Financially Savy Households as a Way of Smoohting Shocks in the Market Economy System

Igor Dvorkniczy[1] – Kornelia Belickova[2]

ABSTRACT: We assume that strengthening consumers' position has far-reaching benefits, including better decision-making, improved services from financial intermediaries, and, ultimately, overall financial stability. Therefore, the paper's main goal is to discuss the most effective way to achieve satisfactory national standards in financial literacy to better anticipate and respond to economic shocks through household financial decisions. Using inductive and deductive research methods, we generate a hypothesis and test it by utilizing microdata from the Household Finance and Consumption Survey, implemented by the National Bank of Slovakia and coordinated by the European Central Bank. Our findings demonstrate the impact of an individual's education on their level of financial literacy and how it affects financial decisions. Ultimately, our research proposes concrete solutions to improve financial literacy and decision-making, and so enhance financial stability.

KEYWORDS: Financial Skills, Financial Stability, Education and Economic Development

JEL-CODES: G41, G53, H31, I25, J24

DOI: https://doi.org/10.35551/PFQ_2025_1_9

Introduction

From an economic perspective, a household is a part of the national economy and, along with the government, firms, and foreign entities, is one of the four market entities where it acts as a consumer. The fundamental economic characteristic of each household is a regular income. As owners of production capital, households spend their income, creating their expenses, and at the same time hold significant potential for shaping the market. In order for a household to effectively manage its financial resources, achieve stability, and make informed decisions, its members need a

[1] MA. (Master's degree) Igor Dvornicky, PhD, Finance Director, Singapore, igor.dvornicky@gmail.com, +65 84363005;

[2] Assoc Prof. (Docent), P.Eng. (Engineer), Kornelia Belickova, PhD, Associate Professor (Teacher) at University of Economics in Bratislava, kornelia.belickova@euba.sk, +421 903446244;

financial plan and sufficient financial literacy to properly evaluate information.

The current environment, with increasingly frequent economic shocks from "black swan" events, as well as the recognition of financial cycle peaks and experiences with bursting bubbles, often associated with free falls of financial assets with unpredictable ends of uncertainty, underscores the importance of consumer protection and draws attention to the financial literacy of individuals in society as a key factor for long-term stability of the financial sector and thus the economy as a whole.

According to surveys, every year hundreds of millions of new participants (consumers) join the global financial markets. Thanks to digitization, access to world stock exchanges is becoming increasingly available to small-scale investors. The majority of these new participants come from developing countries that have transitioned from central planning to a market economy. However, in these countries, consumer protection and financial literacy have remained underdeveloped (Rutledge et al., 2010). As a result, the majority of the new participants in the global financial markets originate from these regions, including Slovakia and Hungary.

Additionally, there is a growing expansion of alternative investment options. After the long-standing trend of cryptocurrencies, the best examples of this phenomenon have been the booming NFT (Non-fungible token) marketplaces and the developing market of trading in the metaverse. These areas thrive in an environment of cheap money resulting from long-term global quantitative easing. However, the normalization of interest rates and the current inflationary pressures, along with "hawkish" monetary policy, have a liquidation effect on these projects.

Hence, we have recently witnessed the erasure of billions of dollars of investors' funds from around the world, including those of small-scale investors, during multiple crashes in the realm of cryptocurrencies and NFTs. Even the technological giants did not escape dramatic corrections in share values, as evidenced by the significant drop of 70% in the stock value of Meta company in 2022, due to its excessive focus on the metaverse domain.

Ultimately, consumer protection and financial literacy deficiencies impact both developed and developing countries. Strengthening consumer empowerment is crucial for efficient and transparent retail financial markets, especially considering their rapid long-term evolution. As financial markets become more complex, households are increasingly responsible for important financial decisions, such as retirement savings. Therefore, effective solutions for promoting financial literacy are vital in modern market economies (The Council, 1960 In OECD, 2005).

1. Methodology and work procedures

In both research and strategic management, the use of selective surveys based on statistical surveys is increasingly prevalent for obtaining decision-relevant information. In testing our hypothesis, we are working with qualitative categorical data derived from questionnaire responses. A properly designed and successfully evaluated questionnaire can provide a range of socio-demographic data with geographical inclusion of respondents. It can also capture the relationship between responses and their broader content while aligning with the research objective

(Taylor-Powell, 1998).

An important part of processing questionnaire data is the calculation of absolute, relative, and cumulative frequency distributions, which enables us to work with contingency tables (Pivot Tables). These tables, as a clever subsystem of the Excel program, also allow for calculations of selected statistics for the entire set of respondents as well as subsets of respondents defined by values of sorting variables or limitations of meaningful numerical variables (Chajdiak, 2013).

When certain values of one variable tend to change with certain values of another variable, we say that there is an association or relationship between the variables. Many characteristics of association are based on information about connections between all pairs of observations. Testing our hypothesis involves testing the association between selected categories in frequency tables in Excel. In a contingency table, each row typically corresponds to one value of one variable, and each column corresponds to one value of the other variable. The dependence of our categorical data is expressed using the Goodman-Kruskal test with the coefficient of gamma as a measure of association (Goodman, Kruskal, 1954).

A pair of observations for two units is considered concordant when the unit with a higher value on one variable also has a higher value on the other variable. Conversely, a pair of observations is considered discordant when the unit with a higher value on one variable has a lower value on the other variable.

The symbol C is used to denote the total number of concordant pairs of observations, while the symbol D represents the total number of discordant pairs of observations in a contingency table. The values of C and D can be calculated using the following formulas:

$$C = \sum_{i<k} \sum \sum_{j<l} \sum n_{ij}\, n_{kl} \tag{1}$$

$$D = \sum_{i<k} \sum \sum_{j>l} \sum n_{ij}\, n_{kl} \tag{2}$$

n - represents the absolute frequencies in the contingency table (values of the joint distribution of absolute frequencies).

i, k - are indices for the values of the first variable.

j, l - are indices for the values of the second variable (Agresti, 2010).

The ratio of concordant pairs, C/(C + D), represents the proportion of concordance, while the ratio of discordant pairs, D/(C + D), represents the proportion of discordance. The difference between these ratios is known as gamma (γ).

$$\hat{\gamma} = \frac{C - D}{C + D} \tag{3}$$

In our literary study, we engage with highly regarded world literature, fostering a rich and unrestricted discussion that extends beyond a dedicated chapter. Encouraging creative expression, we allow the free flow of thought guided by pragmatism, facilitating the exploration of new postulates and, importantly, saturating the research problem to gain valuable premises.

2. The relationship between financial literacy and household financial decision making

Our primary interest in this open issue is to confirm and emphasize the connection between individuals' financial literacy and their financial decision-making. The early economic literature in this field is relatively young, as the documented link between financial literacy and various economic behaviours of the population can be traced back to the 1990s (Lusardi, Mitchell, 2014). For instance, Bernheim (1995, 1998) was among the first to highlight the lack of basic financial knowledge among a majority of American households, which he linked to their unguided savings behaviour.

Naturally, with the evolution of society, the relationship between financial literacy and economic behaviour has been explored by several researchers. Hilgert, Hogarth, and Beverly (2003) revealed a strong correlation between financial literacy and everyday personal financial management skills. According to Scheresberg (2013), financial literacy may also be associated with holding precautionary savings. Several other studies conducted in the United States and other countries found that individuals who are financially and mathematically literate are more likely to participate in financial markets and benefit from stock investments (Arrondel, Debbich, Savignac, 2012; Almenberg, Dreber, 2011; Christelis, Jappelli, Padula, 2010; Kimball, Shumway, 2006; Lusardi, Alessie, van Rooij, 2011; Yoong, 2011).

The study by Calvet, Campbell, and Sodini (2007, 2009) examined the behaviour of Swedish investors classified as "errors," finding that they were occurring more among groups with lower education levels, lower income, and immigrant households, which are associated with low financial literacy. Agarwal et al. (2009) also found that financial errors were most prevalent among young and old individuals who typically have lower financial knowledge.

Early studies on financial literacy, conducted in the USA and replicated in other countries, demonstrate a strong correlation between financial literacy and retirement planning. Engaging in retirement planning is associated with higher financial literacy and greater wealth accumulation (Lusardi, Mitchell, 2007).

When it comes to the passive side of household finances, research indicates that among individuals with low financial literacy, there is a higher likelihood of struggling with expensive mortgage repayments (Moore, 2003). Additionally, individuals with lower income and education, closely linked to limited financial knowledge, are less likely to seek mortgage refinancing during periods of declining interest rates (Campbell, 2006). Studies have also shown that less financially capable individuals tend to incur high transaction costs, fees, and borrowing costs (Lusardi, Tufano, 2015), engage in costly patterns when using credit cards (Mottola, 2013), and accumulate more debt while having less wealth (Stango, Zinman, 2009).

The high number of mortgage defaults during the financial crisis in the USA highlighted consumer errors in debt management. Many borrowers were unaware of the interest rates on their credit cards, instalment loans, and mortgages (Moore, 2003; Lusardi, 2011; Disney, Gathergood, 2012). Less financially literate individuals often struggle to assess their debt positions and are more prone to borrowing beyond their

means (Utkus, Young, 2011).

Studies examining specific areas of financial behaviour based on the level of financial literacy indicate that advanced financial knowledge, such as risk diversification and the ability to make calculations, are considered highly valuable skills (Lusardi, Mitchell, 2014).

2.1. Defining financial literacy and its measurement for international comparisons

Financial literacy has multiple definitions that are interconnected and evolving. Measuring its level, particularly among adults, remains a challenge with ongoing development of a unified monitoring mechanism. The Programme for International Student Assessment (PISA) by the OECD serves as a model for rigorous measurement. Slovakia, along with several other countries, participated in the assessment of financial literacy among 15-year-old students in three-year cycles. While Hungary took part in PISA assessments for other subjects, they did not participate in the assessment of financial literacy (OECD, 2020, p. 47).

The definition of financial literacy in the PISA Financial Literacy Assessment Framework refines the definition used for adults to make it relevant also for young students. Financial literacy is then: "knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life." (OECD, 2020, p. 43).

The OECD emphasizes the role of consumers and their financial skills in the system. Financial literacy equips consumers with knowledge, skills, and the ability to understand and evaluate information, enabling them to choose financial products that meet their needs. Financial education and literacy help bridge the knowledge gap and establish clear rules between financial market entities and households. With improved financial education, consumers are empowered to make decisions that enhance their quality of life (2005).

The Slovak document "The National Standard of Financial Literacy" highlights the correct perspective on financial literacy as a continuum of abilities influenced by variables such as age, family, occupation, culture, and place of residence. It represents a state of constant development that enables individuals to effectively respond to new personal events and constantly changing economic environments. In the context of increasing knowledge in the field of financial literacy, a significant component is focusing on the external environment in the labour market (2017).

Despite the limited data on financial literacy (hereinafter referred as FL) in Slovakia and the V4 countries, two notable measurements provide insights into the FL development among different age groups. The first one is the international study PISA, which provides valuable insights into the levels of financial literacy among 15-year-old students.

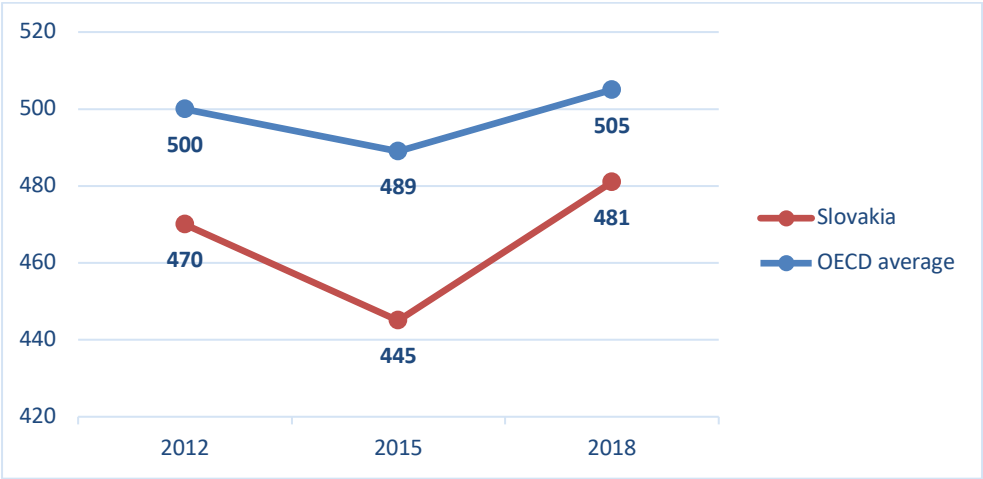

Figure 1: Average FL scores in Slovakia and OECD countries across different waves of the PISA study

Source: own processing, according to individual results of PISA cycles, 2023

In all cycles of the PISA study that included FL, the average score of Slovakia was significantly below the OECD country average. Looking at the graph, it is evident that there was a significant increase in the average score of Slovak students in the latest cycle (in 2018) compared to the previous cycle (in 2015) with an increase of 36 points. However, the student scores in 2018 were only 11 points higher compared to the year 2012, which is not a significant difference. This means that the performance of Slovak students in 2018 is at the same level as in 2012 (NUCEM, 2020).

Unlike student testing, there are currently no detailed and internationally comparable indicators available for the adult population's financial literacy. However, the Household Finance and Consumption Survey (HFCS) offers hope for a harmonised international methodology in the future. It provides a great opportunity to monitor the level of financial literacy among adults in Slovakia, covering crucial financial decisions that impact households (Kucserova, et al. 2019a, p. 1).

The latest results of the third wave of HFCS reveal a significantly low level of financial literacy among Slovak households. Only 9.6% of households were able to correctly answer all four questions, compared to a slightly higher rate of 10.6% in the previous wave in 2014. In the HFCS, questions are answered by the most financially knowledgeable individuals in the household, indicating that the financial literacy of other household members is likely lower.

3. Results and discussion

3.1. Impact of general education on household financial decisions

Financial literacy impacts household financial decision-making and is influenced by various factors. Empirical studies have identified regularities across different countries, linking financial literacy levels to specific groups or patterns. Income level and occupation type have been found to impact financial capability (Lusardi, Tufano, 2015), while age groups, race, and ethnicity also play a role (Lusardi, Mitchell, 2014). Geographical differences, including urban and rural influences, have been examined (Fornero, Monticone, 2011; Beckmann, 2013; Bumcrot, Lin, Lusardi, 2013). Family background, parental education, religious affiliation, and political beliefs have been identified as additional factors (Arrondel, Debbich, Savignac, 2012). Moreover, international literature highlights significant variations in financial knowledge based on education levels, including studies by Lusardi and Mitchell (2014) comparing the United States to Western European countries.

Similarly, we analyse the current impact of general education on the financial literacy of Slovak households using the latest survey results conducted by the National Bank of Slovakia. The questionnaire was completed by individuals within the household who had the highest financial understanding. A total of 2,179 questionnaires were collected, with a focus on comprehending the responses and assessing the educational background of the participant.

We aim to determine whether there is a relationship between educational attainment and financial literacy, specifically whether financial literacy increases with higher education or if a possible reverse relationship exists. Based on this, we formulate the following hypothesis:

Hypothesis: *The level of general education significantly correlates with the level of financial literacy.*

The hypothesis testing involves analysing the association between selected education categories and the choice of the correct answer using contingency tables. The dependence of our categorical data is assessed using the Goodman-Kruskal test, specifically by examining the gamma coefficient as a measure of association.

The range of gamma coefficient (γ) is $-1 \leq \gamma \leq +1$. It represents the difference between the probabilities of concordant and discordant ordering of randomly selected pairs of observations, assuming there are no ties. If the factors "A" and "B" are independent, γ is close to 0. If they are strongly dependent, γ approaches +1 or -1. A positive value of γ indicates a positive association, while a negative value indicates a negative association. The larger the absolute value of gamma, the stronger the association (Agresti, 2010 In Terek, Krocity, 2015).

From the perspective of testing the independence significance of the null hypothesis, we can start with the basic notation: H_0: Variables are independent H_A: Variables are dependent.

For the entire series of following steps, we present the following 4 questions:

Table 1: Summary of the posed question from questionnaire 1 and its

evaluation

Question 1 - Which of the following types of mortgages, in your opinion, allows you to determine both the amount and the number of instalments required to repay the loan from the beginning?	
Answer options	% of responses
1 Variable rate mortgage	12,0%
2 Fixed rate mortgage	**49,2%**
-1 I don't know	38,8%
-2 No response	0,00%

Results of responses to question 1 by the type of respondents' educational attainment							
Education level	Elementary	Secondary	Higher	By count	Elementary	Secondary	Higher
Correct responses	30,0 %	43,5 %	63,0 %		3	665	404
Incorrect responses	70,0 %	56,5 %	37,0 %		7	863	237
Total	100 %	100 %	100 %		10	1528	641

Source: own processing, based on data from the HFCS 2017 database at NBS

Table 2: Supplementary calculations for question 1

Partial calculations	Result
concordant pairs = C	356114
discordant pairs = D	160944
coefficient of statistical dependence $\hat{\gamma}$	0,377
test statistic	6,279
p-value	0,000

Source: own processing, 2023

Result: The relationship between education and the choice of the correct answer is positively significant (correlation: 0.377; p-value < 0.001)

Table 3: Summary of the posed question from questionnaire 2 and its evaluation

Question 2 - Will the purchasing power of 1,000 euros be the same after a year, considering a 1% interest rate on a regular account with no fees and a 2% increase in prices?	
Answer options	% of responses
1 Yes	3,2%
2 No, I will be able to purchase less	**67,4%**
-1 I don't know	38,8%
-2 No response	0,00%

Results of responses to question 2 by the type of respondents' educational attainment							
Education level	Elementary	Secondary	Higher	By count	Elementary	Secondary	Higher
Correct responses	40,0 %	62,0 %	80,7 %		4	947	517
Incorrect responses	60,0 %	38,0 %	19,3 %		6	581	124
Total	100 %	100 %	100 %		10	1528	641

Source: own processing, based on data from the HFCS 2017 database at NBS

Partial calculations	Result
concordant pairs	309145
discordant pairs	120018
coefficient of statistical dependence $\gamma\hat{}$	0,441
test statistic	6,890
p-value	0,000

Table 4: Supplementary calculations for question 2

Question 3 - Which of these investment strategies, in your opinion, carries a higher risk of losing money?	
Answer options	% of responses
1 Investing all savings in securities issued by a single company	**43,8%**
2 Investing all savings in securities issued by a wide range of independent companies	16,8%
-1 I don't know	39,4%
-2 No response	0,00%

Results of responses to question 3 by the type of respondents' educational attainment							
Education level	Elementary	Secondary	Higher	By count	Elementary	Secondary	Higher
Correct responses	10,0 %	38,3 %	57,6 %		1	585	369
Incorrect responses	90,0 %	61,7 %	42,4 %		9	943	272
Total	100 %	100 %	100 %		10	1528	641

Source: own processing, 2023

Result: The correlation between education and the choice of the correct answer is positively significant (correlation: 0.441; p-value < 0.001)

Table 5: Summary of the posed question from questionnaire 3 and its evaluation
Source: own processing, based on data from the HFCS 2017 database at NBS

Table 6: Supplementary calculations for question 3

Partial calculations	Result
concordant pairs	356678
discordant pairs	160269
coefficient of statistical dependence γˆ	0,380
test statistic	6,326
p-value	0,000

Source: own processing, 2023

Result: The relationship between education and the choice of the correct answer is positively significant (correlation: 0.38; p-value < 0.001)

Question 4 - A company can raise funds either by issuing shares or bonds. Which financial instrument, in your opinion, carries a higher risk of losing money?	
Answer options	% of responses
1 **Issuing shares**	**18,0%**
2 Issuing bonds	6,2%
3 It is equally risky	26,4%
4 I don't know what the difference is between bonds and stocks	18,4%
-1 I don’t know	31,0%
-2 No response	0,00%

Results of responses to question 4 by the type of respondents' educational attainment							
Education level	Elementary	Secondary	Higher	By count	Elementary	Secondary	Higher
Correct responses	0,0 %	13,2%	29,8 %		0	202	191
Incorrect responses	100 %	86,8%	70,2 %		10	1326	450
Total	100 %	100 %	100 %		10	1528	641

Table 7: Summary of the posed question from questionnaire 4 and its evaluation
Source: own processing, based on data from the HFCS 2017 database at NBS

Tabuľka 8: Supplementary calculations for question 4

Partial calculations	Result
concordant pairs	257275
discordant pairs	90760
coefficient of statistical dependence γˆ	0,478
test statistic	6,886
p-value	0,000

Source: own processing, 2023

Result: The relationship between education and the choice of the correct answer is positively significant (correlation: 0.478; p-value < 0.001)

Since positive statistical dependence was demonstrated between education and the choice of the correct answer in all questions, we can conclude that individuals with higher education have higher financial literacy compared to those with lower education. We will further elaborate on the results in the formulation of conclusions.

4. Conclusions and recommendations on the results of the hypothesis derived

Using logical research methods (inductive and deductive), we have confirmed the influence of financial education on household financial decisions as a significant market factor. Descriptive studies on financial literacy reveal lower levels of financial knowledge in Central and Eastern European countries compared to Western European countries. Representative measurements, as shown in subsection 2.1 (HFCS), indicate unsatisfactory financial skills among the economically active population in Slovakia, despite not being generally considered financially vulnerable. Given that the economically active population is responsible for making financial decisions, their insufficient financial skills can indeed affect household functioning.

Based on our cross-country analysis, we have identified empirical patterns linking financial literacy levels with specific groups, with education level being a significant factor. Our aim is to offer informative and actionable recommendations, emphasizing the importance of education as a powerful tool for achieving consistent and comprehensive financial literacy nationwide.

Our analysis revealed a positive correlation between education and financial literacy. Respondents with higher education had higher rates of correct answers and lower rates of "I don't know" responses. Among all households, 9.6% answered all questions correctly. This percentage rose to 17.6% for respondents with higher education, 6.3% for those with secondary education, and none for those with basic education.

Brokesova, Cupak, and Gueorgui (2017) found a significant positive association between financial literacy and participation in supplementary pension savings when analysing data from the same wave of HFCS. Similarly, Kucserova and Strachotova (2019) discovered that respondents with housing loans were more likely to answer correctly and less likely to respond with "I don't know." Their findings suggest that individuals with housing loans tend to be more financially literate, showing an interest in housing-related matters and considering loan costs. They also prefer housing loans secured by collateral over consumer loans.

On the other hand, we would like to highlight the limitations of the financial literacy survey, which only focuses on basic concepts and overlooks the assessment of repayment capabilities. This is especially important considering the overborrowing trend observed in Slovakia in the last decade. Therefore, we recommend enhancing survey questions on financial literacy to address risks related to high household debt.

Kucserova and Strachotova (2019) found that individuals who owned financial assets had a higher success rate in answering all questions correctly compared to borrowers. They suggest that higher financial literacy leads to a preference for investing in financial assets, but ownership alone does not enhance financial literacy. This finding corresponds with previous research indicating that financially literate individuals are more likely to engage in stock market trading. However, the authors' assumption regarding the relationship between financial literacy development and entry into financial markets may be outdated and needs further investigation.

Contrary to their assumption, our own observations indicate that contact with financial instruments and their derivatives can significantly increase financial

awareness, surpassing basic financial literacy. Ownership of investment products and active participation in their performance can motivate individuals to engage in self-study and expand their financial knowledge. Based on these findings, we propose a discussion on government support for households to invest regular savings in open-end mutual funds or global stocks, aiming to enhance financial literacy further.

Currently, investment returns in funds are automatically taxed in Slovakia, which differs from trends in advanced economies where governments provide generous tax exemptions on returns. However, if policymakers were to partially incentivize this area through tax benefits, specifically targeting regular investing, which is among the least risky options, it would stimulate increased interest in investing.

And finally, we would like to emphasise the potential of the educational environment in fostering financial literacy, as there is a correlation between financial literacy and general education in Slovak society. However, paradoxically, this potential also highlights the overall poor state of financial literacy in the country, from which only certain individuals, like university graduates, can partially escape. According to Kucserova and Strachotova, the key to achieving satisfactory results, such as the ability of 50% of households to correctly answer all questionnaire questions, as observed in Germany or the Netherlands, lies in significantly improving financial education in secondary schools and providing support to the existing adult population (2019).

Lusardi and Mitchell, citing research by Haliassos and Bertaut (1995), Campbell (2006), and Lusardi and de Bassa Scheresberg (2013), confirm that education can have a significant impact on various aspects of financial decision-making (In 2014). As an example, highly educated individuals are more likely to own stocks and are less prone to using high-cost loans. Bernheim and Scholz (1993) document a strong positive correlation between education and wealth accumulation. They assert that general knowledge (education) and more specialized knowledge (in financial literacy) contribute to greater awareness and better prospects for financial decision-making.

The PISA study summarizes empirical evidence indicating that individuals exposed to quality financial education, in both developed and developing economies, are more likely to engage in forward planning, saving, and responsible financial behaviour (OECD, 2019). Lusardi and Mitchell highlight the importance of exploring additional strategies for enhancing financial literacy, rather than relying solely on extending years of schooling. They suggest that investing in financial knowledge as human capital is crucial. Studies by Clark et al. (2013) and Lusardi et al. (2011) demonstrate the effectiveness of promoting workplace financial education and providing on-site training (In Lusardi, Mitchell 2014). As we indented, financial literacy plays a vital role in consumer protection and market functioning, as emphasized by the OECD, which recommends the implementation of accessible financial education to enhance consumer well-being (2005).

Despite the strong presence of financial intermediaries in Slovakia's financial market, such as retail banks and independent agents, it is important to view them as supplementary services rather than a substitute for addressing the gap in personal finance management skills. The banking sector has reported accumulated financial risks, leading to the active management of macroprudential policies by the National

Bank of Slovakia. Studies by Carmel et al. (2015) highlight the potential biases and conflicting goals of financial advisors. Van Rooij et al. (2012) and Guiso and Viviano (2015) emphasize the importance of individuals having a certain level of financial knowledge, even when collaborating with financial advisors.

Our final recommendation is to prioritize the inclusion of financial education and personal finance management in the core curriculum of basic education in Slovakia. The Office of the Government of Slovakia is committed to promptly addressing education system reforms to meet the needs of citizens and the emerging knowledge society. As stated, "the focus will be on preparing competitive individuals in a rapidly changing market environment, which contributes to improving quality of life, meeting citizens' needs, supporting socio-economic growth, and so mitigating economic and financial shocks."

REFERENCES

1. Agarwal, S., et. al. (2009): The Age of Reason: Financial Decisions over the Life Cycle and Implications for Regulation. Brookings Papers on Economic Activity, Washington DC: The Brookings Institution, (2), pp 51–101. https://doi.org/10.1353/eca.0.0067
2. Almenberg, J., Dreber, A. (2011): Gender, Stock Market Participation and Financial Literacy. SSE/EFI Working Paper Series in Economics and Finance. No 737. Stockholm School of Economics Economic Research Institute, pp 140-142. https://doi.org/10.1016/j.econlet.2015.10.009
3. Arrondel, L., Debbich, M., Savignac, F. (2012): Stockholding and Financial Literacy in the French Population. International Journal of Social Sciences and Humanity Studies, SOBIAD.ORG, 4(2), pp 285–291.
4. Brokesova, Z., Cupak, A., Gueorgui, K. (2017): Financial Literacy and Voluntary Savings for Retirement in Slovakia. Working paper NBS, 10/2017. Bratislava: National Bank of Slovakia.
5. Beckmann, E. (2013): Financial Literacy and Household Savings in Romania. Numeracy: Advancing education in quantitative literacy, National Numeracy Network, 6(2). http://dx.doi.org/10.5038/1936-4660.6.2.9
6. Bernheim, D. (1995): Do Households Appreciate Their Financial Vulnerabilities? : An Analysis of Actions, Perceptions, and Public Policy. Tax Policy and Economic Growth, Washington, D.C.: American Council for Capital Formation, pp 1–30.
7. Bumcrot, Ch., Lin, J., Lusardi, A. (2013): The Geography of Financial Literacy. Numeracy: Advancing Education In Quantitative Literacy, National Numeracy Network, 6(2). http://dx.doi.org/10.5038/1936-4660.6.2.2
8. Calvet, L., Campbell, J., Sodini, P. (2007): Down or Out: Assessing the Welfare Costs of Household Investment Mistakes. Journal of Political Economy, Chicago: The University of Chicago Press, 115(5), pp 707–747. https://doi.org/10.1086/524204
9. Campbell, J. (2006): Household Finance. Journal of Finance, Wiley, American Finance Association, 61(4), pp 1553–1604. https://doi.org/10.1111/j.1540-6261.2006.00883.x
10. Carmel, E., et al. (2015): Facing a Biased Adviser While Choosing a Retirement Plan: The Impact of Financial Literacy and Fair Disclosure. The Journal of Consumer Affairs, New Jersey, USA : Wiley Periodicals, Inc, 49(3), pp 576–595. https://doi.org/10.1111/joca.12083
11. Disney, R., Gathergood, J. (2012): Financial Literacy and Consumer Credit Portfolios. Working Paper 12/06. Nottingham, UK: University of Nottingham

Centre for Finance and Credit Markets, pp 2246-2254. https://doi.org/10.1016/j.jbankfin.2013.01.013

12. de Bassa Scheresberg, C. (2013): Financial Literacy and Financial Behavior among Young Adults: Evidence and Implications. Numeracy: Advancing Education in Quantitative Literacy, Florida, USA: Scholar Commons, 6(2). http://dx.doi.org/10.5038/1936-4660.6.2.5
13. Fornero, E., Monticone, Ch. (2011): Financial Literacy and Pension Plan Participation in Italy. Journal of Pension Economics and Finance, Cambridge, UK: Cambridge University Press, 10(4), pp 547–64. https://doi.org/10.1017/S1474747211000473
14. Goodman, L., Kruskal, W. (1954): Measures of association for cross classifications. Journal of the American Statistical Association, Taylor & Francis Group, 49(268), pp 732–764. https://doi.org/10.1080/01621459.1954.10501231
15. Guiso, L., Viviano, E. (2015): How Much Can Financial Literacy Help? Review of Finance, Oxford University Press on Behalf of the European Finance Association, 19(4), pp 1347–1382. https://doi.org/10.1093/rof/rfu033
16. Hilgert, M., Hogarth, J., Beverly, S. (2003): Household Financial Management: The Connection Between Knowledge and Behavior. Federal Reserve Bulletin. Washington, DC : Board of Governors of the Federal Reserve System (U.S.), 89(7), pp 309–322.
17. Chajdiak, J. (2013): Analysis of questionnaire data. Bratislava: Statis.
18. Christelis, D., Jappelli, T., Padula, M. (2010): Cognitive Abilities and Portfolio Choice. European Economic Review, Elsevier, ScienceDirect, 54(1), pp 18–38. https://doi.org/10.1016/j.euroecorev.2009.04.001
19. Kimball, M., Shumway, T. (2006): Investor Sophistication and the Participation, Home Bias, Diversification, and Employer Stock Puzzles. USA: University of Michigan. http://dx.doi.org/10.2139/ssrn.1572866
20. Kucserova, J., Strachotova, A. (2019): Results of the third wave of surveys on household finances and consumption (HFCS). 1/2019, Bratislava: NBS.
21. Kucserova, J., Strachotova, A., Suster, M. (2019a): The misery of financial (il)literacy: Analytical commentary. Bratislava: NBS.
22. Lusardi, A. (2011): Americans' Financial Capability: NBER Working Paper Series. Working Paper 17103. Cambridge, USA: National Bureau of Economic Research.
23. Lusardi, A., Mitchell, O. (2007): Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education. Business Economics, Washington, DC: National Association for Business Economics, 42(1), pp 35–44. https://doi.org/10.2145/20070104
24. Lusardi, A., Mitchell, O. (2014): The Economic Importance of Financial Literacy: Theory and Evidence. Journal of Economic Literature, United States:

American Economic Association, 52(1), pp 5–44. https://dx.doi.org/10.1257/jel.52.1.5

25. Lusardi, A., Tufano, P. (2015): Debt Literacy, Financial Experiences, and Overindebtedness. Journal of Pension Economics and Finance, Cambridge, UK: Cambridge University Press, 14(4), pp 332–368. https://doi.org/10.1017/S1474747215000232

26. Moore, D. (2003): Survey of Financial Literacy in Washington State: Knowledge, Behavior, Attitudes, and Experiences. Technical Report 03-39. Washington: Washington State University, Social and Economic Sciences Research Center. doi:10.13140/2.1.4729.4722

27. Mottola, G. (2013): In Our Best Interest: Women, Financial Literacy, and Credit Card Behavior. Numeracy: Advancing Education in Quantitative Literacy, Florida, USA: Scholar Commons, 6 (2). http://dx.doi.org/10.5038/1936-4660.6.2.4

28. NUCEM. (2020): PISA, Cycle 2018: The first results of the international research of 15-year-old pupils in the field of financial literacy PISA 2018 from the perspective of Slovakia.

29. OECD. (2019): PISA 2018 Assessment and Analytical Framework: Financial Literacy Framework, PISA, Paris: OECD Publishing. https://doi.org/10.1787/b25efab8-en.

30. OECD. (2020): PISA 2018 Results (Volume IV): Are Students Smart about Money? Paris: OECD Publishing. https://doi.org/10.1787/48ebd1ba-en

31. OECD. (2005): Recommendation on Principles and Good Practices for Financial Education and Awareness: Recommendation Of The Council. Paris: Directorate for Financial and Enterprise Affairs.

32. Rutledge, S., et al. (2010): Good Practices for Consumer Protection and Financial Literacy in Europe and Central Asia: A Diagnostic Tool. ECSPF Working Paper 001. Washington, DC: The World Bank.

33. Stango, V., Zinman, J. (2009): Exponential Growth Bias and Household Finance. Journal of Finance. Wiley, American Finance Association, November, 64(6), pp 2807–49. https://doi.org/10.1111/j.1540-6261.2009.01518.x

34. Utkus, S., Young, J. (2010): Financial Literacy and 401(k) Loans. In Mitchell, O., Lusardi, A. (2011). Financial Literacy: Implications for Retirement Security and the Financial Marketplace. Oxford/New York: Oxford University Press, pp 59–75. https://doi.org/10.1093/acprof:oso/9780199696819.003.0004

35. Office of the Government of the Slovak Republic. The role of the state and the public sector [online]. Retrieved May 14, 2023, from https://www.vlada.gov.sk//uloha-statu-a-verejneho-sektora/

36. van Rooij, M., et al. (2012): Financial Literacy, Retirement Planning and Household Wealth. The Economic Journal, Oxford, UK: Blackwell Publishing Ltd, 122(560), pp 449–478. https://doi.org/10.1111/j.1468-

0297.2012.02501.x

37. Taylor-Powell, E. (1998): *Questionnaire Design: Asking Questions with a Purpose*. Madison: University of Wisconsin-Extension Cooperative Extension Service Cooperative: Program Development and Evaluation.
38. Terek, M., Krocity, P. (2015): Analysis of association between ordinal variables in statistical surveys. Economic review. Bratislava: University of Economics in Bratislava, (44), pp 47–57.
39. van Rooij, M., Lusardi, A., Alessie, R. (2011): Financial Literacy and Stock Market Participation. Journal of Financial Economics. Elsevier, ScienceDirect, 101(2), pp 449–472. https://doi.org/10.1016/j.jfineco.2011.03.006
40. Yoong, J. (2010): Financial Illiteracy and Stock Market Participation: Evidence from the RAND American Life Panel. In Mitchell, O., Lusardi, A. (2011). Financial Literacy: Implications for Retirement Security and the Financial Marketplace. Oxford/New York: Oxford University Press. pp 76–97. https://doi.org/10.1093/acprof:oso/9780199696819.003.0005