). Both together lead to a strong overweighting of cash: compared to the portfolio of participants with average financial literacy, the share of cash is 67% higher; at the same time, equities and investment funds are underweighted by around 30%.

In the next step, we adjusted these three ideal typical portfolios to the prevailing structures in the respective market because our participants do not make decisions in a “free” investment environment but are subject to the conditions and institutions of their country. This implies, for example, a high share of pension funds in Australia, due to the popularity of “superannuation” there, or a high share of equities in the US due to the widespread use of 401k plans.

In the final step, we calculate the average real annual return of these portfolios by taking the respective actual performance of the stock and bond markets over the last 20 years. Figure 12 summarizes the results.

Figure 12: Playing the game
Average real annual returns on financial assets by level of financial literacy, in %



Source: Allianz Research

Three observations stand out. First, returns increase with the level of financial literacy. This is by no means self-evident. For the period observed also includes the years 2008 and 2022, in which equity investors (2008) and bond investors (2022) lost a lot of ground. These were disastrous years for the “pros”, when the default option “cash” proved to be the far better alternative.

Second, the difference in returns between average financial literacy and high financial literacy is small. The portfolios of these two investor types are already largely similar. This is true for all markets in our survey. On the other hand, the difference in annual average returns between low and average financial literacy is considerably higher, ranging from 1.2% in France to 1.5% in Spain. Only the US is an exception here, where the annual difference in returns is 0.8%. One possible explanation is the relatively high share of equities even among the low financial literacy investor type due to the institutional framework conditions. Together with the extraordinary development of the US equity markets – an increase by a factor of 6.5 can be observed since 2002 – this leads to a certain levelling of returns.

Third, returns in Anglo-Saxon markets are higher. There are two reasons for this: First, the institutional framework that ensures the widespread use of funded pension schemes. As a result, many investors – directly

or indirectly – have a high proportion of equities and other high-yielding assets in their portfolios. In addition, there is the strong development of the stock markets themselves – which of course should not be seen in isolation from the institutional framework. Besides the US, Australia also stands out here, with a market that more than quintupled. Only the UK is somewhat out of line with the trend for Anglo-Saxon markets: Although its stock market development is also quite respectable – an increase by a factor of 4 since 2002 – it nevertheless lags slightly behind France (4.1) and Germany (4.8); the reasons are probably to be found in the home-made problems (cue Brexit). Bringing up the rear in this analysis are Italy (2.1) and Spain (3.2), which suffered particularly from the euro crisis. It is quite telling that, despite the big difference in market performances, returns in Germany and Spain are overall pretty much the same, testament to the generally rather cautious investment behavior of German households, with their penchant for liquidity, i.e. cash and bank deposits. How do these differences in returns translate into euros? Table 1 provides an overview based on the amount of financial assets owned by the average household in the respective country (and under the simplified assumption of a uniform average household size of two persons in all countries).

Table 1: Taking the gold home
Annual surplus investment income per household over the investor type low financial literacy, in Euro

	Australia	France	Germany	Italy	Spain	UK	USA
Average Financial Literacy	4,690	2,390	2,300	2,150	1,750	3,210	4,740
High Financial Literacy	5,000	2,730	2,690	2,300	1,910	3,690	4,870

Sources: Qualtrics, Allianz Research

These figures need no further explanation, they speak for themselves: Over long investment periods – as is common in old-age provision – financial illiteracy costs a fortune, literally.

Note that in the US, the excess return is the highest even though the yield difference is the smallest. This is solely due to the fact that the average financial assets in the US are more than twice as large as in the other markets studied.



A level playing field needs strong referees

The results of our study lead to only one conclusion: this state of affairs urgently needs to be addressed. All the more so as the investment environment will only become more difficult in the future; increased inflation and volatile markets speak clearly here. In this respect, the costs of financial illiteracy – which were already substantial in the past, as our calculations show – are likely to rise even further.

So what needs to be done to increase financial literacy? A two-pronged approach is called for. First, of course, the state needs to step in. The prerequisite for financial education is a basic knowledge of mathematics. Here, deficiencies must be remedied quickly. In addition, financial topics should be part of the curriculum of secondary schools.

These demands are by no means new. However, the numerous initiatives so far have had little success. Why do we think it could be different this time? For two reasons: Firstly, Generative Artificially Intelligence (GenAI) is a powerful tool that is likely to revolutionize school teaching in the next few years. Personalized and interactive learning journeys will become possible. This should significantly improve learning outcomes in terms of quality, quantity and accessibility for students. Financial education should also benefit from this. On the other hand, as our calculations show, individuals do not need to become proven financial experts to achieve good financial results; average financial knowledge is sufficient. The decisive step is the one from financial illiteracy to basic knowledge and understanding. Further financial knowledge certainly does no harm but should not be mandatory for the majority of households either.

Artificial Intelligence – playing with a robot, a human-less solution for financial literacy?

Generative Artificial Intelligence (GenAI) will change everything – can it also tackle the issue of (low) financial literacy? With a little imagination, it is possible to assume that in the not-too-distant future everyone will have their own personal, AI-powered financial advisor who will make all-important financial decisions largely autonomously. The general promise of AI is that knowledge and experience will become obsolete, outsourced to much more powerful helpers. In this context, the problem of financial literacy could be solved by transferring it from error-prone humans to infallible machines. Is this utopian? Not necessarily. Today's robo advisors can be seen as a precursor. At the same time, however, they also reflect the limitations of technology. Despite impressive growth figures, robo advisors are still a niche market today, aimed primarily at wealthier clients. They are miles away from full market penetration. So even if GenAI should give the market fresh impetus, the brave new world will still be a while in coming.

In the meantime, however, GenAI can indeed help, if not to solve the problem of (low) financial literacy, then at least to mitigate it. After all, the biggest changes these new technologies can be expected to bring are in the area of education. GenAI has the potential to create new – and infinitely more effective – ways of learning: personalized learning journeys and engagement with digital experts. In this way, more and more people can be educated, and financial literacy can reach the masses, democratizing financial knowledge. But let there be no misunderstandings here: We expect GenAI to fundamentally change the entire field of education, from school to university, and to enable new methods of individual learning based on one's own strengths and weaknesses. The level of learning in general should benefit from this; financial literacy is only a small part of this story.

Nevertheless, the problem of (low) financial literacy will not disappear completely. Our survey and literature have made it clear that basic (mathematical) knowledge is only part of the challenge. Equally important are the "soft skills", above all confidence in one's own decisions and thus the courage to make one's own decisions in the first place. This behavioral side of financial literacy certainly cannot be addressed using GenAI alone. Human beings will probably still be needed in the future to solve „human“ problems. This is one reason why we at Allianz are sticking to the concept of coaches – at least for now.

Secondly, in addition to the state, the financial industry is also called upon to make its contribution to increasing financial literacy. For one simple reason: financial education is more than just basic mathematical knowledge. How else could the pronounced gender gap be explained, since it is rather girls who achieve better learning results at school? For true financial education, however, knowledge must be accompanied by confidence in one's own abilities and decisions. And this is the domain of the financial industry: the "moment of truth" when savings plans are concluded, or life insurance policies are signed. This confidence cannot be acquired in school, in theory, but only in practice. So what should the industry do? Low threshold offers and simple products are essential. These reduce initial fears of contact. In addition, companies should also actively reach out to their (future) customers, for example with information events and trainings. Here, too, GenAI is likely to play an increasingly important role in the future. But precisely because this is also about the behavioral side of financial literacy, overcoming inactivity and the joy of becoming active oneself, people play a role here that can hardly be overestimated. That is why we at Allianz have consciously decided to put "real" coaches

at the center of our various financial literacy offers – be it the Squared Ball campaign for young female athletes or the Financial Workout for high-school students. In the end, the interpersonal aspect is the success factor for boosting financial literacy.

Concretely, a successful financial literacy intervention, in particular those catering to women, should include a four-cornerstone approach to smooth the squared ball and level the playing field. First, it should tackle confidence and the paralyzing effect of not feeling knowledgeable when it comes to finance. Second, it should empower women to discuss any financial struggles openly without any shame factor, enabling them to come up with a plan to reach financial goals. Third, it should provide actionable steps to building a savings fund for a rainy day or building a fund for investment. Lastly, it should enable women to understand the risks and return trade-off of the different financial assets available for investment and help them decide what is best for their life plan. In other words: Confidence. Budgeting. Saving. Investing.

Appendix A: About the survey

Survey data & statistics overall responsibility for methods: Allianz Research, Allianz SE

Planning and drawing the sample: Qualtrics

Sampling method: Representative quota sampling

Qualtrics was given quotas instructing them on how many people to survey and which criteria to use in selecting respondents. The quotas were distributed in accordance with official statistics among gender, age groups and education.

Representativeness: A comparison with official statistics shows that the survey data overall corresponds to the total population age 18 and over in the seven countries.

Type of survey: Web-based survey

Distribution of survey: 16.06 – 29.06.2023

	Total	Australia	France	Germany	Italy	Spain	UK	USA
Number of participants	7095	1014	1013	1007	1013	1019	1012	1017
Gender, in % of respondents								
Male	48.9%	48.2%	48.5%	50.7%	49.1%	49.3%	48.7%	47.6%
Female	50.7%	51.4%	51.5%	49.3%	50.6%	50.4%	50.7%	51.1%
Diverse	0.4%	0.4%	0.0%	0.0%	0.3%	0.3%	0.6%	1.3%
Generation, in % of respondents								
Generation Z	14.8%	19.3%	14.0%	14.4%	13.1%	12.2%	14.4%	16.3%
Millennial	29.4%	28.9%	29.0%	27.9%	26.5%	30.2%	32.1%	30.9%
Generation X	30.4%	24.2%	29.1%	30.6%	34.6%	35.5%	29.1%	29.4%
Baby Boomers	23.7%	21.9%	26.7%	25.9%	25.0%	21.3%	22.9%	22.5%
Silent	1.7%	5.7%	1.2%	1.2%	0.8%	0.8%	1.5%	0.9%
Education, in % of respondents								
Primary (less than High school)	10.7%	3.0%	5.0%	52.2%	2.5%	4.2%	1.8%	6.6%
Secondary (High school)	43.7%	42.1%	50.2%	24.3%	57.7%	40.4%	48.1%	43.0%
Tertiary (university or comparable)	45.6%	54.9%	44.7%	23.4%	39.8%	55.3%	50.1%	50.4%

Generation definition	Birth years
Silent*	1928 - 1945
Baby Boomers	1946 - 1964
Generation X	1965 - 1980
Millennials	1981 - 1996
Generation Z	1997 - 2012
Generation Alpha**	2013 - 2031
*Not mentioned in the analysis as it was a smaller portion of the s	
**Not part of the survey sample	

Source: Pew Research Center

Appendix B: Financial and risk literacy questions

1. Understanding of simple interest rate. Suppose you had USD500 in a savings account and the interest rate was 5% per year. After one year, how much do you think you would have in the account if you left the money to grow?

- a. USD 525
- b. USD 555
- c. USD 532
- d. I do not know

2. Understanding of compound interest rate (numeracy). Suppose you had USD1000 in a savings account and the interest rate was 2% per year, compounded annually. After 5 years, how much do you think you would have in the account if you left the money to grow?

- a. More than USD 1100
- b. Exactly USD 1100
- c. Less than USD 1100
- d. I do not know

3. Understanding of inflation. Imagine that the interest rate on your savings account was 5% per year and inflation was 7% per year. After 1 year, how much would you be able to buy with the money in this account?

- a. More than today
- b. Exactly the same
- c. Less than today
- d. I do not know

4. Understanding of risk diversification. Please tell me whether this statement is true or false. "Buying a single company's stock usually provides a safer return than a mutual fund."

- a. True
- b. False
- c. I do not know

5. Lotteries. Lottery A pays a prize of USD200 and the chance of winning is 5%. Lottery B pays a prize of USD90,000 and the chance of winning is 0.01%. In either case, if one does not win, one does not get any money. Which lottery pays the higher average amount? (Please pick one option only)

- a. Lottery A
- b. Lottery B
- c. These two lotteries pay the same average amount
- d. I do not know

6. 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... (Please pick one option only)

- a. Higher return and lower risk
- b. Same average return and lower risk
- c. Lower return and higher risk
- d. I do not know

7. You want to set aside money today for certain expenses in two years. Which of the following investment offers are suitable:
- a. A fund with an annual return of 7% in the past but also large fluctuations
 - b. A two-years fixed-term deposit with a fixed interest of 1.5% per annum
 - c. I do not know
8. How would you calculate financial net worth?
- a. Assets minus liabilities
 - b. Liabilities minus assets
 - c. Assets plus liabilities
 - d. Assets divided by liabilities
 - e. I don't know
9. Imagine we are throwing a loaded die (6 sides). The probability that the die shows a 6 is twice as high as the probability of each of the other numbers. On average, out of 70 throws how many times would the die show the number 6?
- a. 20 out 70 throws
 - b. 30 out of 70 throws
 - c. 35 out of 70 throws
 - d. I don't know

A close-up photograph of several hands of different skin tones stacked on top of each other, resting on a tree trunk. The background is a lush green forest with sunlight filtering through the leaves. The text 'Our team' is overlaid on the image.

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Allianz Research comprises Allianz Group Economic Research and the Economic Research department of Allianz Trade.

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