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Article

# Consumers' Financial Knowledge in Central European Countries in the Light of Consumer Research

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**Abstract:** Consumer protection in the financial market has several dimensions. From a formal point of view, consumer rights are guaranteed by law. Educational programs are implemented in schools and the media to promote knowledge and responsible use of financial products and services. Despite the efforts made, the number of incorrect and suboptimal financial decisions is so high that the risk of households falling into excessive debt remains significant. The limited effectiveness of the law led to the claim that only effective education can reduce the risk of suboptimal financial decisions. Unfortunately, the efforts made in this area are not fully satisfactory. The study of financial knowledge of consumers, which was conducted in Poland in January 2024, aimed to verify consumer errors and their nature. As part of the consumer study, not only declared knowledge was verified, but also actual knowledge. The researchers' doubts resulted from a comparison of the results of scientific research in this area with the current market situation. Consumers declare a high level of knowledge of economic and financial concepts. In practice, however, they make mistakes that do not only indicate behavioral cognitive errors but also a lack of knowledge. The test questions were constructed in such a way as to verify the declared knowledge (based on verification questions). These showed that the actual level of knowledge was lower than the declared one. A review of the literature and studies of financial knowledge and financial competence of consumers in Central European countries was also carried out. Analysis of the results allowed for the formulation of conclusions regarding the educational gap in relation to social characteristics. The conclusions resulting from the study raise questions about the effectiveness of the educational methods used and indicate possible directions of changes in the consumer regulation policy, the aim of which is to ensure a high level of consumer protection.

**Keywords:** financial knowledge; consumer finance; household finance; responsible lending and borrowing

**JEL Classification:** G51; G53; I22



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## 1. Introduction

Financial knowledge is very closely related to the fundamental assumptions of the consumer protection system in the financial market. On the one hand, consumers are protected against the effects of market asymmetries, on the other hand, the financial education system should allow “empowered customers” to make thoughtful and rational financial decisions.

Consumer rights on the financial market are regulated in Europe by EU directives (the latest Consumer Credit Directive CCD—Directive (EU) 2023/2225 of the European Parliament and of the Council of 18 October 2023) and local legal systems. Educational campaigns are run in schools and the media to offer knowledge and promote the responsible use of financial products and services (Amagir et al. 2018).

Despite these efforts, the number of wrong or suboptimal financial decisions made by consumers is still high and sometimes leads to a systemic increase of risk in the financial

sector—as was the case in the mortgage market (mainly between 2002–2008) in many countries of Central and Eastern Europe where consumers disregarded FX risk and took out loans denominated in foreign currencies (CHF and EUR)—earning income only in national currency. As a result of the sudden change in CHF and EUR rates in 2008, the outstanding value of foreign currency loans increased by over 40%, leading consumers to fall into a debt trap.

This problem affected not only Poland. The governments of Poland, Hungary, Romania, Croatia, Slovenia tried to support their citizens in various ways. In most cases, the effects of financial market arbitrage were transferred to commercial banks.

From an academic perspective, financial knowledge remains one of the most relevant and cutting-edge areas of research. A key question here is whether the mistakes made by customers only indicate a poor level of financial education? In research carried out in many countries, consumers declare knowledge of economic concepts and categories, but practical verification of this knowledge shows that they often cannot interpret them correctly (OECD/INFE 2016, 2020).

The research problem that was the basis of our work resulted from the desire to learn the reasons why consumers make suboptimal decisions on the financial market—with particular emphasis on financial knowledge, which is the basis for the safe use of financial products and services. Determining the level of consumer knowledge is important from the point of view of assessing the effectiveness of economic education and may affect the scope and shape of regulations in the area of consumer protection.

Therefore, we are dealing with a general overestimation of the level of financial knowledge, or, for some reason, the phenomenon described by Wagner in the concept of three states of memory becomes extremely visible in the financial market reality. In his concept of Standard Operational Procedures, they justify that when the memory state is not modified, its content does not affect the behavior—the so-called inactive memory (Holmes et al. 2020).

Supporters of behavioral economics refer to the need to discover and accept consumer behavior in the financial market. According to them, consumer behavior cannot be “wrong”, but it results from human nature and as such will not disappear—regardless of the state of the law and the intensity of education.

In this context, the article and presented study attempts to answer the following questions:

- what is the actual level of financial knowledge of Polish consumers?
- how do consumers make credit decisions?
- what is the relationship between decisions taken, knowledge and previous experience in the financial market on the decisions made?
- whether and how sociodemographic factors are correlated with financial knowledge and the way of making decisions on the financial market?

The paper is organized as follows. Section 2 presents the general literature and conclusions of studies explaining financial knowledge and the reasons why consumers make suboptimal financial decisions. Section 3 briefly presents the 2024 survey in Poland, the descriptive statistics of our sample, the statistical nonparametric tests and the tool used to support the empirical results obtained on consumers’ financial knowledge. Section 4 presents nominal knowledge (knowledge and understanding of key financial concepts) and practical knowledge (consumer behavior on the financial market) in the case of Poland. In Section 5, devoted to the lessons and discussion of our study, we examine the relationship between the use of loans and the level of financial knowledge of consumers. The relationship between demographic and social categories and the practice of concluding loan agreements was subject to an in-depth analysis. In addition to these specific relationships, this section also looks at the general level of declared and actual financial literacy in Poland. Section 6 concludes by summarizing the main findings and suggesting avenues for further research.

## 2. Literature and Research Explaining the Causes of Suboptimal Financial Decisions Made by Consumers

Knowledge has always been crucial to understanding the world around us. Socrates believed that knowledge was crucial to ethical living and moral development. His method of dialogue—known as the Socratic method—involved asking questions to understand and discover the truth. Modern philosophers like Francis Bacon ([Kusukawa 1996](#)) argued that knowledge is power and that by acquiring knowledge, humanity could better control and use nature for social good. Economic knowledge allows you to fully and safely use financial products and services that are necessary to function in a modern society.

Empowered consumers using financial services make decisions based on available information. However, their interpretation requires knowledge of basic economic concepts and categories—such as, for example, interest rate or annual real percentage rate (APRC).

The results of most studies in Europe assess the level of financial knowledge of consumers as high. So why do consumers who have the financial knowledge necessary to make optimal financial decisions behave differently? Consumers probably overestimate their knowledge and try to hide its deficiencies. Decisions made on the financial market are therefore the result of their intuition, previous experiences or suggestions from their immediate social environment.

### 2.1. Suboptimal Financial Decisions

A review of the literature on the subject leads to the conclusion that both: behavioral factors and deficiencies in financial knowledge are of primary importance for suboptimal financial decisions made by consumers. However, it is impossible to clearly indicate the boundary between the accepted level of “sub-optimality” and a decision that we would consider to be necessarily bad.

Conscious and knowledgeable consumers make rational financial decisions. They are beneficial from the perspective of their needs and ensure the best financial parameters in given market conditions. Suboptimal financial decisions do not have to be clearly “wrong”, but from the point of view of available options they remain distant from the best possible choice resulting from economic principles.

When using financial products and services, consumers may make decisions without knowledge or common sense. Wrong consumer decisions result primarily from lack of knowledge or being a victim of fraud or manipulation.

Most decisions made by consumer households on the financial market are some kind of compromise between knowledge and the usefulness resulting from needs. Consumers are ready to give up maximizing profit in favor of maximizing utility—for example, they prefer to repay the loan in installments instead of a one-off repayment at the end of the loan period.

Financial decisions of consumers are influenced by the institutional environment in which they are made ([Zehra and Singh 2023](#)). Numerous studies have found that household financial behavior varies depending on demographic characteristics, income level, risk appetite and financial literacy ([Cooper and Zhu 2016](#); [Davutyan and Öztürkcal 2016](#); [Anderson et al. 2017](#); [Bannier and Schwarz 2018](#)). Research has been conducted more often in developed countries than in developing and underdeveloped countries. In recent years, many studies have been carried out in Central & Eastern Europe and developing countries, providing a basis for comparison.

Some researchers believe that the sources of suboptimal decisions lie in behavioral factors. [Fong et al. \(2019\)](#) argues that the financial decisions of older people are influenced by the factor of their financial security at the stage of asset withdrawal. [Estelami \(2016\)](#) emphasizes that regardless of the number and intensity of educational programs, cognitive errors, in addition to lack of knowledge, are responsible for the largest number of suboptimal financial decisions. [Agarwal and Mannil \(2023\)](#) draw attention to the multitude of, often paradoxical, consumer behaviors. At the same time, the results of research by

Balasubramnian and Sargent (2020) indicate that consumers' overestimation of individual financial skills is an important factor determining suboptimal financial results.

## 2.2. Knowledge Transfer to Customers

Financial education policies and programs are implemented in most OECD countries and in many of the largest emerging economies, such as China and India (OECD/INFE 2016). These programs vary in scope, and most are designed to be implemented in schools—at all stages of education. Financial education in schools plays a key role here, as it enables near-universal coverage, mitigating the low demand for voluntary and self-directed financial education later in the life cycle (Kaiser and Menkhoff 2020). Economic education in schools is therefore an obvious need. Meeting this task requires that teachers have the appropriate knowledge and competences—both substantive and methodological.

The development of digital tools for teaching and learning in economics has been particularly rapid during the COVID-19 pandemic. More financial education materials have become available online. These materials have been produced by financial institutions, central banks and other government bodies, as well as non-profit organizations (Buratti and D'Ignazio 2024). In Hungary with financial support of the Magyar Nemzeti Bank, secondary schools received 385,000 copies of the workbook entitled "Történelem és pénzügyek" [eng. History and Finances] (Hergár et al. 2024).

The positive side of this is that these materials have now become very accessible, while the challenge is that people still need a lot of guidance and mentoring so that this material can be used to its best advantage. Despite the availability of self-study materials, consumers need a lot of autonomy and the ability to learn on their own.

Kogler and Rauch (2020) underline that key methods to facilitate knowledge transfer include face-to-face meetings, educational sessions, web-based information and interactive. Their research has shown, among other things, the high effectiveness of non-standard methods of transferring knowledge—game-based workshop. This method is already used in large enterprises that have appreciated gamification as a tool that increases the effectiveness of reaching knowledge—especially to young employees—in a more "user-friendly" form than a classic lecture, webinar or reading training materials.

This approach is especially justified from the perspective of the expectations of Generation Z and Millennials, which must optimize economic education, both formal and informal, and increase financial knowledge to be able to maintain their lifestyle (Andhyka et al. 2024). Young people do not have patience and, at the same time, are very dependent on digital methods of communication.

For example, in France, economics is taught at a high level in high school. All students attend SES (Sciences Économiques et Sociales) classes, and those planning to study economics and management can choose additionally HGGSP (Histoire-Géographie, Géopolitique et Sciences Politiques). In the countries of Central Europe, a subject on basic problems of economics and entrepreneurship is also introduced at high school level. Banks, social and local government organizations are also involved in education.

## 2.3. Financial Knowledge of Customers—Conclusions from Research

Financial knowledge is a prerequisite for the safe use of financial products and services—avoiding costly mistakes. Experience is a factor that equips the consumer with additional arguments and features enabling the maximization of benefits and optimization of utility. Therefore, it is a key component that the consumer should be equipped with.

From a larger economic perspective, measuring financial knowledge in the financial market comes down to three key skills (Lusardi and Mitchell 2023) that a consumer should have:

- ability to perform basic calculations and interpret results regarding interest rates,
- understanding the phenomenon of inflation and its consequences,
- ability to practically diversify risk.

In the case of the broader concept of “financial literacy”, researchers shift the burden of definition from nominal knowledge of financial concepts and categories to practical skills enabling the safe use of financial products and services. However, we must not forget that the basis will always be real knowledge of economic concepts and categories. Without this feature, consumer decisions would only be intuitive.

Regardless of the sources of suboptimal consumer decisions in the financial market, financial knowledge is at the center of attention, and identifying the possible educational gap is important.

Studies have repeatedly shown that poor financial knowledge translates into limited participation on the financial market. Research by van Rooij, Lusardi and Alessie confirmed that people with weak financial knowledge tend not to own shares and stocks (van Rooij et al. 2007). Financial literacy not only increases consumer participation in the financial market, but also means that they may decide to implement well-thought-out and safe investment strategies. Disparities in the level of financial knowledge acquired early in life imply significant wealth inequality in adulthood (Lusardi and Mitchell 2014; Lusardi et al. 2017). What this means is that financial literacy should enable people to achieve much more than just their financial goals. A study by Burkhauser, Gustman, Laitner, Mitchell and Sonnega explains that older people’s sense of financial well-being does not depend on current income and accumulated assets but in time allocation of consumption opportunities (Burkhauser et al. 2009) maximizing their lifetime utility in the spirit of Ando and Modigliani’s life-cycle theory. In this way, they justify the notion that financial literacy offers greater utility throughout a consumer’s life. According to Lusardi and Hastings, financial knowledge is the ability to avoid unwanted and costly financial experiences (Lusardi 2008; Hastings and Mitchell 2018)

Research has confirmed that the presentation format of financial information influences the choices made by those with less financial knowledge (Hastings and Mitchell 2018). Hundtofte and Gladstone also proved that consumers using mobile applications made by loan companies are much more likely to demonstrate impulsive purchasing behavior and are more willing to take out payday loans (Hundtofte and Gladstone 2017). Another study yielded some interesting findings indicating that financial literacy negatively correlates with investment in cryptocurrencies (Panos et al. 2019). Research by these authors indicates that less financially educated consumers do not understand the sources of risk associated with purchasing cryptocurrency and having succumbed to overconfidence bias, they are more likely to take on excessive investment risk.

Supporters of the view that financial education has a key impact on safe and universal access to the financial market refer to the primacy of knowledge and reason over the emotions that go hand in hand with consumption. People with knowledge and established positive behavior patterns should act rationally, make rational choices about financial products and services without falling prey to consumerism. However, in practice, consumer research shows that despite having relatively well-developed financial knowledge, awareness and understanding of economic concepts, a statistically significant number of people do indeed make incorrect financial decisions that are difficult to explain. So, does human nature defy scientific and educational consistency here?

Research related to financial literacy carried out on behalf of the OECD (OECD/INFE 2016, 2020), indicates a gradual improvement in EU countries consumers. For example, in 2020 Polish consumers achieved a score of 13 out of 21 possible points, indicating that 62.1% of the population feels confident in financial matters and is not far behind the leading countries in the ranking. This is an increase from their 2016 score of 11.6 points. Slovenia emerged as the top performer in the 2020 ranking with 14.7 points, where 70% of the population claimed proficiency in financial knowledge and skills. Austria followed closely behind with a score of 14.4 points, and 68% of its population demonstrating financial competence. Conversely, Italy (11.1 points) and Romania (11.2 points) recorded the lowest financial literacy results.

Research related to financial literacy has been conducted many times in CEE. Alena Opletalová (2016) outlines the importance of economic and financial literacy in primary and secondary schools in the Czech Republic. Her research findings in the Czech Republic and from the World Bank have shown high levels of household debt while also indicating the need for higher levels of financial education. Young people are characterized by a relatively high level of knowledge about economic concepts and categories, although there is a clear difference resulting from the place of residence (residents of large cities have greater knowledge) and gender (men show greater interest in and understanding of economic concepts). Krechovská (2015) highlights the important role of financial literacy as one of the factors that ensures sustainable development in society.

The research made by Slovak scientists suggest that the student's gender, father's education, family's financial background, and student's part-time work experience were important determinants of financial literacy (Böhm et al. 2023). This research showed that students from families with the lowest incomes (up to 1500 €) have a statistically significant lower level of financial literacy by about 5 percentage points compared to wealthier families. Students whose parents' owned stocks were over 7 percentage points more likely to answer the risk diversification question correctly. Furthermore, students whose parents had retirement savings were 6 percentage points more likely to answer correctly.

Financial education is essential for the public to be able to connect to international financial networks. Hungarian research made by (Hergár et al. 2024) were concentrated to capability to manage loans and savings, and to understand the functioning and inherent risks of the financial system. In Hungary development of financial literacy is the joint duty of governments, educational institutions, financial actors, and civil society.

Romanian researchers prepared questionnaire (34 questions) related to measure individual abilities to manage personal finances, attitudes towards several financial instruments or techniques and financial knowledge. They constructed an index for measuring financial well-being and three difficulty-ranked financial literacy indices (Nitoi et al. 2022). The findings show that only 8.27% of Romanians answered financial literacy questions correctly. The result allows for cross-country comparisons, revealing significant differences compared to advanced economies—Germany (53.20% of correct answers), Switzerland (50.10%), the Netherlands (44.80%), Austria (33.30%), the U.S. (30.20%), France (30.90%), Japan (27%), or Italy (24.90%). Also, the level of financial literacy in Romania is lower, even when compared to that of developing economies such as e.g., Hungary (25.69%), Croatia (27.66%), Poland (29.91%), or Czechia (42.33%).

According to a recent USAID report (2021), which calculates the Financial Literacy Index according to the methodology recommended by the OECD, Ukraine's score improved by 6% between 2018 and 2021 ((12.3 – 11.6)/11.6). Ukraine has the same score as Bulgaria and Croatia. It is converging strongly towards the score of Hungary (12.4) and Russia (12.5). As already said, Poland's score stands at 13.1 out of 21 (USAID 2021).

A study (Dudchuk et al. 2019) conducted for Ukraine has indicated a lack of financial literacy at both the micro, macro and State levels. At the microeconomic level, the economic consequences and threats of low financial literacy of the population are reflected in the increase in the number of financial abuses, in the accumulation of excess loans by the population, and in the inefficient distribution of personal savings. At the macro level, low financial literacy impedes the development of financial markets, undermines the confidence in financial institutions and public policies that regulate them, puts additional strain on budgets, and results in an economic slowdown. In its role in financial literacy. At the State (and legislative level), a set of measures may be proposed to improve the financial literacy of the population. These authors propose to create an independent information center that will accumulate reliable and accurate information about financial products from different companies; this will allow one to quickly compare and choose the best production terms of profitability, risk, and liquidity.

It appears essential to encourage or oblige all financial system entities to provide the center with up-to-date information.

Observations and analyses from Poland have been shared by Grzesiuk (Grzesiuk et al. 2019) who focused on Polish political views and examined the possible connections between financial knowledge and approach to economic issues. Jagoda Gola have investigated household financial behavior (Gola and Smyczek 2019). In 2019, Świącka and her team examined the level of financial knowledge among high school students in Poland (Świącka et al. 2020; Świącka et al. 2019).

Cwynar (2021) underlines large heterogeneity both in overall financial literacy and its partial scores (i.e., financial knowledge, confidence, attitudes) among Central & Eastern European countries. His analysis results suggest that financial literacy is differently associated with gender and age in Eastern Europe compared to Western Europe. All these phenomena appear to be the result of different political, social, economic, and culture-related experiences in these two parts of Europe after World War II.

In 2023, as part of the research #JacyPolacy (eng. What Poles), Professor Dominika Maison presented a study involving a representative group of 1076 consumers (2023). Analysis of responses revealed that many Poles possess accurate financial knowledge, such as understanding the interest rate risks associated with foreign currency loans. However, a discrepancy was observed between older and younger generations, with those over 55 exhibiting the highest levels of financial knowledge.

Analyses have revealed that financial literacy in Central and Eastern Europe, defined as the understanding of concepts, categories, and financial products and services, is relatively high among consumers or at least gradually improve. Individuals demonstrate familiarity with major financial concepts. However, when it comes to practical skills, which are crucial in navigating the financial market, people tend to perform less effectively. To validate findings from previous research and assess the current landscape, a survey on the financial knowledge of Polish consumers was conducted in January 2024. The results obtained aim not only to assess the level of consumers' knowledge but also to pinpoint areas where efforts should be intensified in terms of financial education and outreach to enhance understanding of the financial market.

### 3. Empirical Verification of Consumers' Financial Knowledge

In January 2024, a survey was conducted by PAPI & CAWI on the financial knowledge of consumers in Poland. N = 1002 people took part in the study and the statistical distribution of the research group was maintained in accordance with the demographic profile from the National Census conducted in 2021.

The aim of the survey was to analyze the relationship between financial knowledge and: characteristics of the respondents' social profile, their education and individual experiences on the financial market.

The questions also verified actual knowledge and practical behavior on the financial market.

The survey included different types of questions:

- questions regarding the level of financial knowledge and knowledge of financial concepts,
- financial knowledge testing questions,
- questions regarding consumers' behavior on the financial market (see Table 1).

When building the questionnaire, experience from similar studies conducted in Poland was used—in the selection of basic economic concepts and categories. This increased the chances of comparing the obtained results. Testing and verification of the survey within focus groups was conducted in the direction of selecting questions verifying knowledge and testing different positions of these questions in the form—mixing them with other questions. The researcher's goal was to limit the risk that the respondents would become aware of the nature of the questions and their answers would not be intuitive/natural and consistent with actual financial knowledge.



**Table 1.** Distribution and characteristics of the sample (N = 1002).

Variable/Question	Description	N	%
How old are you ?	less than 25	212	21.2%
	25–40	277	27.6%
	41–60	279	27.8%
	more than 60	234	23.4%
What is your education level?	primary education	473	47.2%
	secondary education	306	30.5%
	high education	223	22.3%
Where do you live?	village or small town (<50,000 inhabitants)	393	39.4%
	medium city	340	34.0%
	big city (>100,000 inhabitants)	269	26.8%
What your household looks like?	I live alone	194	19.4%
	We are a childless couple	325	32.5%
	We live with children younger than 15 years old	237	23.6%
	We live with children older than 15 years	192	19.2%
	I am a student or someone else supports me	54	5.3%
How financial decisions are made in your household?	I make financial decisions independently	307	30.6%
	I make financial decisions together with my partner	416	41.5%
	I make financial decisions, but I consult people I trust in this area	215	21.5%
	I do not participate in financial decisions—they are made by my partner/parents	64	6.4%
Have you ever used any type of loans?	Yes, I am repaying the loan now or have repaid it in the past	613	61.4%
	No, I am not paying off now nor I have never used it in the past	389	38.6%
Have you ever used consumer credit to purchase goods or services?	Yes, I bought something financing the purchase with a consumer loan	387	38.6%
	No, I have never bought anything using consumer credit to finance the purchase	409	40.8%
	No, I have never purchased anything using consumer credit and I do not want to use credit in the future	206	20.6%
How do you earn money?	I have a fixed salary	852	85.2%
	I have variable income (temporary contracts, commissions. . .)	150	14.8%
Do you have a bank account?	Yes	986	98.4%
	No	16	1.6%

Source: Gebski (2024) Financial literacy—own research.

To ensure that the structure of the research group was consistent with the National Census conducted in 2021, the study was conducted online using the databases made available to respondents from public opinion research centers and supplemented with PAPI surveys in smaller towns and among residents of rural areas. The study also included students and their family members (PAPI).

Statistical tools were also used to support analyse the obtained results. IBM® SPSS® Statistics 29.0.0. software was used to analyse dependencies and their strength.

The following statistical tests were used:

Pearson’s  $\chi^2$  test (a non-parametric test) used to examine the relationship between two variables measured on a qualitative scale.

The formula:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$\chi^2$  = chi squared  
 $O_i$  = observed value  
 $E_i$  = expected value

The strength of the relationship is calculated based on Cramer’s V coefficient:

$$V = \sqrt{\frac{\chi^2}{n \cdot \min(r - 1, k - 1)}}$$

where V is between 0 and 1 and the closer it is to 0, the more independent variables we are in.

- $n$ —is the number of observations,
- $r$ —is the number of levels of one variable,
- $k$ —is the number of levels of the second variable.

The decision to choose the Pearson test to this research was based on several reasons:

- (1) The Persona test helps create detailed profiles of respondents that can reveal different characteristics, preferences, and behaviors. These profiles make it easier to identify differences and similarities between groups of people and analyze how different variables affect each other.
- (2) It allows for segmentation of respondents based on their characteristics, which allows for more detailed examination of relationships and correlations.
- (3) It facilitates the identification of patterns, which facilitates the analysis of correlations between different variables.
- (4) Finally, it allows for a better understanding of the mutual influences between variables in the context of different respondent profiles.

Kendall’s tau correlation analysis (a non-parametric method) for examining the relationship between two variables measured on an ordinal scale. Unlike Pearson correlation, Kendall’s Tau doesn’t rely on the assumption of linearity, making it useful for ordinal data. The study examined the relationship between consumers’ self-assessment of their knowledge and the results obtained when answering verification questions (Figure 1).

$$\tau = \frac{n_c - n_d}{\frac{1}{2} \cdot n \cdot (n - 1)}$$

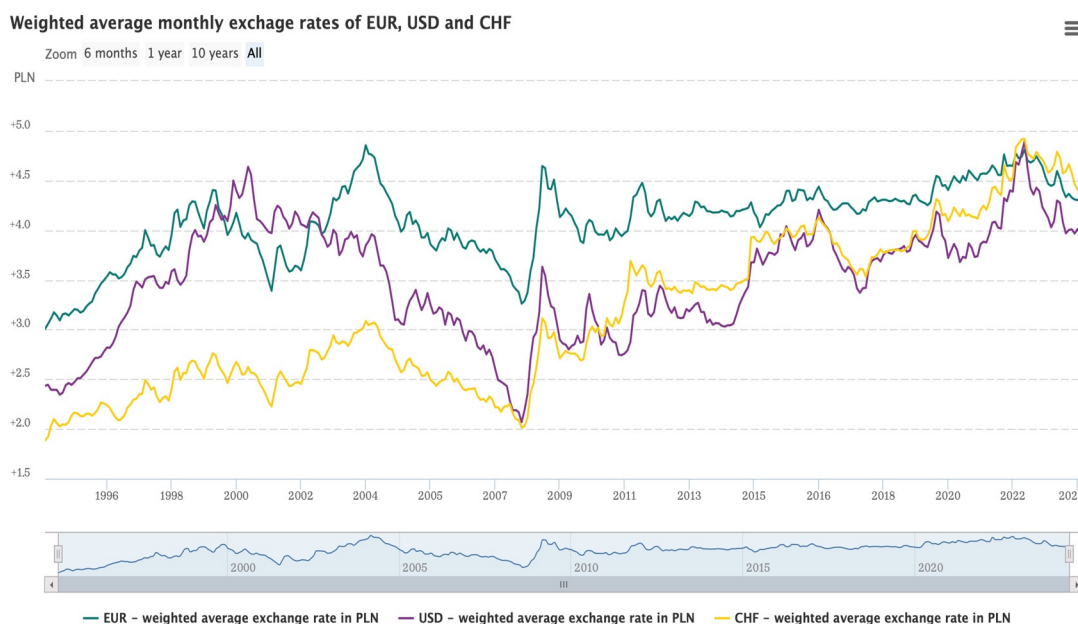


Figure 1. Exchange rate changes in Poland (1996–2024). Source: National Bank of Poland (2024b).

Kendall’s tau correlation value can range from  $-1$  to  $1$ , where values closer to  $-1$  mean a strong negative correlation and values closer to  $1$  mean a strong positive correlation.

The adopted level of statistical significance was  $p < 0.05$ , marked as \*, as well as additional more precise levels of  $p < 0.01$ , marked as \*\* and  $p < 0.001$ , marked as \*\*\*.

#### 4. Financial Knowledge Research—Observations from Poland

Poles have extensive experience in using financial products and services—61.4% of respondents had previously had the opportunity to repay a consumer or mortgage loan. Although only 38.6% of them took out consumer loans for the purchase of goods and services.

The respondents were aware and open to consumer loans—only 20% of them declared that they had not used such loans and did not intend to do so in the future.

In Poland, as in other European Union countries, there is a high rate of consumers using banking services (98.4% of respondents have a bank account), and over 85% receive income from work.

This last factor provides interesting analytical material, because according to the study, the income elasticity of consumer households in Poland is low (85% of respondents have fixed income), and at the same time, mortgage loans are offered at a variable interest rate, which exposes households to a very high risk of interest rate changes. In this case, awareness of the impact of mechanisms influencing the level of interest rates and the effects of changes in inflation on the cost of credit is extremely important for consumer households. The tests carried out by banks at the time of granting a loan cover only limited changes in interest rates. Due to the difficult situation of consumers in 2024, the Polish government has introduced regulations enabling the suspension of repayment of up to 4 loan installments in a year when the value of monthly expenses in this respect exceeds 30% of the consumer’s household budget. Households taking out mortgage loans in such conditions must have the knowledge needed to assess the possible effects of changes in interest rates on their budgets (Figure 2).

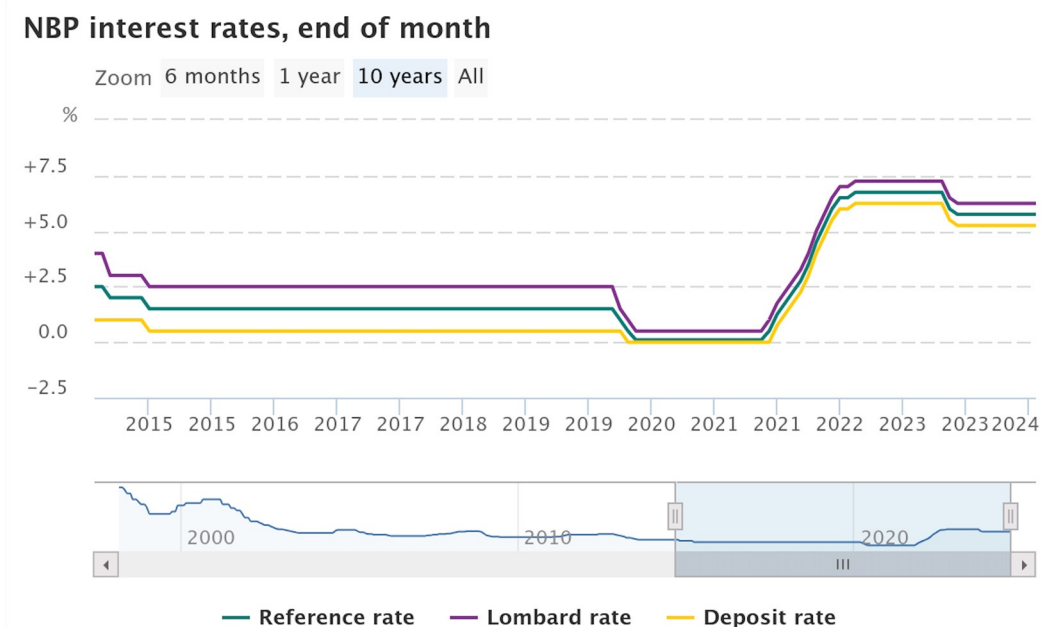


Figure 2. Interest rates in Poland (2015–2024). Source: National Bank of Poland (2024a).

The survey results regarding questions about knowledge of economic concepts and categories were consistent with the results obtained by most other researchers. Declared by respondents’ level of financial knowledge was objectively high—87.9% claimed that they know and at least more or less understand the concept of interest rate as cost of

money (see Table 2). More than half (56.7%) also declared some awareness of the concept of APR/TAEG. From the perspective of Poland and other Central European Countries (EU members) where mortgage loans are still granted to consumers at variable interest rates, it is encouraging that 74.7% of respondents declared that they understand how the variable interest rate loan mechanism works as well as the possible consequences for borrowers.

**Table 2.** Knowledge and understanding of principal financial concepts.

Variable/Question	Description	N	%
Interest rate as the cost of money	I know and understand the concept of interest rate as the cost of money	493	49.2%
	I know and more or less understand the concept of interest rate as the cost of money	388	38.7%
	I heard but I don't understand interest rate mechanism as the cost of money	109	10.9%
	I refuse to answer the question	12	1.2%
APR (TAEG)	I know, understand and know what the APR (TAEG) is for	200	20.0%
	I more or less know, understand and know what the APR (TAEG) is for	368	36.7%
	I've heard of it, but I don't understand the calculation mechanism and I can't practically interpret the APR (TAEG) value	217	21.7%
	I refuse to answer the question	36	3.6%
Variable interest rate on the loan	I understand the rules and mechanisms that cause changes in the loan interest rate	381	38.0%
	I understand the principle of variable interest rate on a loan, but I don't understand what influences it	368	36.7%
	I do not know or understand the mechanisms that cause changes in loan interest rates	217	21.7%
	I refuse to answer the question	36	3.6%
Over-indebtedness *	This is a situation in which the current repayment of loans is a heavy burden on the household budget	504	50.6%
	This is a situation in which my income is not sufficient to repay loans on an ongoing basis	884	88.7%
	This is a situation in which I have to take out new loans to repay the previous ones	253	25.4%
Consumer bankruptcy *	Consumer bankruptcy is a chance to get out of the debt trap and for a "new beginning".	563	56.2%
	Consumer bankruptcy implies the risk of losing assets to creditors	395	39.4%
	Consumer bankruptcy is the result of carelessness in managing personal finances	560	55.9%
	Consumer bankruptcy is an embarrassing situation (I would like to avoid it)	411	41.1%

Source: own research. \*—more than one answer accepted.

Consumers stated that they are aware of the risk of excessive household debt—for 88.7% of respondents, it is a situation where their current income is not sufficient to repay their loans on time. For 50.6%, debt significantly burdening household budgets is a danger sign. Only 25% believe that excessive debt requires new loans to be taken out to repay previous loans (a credit trap).

Consumer bankruptcy is perceived as shameful (41.1% of responses) and a consequence of irresponsible budget management and excessive debt (55.9% of responses). For more than half of the respondents (56.2%), undergoing a court bankruptcy procedure represents an opportunity to eradicate debt and have a 'fresh start'. Tellingly, nearly one third of those for whom consumer bankruptcy would present an opportunity for debt relief

do not believe that it will in any sense require the liquidation of part of their assets to repay the debt—they only expect the lenders to reduce the debt.

Practical knowledge of economic categories—fundamental for confirmation of understanding multiple dimensions of the category “cost of credit”—was tested by some questions were asked regarding a hypothetical instalment loan taken out to finance the purchase of a laptop (see Table 3). The testing questions were intended to verify the actual level of knowledge—in most studies preceding our research, the authors limited themselves to consumer self-assessment. Intuitive distrust was confirmed by the results of the study.

**Table 3.** Consumer behavior on the financial market—verification questions.

Variable/Question	Description	N	%
You finance the purchase of a new laptop with an installment loan. The bank offers two 0% interest loans: (A) repaid once after 12 months in the amount of PLN 1200 (B) repaid in 12 equal monthly installments of PLN 100 each	Which loan is more advantageous for me from the perspective of the household budget?		
	“A” because I only pay it off after a year	133	13.3%
	“B” because it is easier for me to spend PLN 100 at a time than PLN 1200 it doesn’t matter—the important thing is that in both cases I will spend the same amount	744 125	74.4% 12.3%
You finance the purchase of a new laptop with an installment loan. The bank offers two 0% interest loans: (A) repaid once after 12 months in the amount of PLN 1200 (B) repaid in 12 equal monthly installments of PLN 100 each	Which loan is more advantageous for me from the financial perspective (value of money)?		
	A—a loan that I repay in one lump sum of PLN 1200 after a year is more beneficial	441	44.0%
	B—the loan that I repay in 12 installments of PLN 100 each month is more favorable it doesn’t matter—the important thing is that in both cases I will spend the same amount	250 311	25.0% 31.0%
You finance the purchase of a new laptop with an installment loan. The bank offers two 0% interest loans: (A) repaid once after 12 months in the amount of PLN 1200 (B) repaid in 12 equal monthly installments of PLN 100 each	Which loan is cheaper for me from APR/TAEG perspective?		
	Both are identical	250	25.0%
	The loan that I repay in one lump sum of PLN 1200 after a year is more beneficial	152	15.2%
	I dont know exacly it doesn’t matter—I will spend the same amount	480 120	48.0% 12.0%
Before signing the loan agreement, do you read its content carefully?	I always read loan agreements before I sign them	378	37.8%
	I only read the most important points and ask the seller about the rest	361	36.0%
	I don’t read loan agreements—they are long, boring and I don’t understand them. . .	141	14.1%
	Only sometimes I inspect them—but you can’t negotiate them anyway, so why do it. . .	68	6.8%
	I refuse to answer this question	54	5.3%

Source: own research.

To simplify the calculations, the loan was to be free of charge (zero interest, commission, or additional insurance) and granted for 12 months. The respondents were invited to compare two loan repayment options:

- a one-off repayment of the entire amount after one year (PLN 1200)
- repayment of the loan in 12 equal monthly instalments of PLN 100 each

When asked about their repayment preferences, consumers agreed that repayment in 12 monthly instalments was easier from their perspective (74.4% of respondents). 13.3% of respondents preferred to postpone the repayment, while 12.3% did not notice any

difference between the two options. The above is justified and is a practical reflection of the subconscious use of mental accounting.

Questions that asked for a comparison of both repayment options from the perspective of APR/TAEG along with the time value of money yielded some interesting answers. Nearly 1/3 of the respondents (31%) did not understand the concept of time value of money and compared the available credit options solely from a cash perspective (actual expenditure). An additional 25% of respondents gave the wrong answer (repayment in 12 monthly instalments), suggesting a budget and liquidity approach should take precedent when comparing financial products. This means that these answers were also given by some who had previously declared in the first part of the survey that they were aware of and understood financial concepts (the economics students, most of whom (95%) marked the correct answer, improved the overall score for this question).

The third question in this regard concerned a comparison of both available loan options from an APR/TEAG perspective, which in this case was the same in both cases. Only 25% of respondents gave the correct answer. Significantly more respondents evaded the question here (48% said they did not really know what the answer was).

To avoid eroding the respondents' self-confidence,<sup>1</sup> the verification questions, due to their similar content, were not placed one after the other, but were spread throughout the survey.

Some interesting observations were elicited by the question regarding the approach taken to signing loan agreements. Only 37.8% of respondents confirmed that they always read financial agreements carefully before signing them. More than 1/3 of the respondents (36%) do so superficially and, most importantly, they trust the salesperson enormously, relying solely on his or her opinions and advice. A further 14% do not analyze the content of agreements, considering them boring and, most importantly, not worth bothering about due to the inability to negotiate them anyway. In this case, the phenomena described as irrelevant factors and overconfidence, consisting in uncritical acceptance of the seller's recommendations, became very visible.

## 5. The Research Results

The obtained results allowed for the analysis of the relationships between individual demographic sections and the responses obtained.

Researchers first examined the relationship between the use of loans and the level of financial knowledge of consumers (Table 4). The relationship between demographic and social categories and the practice of concluding loan agreements was subject to an in-depth analysis (Table 5).

In practice, it turned out that the fact of previously using loans had no significant impact on the knowledge of the concept of "interest rate". In the study, 50% of consumers who repaid loans early and 47% of those who had not yet said they "knew and understood" the concept of interest rate.

Nearly 80% of respondents who used loans declared that they "knew and understood" the concept of annual effective interest rate (APR/TAEG). Among consumers who had no credit experience, over 50% of respondents had the same opinion. Here we very clearly identified the lack of knowledge/overestimation of knowledge—in the verification question, only 25% of respondents (in total) gave the correct answer (Question no. 3; Table 3). However, of the respondents who gave the correct answer, 48.4% had previous credit experience. Only 20.4% of respondents (without credit history) gave the correct answer to this question.

The consumers who gave correct answers were dominated by young people (less than 40 years old) with secondary or higher education. This is undoubtedly a derivative of economic education, which is compulsory in Poland at all stages of school education. There was no correlation between the correct answer and the respondents' place of residence.

**Table 4.** The relationship between credit use and financial knowledge.

INTEREST RATE	No Credit History	I Took Loans	V	P
I know and understand the concept of interest rate as the cost of money	47.0%	50.6%	0.18	n/a
I know and more or less understand the concept of interest rate as the cost of money	33.7%	41.9%		
I heard but I don't understand interest rate mechanism as the cost of money	17.0%	7.0%		
I refuse to answer the question	2.3%	0.5%		
APR/TAEG	no credit history	I took loans	V	P
I know, understand and know what the APR (TAEG) is for	17.8%	38.4%	0.09	0.062
I more or less know, understand and know what the APR (TAEG) is for	34.2%	39.0%		
I've heard of it, but I don't understand the calculation mechanism and I can't practically interpret the APR (TAEG) value	41.4%	27.9%		
I refuse to answer the question	1.0%	0.3%		
VARIABLE RATES	no credit history	I took loans	V	P
I know and understand the concept of interest rate as the cost of money	35.1%	42.7%	0.21	n/a
I know and more or less understand the concept of interest rate as the cost of money	25.4%	43.9%		
I heard but I don't understand interest rate mechanism as the cost of money	25.4%	19.2%		
I refuse to answer the question	6.5%	1.8%		
INTERPRETATION OF APR/TAEG	no credit history	I took loans	V	P
Which loan is cheaper for me from APR/TAEG perspective ?			0.06	0.315
Both are identical	20.4%	48.4%		
The loan that I repay in one lump sum of PLN 1200 after a year is more beneficial	11.8%	21.5%		
I dont know exacly	49.4%	24.8%		
it doesn't matter—I will spend the same amount	18.4%	5.3%		

Source: own research. P—level of statistical significance, V—Cramer's V strength of relationship.

One of the central points of educational campaigns regarding the safe use of credit products is encouraging consumers to read credit agreements carefully. Awareness of the nature of the concluded obligation and the content of contractual provisions is the basis for responsible borrowing. The way consumers behave in this area says a lot about their competences.

Results in this respect were very disappointing, as more than half of borrowers do not read the contracts or limit themselves to their most narrow provisions. Many consumers expect sellers to present contract terms and this is sufficient for them. Diligence and restraint in making obligations is demonstrated mainly by people with higher education (over 60%) and living in big cities (>50%), i.e., those whose level of knowledge is higher and access to education is simpler.

The surveyed consumers showed poor knowledge of the rules of the depositary market products. For example, only 10.2% of respondents knew the principles of the bank deposit insurance system. Over 40% of respondents declared they knew the rules of using the BNPL (Buy Now Pay Later) product—however, only 24% gave the correct answer about the rules of debt repayment and the possibility of paying it into installments after the end of the interest-free period.

The study decided to critically address the level of financial knowledge declared by consumers. Unlike other previous studies, the survey included questions also aimed at verifying the actual level of consumer knowledge. The study using Kendall's tau showed a very significant deviation of the actual results from the declared ones.

**Table 5.** The relationship between age, education, place of living, household structure and the practice of concluding credit agreements.

	less than 25 yo	between 25–40 yo	between 41–60 yo	more than 60 yo	V	P
I always read loan agreements before I sign them	40.60%	37.50%	41.20%	31.60%		
I only read the most important points and ask the seller about the rest	26.90%	37.90%	38.00%	39.70%		
I don't read loan agreements—they are long, boring and I don't understand them...	13.70%	11.90%	11.50%	20.10%	0.11	0.022
Only sometimes I inspect them—but you can't negotiate them anyway, so why do it...	10.80%	6.60%	5.00%	5.60%		
I refuse to answer this question	8.00%	6.10%	4.30%	3.00%		
	primary education	secondary education	students of economy	high education	V	P
I always read loan agreements before I sign them	27.50%	25.70%	70.00%	60.50%		
I only read the most important points and ask the seller about the rest	37.70%	52.10%	15.00%	23.80%		
I don't read loan agreements—they are long, boring and I don't understand them...	20.90%	14.20%	0.00%	4.50%	0.24	n/a
Only sometimes I inspect them—but you can't negotiate them anyway, so why do it...	9.70%	4.00%	3.80%	4.50%		
I refuse to answer this question	4.20%	4.00%	11.20%	6.70%		
	village & small city	medium size city	big city		V	P
I always read loan agreements before I sign them	31.10%	34.40%	51.90%			
I only read the most important points and ask the seller about the rest	37.00%	42.10%	27.00%			
I don't read loan agreements—they are long, boring and I don't understand them...	19.10%	13.20%	7.80%		0.17	n/a
Only sometimes I inspect them—but you can't negotiate them anyway, so why do it...	7.70%	7.40%	4.80%			
I refuse to answer this question	5.10%	2.90%	8.50%			
	living alone	childless couples	couples with children	others	V	P
I always read loan agreements before I sign them	38.70%	30.20%	40.70%	57.40%		
I only read the most important points and ask the seller about the rest	29.90%	39.60%	38.00%	20.40%		
I don't read loan agreements—they are long, boring and I don't understand them...	16.50%	19.10%	11.00%	0.00%	0.13	n/a
Only sometimes I inspect them—but you can't negotiate them anyway, so why do it...	10.30%	6.50%	5.40%	7.40%		
I refuse to answer this question	4.60%	4.60%	4.90%	14.80%		

Source: own research. P—level of statistical significance, V—Cramer's V strength of relationship.



Consumers, consciously or unconsciously, significantly overestimated their level of knowledge. The results obtained in this area partially explain the high level of incorrect financial decisions—resulting from actual knowledge deficiencies (in all age and social groups) and partially cognitive errors made by customers.

### 5.1. Examined Relationships

Previous experience in using loans should influence positively consumers' level of financial knowledge. As expected, analyses using Pearson's  $\chi^2$  tests for the relationship between the use of loans and financial knowledge confirmed the influence of consumers' personal experiences of financial products with declared financial knowledge. The analysis of the results presented in Table 4 shows that there is a statistically significant relationship between the overall use of loans and declared knowledge of the cost of money  $V = 0.18$ ;  $p < 0.01$  and variable interest rates  $V = 0.21$ ;  $p < 0.001$ . People who have taken out loans tended to claim knowledge and understanding of concepts such as the cost of money and variable interest rates. However, it was not demonstrated by the study group that taking out loans had a statistically significantly correlated with knowledge of other financial concepts.

Loan agreements were more carefully read by people who admitted that they did not use loans in general, as well as by people who have taken out consumer/instalment loans.

The approach taken in terms of reading financial contracts before signing them indicated a few significant correlations—relationships between age, place of residence, education and the structure of the consumer household:

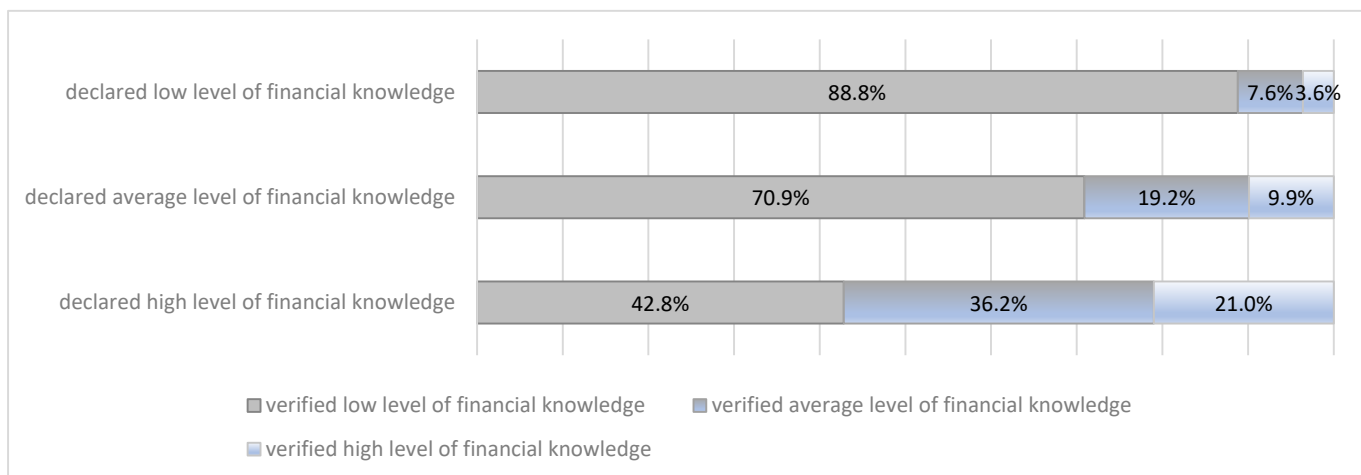
- those who claimed that they carefully read loan agreements tended to be young people up to 25 years of age, as well as those with higher education.
- there was a statistically significant relationship between approach taken to signing consumer loans and place of residence and household. Those living in large cities and raising children or were themselves dependent on someone else were more likely to carefully read credit agreements.

People with experience of consumer loans were usually aware that a credit card loan is generally more expensive than an instalment loan for purchasing goods and services, but this relationship was not strong. However, ignorance and lack of interest in comparing the cost of a loan in a credit card account was common—46.7% of respondents indicated that they did not know and had never been interested in this issue. Only 21.5% of respondents answered that, to the best of their knowledge, this type of loan is generally more expensive than an instalment loan offered at a point of sale for goods and services.

### 5.2. Overall Financial Knowledge

An analysis of the findings of the consumer survey yields several interesting observations leading to the following conclusions regarding the nominal financial knowledge of the respondents and their behavior in practice on the financial market. The influence of behavioral factors such as heuristics and cognitive errors on how consumers behave when choosing and evaluating financial products and services is particularly tangible.

The study confirms that Polish consumers overestimate their level of financial knowledge and are uncritical towards their own shortcomings when it comes to the responsible use of financial products and services (see Figure 3). The analysis was based on a comparison of declared knowledge of financial concepts and categories with answers to questions checking actual knowledge (declination to answer a question or an admission to not knowing the right answer were treated in the same way as incorrect answers).



**Figure 3.** The relationship between the declared level of financial knowledge and actual knowledge (tested using Kendall's Tau). Source: own research.

This proves consumers' superficial knowledge, limited to financial concepts simply defined. Therefore, one may justify formulating a thesis about the drastically insufficient level of financial education and the practical ineffectiveness of teaching programs in this area.

The study also revealed that accurate evaluations and decisions are much more strongly correlated with personal experience, observation, and intuition than with the declared level of financial knowledge—consumers with experience in taking out consumer loans read contracts and much more accurately interpret items such as APR/TEAG and the value of money over time. Secondly, the respondents showed some susceptibility to the significant influence of behavioral factors conducive to making suboptimal financial decisions:

- nearly 36% of the respondents elect not to personally verify the terms of a loan agreement, relying on the salesperson's opinions and recommendations. Such people are significantly exposed to the framing effect and possible consequences of information asymmetry.
- analysis of preferences regarding the method of loan repayment (one-off or instalments) revealed that mental accounting strongly influences consumers' credit decisions, which is justifiable and rational from the perspective of consumer households. Subconsciously, consumers assume that their household budgets lack income flexibility and prefer solutions that ensure ongoing liquidity for the household.
- at the same time, when choosing a product or service, consumers are influenced by potentially irrelevant factors such as the advisor's suggestions, peer pressure or opinions commonly repeated on social media. This applies to young people especially (<25 years old) and those who have cash—in the questionnaire they tended to answer that they were indifferent to the choice of repayment method or preferred to pay 'as late as possible';
- the ease with which respondents treated consumer bankruptcy as an opportunity for a 'fresh start', while ignoring the costs of restructuring (involving one's own assets to repay part of the debt) is an example of hyperbolic discounting.

Therefore, the picture of consumer knowledge blurs in the light of the conducted research. The knowledge possessed is quite broad, yet superficial, and when subjected to practical verification it turns out that it is not reflected in the financial decisions made in practice or the answers given to the verification questions.

### 5.3. Discussion

The results of the study direct our attention to three main areas of imperfection:

- (a) the existence of an important educational gap

- (b) common overestimation of financial knowledge by consumers
- (c) the influence of factors from the sphere of behavioral finance on consumer behavior on the financial market

Undoubtedly, the conducted study confirmed the existence of an educational gap correlated with the place of residence, age and education of the respondents. Such results are consistent with the results of research by other researchers in highly developed countries. This is the area that should receive special attention.

Overestimating one's own knowledge or succumbing to the influence of cognitive errors is common and both consumers and those responsible for shaping consumer protection policy on the financial market should be aware of this and take it into account. Education is an area that requires deeper analysis and work to reduce differences.

The results of the study at the level of consumer declarations were very similar to the results obtained by other researchers. Among others, to the study of Polish consumers conducted by Dominika Maison obtained on a sample of N-1076 at the end of 2023. They show a slight increase in the level of consumer knowledge in relation to the consumer study conducted by Gola and Smyczek in 2019. The results do not differ from the results obtained in other countries of Central Europe. Similarly, in the studies by [Opletalová \(2016\)](#) and [Hergár et al. \(2024\)](#), the analysis and description of the results were limited to the "diagnosis" of the condition based on declarations. It is impossible to compare the results obtained in the field of behavioral finance questions and questions testing financial knowledge because in their essence they were a pioneering approach to examining the financial knowledge of Polish consumers.

In Poland, the Think! Foundation's (NGO) research is a valuable source of knowledge about the state of financial education in Poland. The results of their research are consistent with those obtained during our study and can be used to shape educational programs and social campaigns aimed at improving the financial skills of Poles.

The Foundation has conducted several studies & educational projects:

- Project "Think Financially!" (2021)  
Project objective: Financial education of young people and adults in the field of personal finance management.  
Project conclusions:
  - Participants showed significant improvement in understanding basic financial concepts and the ability to plan a household budget.
  - The project showed that interactive teaching methods, such as games and simulations, are effective in increasing engagement and understanding among participants.
- Study "Level of financial knowledge of young Poles" (2020)  
Study objective: To examine the level of financial knowledge among young Poles aged 18–30 and their approach to managing personal finances.  
Study Results:
  - More than half of the respondents had difficulties with practical understanding of basic financial concepts, such as inflation, interest rates or the role of saving.
  - Young Poles use banking services more often, but they lack knowledge about more complex financial products, such as investments or insurance
- Study "Financial Condition of Polish Families" (2018)  
Study objective: Analysis of the financial condition of Polish families and their ability to manage a household budget.  
Study Results:
  - Over 60% of Polish families had difficulty saving regularly and did not have a contingency plan for unforeseen expenses, which increased the risk of debt.
  - The study indicated the need for financial education, especially in budget management and long-term planning.

The conclusions drawn from the study are universal and do not apply only to Central European countries. Similar studies were conducted, among others, in France—in 2019 using a questionnaire sent to 300 students enrolled in French business schools. The results showed that financial knowledge is weak in students who do not attend finance classes. The study [Le Fur and Outreville \(2022\)](#) also confirmed the impact of financial knowledge on risky behavior. Students who are risk averse are also those who have the lowest level of financial knowledge. It was one of the first studies to examine the financial knowledge of Generation Z and its implications. It raises awareness of the importance of financial education in the curriculum.

The central role of financial education as a tool for financial inclusion is also noticed by central banks in Central Europe and Western Europe. They are involved in financial education, looking for optimal communication channels. The existence of the educational gap is therefore common and is a domain of the selected region. Similar challenges are defined in practically all countries of the European Union. Baque de France conducted research on financial knowledge and in some areas the results obtained were even worse than in Eastern Europe—at the level of definitions and understanding of concepts. However, residents of France have greater practical skills resulting from longer experience in using financial sector services ([Gervasoni and Beguery 2020](#)).

The analysis of the results of the study of Polish consumers in the context of European scientific achievements focuses researchers' attention on the problem of the existence of the educational gap—as the most important problem in the field of financial knowledge and financial literacy. Limited access to economic education or its ineffectiveness is the source of suboptimal financial decisions to a greater extent than cognitive errors. In France, attention is focused on early and universal economic education ([Polewka 2024](#)), in the countries of Central and Eastern Europe on universal education addressed to all age groups. In the analyzed study, young people achieved better results precisely because they had contact with economic education in schools ([Amagir et al. 2018](#)). Older people, less educated and living in smaller towns achieved much weaker results than their counterparts in Western Europe.

However, apart from the OECD study, there are no detailed research results that would be fully comparable in this respect and would allow not only for the assessment of the knowledge of the respondents, but also for the effectiveness of the economic education system in the broad sense of the word.

## 6. Conclusions

The surveyed consumers overestimate their financial knowledge or, under the influence of others' opinions, make declarations that differ from the actual state. Unfortunately, they remain uncritical of their ignorance.

The undoubted limitation of the conducted study is its limited territorial scope. The results must be related to the conclusions of studies by other scientists studying the same area but using slightly different tools (different form of tests) and guided by different research goals. Conducting similar studies in other countries may confirm the pan-European nature of the restrictions occurring on the side of consumers and their households.

The study showed that financial knowledge is strongly correlated with the socio-demographic profile of consumers. Residents of small towns with a lower level of education have a much lower level of financial knowledge. Considering that educational programs in the field of economic and financial knowledge are uniform and equally available throughout the country—this may indicate a connection between their effectiveness and their content, and the way of communication addressed to a specific social profile of consumers.

Scientific verification of this hypothesis would provide valuable support for those responsible for conducting adult education. The form of communication of financial knowledge is differentiated according to the age of the trainees—however, the materials are not differentiated according to the level of education.

The surveyed consumers in Poland, who have previous credit experience and declare a high level of knowledge, are unable to interpret them correctly, trust advisors uncritically and are not interested in information about the real (financial) cost of credit—they make comparisons only from the cash perspective of their household budget.

It would be extremely interesting to conduct an experimental comparison of whether the problem with the practical use of financial knowledge occurs mainly in the economies of Central and Eastern Europe, or whether similar problems also concern consumers in highly developed countries.

To what extent does the intensity of cognitive errors and problems with correct attribution correlate with the level of market development, or are they a common problem in households? Such knowledge can shed new light on the problem of the effectiveness of consumer protection, shifting the burden from the concept of the empowered customer, which is the basis of European regulations, to the American total regulation and the average customer, which is its subject.

The methodology applied in this article can contribute to the question of financial regulation by also looking at FinTech and especially financial Blockchain technology.

In particular, the issue of virtual currencies (Bitcoin, Ethereum, Ripple, Litecoin. . .) can be a direction for research in the CEE countries or the EU.

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## Note

- <sup>1</sup> The structure of the test may lead to some incorrect answers. In an experiment conducted by Gębski in 2021 on a group of 70 economics students during a colloquium, the test was arranged in such a way that only 'A' answers were correct (the students had 4 options ranging from A to D). Even the best in the group made a lot of mistakes by selecting different answers, thinking that the test could not possibly only have correct 'A' answers.

## References

- Agarwal, Sumit, and Nhashkar Mannil. 2023. Household financial decision making. In *Handbook of Financial Decision Making*. Cheltenham: Edward Elgar Publishing, pp. 375–410.
- Amagir, Aisa, Wim Groot, Henriëtte Maassen van Den Brink, and Arie Wilschut. 2018. A review of financial-literacy education programs for children and adolescents. *Citizenship, Social and Economics Education* 17: 56–80. [CrossRef]
- Anderson, Anders, Forest Baker, and David T. Robinson. 2017. Precautionary savings, retirement planning and misperceptions of financial literacy. *Journal of Financial Economics* 126: 383–98. [CrossRef]
- Andhyka, Bintang, Riska Yustisiana, and Wasi Widayadi. 2024. The Improvement of Financial Literacy and Digital Payment Behavior in Generation Z: A Literature Review. *International Journal of Business and Technology Management* 6: 636–45.
- Balasubramnian, Bhanu, and Carol Springer Sargent. 2020. Impact of inflated perceptions of financial literacy on financial decision making. *Journal of Economic Psychology* 80: 102306. [CrossRef]
- Bannier, Christina E., and Milena Schwarz. 2018. Gender- and education-related effects of financial literacy and confidence on financial wealth. *Journal of Economic Psychology* 67: 66–86. [CrossRef]
- Böhm, Patrik, Gabriela Böhmová, Jana Gazdíková, and Viktória Šimková. 2023. Determinants of financial literacy: Analysis of the impact of family and socioeconomic variables on undergraduate students in the Slovak Republic. *Journal of Risk and Financial Management* 16: 252. [CrossRef]
- Buratti, Ginevra, and Alessio D'Ignazio. 2024. Improving the effectiveness of financial education programs. A targeting approach. *Journal of Consumer Affairs* 58: 451–85. [CrossRef]

- Burkhauser, Ricahrd, Alan Gustman, John Laitner, Olivia Mitchell, and Amanda Sonnega. 2009. Social Security Research at the Michigan Retirement Research Center. *Social Security Research Bulletin* 69: 51–64.
- Cooper, Russell, and Guozhong Zhu. 2016. Household finance over the life-cycle: What does education contribute? *Review of Economic Dynamics* 20: 63–89. [CrossRef]
- Cwynar, Andrzej. 2021. Financial literacy and financial education in Eastern Europe. In *The Routledge Handbook of Financial Literacy*. London: Routledge, pp. 400–19.
- Davutyan, Nurhan, and Belma Öztürkkal. 2016. Determinants of saving-borrowing decisions and financial inclusion in a high middle-income country: The Turkish case. *Emerging Markets Finance and Trade* 52: 2512–29. [CrossRef]
- Dudchyk, Oksana, Iryna Matvijchuk, Mariia Kovina, Tetiana Salnykova, and Iryna Tubolets. 2019. Financial literacy in Ukraine: From micro to macro level. *Investment Management and Financial Innovations* 16: 240–53. [CrossRef]
- Estelami, Hooman. 2016. Cognitive drivers of suboptimal financial decisions: Implications for financial literacy campaigns. In *Financial Literacy and the Limits of Financial Decision-Making*. Cham: Springer International Publishing, pp. 10–25.
- Fong, Joelle H., Benedict S. Koh, Olivia S. Mitchell, and Susann Rohwedder. 2019. Financial Literacy and Suboptimal Financial Decisions at Older Ages. *CFS Working Paper, No. 630*. Available online: <https://ssrn.com/abstract=3476319> (accessed on 21 July 2024). [CrossRef]
- Gervasoni, Lisa, and Mark Beguery. 2020. L'éducation économique, budgétaire et financière des publics: Un enjeu majeur en temps de crise. *Bulletin de la Banque de France*, 229.
- Gola, Jagoda, and Sławomir Smyczek. 2019. *Zachowania Finansowe Gospodarstw Domowych*. Prace Naukowe. Katowice: Uniwersytet Ekonomiczny w Katowicach.
- Grzesiuk, Aleksandra Beata, Beata Świecka, Korczak Dieter, and Olga Wyszowska-Kaniewska. 2019. *Financial Literacy and Financial Education: Theory and Survey*. Berlin and Boston: De Gruyter Oldenbourg. [CrossRef]
- Hastings, Justine, and Olivia Mitchell. 2018. *How Financial Literacy and Impatience Shape Retirement Wealth and Investment Behaviors*; Wharton Pension Research Council Working Papers, Number 13. Available online: <https://pubmed.ncbi.nlm.nih.gov/33833619/> (accessed on 21 July 2024).
- Hergár, Eszter, Levente Kovács, and Erzsébet Németh. 2024. The Status and Development of Financial Literacy in Hungary. *Financial and Economic Review* 23: 5–28. [CrossRef]
- Holmes, Nathan M., Yvonne Y. Chan, and R. Frederick Westbrook. 2020. An application of Wagner's Standard Operating Procedures or Sometimes Opponent Processes (SOP) model to experimental extinction. *Journal of Experimental Psychology* 46: 215–34. [CrossRef]
- Hundtofte, S., and J. Gladstone. 2017. *Who Uses a Smartphone for Financial Services? Evidence of a Selection for Impulsiveness from the Introduction of a Mobile FinTech App*. Federal Reserve Bank of New York Working Paper. New York: Federal Reserve Bank of New York.
- Kaiser, Tim, and Lukas Menkhoff. 2020. Financial education in schools: A meta-analysis of experimental studies. *Economics of Education Review* 78: 101930. [CrossRef]
- Kogler, C., and P. Rauch. 2020. Game-based workshops for the wood supply chain to facilitate knowledge transfer. *International Journal of Simulation Modelling* 19: 446–57. [CrossRef]
- Krechovská, Michaela. 2015. Financial Literacy as a Path to Sustainability. Available online: <https://fek.zcu.cz/tvp/doc/2015-2.pdf> (accessed on 21 July 2024).
- Kusukawa, S. 1996. Bacon's classification of knowledge. In *The Cambridge Companion to Bacon, Cambridge Companions to Philosophy*. Edited by M. Peltonen. Cambridge: Cambridge University Press, pp. 47–74.
- Le Fur, Eric, and Jean-François Outreville. 2022. Financial literacy, education and risk aversion: A survey of French students. *Managerial Finance* 48: 1530–43. [CrossRef]
- Lusardi, Annamaria. 2008. *Financial Literacy: An Essential Tool for Informed Consumer Choice*. Working Paper No 14084. Cambridge, MA: National Bureau of Economic Research. Available online: <https://www.nber.org/papers/w14084> (accessed on 21 July 2024).
- Lusardi, Annamaria, and Olivia S. Mitchell. 2014. The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature* 52: 5–44. [CrossRef]
- Lusardi, Annamaria, and Olivia Mitchell. 2023. The importance of financial literacy: Opening a new field. *Journal of Economic Perspectives* 37: 137–54. [CrossRef]
- Lusardi, Annamaria, Pierre-Carl Michaud, and Olivia Mitchell. 2017. Optimal Financial Knowledge and Wealth Inequality. *Journal of Political Economy* 127: 431–77. [CrossRef]
- National Bank of Poland. 2024a. NBP Interest Rates, End of Month. Available online: <https://nbp.pl/en/statistic-and-financial-reporting/basic-charts/> (accessed on 21 July 2024).
- National Bank of Poland. 2024b. Weighted Average Monthly Exchange Rates of EUR, USD and CHF. Available online: <https://nbp.pl/en/statistic-and-financial-reporting/basic-charts/> (accessed on 21 July 2024).
- Nitoi, Mihai, Dorina Clichici, Cristina Zeldea, Miruna Pochea, and Cecilia Ciocîrlan. 2022. Financial well-being and financial literacy in Romania: A survey dataset. *Data in Brief* 43: 108413. Available online: <https://www.sciencedirect.com/science/article/pii/S2352340922006102> (accessed on 21 July 2024).
- OECD/INFE. 2016. International Survey of Adult Financial Literacy Competencies. Available online: [https://www.oecd-ilibrary.org/finance-and-investment/oecd-infe-international-survey-of-adult-financial-literacy-competencies\\_28b3a9c1-en](https://www.oecd-ilibrary.org/finance-and-investment/oecd-infe-international-survey-of-adult-financial-literacy-competencies_28b3a9c1-en) (accessed on 21 July 2024).

- OECD/INFE. 2020. International Survey of Adult Financial Literacy. Available online: [https://www.oecd-ilibrary.org/finance-and-investment/oecd-infe-2020-international-survey-of-adult-financial-literacy\\_145f5607-en](https://www.oecd-ilibrary.org/finance-and-investment/oecd-infe-2020-international-survey-of-adult-financial-literacy_145f5607-en) (accessed on 21 July 2024).
- Opletalová, Alena. 2016. Financial Education and Financial Literacy in the Czech Education System. *Procedia—Social and Behavioral Sciences* 171: 1176–84. Available online: <https://www.sciencedirect.com/science/article/pii/S1877042815002591?via=ihub> (accessed on 21 July 2024).
- Panos, Georgios A., Tatja Karkkainen, and Adele Atkinson. 2019. *Financial Literacy and Attitudes to Cryptocurrencies*. Working Papers in Responsible Banking & Finance 2019, WP N° 20-002. Available online: <https://doi.org/10.2139/ssrn.3482083> (accessed on 21 July 2024).
- Polewka, Anna. 2024. L'éducation financière et économique. *Revue Internationale D'éducation de Seves* 95: 12–15. [CrossRef]
- Święcka, Beata, Aleksandra Grzesiuk, Dieter Korczak, and Olga Wyszowska-Kaniewska. 2019. *Financial Literacy and Financial Education: Theory and Survey*. Berlin and Boston: De Gruyter Oldenbourg, pp. V–VI. [CrossRef]
- Święcka, Beata, Eser Yeşildağ, Ercan Özen, and Simon Grima. 2020. Financial Literacy: The Case of Poland. *Sustainability* 12: 700. [CrossRef]
- USAID. 2021. *Financial Literacy, Financial Inclusion and Financial Well-Being in Ukraine in 2021*; Report on the result of the research. Kyiv: Info Sapiens, DAI Global LLC, USAID Financial Sector Transformation Project in Ukraine.
- van Rooij, Maarten, Annamaria Lusardi, and Rob Alessie. 2007. *Financial Literacy and Stock Market Participation*. Working Paper No 13565. Cambridge, MA: National Bureau of Economic Research. Available online: <https://www.nber.org/papers/w13565> (accessed on 21 July 2024).
- Zehra, Nahid, and Udai Bhan Singh. 2023. Household finance: A systematic literature review and directions for future research. *Qualitative Research in Financial Markets* 15: 841–87.

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