Asian Development Policy Review
ISSN(e): 2313-8343
ISSN(p): 2518-2544
DOI: 10.55493/5008.v11i3.4917
Vol. 11, No. 3, 167-181.

URL: www.aessweb.com

Impact of financial literacy on investment decisions in developing countries: The example of Kazakhstan

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Article History
Received: 22 June 2023
Revised: 5 September 2023
Accepted: 31 October 2023
Published: 24 November 2023

Keywords
Age group
Correlation analysis
Financial tools
Index of financial literacy of the population
Index of investment decision-making efficiency
Investment decision
Questionnaire.

ABSTRACT

This study aims to establish the impact of financial literacy on investment decision-making in developing countries, with the Republic of Kazakhstan serving as a case study. The research approach involved conducting a questionnaire survey for Kazakhstan residents to evaluate their level of financial literacy, followed by analysis of the results through the SPSS software. To evaluate the influence of financial literacy on the efficiency of investment decision-making, a correlation analysis was performed on two variables: the financial literacy index and the investment decision-making efficiency index. The findings indicate that respondents' financial literacy level has an impact on investment decision-making. After all, a higher level of financial literacy indicates a larger number of individuals who have made financial investments at least once, while among respondents with a lower level of financial literacy, approximately 30% did not invest at all. The impact of financial literacy on effective investment decision-making is dependent on age, education, and financial criteria. Moreover, personal income plays a pivotal role in facilitating informed investing choices. The proposed study has practical applications for financial and credit institutions, banks, and government officials in establishing a basis for efficiently injecting finances into the economy of a developing nation.

Contribution/ Originality: The originality of the research lies in the assumption that the level of financial literacy depends on age, education, and personal income, which indirectly affects the decision-making of investors regarding investment in developing countries and reduces the investment risk.

1. INTRODUCTION

This paper explores personal financial literacy as a set of methods, rules, and habits that empower individuals to achieve specific goals and address their needs. In times of instability, particularly common in developing nations, individuals with limited financial literacy are at risk of depleting their meagre savings. In addition, the implementation of novel financial technologies and services necessitates particular knowledge and proficiency to enable the utilization of cutting-edge tools for the preservation and expansion of personal funds (Clark, Maki, & Morrill, 2014). This is because the rapid pace of technological progress and the emergence of new income opportunities require consumers to have specialised knowledge to effectively invest their savings in specific financial instruments (Lusardi & Mitchell,

2011). Financial literacy pertains to an individual's proficiency and ability to make informed decisions concerning the management of their financial resources (Hütten, Maman, Rosenhek, & Thiemann, 2018), covering matters such as credit or investment.

Making investment decisions is a complex process that requires some financial skills and knowledge, including understanding basic financial concepts, risk management, and investment strategy building (Arthur, 2012). The ability to make sound decisions regarding the allocation of assets in financial instruments is frequently observed to be influenced by a limited degree of financial literacy and satisfactory comprehension of emerging financial technologies. This may eventually lead to significant financial losses (Pinto, 2013).

Over the last decade, many studies have examined financial literacy's impact on investment decision-making in developing countries (Almenberg & Widmark, 2011). Some authors on this issue, in particular, stress (Lewis & Lindley, 2015; Robson, 2013) that people with higher financial literacy are likelier to make proper investment decisions and are less likely to become victims of fraudulent investment schemes.

Voluminous financial literacy studies in developing countries began after the global financial and economic crisis in 2008 and 2009 (Pinto, 2013). During this period, millions worldwide suffered significant financial losses due to an insufficient understanding of investment risks and the peculiarities of the functioning of the financial market in general. Studying the population's financial literacy level in current conditions has become even more critical (OECD, 2013). After all, the rise of digital currencies and new investment tools has required the growth of financial knowledge to make informed investment decisions and prevent excessive financial losses. Nonetheless, the effect of the average population's level of financial literacy on investors' decisions to invest in the recipient economy remains a poorly comprehended topic. The significance of the researched topic, investigating the connection between the financial literacy of Kazakhstan citizens and their investment decisions in the country's economy, is evident.

The research will focus on the financial literacy of Kazakhstani citizens. The study hypothesises that financial literacy indirectly impacts investors' decisions regarding monetary investments in a country with a transitioning economy. The hypothesis is that investors perceive citizens as more capable of managing financial resources due to their financial literacy, thereby reducing the risk of losing investments. When conducting the research, we assumed that a person's age and education affect their financial literacy level, ultimately leading to greater financial stability.

2. ANALYSIS OF LITERATURE DATA AND PROBLEM STATEMENT

In the context of the mentioned topic, the article (Ouachani, Belhassine, & Kammoun, 2021) demands attention due to its focus on the significance of financial literacy in enhancing financial well-being and investment decision-making. The authors devote significant attention to analysing various approaches for evaluating financial literacy, including subjective measures such as self-reported financial knowledge and objective measures such as financial literacy quizzes and surveys. The employment of methodologies to evaluate participants' self-reported levels of financial literacy in conjunction with inquiries administered by researchers is a notable pragmatic approach. This will enable us to contrast self-assessment findings with the external assessment of the populace's financial literacy level, allowing for the formulation of investment strategies, as demonstrated in the study Damigos, Kontogianni, Tourkolias, and Skourtos (2021), and educational materials intended to raise financial literacy levels. However, there is a dearth of empirical evidence on the impact of financial literacy on investment processes within countries. These theoretical works typically concentrate on the actions of prominent business representatives who operate in the market of the donating nation.

In the work of Stolper and Walter (2017), a thorough study of the level of financial literacy in the Federal Republic of Germany was carried out, which showed that the Federal Republic of Germany ranks highly in the world for the financial literacy of its population. However, the authors, based on empirical data and surveys, found that financial literacy is comparatively lower in transitioning and lower-income economies than in their industrialised counterparts. This finding is noteworthy, yet it is important to recognise that emerging markets diverge from

developed economies in financial market development, besides per capita income. Consequently, the populace of such countries needs to acquire particular knowledge and competencies to utilise current financial services competently. Nonetheless, individuals in a lower-income nation still exhibit greater financial literacy than those in a higher-income nation. In both countries, individuals can create a personal budget, plan expenses, and invest using available tools. However, the complexity of such tools in developed countries is often higher, requiring greater financial knowledge. The articles' significant finding is that the elderly and young people, as well as those who are less educated or have low incomes, possess deficient financial literacy levels, making them particularly susceptible to making financial errors. Therefore, in order to address the issue of low financial literacy, the authors should improve the efficacy of educational programmes aimed at promoting financial literacy. Previous efforts have had a positive impact on the financial literacy levels of the general population. However, more research is needed to assess the impact of age, living standards, education, and other factors on financial literacy.

One study by Damigos et al. (2021) that examines the impact of financial literacy on investment decision-making analyses the effect of financial knowledge on energy efficiency investment decisions. The authors use a well-designed survey instrument to collect data on various variables, including income, education, environmental attitudes, and investment behaviour. This enables researchers to examine the correlation between these variables and individuals' inclination to invest in energy-efficient devices. Thus, based on a survey of 992 Greek electricity consumers, the authors concluded that a higher level of financial knowledge allows them to make a more effective decision on investing in energy-saving technologies. This paper only examines a large group of electricity consumers; thus, individual behaviours within this community cannot be examined in detail.

The article by Cupak, Fessler, Silgoner, and Ulbrich (2021) investigated the factors affecting financial literacy in 30 European countries. The authors analyse the role of individual characteristics (such as age, gender, and education) and institutional factors (such as financial market development and consumer protection) in explaining differences in financial literacy between countries. One of the strengths of Cupak et al. (2021) is the large sample size and the use of a comprehensive survey tool to collect data on financial literacy. The authors concluded that younger, better-educated, and more financially aware people tend to have higher levels of financial literacy. Regarding institutional factors, the authors revealed that higher levels of financial market development and consumer protection are associated with higher financial literacy. To increase the population's financial literacy level, it is necessary to expand measures to develop financial education, mainly using the Internet, which indicates a focus on young and middle-aged people in the study.

Another significant work Karakurum-Ozdemir, Kokkizil, and Uysal (2019) presents the results of the analysis of financial literacy in countries with middle-income levels. Karakurum-Ozdemir et al. (2019) concluded that financial literacy is critical to promoting financial accessibility and economic development in these countries. They highlighted several issues that need to be addressed to increase financial literacy. One of the main problems identified by the authors is the need for more reliable and comparable data on financial literacy in developing countries. At the same time, the research makes it possible to assert that one of the main problems in ensuring a high financial literacy level in middle-income countries' populations is limited access to financial education and resources, especially in rural and remote areas. Therefore, financial education programs must be adapted to the specific needs and context of different population groups to increase financial literacy and focus on improving basic financial knowledge and skills.

Yusnita, Waspada, and Sari (2022) aimed to determine people's behaviour in making family investment decisions in terms of personal income and financial literacy. The results showed that personal income and financial literacy positively and significantly affected investment decisions in the Tasikmalaya community. The results also displayed that partial personal income significantly affected investment decisions, but partial financial literacy did not considerably affect investment decisions. Thus, it can be concluded that a higher level of financial literacy contributes to more effective investment decisions. In studying this issue, it is essential to consider the community in which the study was conducted.

Another significant study on the impact of financial literacy on investment decisions is the study Yulianto (2023) that reflects the survey results of 30 research respondents. The aggregate of survey findings and economic-mathematical analysis suggests that financial literacy and income positively and significantly impact the investment choices of corporate employees. It is noteworthy, however, that the particular group in question possesses a high degree of education and familiarity with financial market operations.

Kumari (2020) also researches the nature of the influence of financial literacy on investment decisions. A survey was conducted on issues such as access to financial products, money management, financial investment options, and financial skills. The study aimed to examine the impact of financial literacy on investment decision-making among students residing in the Western Province of Sri Lanka. Technical term abbreviations were explained on first use. The findings demonstrated that financial literacy had a positive and significant influence on the investment decisions of students. Moreover, of the various aspects of financial literacy, financial skills were found to be the most critical dimension. Financial product knowledge was identified as the least influential dimension in students' investment decisions.

Seraj, Alzain, and Alshebami (2022) conducted a crucial study to comprehend the impact of financial literacy on investment decision-making. The primary objective here was to investigate the effect of financial literacy on investment decisions through the moderating role of overconfidence using a behavioural finance approach. The findings showed that financially literate investors make the right investment decisions, and when they are overconfident, this connection is strengthened. Thus, financial literacy is crucial to enabling people to make rational investment decisions and manage their finances effectively. Individuals or investors who lack financial literacy make irrational investment decisions, resulting in financial losses. The study examines investor and donor groups in a generalised manner. However, it considers the aspect of mutual influence on decisions and behaviour.

The results of these studies Cupak et al. (2021); Ouachani et al. (2021) and Stolper and Walter (2017) on how knowing about money affects investment choices show how important it is for governments to improve primary education, especially in developing nations (Karakurum-Ozdemir et al., 2019). At the same time, the problem of financial literacy impacts research on investment efficiency in the countries of the former socialist camp, in which the political and economic system changed from a planned system to a market one, which is interesting. Probably the older generation's mental models of the former socialist camp countries are one of the reasons for the lower financial literacy level and correlation with investment decisions. In turn, younger and middle-aged people, carrying out their activities in response to rapid economic changes and financial innovations, often make inefficient investment decisions due to low financial literacy. Nevertheless, it is worth noting that even investors, in this case, can demonstrate irrational behaviour (Jain, Walia, & Gupta, 2020), motivating citizens to take reckless steps in managing their finances. The above points to an existing problem: the population's financial literacy affects investors' decisions regarding financial infusions into developing countries.

3. THE AIM AND OBJECTIVES OT THE STUDY

The study aims to investigate the influence of financial literacy on investment decision-making in developing nations. The research will employ the case of the Republic of Kazakhstan, which was the final Union republic to secede from the Union of Soviet Socialist Republics in 1991. The Republic of Kazakhstan belongs to the developing countries because the economy is still transforming (Central Intelligence Agency, 2023).

The aim of the work will be revealed using the following tasks:

- To examine the financial literacy of the population of the Republic of Kazakhstan;
- To demonstrate the correlation between the level of financial literacy and the effectiveness of investment decisions.

4. RESEARCH MATERIALS AND METHODS

Analysing the results of a questionnaire survey of citizens of a different developing country to determine the level of financial literacy and the effectiveness of investment decision-making necessitates the establishment of a research limitation. In particular, it is recommended to refer to the OECD (2014) definition of financial literacy in order to comprehend its essence. This type of knowledge helps enhance one's well-being and promotes an individual's participation in the economic life of the country. Hence, the acquisition of financial literacy enables individuals to actively participate in the economic activities of their nation. The extent to which a person can participate is determined by evaluating their ability to use financial services.

The study has some limitations related to the challenge of gathering a representative sample for the questionnaire survey. This issue arises since it is not always possible to survey respondents in remote rural settlements owing to limited internet access. If there are more respondents from rural areas included, the financial literacy index's value might decline. Nevertheless, age, educational, and financial criteria still play a crucial role in the formation of the index.

It should be added that the definition (OECD, 2014) encompasses nearly all tools required to effectively engage with financial markets and services, including knowledge, skills, and comprehension of financial concepts and risks. A questionnaire that requires the respondent to rate their level of financial literacy can help assess these components.

When it comes to understanding the effectiveness of investment decisions, a sizable number of academic sources explain that a moderate risk appetite drives such an action (Keswani, Dhingra, & Wadhwa, 2019; Lina, 2019; Senthamizhselvi & Ram, 2020). Accepting high investment risks is considered suboptimal, while decisions characterised by medium and low risk are seen as effective. In general, the ability of an investment decision to produce the desired results—such as profit generation, risk reduction, or the achievement of a particular financial objective—measures its effectiveness (Rahman & Gan, 2020).

To evaluate the impact of financial literacy on investment decision-making among the population of Kazakhstan, a survey methodology was employed, utilizing a questionnaire. Therefore, a survey was carried out utilizing a self-administered questionnaire to evaluate the level of financial literacy and the efficiency of investment decision-making (Table 1).

Table 1. Questionnaire on determining the financial literacy level of Kazakhstan's population and its impact on investment decision-making. Part 1. Determination of financial literacy.

№	Questions	Points	Maximum possible score per question
1.	Select your age group		
	18-29 years old	1	3
	30-59 years old	2	
	over 60 years	3	
2.	Select your education level		
	Higher education	1	3
	Secondary special education	2	
	Partial or full secondary education	3	
Bloc. Financial skills			
3.	Do you plan your own day-to-day and/or regular expenses?		
	Yes	1	1
	No	0	
4.	Do you use a pre-made list when shopping in a store?		
	Yes	1	1
	No	0	
5.	Do you have written financial goals?		
	Yes	1	1
	No	0	
6.	Do you have a non-state pension savings plan?		
	Yes	1	1
	No	0	
Bloc. Financial knowledge			
7.	What is the purpose of a personal budget?		

a	To save money.	0	1
b	To spend money.	0	
c	To track income and expenses.	1	
8.	What is the difference between a savings and a checking account?		
a	A savings account pays interest, while a checking account does not.	0	1
b	A savings account is used for long-term savings, while a checking account is used for day-to-day transactions.	1	
c	A savings account is for emergency funds only, while a checking account is used for all other transactions.	0	
9.	What is a credit estimate?		
a	An estimate that indicates how much money you have.	0	1
b	An estimate that indicates how much debt you have.	0	
c	An estimate that indicates how likely you are to repay the debt.	1	
10.	What is the difference between a stock and a bond?		
a	Stocks represent ownership of a company, while bonds represent debt.	1	1
b	Stocks and bonds are the same thing.	0	
c	Stocks represent debt, while bonds represent ownership of a company.	0	
11.	What is compound interest?		
a	Interest accrues only on the principal amount.	0	1
b	Interest accrued on the principal plus any previously earned interest.	1	
c	Interest that accrues on the principal minus any previously earned interest	0	
12.	Imagine someone depositing 100 USD in a savings account with a guaranteed interest rate of 2% per year. At the same time, it does not make any additional payments to this account and does not withdraw money. How much money will be in the account at the end of the first year after interest is paid or accrued?		
a	102 USD	1	1
b	98 USD	0	
c	100 USD	0	
Bloc. Financial behavior			
13.	What did you do to make ends meet the last time this happened?		
a	Withdraw money from a savings account or transfer money to a checking account	5	5
b	Reduced expenses, saved money, postponed planned expenses	4	
c	I Worked overtime and found an additional job or income.	3	
d	Used credit card money to get cash, pay bills, or buy food	2	
f	I got a loan online.	1	
14.	Which of the following statements best describes the last time you chose a financial service?		
a	I examined several options from different companies before making my decision.	5	5
b	I examined different options for the same company.	4	
c	I tried looking for options, but there were no other suggestions.	3	
d	I took advantage of an advertisement on the Internet and followed a link to receive a financial service.	2	
f	I did not receive any financial services at all.	1	
15.	Do you remember the last time you chose a financial product? Do the statements below correspond to your situation?		
a	I analysed the products of several financial institutions before choosing the product I needed and also evaluated customer reviews of the institution's activities.	5	5
b	I was already using other financial products from this financial institution when I made this choice.	4	
c	I trusted the financial institution offering the financial product.	3	
d	It was vital for me to get a quick decision from the financial institution.	2	
f	I had never heard of this financial institution before choosing a financial product.	1	
16.	If you lose your primary source of income, for what period will you have enough savings to meet current expenses without using a loan or changing residence?		
a	For six months or more	5	5
b	For at least three months but less than six months.	4	
c	For at least one month but less than three months.	3	
d	For at least one week but less than one month.	2	
f	for less than one week	1	
	Maximum points		30

Table 1. Part 2. Determination of investment decision-making efficiency level.

№	Questions	Points	Maximum possible score per question
	Have you ever made an investment decision before?		
	Yes	1	1
1.	No	0	
2.	What was the reason for making the investments?		
a	Long-term savings	3	3
b	Pension planning	2	
c	Short-term and high profits	1	
d	Never made financial investments	0.1	
3.	How confident were you in the investment decision you made?		
a	Very confident	5	5
b	Moderately confident	4	
c	Somewhere in between	3	
d	Uunconfident	2	
e	Not confident at all.	1	
f	Never made financial investments	0.1	
4.	What was the expected rate of return on the investment?		
a	Less than 5%	4	4
b	5-10%	3	
c	10-15%	2	
d	More than 15%	1	
e	Never made financial investments	0.1	
5.	What was the level of risk associated with the investment?		
a	Low	3	3
b	Medium	2	
c	High	1	
d	Never made financial investments	0.1	
6.	How did you collect information on investment opportunities?		
a	With the help of a financial specialist	3	3
b	Through online research	2	
c	With the help of friends or family	1	
d	Never made financial investments	0.1	
7.	What was the actual rate of return on the investment?		
a	More than expected	3	3
b	As was expected	2	
c	Less than expected	1	
d	Never made financial investments	0.1	
8.	Would you make the same investment again in retrospect?		
a	Yes	1	1
b	No	0	
c	Never made financial investments	0.1	
9.	Have you invested in a financial product that later became a fraud, a financial pyramid, etc.?		
a	Yes	0	1
b	No	1	
c	Never made financial investments	0.1	
10.	Have you ever invested in a financial product you did not fully understand?		
a	Yes	0	1
b	No	1	
c	Never made financial investments	0.1	
	Maximum points		25

According to Table 1, a sample was formed of randomly selected individuals aged 18 and over who invested their money in any financial instruments such as stocks, bonds, mutual funds, or real estate or placed it in bank deposits. In addition to sending respondents Google Forms via Facebook and Instagram, the survey also used those platforms. 1,138 questionnaires were sent, of which 932 were received and filled out. The questionnaire (Table 1) consisted of two parts. The first part includes questions to assess the respondent's financial literacy level. In contrast, the second part has questions to determine the effectiveness of their investment decision-making. The inquiries are formulated on the basis of current literature relating to financial literacy and investment decision-making. The reliability and validity of the questionnaire were verified by testing it on a limited number of participants. To calculate the index of the level of financial literacy, each answer (Table 1, Part 1) was evaluated using the method of an artificial (non-

representative) set of questions designed to gauge respondents' skills in financial planning, financial knowledge, and personal finance management. To calculate a percentage, divide the total score for each response by the highest score possible. This percentage serves as an indicator of the respondent's financial literacy level, which can be described using the following ratio:

$$FinancialLiteracyIndex = \frac{totalscore}{maximumpossible}100\% \quad (1)$$

Equation 1 demonstrates how to calculate the respondent's overall score by adding up all of the points they received for each question. The highest possible score is achieved by multiplying the total number of questions by the maximum score allocated to each question, which is determined on a per-question basis depending upon its content and structure. To calculate the investment decision-making efficiency index, each response (Table 1, Part 2) of the questionnaire was also evaluated using a sample, based on which the investment decision-making efficiency index was calculated:

$$IndexofInvestmentDecision - MakingEffciency = \frac{totalscore}{maximumpossible}100\% \quad (2)$$

Equation 2 presents the investment decision-making efficiency index. The resulting indices of financial literacy Equation 1 and investment decision-making efficiency Equation 2 will range from 0 to 100, with a higher score indicating a higher level of financial literacy and investment decision-making efficiency.

To evaluate the influence of financial literacy on investment decision-making effectiveness, two indicators were subjected to correlation analysis: the financial literacy index and the investment decision-making efficiency index. The authors in their work Apriyanti and Ramadita (2022) adopted a similar methodology, which demonstrated a correlation between financial literacy and income level and sound financial decisions.

Data processing was conducted using SPSS version 25, while a MS Excel spreadsheet editor was employed for a number of calculations and visualisations.

5. RESEARCH RESULRS

5.1. Study of the Financial Literacy Level of Kazakhstan's Population

Given the definitions of the core concepts in the study, the study collated the survey findings from Kazakhstan's populace on the assessment of their financial literacy level (Table 2, Figure 1).

Table 2. Survey results of Kazakhstan's population regarding the determination of the financial literacy level.

Respondents' groups		Number of respondents	Financial skills	Financial knowledge	Financial behaviour	Financial literacy index	Index of investment decision-making efficiency
Age	18-29 years old	336	51.52	66.67	61.52	61.21	49.54
	30-59 years old	389	57.58	75.25	68.33	68.28	61.33
	Over 60 years	206	48.48	63.13	60.30	60.30	46.36
Education	Higher	413	59.85	78.79	72.27	71.92	62.06
	Secondary special	365	52.27	67.68	63.33	62.73	50.39
	Partial or full secondary	153	46.21	60.61	58.03	56.97	44.64
Personal income level	Up to 350USD	206	42.42	59.09	57.88	56.06	44.65
	From 351USD to 750USD	336	51.52	66.67	61.52	61.21	49.54
	Over 750USD	389	57.58	75.25	68.33	68.28	61.33

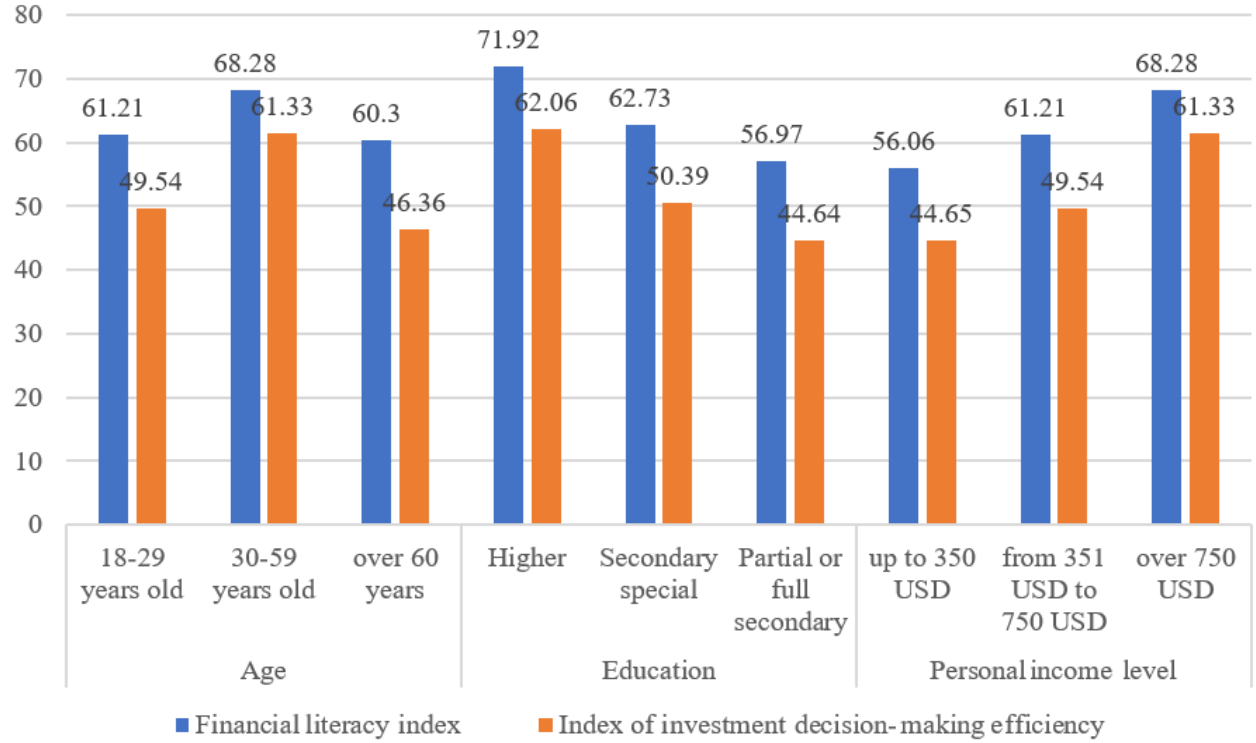

Figure 1. Indices of Kazakhstan'population's financial literacy and investment decision-makingefficiency by age, education and personal income level.

The data in Table 2 indicate that Kazakhstan's general financial literacy level is above average. At the same time, the financial literacy level of Kazakhstan's population (Figure 1) differs by age, education, and personal income level.

5.2. Analysis of the Efficiency of Investment Decisions Based on the Level of Financial Literacy of the Population

To determine the impact of financial literacy on the effectiveness of investment decision-making for specific age groups of Kazakhstan's population, we will build a correlation matrix (Table 3).

Table 3. Results of the correlation analysis of the impact of financial literacy on the effectiveness of investment decision-making of Kazakhstan'population divided by age.

Age	Indicator	Financial skills	Financial knowledge	Financial behaviour	Financial literacy index of the population
18-29 Years old	The financial literacy index of the population	0.72	0.93	0.96	1
	Index of investment decision-making efficiency	0.56	0.78	0.69	0.76
30-59 Years old	The financial literacy index of the population	0.66	0.92	0.94	1
	Index of investment decision-making efficiency	0.56	0.82	0.78	0.84
Over 60 years	The financial literacy index of the population	0.72	0.93	0.97	1
	Index of investment decision-making efficiency	0.58	0.79	0.74	0.79

The data in Table 3 indicate the presence of a significant correlation ($r > 0.75$) between the index of financial literacy and the index of investment decision-making efficiency.

The following criterion chosen for analysing the financial literacy impact of Kazakhstan's population on investment decision-making efficiency is the level of education. The data in Table 2 indicate that a higher level of education of the respondent determines a higher level of financial literacy in the population and a higher efficiency

level in investment decision-making. This is since the basis of the formation of the financial literacy index is the index of financial knowledge, which is closely correlated with the level of education because, for higher education, the index is 78.79%; for secondary special education, it is 67.68%; and for full or partial secondary education, it is – 60.61%.

The results of the correlation analysis of the level of financial literacy depending on the criterion of the level of education are displayed in Table 4.

Table 4. Results of the correlation analysis of the impact of financial literacy on the efficiency of investment decision-making of Kazakhstan's population divided by the criterion of education level.

Educational level	Indicator	Financial skills	Financial knowledge	Financial behaviour	Financial literacy index of the population
Higher education	The financial literacy index of the population	0.65	0.91	0.92	1
	Index of investment decision-making efficiency	0.52	0.69	0.65	0.74
Secondary special education	The financial literacy index of the population	0.72	0.93	0.96	1
	Index of investment decision-making efficiency	0.55	0.78	0.70	0.76
Partial or full secondary education	The financial literacy index of the population	0.73	0.93	0.97	1
	Index of investment decision-making efficiency	0.49	0.69	0.64	0.69

The results of the correlation analysis are more balanced than the calculated indices of financial skills, financial knowledge, financial behaviour, and the general index of financial literacy. After all, the correlation coefficient of the financial literacy index and the investment decision-making efficiency index for the people in the secondary particular education group is more significant ($r = 0.76$) than the similar indicator for those with higher education ($r = 0.74$).

Also indicative of the role of education in the development of financial literacy and the efficiency of investment decision-making is that the lower the level of education, the more significant the number of respondents who have never made financial investments. For example, among respondents with full or partial secondary education, the number of those who never made financial investments is 30%, and with secondary special education, it is – 9%. In contrast, all respondents made at least one financial investment in the person in the higher education category.

The following important criterion for the study of the impact of financial literacy on the efficiency of investment decision-making is the criterion of the level of personal income (Table 5).

Table 5. Results of the correlation analysis of the impact of financial literacy on the efficiency of investment decision-making of Kazakhstan's population divided by the criterion of personal income level.

Educational level	Indicator	Financial skills	Financial knowledge	Financial behaviour	Financial literacy index of the population
Up to 350USD	The financial literacy index of the population	0.72	0.93	0.96	1
	Index of investment decision-making efficiency	0.56	0.78	0.76	0.79
From 351USD to 750USD	The financial literacy index of the population	0.72	0.93	0.96	1
	Index of investment decision-making efficiency	0.56	0.78	0.69	0.76
Over 750USD	The financial literacy index of the population	0.66	0.92	0.94	1
	Index of investment decision-making efficiency	0.56	0.82	0.78	0.84

Considering the data in Table 2, it can be predicted that with the increase in personal income, the level of financial literacy and the efficiency of investment decision-making will increase. Correlation analysis of the relationship between the financial literacy and investment decision-making efficiency indexes in the section of groups of people by the level of personal income shows that at a higher personal income level, the relationship between the indices is more significant ($r = 0.8444$) than in the other two categories of respondents.

The results allowed the identification and analysis of a group of individuals who had not made any attempts in recent years to increase their cash holdings through engagement with financial institutions. They did not, for instance, deposit any funds in banks to obtain account statements or invest their money in any ventures to generate profits after a certain duration. The results indicate that almost all respondents with a high personal income made financial investments. While among respondents with a low income level, 30% of people have never made investments.

6. DISCUSSION OF RESULTS

Considering the results of the conducted research, particularly those indicated in Table 2, it is possible to conclude that broad sections of the population understand basic financial terms and possess basic skills in managing personal finances. Consequently, the financial literacy index of the population aged 18 to 29 is 61.21%, which is lower than the similar indicator for respondents aged 30-59 years, which is 68.28%. The lowest value of the financial literacy index among the population over 60 years old is 60.30%. Such results are entirely objective. Compared to other age groups, the population aged 30-59 years has a more prosperous life experience that allowed them to acquire a high level of financial knowledge, not only during education but also in the process of life, which confirms and summarises the results of the work (Clark et al., 2014; Lewis & Lindley, 2015). Prosperous life experience allows one to understand the need to plan a personal or family budget, set financial goals, and think about the need for non-state pension savings, which confirms the thesis of the work (Pinto, 2013) regarding the positive aspects of implementing a financial literacy policy for the harmonious development of society. On the other hand, younger respondents have less financial knowledge in connection with incomplete education and a lack of experience in the active use of financial services, which confirms and deepens the research results (OECD, 2013).

As shown in Figure 1, the investment decision-making efficiency index corresponds to the financial literacy index for respondents divided by age category. In particular, a higher level of financial literacy in persons aged 30-59 corresponds to higher efficiency in investment decisions. The lower level of financial literacy in persons aged 18-29 and over 60 corresponds to lower values of the investment decision-making efficiency index. At the same time, the higher level of financial literacy in persons aged 30-59 corresponds to the higher level of financial literacy in persons whose personal income is higher than 750 USD. Individuals who receive income from 351 to 750 USD demonstrated a similar level of financial literacy to respondents aged 18 to 29 years. This indicates that the level of personal income and the respondent's age are decisive factors when making investment decisions. So, the values of the investment decision-making efficiency index are the same for categories of respondents divided by age and personal income level. It is worth noting that people who receive an income of less than 350 USD, as a rule, are people of retirement age and have fewer opportunities to invest. That is why, regardless of the level of education or other factors, the index of efficiency in making investment decisions for this category of respondents is objectively lower because 30% of respondents over 60 did not make any investments.

It should be noted that the financial literacy assessment results are the lowest among people older than 60 years. This may be caused by specific mental models and habits formed during the Soviet period of Kazakhstan's history (Central Intelligence Agency, 2023). The socialist system of the Soviet Union provided an excessive level of state care for its residents. All types of services related to medicine, education, and social security were free of charge, and Kazakhstan's population could accumulate funds in savings books for future periods. Nevertheless, after the collapse of the Soviet Union, the people of the former republics lost all their savings, which were placed in savings accounts, which created a certain level of mistrust in financial institutions in general and investments in particular. This factor

may be one of the reasons for the low investment activity of people over 60 years old. 50 of 206 respondents (24%) stated they had never made financial investments. In contrast, in the category of people aged 18-29, the same indicator is 21 people out of 336 respondents (or 6%), and in the category of people from 30 to 59 years of age, persons who would not make investments have not been identified. This can become a topic of future research because this phenomenon in the post-Soviet developing countries has been studied superficially, and the results still need to be presented in the printed publications of the international scientific community.

Yet, based on Table 3, it should be noted that the age criterion impacts the significance level of the correlation coefficients. In particular, the lowest correlation coefficient between the index of financial literacy and the index of investment decision-making efficiency was calculated for persons aged 18-29 years (r = 0.76), for persons aged 30-59 years (r = 0.84), and for persons over 60 years (r = 0.79). The results of the correlation analysis show that the level of financial literacy has a positive effect on the efficiency of investment decision-making. At the same time, it is worth paying attention to the correlation coefficients of individual components of the financial literacy index and the index of investment decision-making efficiency. Hence, the data in Table 2 indicate a low significance level of the correlation coefficients of the financial skills indicator and the index of investment decision-making efficiency for all age categories. This result is related to the fact that people of all age groups need to pay more attention to the skills of planning a personal or family budget, financial goals, and non-state pension savings. In particular, in the category of people aged 18-29, only 30% of respondents noted the presence of a non-state pension plan, 30-59: 37%, and over 60: 27%. On the one hand, this result indicates a low level of financial literacy. On the other hand, the absence of an effective system of non-state pension insurance in Kazakhstan requires a review of the development of this type of pension insurance.

Table 4 shows the values of the correlation coefficients, which may be linked to the idea that making good investment decisions requires both being logical (which an investor can achieve with a lot of knowledge) and being willing to take on a certain amount of risk in order to make money. Therefore, it can be inferred that possessing a higher level of education does not invariably guarantee effective investment decisions. The correlation coefficient between the financial literacy index and the investment decision-making efficiency index for individuals with complete or incomplete secondary education is inferior to that of the other two groups, standing at 0.6877. Alternatively, a level of education below secondary vocational education suggests lower efficiency in investment decision-making, associated with poorer financial knowledge, behaviours, and skills.

In addition, it is worth noting that there is no significant correlation between the level of education and the indicator of financial skills. Therefore, it is necessary to enhance the effectiveness of education in the study of tools and techniques for personal budget planning and the setting of financial goals.

According to the research (Table 5) on the link between the financial literacy index and how well people make investment decisions, having a higher personal income leads to more significant investment opportunities, which means that you need to know a lot about money.

The results of a questionnaire survey among respondents in Kazakhstan on the impact of financial literacy on the effectiveness of investment decisions allowed us to confirm the conclusions made in such scientific studies as (Kumari, 2020; Seraj et al., 2022; Yusnita et al., 2022). The research results made it possible to substantiate the connection between effective investment decisions and the level of financial literacy, whose significance depends on age, educational factors, and the level of personal financial income. In particular, the conclusions of our study about the positive impact of personal income on financial literacy and investment decision-making correlate with the findings of Apriyanti and Ramadita (2022), which also confirm the positive influence of personal income on investment decision-making.

At the same time, the conducted studies indicate a slight connection between financial literacy and the efficiency of investment decisions, as there is an influence of other factors related to investment access opportunities, investor behaviour, and investor self-confidence. For example, the work Jain et al. (2020) proved the impact of investors'

excessive self-confidence on the effectiveness of investment decisions. This is separate from the population's financial literacy level. Still, it can lead to wrong conclusions regarding the management of the country's finances as a whole and, through the credit and financial system of the country, influence the actions of individual citizens. Therefore, investigating the correlation between investment strategies and tools and the level of financial literacy and investment decisions could prove a fruitful avenue of research in Kazakhstan.

Based on the obtained results, which to a certain extent correlated with the works (Cupak et al., 2021; Karakurum-Ozdemir et al., 2019; Stolper & Walter, 2017), it is necessary to further develop educational initiatives to increase the financial literacy of the population. This is despite the positive impact of financial literacy on the effectiveness of investment decisions at the state level in Kazakhstan. This is particularly relevant for enhancing financial literacy in personal budgeting and setting financial goals. According to the study's findings, Kazakhstan is least advanced in this area of financial literacy. Furthermore, it is imperative to focus on programmes aimed at developing non-state pension insurance as a means of long-term, low-risk investment for the population.

Individual financial and credit institutions can utilise the research findings to establish credit policies and plan engagements with solvent clients, while financial and investment corporations may review investment policies at varying levels (from large enterprises and corporations to the nation). Furthermore, government officials can use the outcomes to formulate "road maps" for regional development and programs for attracting investors.

7. CONCLUSIONS

In summary, a questionnaire survey of Kazakhstan's resident respondents was conducted to determine their financial literacy level and assess its impact on making effective management decisions. The survey showed that financial literacy levels affect investment decision-making. After all, a higher degree of financial literacy suggests a greater number of individuals who have made financial investments at least once, whereas among respondents with a lower degree of financial literacy, about 30% of individuals did not invest at all.

Age, educational, and financial criteria determine the nature of the impact of financial literacy on effective investment decision-making. Specifically, people aged between 30 and 59 exhibit greater levels of financial literacy and stronger correlations between the financial literacy index and the investment decision-making efficiency index. This is due to their greater financial knowledge, obtained through education and life experience. A slight but noticeable correlation between the financial literacy index and investment decision-making efficiency is evident for those aged 18-29 and over 60. Moreover, personal income plays a crucial role in making effective investment decisions. There exists a positive relationship between the level of financial literacy and the strength of the link between financial literacy index and investment decision-making efficiency.

Prospective research areas in financial literacy and investment decisions in Kazakhstan and other countries of the post-Soviet space with a transition economy can be the study of the dependence of the strategies chosen and investment tools on the financial literacy level.

The obtained results can be applied to the practical activities of financial and credit institutions, banks, and state managers to form and adjust investment policies at the levels of large enterprises, corporations, and the country.

The stratification of participants by educational level and territorial selection place restrictions on this study. The sample was drawn exclusively from urban areas and therefore may not be indicative of financial literacy rates in rural regions. Evidence suggests that lower financial literacy rates are more prevalent among rural populations, particularly in villages with older residents who typically have lower levels of education. When considering differentiation by education, separating those with secondary and higher education in economics and finance from the general population is crucial. Such individuals are likely to possess higher levels of proficiency in adapting to alterations and innovations within the financial market.

Funding: This study received no specific financial support.
Institutional Review Board Statement: The Ethical Committee of the Almaty Management University, Republic of Kazakhstan has granted approval for this study on 9 December 2022 (Ref. No. 1).
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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