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FINANCIAL LITERACY AND STOCK MARKET PARTICIPATION. THE RUSSIAN FEDERATION CASE.

Bachelor's thesis

Programme International Business Administration, specialisation Finance

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I hereby declare that I have compiled the thesis independently
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ABSTRACT

This Bachelor’s thesis focuses on studying the level of a person's financial literacy and the participation in the stock market for a specific country, the Russian Federation, taking into account demographic factors such as income level, age, gender, risk appetite, education level and the influence of the environment. The analysis is based on the knowledge that each person has in the field of investment, savings, the ability to manage personal financial resources and ability in basic mathematical operations. Different quantative methods are used to determine the level of financial literacy in the Russian Federation. It is worth noting that the assessment is made on a questionnaire, which is based on questions related to the demographic characteristics of the respondents, as well as basic questions on calculation and financial literacy, risk appetite and attitude, and others. Thus, responses were received from 240 people with Russian citizenship through the Google Forms platform. During the analysis the statictician significance of both financial literacy and influence from family has found its confirmation in this thesis.

Keywords: financial literacy, stock market participation, Russian Federation

INTRODUCTION

Nowadays, financial literacy plays an important role in the life of every person. Understanding the basic economic concepts, processes, phenomena in the field of finance and having financial literacy and the ability to use it effectively, in practice, gives a person the opportunity to become financially independent and it is the key to his/her success. Lack of financial knowledge, such as researching opportunities to invest, the ability to accumulate money, does not allow a person to make the right decisions about managing their finances. Not only the well-being of one individual person, but also the well-being of society, the economy and the country as a whole depends on how deliberate and balanced this decision will be. A financially literate person is less prone to excessive debt. Nowadays, it is crucial, because excessive debt is dangerous for the population and the banking system. Also, such a person is less vulnerable and could avoid illiterating retirement planning, vulnerability to financial fraud and social problems, including depression and other personal problems. One of the important advantage for the country's economic system is that a financially literate person contributes to the inflow of investment resources. Financial education of young people contributes to the adoption of competent decisions, minimizes risks and, thus, can increase their financial security.

What does the term "financial literacy" mean? What kind of person can be called "financially literate"? Financial literacy is defined as the *"*knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life". (OECD, 2014). There are many factors by which an individual can be called financially literate. For example, a person keeps track of his own income and expenses. He or she builds short-term and long-term financial planning, which includes: accounting for the amount of available and spent funds, cost optimization, income and expenditure planning. A financially literate person does not take loans from microfinance organizations and lives on the money that have been earned and forms saving; leaving at least 10% of each salary and does not spend it under any pretext. Especially, relying on the situation in the world in which we have been living in recent years, people are wary of their finances, since there are a lot of uncertainties around, in particular, not only with the market. By nature, most people in the world are risk-averse, choosing safer ways, such as saving accounts to assets related to market stocks, to manage their money.

Therefore, the main aim of this Bachelor's thesis is to establish the relationship between stock market participation and financial literacy in the Russian Federation. Based on the fact that in the Russian Federation, financial literacy is at a level below the average, it is important to analyze the knowledge of the population in matters related to these terms. Mathematical knowledge, knowledge in the field of finance and knowledge in risk analysis of the respondents should provide a basis for conducting structural and meaningful analysis. The information was created in the form of a questionnaire and distributed to people with Russian citizenship through Google Forms. All questions were translated into Russian language to simplify perception and not to take a lot of time from the respondents. The questionnaire was designed in such a way that a person could give answers to it within 7-10 minutes.

Due to the lack of proper education in this field and the insufficient level of financial literacy, the population is afraid and less inclined to invest money in the long term. This uncertainty is reinforced by the global situation, which does not allow people to reasonably assess the risks and opportunities around them, over the past three years of the COVID-19. Moreover, it forced many of people to invest in less risky assets, such as bonds because of uncertainty going around the world. But why do people invest in stocks? There are quite a lot of answers to this question, and everyone sees the point in participating in the stock market in different ways: someone needs it in order to save up money for a happy life after retirement (Clark-Murphy and Soutar, 2004), others simply want to invest in a company, which they are fond of and believe in its development, thereby increasing its capital and trying to increase their investments (Reilly and Brown, 2011). Looking at how the same situation is in Europe, neighboring the Russian Federation, can be concluded that the average value of the index of participation in the stock market in the analyzed countries is only 0.16; with the highest value of this index in Sweden (0.54) and the lowest in two countries: Poland and Greece, where this index is only 0.02. These indicators are critically small, taking into account the level of most European countries, their technological abilities, the skills of the educated population and giant companies localizing in their territories.

Thus, to establish the relationship between two variables, financial literacy and stock market participation, if any exists, during the analysis in this study, following research questions will be answered:

- What is the relationship of the financial literacy and stock market participation in the Russian Federation?
- To what extend family affects stock market participation decisions?

1. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Under this section of the thesis, the importance of the chosen topic is assessed based on existing literature, demonstrating what knowledge about financial literacy and participation in the stock market has been gained by scientists.

According to Lusardi and Mitchell (2011a) the definition of financial literacy is “the knowledge of basic financial concepts and ability to do simple calculations”**.** Implying the fact that people every day, sometimes without even noticing it, resort to the use of mathematical calculations - when choosing and comparing prices for products in supermarkets, when evaluating grams while cooking, when choosing clothes, and so on. It turned out that most people on the planet are not able to give a clear and precise definition of the concept of financial literacy. This was assured by proving that more than 50 of the 71 studies evaluated did not address the task. (Huston (2010). In addition, about 20 of these studies identified eight completely different definitions of financial literacy. The ability to manage one's personal finances in life and adapt to a changing society, for which one needs to develop a sufficient level of perception, as well as develop skills in this area and be able to understand the impact of a person's financial decisions on himself, others and the environment, and predetermines a person to be financially literate. (Remund, 2010).

How is financial literacy measured? This question can be answered in several ways, for example: a person's financial literacy can be either high or low, meaning that the average does not exist as such and is rarely used in assessment. Another method was demonstrated by David (2021), in which, according to him, “a person can be either financially illiterate, or semi-literate, or semi-literate, or financially literate”. The illiterate are those people who are as ignorant as possible and do not try to pay attention to financial matters, the most vulnerable to volatile investments and high-interest lending enterprises. The illiterate, in turn, are those people who, as a result of training, have not received financial skills to make decisions on the disposal of funds on their own. For the most part, they turn to the help and advice of their friends and family in making critical financial decisions. Semi-literate people can describe themselves as people who are in the middle of having financial skills at part of every level. And only those people who have average or high finance tools and skills, which includes personal monthly budgeting and management, knowledge of investments (stocks and bonds), as well as knowledge of more complex subjects such as diversifying personal investment portfolios and derivatives. (David, 2021)

But as known, the majority of the population of our planet does not have enough knowledge and skills to apply them to call themselves financially literate. For them, there is another definition - financially illiterate. According to Lusardi and Mitchell (2007), financial illiteracy is widespread, which suggests that young and old people around the world are too poorly informed about basic financial concepts, which has a huge impact on and has serious consequences for people's huge list of decisions - retirement planning, savings, mortgage loans and other solutions.

1.1 Aim and determinants of financial literacy

Financial literacy is the ability to make simple decisions regarding debt contracts, in particular how one applies basic knowledge about interest compounding, measured in the context of everyday financial choices. (Lusardi and Turano 2008) Indeed, after all, financial literacy should be perceived by people as part of daily financial decisions. Often, people are simply overwhelmed by irresistible laziness to think about how they "lose" unnecessary money. By unnecessary spending, it supposes those that are associated with incorrectly selected and after that accepted colossal interest rates in banks, the fear of investing in a promising company, and so on, all this entails the possibility of wasting / not saving potential money.

While financial literacy is important at all levels, it is most important for a person who is required to make complex and costly financial decisions on behalf of themselves and their dependents, as ill-advised decisions can cause a lot of suffering. (Mandell, 2006)

Every modern school should have a subject related to financial literacy, so that a person from childhood has an idea of how the market operates. Klapper, Lusardi and Panos (2013) have shown in their study on Russian Federation, that a "potion" that combines a low level of financial literacy and the rapid growth of consumer credit in the country can turn out to be the worst outcomes. Since consumer debt practically did not exist in the Russian Federation even before 2001, therefore, as a result, the majority of the younger generation are also poorly informed in this matter. The root of this problem is that in Russian Federation schools do not have a compulsory subject on the subject of finance.

According to Lusardi (2019), individuals bear greater responsibility for making decisions about personal financial planning, resource spending, and lifelong investing. While in our lives, financial instruments such as loans, pawnshops, rents, which charge huge interest rates, are becoming increasingly important. Also, it was found that as people approach retirement age, the current generation in the USA has more debt than the previous one. (Lusardi, Mitchell, and Oggero, 2018) All this is due to the fact that following generations have to make more financial decisions throughout their lives, and life expectancy is increasing. Thus, coupled with the fact that overall financial literacy is low globally, and especially among vulnerable populations, it suggests that financial literacy should become a priority for policy makers in the coming years in the field of economics.

1.2 Financial literacy and stock market participaion

Trade, the engine of progress, has been around for a very long time, but orderly exchanges appeared in the 15th century. Since the first exchanges remained universal, allowing trading in any commodity, they also allowed transactions in relation to securities. A century later, specialized places for trading exclusively in securities appeared. Centuries have passed, and the stock market still attracts millions of merchants and business representatives who unite on stock market with the main goal of making a profit. The stock market has not lost its direct purpose to bring together buyers and sellers to organize an uninterrupted trading process, while earning a commission for the security guarantees provided. (Global trade liberalization and the developing countries - an IMF issues brief, 2001)

The stock market broadly refers to the collection of exchanges and other venues where the buying, selling, and issuance of shares of publicly held companies take place. (Chen, 2022) Nowadays, participation in the stock market has become easier: in order to purchase shares in a small amount, an individual simply needs to install the appropriate application on a smartphone and literally in one click becoming a shareholder. From this moment on, an individual becomes an investor, that is, being able to track profit / loss, receive dividends from stocks, diversify investment portfolio, and most importantly, gain experience. For the most part, people tend to buy stocks for the long term, in order to increase their assets. With participation in the stock market gaining more and

more popularity around the world in recent years, it is natural that financial literacy has a sufficient impact on how investors behave.

The stock market is a complex structure that is strenuous to understand at a glance, and it takes time and diligence to analyze it. For instance, participation in the stock market is influenced by many different factors; in their work, van Rooij, Lusardi and Alessie (2011) demonstrated that participation in the stock market is correlated and directly proportional to age and group. Moreover, stock ownership is dominated by groups of people over 40 years of age. Another fact is that the level of participation in the stock market among women is several times lower than that of men. And also, participation in the stock market is extremely directly proportional to the increase in income and wealth.

Participation in the stock market is largely determined by the level of risk a person is willing to take. Risk aversion, prudence and moderation have been shown to be positively correlated with each other. It has also been proven once again that women are more risk-averse and more reserved than men. Moreover, people's prudent decisions are associated with greater wealth, which is more likely to lead to the fact that a person has a savings account and no debt. Human moderation should be associated with less risky investment portfolios. (Nossair, 2014)

Van Rooy et al. (2011) report that financial literacy is one of the key influences on an individual's financial decision making. This leads to the next conclusion that people who have a low level of financial literacy are much less likely to participate in the stock market.

According to S&P Global FinLit Survey, financial literacy rankings across Europe vary. The highest rankings in Europe are for Germany, Denmark, the Netherlands and Sweden. Nearly 65% of adults are financially savvy. Going to the South of Europe, the ratings are falling. In Greece and Spain, they are just below 50%, while Italy and Portugal have the lowest ratings among neighboring countries. The situation becomes even worse when looking at the countries that joined the European Union after 2004 - in Bulgaria and Cyprus, only 35% of adults can be called financially literate. The title of the country with the lowest rating among all others in the European Union is occupied by Romania with 22%.

Considering the case of the Russian Federation, then the following picture is observed: in a survey conducted in 2008, only 46% of respondents were able to answer elementary questions about

inflation and 41% were able to answer questions related to savings. All this suggests that in the Russian Federation the level of financial literacy is indeed at a very low level. In particular, it is low among women, the elderly and pensioners, among those groups whose earnings are well below the national average, and among those who live outside cities and have a low desire to learn. (Klapper, Lusardi and van Oudheusden, 2013)

1.3 Determinants of financial literacy

The level of financial literacy of the population is a very important indicator for the whole country, because it reflects the indicator of economic literacy. Economic literacy is one of the components of the general level of enlightenment of the nation and its culture. The overall level of financial literacy in the country predetermines the financial stability of the country, as well as socio-economic development in the society. In the opposite direction, the socio-economic development of the chosen country has an impressive impact on the level of financial literacy of the people living there.

The root and one of the most important factors influencing financial literacy is education. It is from school that a child should be taught how to handle money. When receiving pocket money for lunch, it is important for a child to get into the habit of not spending it, but starting to save it, to accumulate it. The catalyst for this whole process should be a special subject in which children will be taught the basics of financial education. For example, Walstad et al. (2010) demonstrated in their work that if higher school students in their educational institution had a prepared and well-written subject on the topic of financial education, then their level of financial literacy could really be higher.

Socio-demographic factors are considered to be among those that have the greatest impact on the level of financial literacy among people. Referring to Yildirim et al (2017), these factors include: gender, age, education and monthly income, nature of employment and place of work. Moreover, this study proves that there is a significant relationship between the level of education and family monthly income levels and the weights of the responses to advances financial literacy. By that, it

can be concluded that the level of financial literacy is positively affected by the level of education and the montly level of income of individuals.

Women and men can be financially literate differently. Some studies indicate that the difference in financial literacy between women and men is significant, as Lusardi et al. (2010) showed that there was an 11-12% gap in the answers to three basic questions on financial literacy, in which men answered much better. But still it depends on the sample and the people taking part in it, so there are other observations. In Mandell's (2008) study, he showed that female students and high school students in America have a higher financial literacy rate than their counterparts.

Another factor that has a significant impact on financial literacy is the family. This factor is directly related, since it is in the family that the child observes how the parents manage their finances. Receiving information from them, the child begins to form a picture of how he will behave in the future. If parents are used to spending all their money freely, leaving nothing for savings or investment, then their child is more likely to handle money in the same manner. It has been found by Li (2019) that investors whose children or parents have entered the stock market in the previous five years are, on average, 20-30% more likely to invest in stocks themselves in the next five years. Another interesting fact from this work is that not only parents influence children, but vice versa - children who started investing and share information with parents influence their parents' participation in the stock market. (Li, 2019)

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women, the elderly and pensioners, among those groups whose earnings are well below the national average, and among those who live outside cities and have a low desire to learn. (Klapper, Lusardi and van Oudheusden, 2013)

The goal of every media is to be the first to bring information to the people. Thus, the media competing with each other for the right to be the first to provide the latest and hottest news about the stock market in the media space, about its state and messages, are included in the influence on the stock market and financial literacy. More acute is the problem of information influence in unstable emerging markets, where there is no sufficiently formed favorable climate. Volatility, both political and economic, for example, makes it difficult to predict any events; in this way, these impacts objectively do not have every chance of being reflected in the rates of foreign exchange instruments. In the case when the domestic market is stable and favorable, then all the impacts are predicted, and they are discussed even for a long time before the fact itself is committed. In terms of volatility, as a rule, information about an event that no one expected at the moment is noticed after the fact, and has a dominant effect on the currency markets.

1.4 Measurement of financial literacy

Increasing financial literacy helps to make more informed financial decisions, understand existing financial risks, build financial stability in difficult economic conditions, and protect against fraudulent activities. In order to assess financial literacy, special methods have been developed that include an assessment of the following parameters: age, gender, income range, education level, risk appetite, and attitude to the stock market. Lusardi and Mitchell (2011) also suggest that when assessing people's financial literacy, it is important to keep the following principles in mind when designing a questionnaire:

1) simplicity - which means that the questions should be simple, aimed at basic knowledge in the field of finance;
2) relevance - this principle characterizes the fact that issues should be directly related to the decisions that people face during their lives;
3) brevity - questions should be kept to a minimum in order to get as many answers as possible, since most people are simply too lazy to answer long questionnaires;

4) capacity for inquiry - questions should be in such a way that, based on the results of receiving answers, you can differentiate the levels of the interviewed participants in financial literacy.

Thus, three types of questions were developed on the following topics: Understanding of interest compounding; (ii) understanding of inflation; and (iii) understanding of risk diversification. The questions are designed in such a way that people do not have to apply complex mathematical operations. They involve simple calculations related to these concepts. (Lusardi and Mitchell 2011)

1.5 Hypotheses description

Being studied and prepared the following two hypotheses are meant for this work on the thesis to analyze the data obtained:

H_{01}: There is no relationship between financial literacy and stock market participation in Russian Federation

H_{01} will help to define what impact, if any, financial literacy has on participation in the stock market and how the level of financial literacy affects decision-making related to the allocation of financial resources.

H_{02}: There is no relationship between participation in the stock market and influence from family

H_{02} should demonstrate what influence, if any, is exerted by the immediate environment on the decision to participate in the stock market.

2 DATA AND METHODOLOGY

2.1 Data

This Bachelor's thesis uses as the main source of data collection online distributed questionnaires, translated, and received by the respondents in their native language - Russian, to make it as easy as possible for them to understand the questions and for a more fixed analysis. All respondents were contacted online through various social networks with distribution assistance of the participants, all respondents are citizens of the Russian Federation. A total of 240 responses were received. All questions are closed questions for more accurate answers from respondents. The survey was closed after a month when needed number of respondents was reached.

The questions were compiled based on numerous works by Lusardi, in which she developed a list of questions and principles for their compilation, indicated in paragraph 1.4. The total number of questions is twenty-three, divided into three sets. (Appendix 1) The first set consists of five questions that target respondents' socio-demographic data. The second part of the questionnaire consists of eleven questions, which will demonstrate the assessment of the financial literacy of the respondents using simple calculations and basic theoretical knowledge about finance. The final part consists of six questions to analyze the influence of the environment on financial decision making, risk appetite and how respondents feel about investing in general.

2.2 Structure of the survey

The entire survey was designed in such a way that people could spend as little time as possible completing it, an average of 5-7 minutes. The composition of the questionnaire requested time and effort so that they were both simple and understandable. Moreover, questions involving mathematical calculations did not require the use of a calculator.

As stated earlier, the entire survey was divided into three parts. The first section touched upon the socio-demographic data of the respondents, such as gender, age, higher level of education, as well

as the level of employment. There were two selection options in the gender selection column: male and female; the obtained age data were divided into five subgroups; in the choice of the higher level of education, the following answers were provided: high school, higher university education or no education; income frames were determined by referring to the average value in the whole country, thus resulting in four spans of monthly income; the employment rate was presented as students, employed, unemployed, self-employed and retired people. Those respondents who indicated that they are students, but at the same time have a job, were assigned to the "employed" section.

The second part of the survey dealt with basic questions on the financial literacy of the respondents, and also includes a question in which participants were given the possibility to give their own assessment of their financial literacy on a scale from 1 (lowest level) to 10 (highest level) before answering the remaining questions; and a question that predetermines the presence of shares in the surveyed participants. Nine questions were designed to determine the level of financial literacy, including five theoretical questions on various financial terms and principles, as well as four questions on simple calculations related to accrued interest, inflation, portfolio diversification, interest rate and mortgage payments. In this paper, respondents who were able to give at least seven correct answers to nine questions are defined as individuals with a high level of financial literacy; all others are categorized as "low financial literacy". Each question had four answer options, including "Difficult to answer", which was categorized as an incorrect answer.

The last part includes six questions. The first question was about the assessment of the risk associated with investing in shares, the respondents had four rating options, such as low risk, medium risk, high risk and the answer option "Difficult to answer". The second question is designed to analyze how respondents make decisions related to finance, what influence their environment, if any, has on them. The next two questions were for investment rationalization, showing how the respondents would first of all dispose of the money received: would they invest it in shares; would spend on themselves; paid off loans and debts, etc. The last question of the entire questionnaire reflects the perception of risk, indicating how much of the salary respondents are willing to invest in the stock market.

2.3 Descriptive statistics

2.3.1 Hypotheses variables

The survey resulted in 240 unique responses. During the study, it was calculated that out of 240 respondents, only 54 individuals have at their disposal, which is cumulatively equal to 22.5%. Since the interest was precisely in participation in the stock market, investments in other industries were not considered, such as NFT, cryptocurrency, bonds and others. Participation in the stock market became the dependent variable in this thesis' work. It has been converted to binary from 0 to 1, where, with a value of 0 not participation in the stock market is taken, and 1 - invests in stocks.

2.3.2 Socio-demographic variables

After receiving all the responses and sampling, it was determined that the number of women in the survey prevails over men, which indicates that the date is not perfectly balanced by gender. For regression analysis, a binary variable was created for gender: males were defined as 1 and females as 0 (see Table 1).

Gender \ Age	<18	18-24	25-34	35-44	45-54	55 and above	Total
Male	**22**	**62**	**14**	**2**	**4**	**2**	**106**
Female	**14**	**41**	**21**	**21**	**23**	**14**	**134**
	36	**103**	**35**	**23**	**27**	**16**	**240**

Table 1. Gender distribution

Source: Tikhonov (2022), author's calculations

The median of the sample is 22 years old, the mean value is 24.08 while the oldest respondent in the sample is 75 years old, and the youngest is only 15 years old. Thus, it turns out that, on average, the age of the sample tends to be young (see Figure 1).

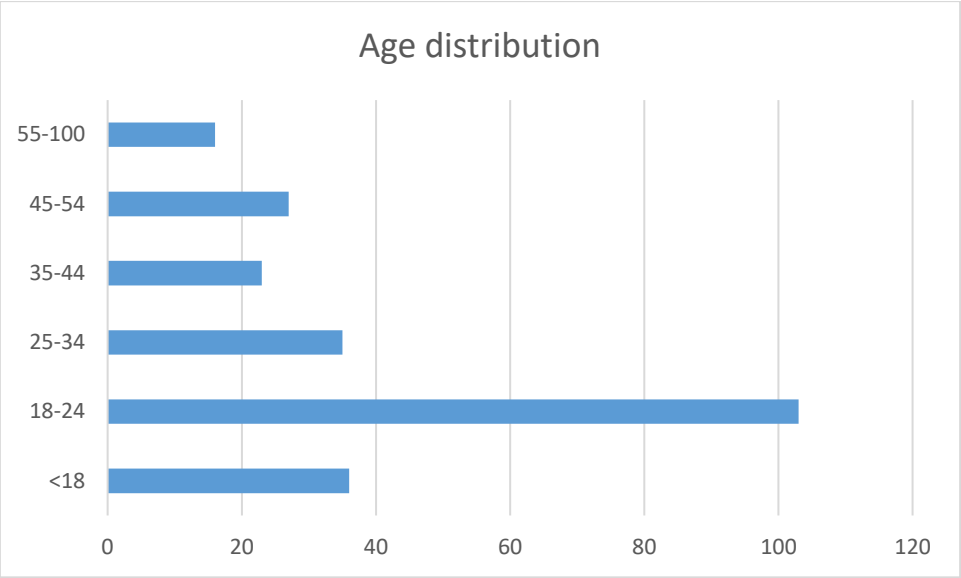

Figure 1. Age distribution.

Source: Tikhonov (2022), author's survey

Education was presented in the form of three levels, for each of them a separate binary variable was created. The most popular category is Higher university education (see Figure 2). A graduate/student of secondary school or below (edu_sch), a bachelor's degree or equivalent and either a master's degree or higher (edu_high), and those without education (edu_no). The variable (edu_no) was not included in the logistic regression and was left as a reference, since the interest was in the fact that only educated people participated in the analysis.

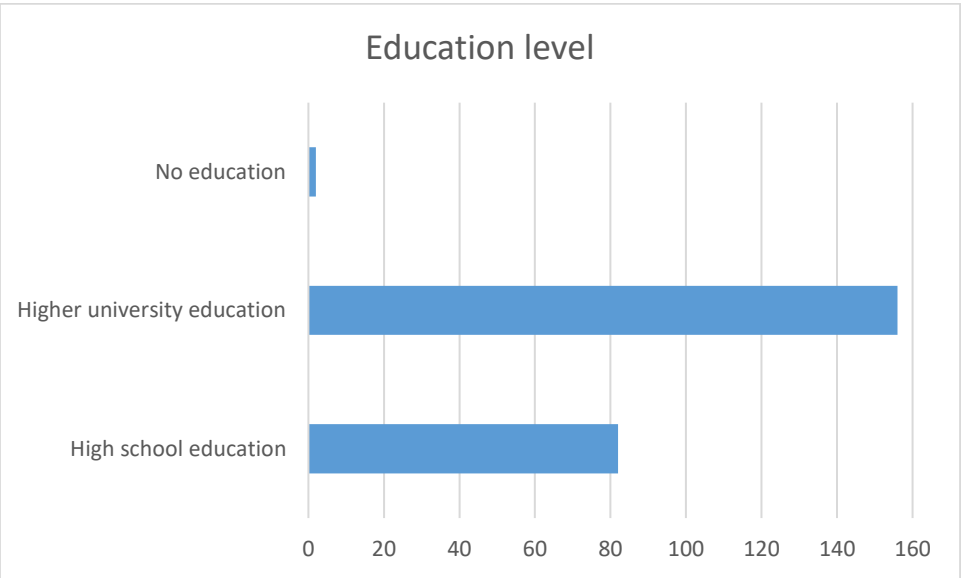

Figure 2. Education level

Source: Tikhonov (2022), author's survey

The income of the respondents was determined as the average value for the month. It was further subdivided into four categories. The most frequently chosen category was the lowest income up to 30,000 rubles (see Figure 3). Next in polarity are categories in ascending order: 30,001 – 60,000 rubles, 60,001 – 100,000 rubles and over 100,001 rubles. The latter category includes only 9.2% of the respondents. For each category, a different dummy variable was created in ascending order: (Income_1) for less than 30,000 rubles, (Income_2) for 30,001 – 60,000 rubles, (Income_3) for 60,001 – 100,000 rubles and (Income_4) for over 100,001 rubles.

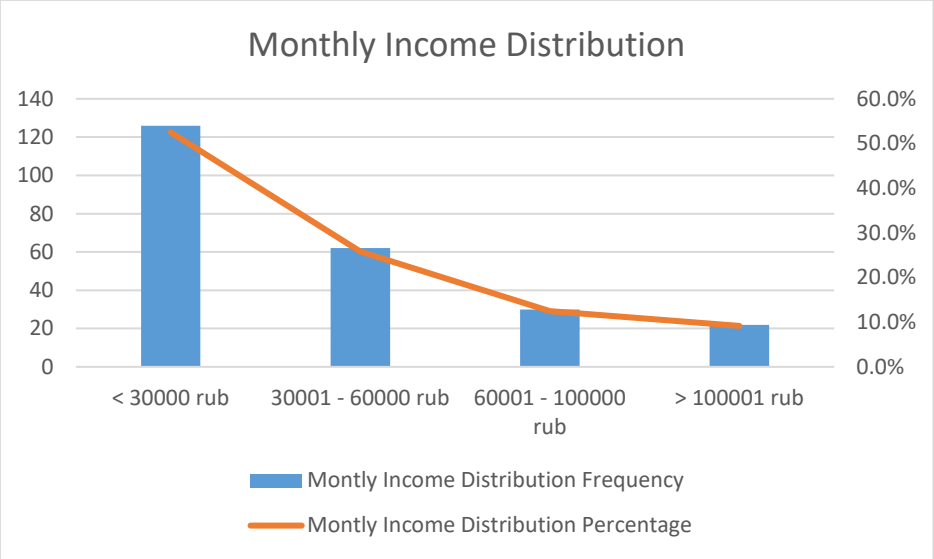

Figure 3. Monthly Income Distribution

Source: Tikhonov (2022), author's survey

The level of employment of the respondents was subdivided into five categories, which included students, employed, unemployed, self-employed and retired. From the processed data, we can conclude that the date is dominated by employed individuals (52.9%) and students (34.6%) (See Figure 4). Also, it is worth noting that those who indicated in the survey that they were students in employment were categorized as "employed" and those who are retired were categorized as "unemployed".

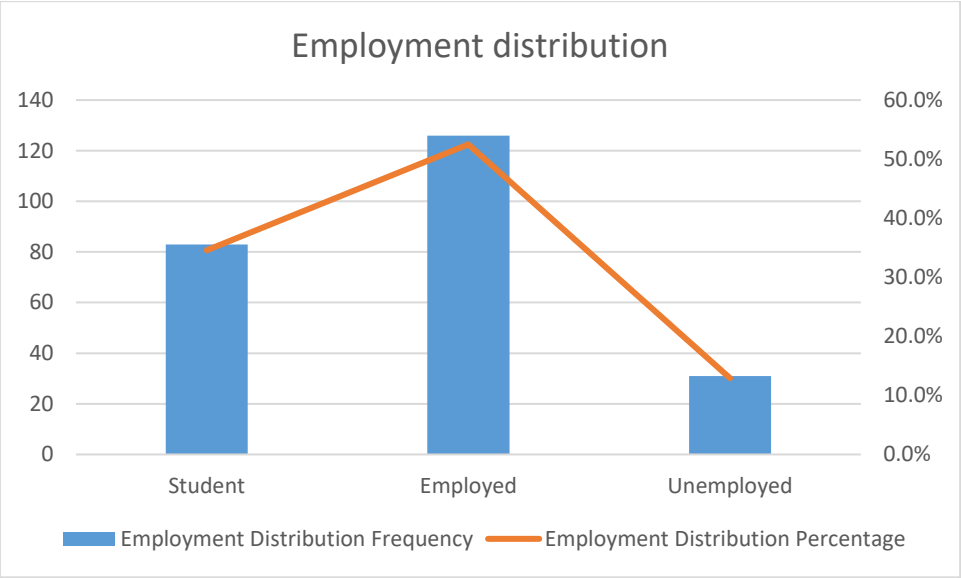

Figure 4. Employment distribution

Source: Tikhonov (2022), author's survey

2.4 Methodology

Quantitative research methods were chosen to analyze the data obtained during the survey. Since the dependent variable is the participation of respondents in the stock market, which implies the presence or absence of ownership of shares, it is binary and the best way to analyze it has become a binary logit regression model. In total, twenty seven independent variables were determined: gender, age, level of education, monthly income, employment level, financial literacy level, categories, trust, willingness, self-confidence, family participation and family advices, peers advices and risk appetite. (see Appendix 4).

Questions about hypotheses are directly included in the independent variables, which will allow you to get answers through regression analysis. The programs through which all the work was carried out are Gretl and Excel. For regression, satisfactory p-value significance levels for stating that an independent variable is statistically significant are 1%, 5%, and 10%.

This thesis is supported by seven main models and four additional model in the logit binary regression with one of the additional model analyzed with probit binary regression model. Both hypotheses are tested simultaneously. The following factors are controlled for in this analysis:

financial literacy, family participation in stock market and advice on financial decisions, gender, age, education, monthly income level, risk attitude, risk appetite, trust in stock market, willingness to invest, self-confidence and peers' advice on financial decisions. The empirical specification for the eleven models is the following:

$$\textbf{Participation}_i = \alpha + \beta_1\textbf{(hypotheses)} + \beta_2\textbf{(socio-demographics)} + \beta_3\textbf{(preferences)} + \varepsilon_i$$

Where Participation_i is the possession of shares by an individual *a*; hypotheses is a vector of the main variables of greatest interest in the analysis; socio-demographic indicators are a vector of socio-economic variables presented in the first part of the questionnaire (see Appendix 1); preferences are a vector consisting of several secondary variables that influence the decision to participate in the stock market - risk aversion, risk attitude, risk appetite, trust in stock market, willingness to invest, self-confidence and peers' advice.

3. EMPIRICAL RESULTS

3.1 Results in regression

The only one dependent variable for this work is stock market participation ("Participation"). The idea that has been followed by gradually adding independent variables to the following models.

Gender, age, monthly income level and employment were introduced in the first three models. After that, gradually all other parameters of variables were added for the next three models. Parents' and friends' advices on taking the financial decisions are the hypothesis independent variables that have been added in the very last two models. The regression is completed by a sample size of 240.

For this thesis, age has been represented as the ratio variable with six gradually increasing categories (under 18, 18-24, 25-34, 35-44, 45-54 and over 55). It implies that a higher age will cause an increase in the variable of the age. Income, gender, level of education, knowledge, risk, risk appetite, trust and influence from parents and peers are all have been assigned with its own dummy variable, in order to increase the accuracy of the logit regression model. It is worth noting that the variable characterizing those with no education was excluded from the analysis, as it

represented an extremely small percentage. Those respondents who indicated that they had no education (2 respondents) were categorized as having a school education. The highest income variable have been left out of the analysis due to the lack of the respondents that have chosen this category and is described as a reference variable.

In the resulting table, two statistic variables are represented: odds ratio and standard error. Statistician significance of the variables is assigned with these stars: *** is 1% significance, **

5% significance and * is 10% significance. They have been allocated to the right of each variable used in the model if the significance has been found in the specific model. The last indicator that has been chosen for this study is adjusted R2, it is allocated in the bottom of the table and describes the importance of the model. The model with the highest value of the criterion is preferable.

To carry out the compilation of the model 1, all age groups and gender were chosen as independent variables. As it turned out, people within the age brackets of 18 to 24 years and 35 to 44 years have stastical significance, 10% and 5% correspondently. This partly confirms the finding that younger people are more likely to invest in stock market (Guiso and Jappelli (2005). Moreover, it is worth noting that gender has a statistically significant p-value that is included in the 1% significance. This suggests that men are the ones who invest in stocks more often. (Almenberg and Dreber (2012))

To compile model 2, three independent income-related variables were introduced, coded as 1 and 0, if an individual respondent had a specific one income category, he/she received 1, in other cases - 0. Age variable “Age_1”, “Age_3”, “Age_5” and “Age_6” were excluded for the following models as they did not show any significance. The category with the highest income was left out of the analysis, as the smallest percentage to increase the accuracy of the logistic regression. From the results, it can be seen that gender was able to retain the highest level of significance after introducing income variables into the model. Variables “Age_2” and “Age_4” received the level of significance at 5%. Of the three income variables, two turned out to be statistically important - the lowest category with limits up to 30,000 rubles and the middle one with the income between 30,001 to 60,000 rubles. The lowest categorie has a 1% value for participation in the stock market, whilst the middle one has a 10% level of significance, which means that people with a given monthly income have a static significance for participation in the stock market in the analytical sample, but there is a negative coefficient for these income categories, what implies that these inviduals are less likely to step into stock market. It is worth noting that the value of adjusted R^2

has been corrected in relation to model 1 to as much as 13.1%, which implies that added variables improved the model more than could be expected by chance.

Model 3 included two variables related to the level of education of the respondents. The variable "Income_3" were excluded for the following models as it did not receive any significance before. Based on the results obtained from this model, it can be concluded that gender still has the highest level of significance, as well as variables "Age_2" and "Age_4". The two levels of education have an almost identical level of collinearity, as a result, the variable "edu_sch" was excluded from the model, and the variable "edu_high" has no statistically significant significance in this model. The lowest monthly income category variable retains its highest significance, and the adjusted R2 is slightly raised from the previous model to 13.6%.

Model 4 introduced the last socio-demographic variable related to the level of employment of the respondents. It is worth noting that in order to improve the quality of the model, respondents who indicated that they are self-employed were classified as employed. Also, respondents who indicated that they had retired were classified as unemployed. Gender remains statistically important at 1%, just like the first category of income and "Age_2". The variable "Age_4" has now statistical significane at the level of 5%. The employment rate did not show statistical significance. Nevertheless, people with the higher education received statistical significance at the level of 10%. Adjusted R2 fell slightly to 13.1% from the previous model.

Three independent variables were added to Model 5. Knowledge, trust and overconfidence. All variables related to the employment level were excluded from the previous model. From the results, it can be seen that knowledge has a statistical importance at the level of 1%, which proves that people with high financial literacy are more likely to participate in the stock market. (Van Rooij et al., 2011). Also, self-confidence and trust in investing to stock market received statistical importance at the 1% level. "Age_2", "Age_4" and "Income_1" kept their significance levels from the model 4. The variable related to the higher education now has the level of 5% of the statistical significance. Nevertheless, gender lost its importance for the first time in the logit regression. Adjusted R2 grew up to 28.9%, which indicates the strengthening of the model.

Model 6 is represented with addittional five previously unused independent variables: risk appetite, willigness and three variable of risk perception (lowrisk, midrisk, highrisk). The variable "Income_2" were left out of the analysis for the strengthening of the following models. Results

demonstrated that knowledge and trust managed to maintain its importance at the highest statistical level. Overconfidence, “Age_2”, “Age_4”, “Edu_high” and self-confidence gained signifance at 5% level. High risk variable is also statistically significant at the 5% level, which suggests that risk averse people are more likely to not take part in stock market (Dimmock and Kouwenberg (2010). Moreover, willigness received 1% statistician significance. Risk appetite did not receive any significance and was excluded for the upcoming models. Adjusted R2 grew up to 33.7%, which indicates the strengthening of the model.

In model 7 the goal was to add independent variables that characterize the impact of the family and peers on the individuals’ stock market participation. Therefore, three variables have been included in this model to complete the regression analysis: “FamAdv”, “PeerAdv” and “FamPart”. The results showed that these variables are not statistically important in a particular model. Financial literacy, trust and willingness were again significant at 1%. In addition, the high level of risk, self-confidence, “Age_2”, “Age_4” retained significance in the model at 5%. The adjusted R2 fell slightly to 32.6%, which indicates a imperceptible weakening of the model after adding the latest variables.

	Model 1			Model 2			Model 3			Model 4			Model 5		
Variable	Odds	St. Err		Odds	St. Err		Odds	St. Err		Odds	St. Err		Odds	St. Err	
Gender	4.304	(0.393)	***	3.892	(0.395)	***	3.598	(0.398)	***	3.585	(0.403)	***	1.783	(0.468)	
Age_2	7.129	(1.061)	*	3.846	(0.418)	***	3.871	(0.411)	***	4.792	(0.449)	***	3.475	(0.483)	***
Age_4	15.097	(1.132)	**	4.350	(0.610)	**	5.131	(0.629)	***	4.984	(0.631)	**	5.528	(0.708)	**
Income_1				0.130	(0.585)	***	0.166	(0.474)	***	0.224	(0.496)	***	0.215	(0.554)	***
Income_2				0.334	(0.591)	*	0.491	(0.467)		0.503	(0.477)		0.643	(0.759)	
Edu_High							1.155	(0.395)		0.493	(0.404)	*	0.308	(0.478)	**
Employment_1										0.382	(0.594)				
Knowledge													4.235	(0.431)	***
Self-confidence													1.783	(0.415)	***
Trust													3.475	(0.457)	***
Low_Risk															
High_Risk															
Risk_Appetite															
Willingness															
Family_Participation															
Family_Advice															
Peers_Advice															
N	240			240			240			240			240		
Adjusted R^2	8.2%			13.1%			13.6%			13.1%			28.9%		

Note: *p < 0.1; **p < 0.05; ***p < 0.01, dependent variable is stock market participation

	Model 6			Model 7		
Variable	Odds	St. Err		Odds	St. Err	
Gender	1.923	(0.494)		1.962	(0.499)	
Age_2	3.253	(0.503)	**	3.218	(0.499)	**
Age_4	5.282	(0.795)	**	5.069	(0.779)	**
Income_1	0.234	(0.494)	***	0.248	(0.493)	***
Edu_High	0.360	(0.499)	**	0.348	(0.494)	**
Self-confidence	2.980	(0.448)	**	3.163	(0.449)	**
Knowledge	3.707	(0.477)	***	3.762	(0.469)	***
Trust	4.535	(0.500)	***	4.900	(0.494)	***
Low_Risk	2.130	(1.26)				
High_Risk	3.210	(0.457)	**	3.002	(0.448)	**
Risk_Appetite	1.387	(0.512)				
Willingness	4.410	(0.461)	***	4.519	(0.458)	***
Family_Participation				1.237	(0.566)	
Family_Advice				1.002	(0.532)	***
Peers_Advice				1.121	(0.918)	
N	240			240		
Adjusted R^2	33.7%			32.6%		

Note: *p < 0.1; **p < 0.05; ***p < 0.01, dependent variable is stock market participation

3.2 Additional regressions

For a deeper and more detailed analysis, it was decided to test three additional models. Model 8 includes all the same variables as used in Model 7, but this time the analysis was done with a probit model instead of a logit model. This model substitution was made in order to test the significance of the independent variables and to test the maximum level of participation probability. Subsequent models were again implemented using the logit binary model. In model 9, the main goal was to find out whether there is a statistical significance for participation in the stock market from such variables as the advice of family and friends on financial decisions, as well as the ownership of at least one family member by shares. Model 10 is similar to Model 9 except for the excluding the variables related to family advices and peers' advices in the stock market in order to verify the validity of model 9. Model 11 is designed in such a way to analyze specifically the high-risk lovers having the higher education with all income boundaries included and their determinants in participation in the stock market.

Model 8 showed approximately the same results as model 7. Both models included all independent variables. All significance levels are identical to the ones in the model 7. The adjusted R^2 raised to 32.8% in comparison to the previous model.

Model 9 was again performed with a binary logit model. The variables were chosen in such a way as to reveal the influence of family and environment on participation in the stock exchange by a financially literate individual. The results proved that the participation of at least one family member in the stock market has a statistical value within 10%, just like decision-making based on family advice. A high level of financial literacy continues to hold the highest level of significance in the model. Gender regained its importance at the 5% level. The adjusted R^2 at the decent level of 13.9%.

Model 10 was designed to test solely for the effect on participation in the stock market of the variable associated with the ownership of the stock by one of the family members. This variable managed to maintain its significance from the previous model at the 10% level. The gender variable, as in the very first models, was able to regain its highest significance at the 1% level. This proves that men predominate in the stock market, and gender is statistically significant in this model. The adjusted R^2 is equal to 14.18%, what implies that this model is strong, while using less independent variables.

The last model, 11, was designed to test a person with a higher education, financial literacy, inclusion of all income categories, and also risk-averse. The results once again show that knowledge of financial literacy has a huge impact on a person's purchase of shares in the Russian Federation. Men were again more likely to participate in the stock market with the importance at the 1% level. High risk showed its significance at the 10% level of the model. Moreover, low income again showed its highest significance at the 1% level in this model with negative coefficient, proving that these inviduals are less likely to invest. The adjusted R^2 adjusted slightly to 17.5% with a comparison to Model 10.

	Model 8			Model 9			Model 10			Model 11		
Variable	Coef.	St. Err		Odds	St. Err		Odds	St. Err		Odds	St. Err	
Gender	0.334	(0.277)		2.526	(0.367)	**	2.770	(0.361)	***	2.828	(0.387)	***
Age_2	0.667	(0.281)	**									
Age_4	0.878	(0.418)	**									
Income_1	-0.814	(0.276)	***							0.322	(0.390)	***
Edu_high	-0.568	(0.275)	**							0.577	(0.400)	
Self-confidence	0.656	(0.248)	***									
Knowledge	0.737	(0.267)	***	5.279	(0.365)	***	5.874	(0.360)	***	4.990	(0.374)	***
Trust	0.932	(0.273)	***									
High_risk	0.608	(0.248)	**							1.885	(0.359)	*
Willingness	0.848	(0.255)	***									
Family_participation	0.069	(0.316)		0.860	(0.434)	*	0.859	(0.430)	*			
Family_advice	0.045	(0.296)		0.466	(0.448)	*						
Peers_advice	-0.019	(0.515)		0.716	(0.735)							
N	240			240			240			240		
Adjusted R^2	32.8%			13.9%			14.2%			17.47%		

DISCUSSION

This section of the thesis involves a deeper analysis of the results obtained during all regression analyzes, as well as their comparison with the results of previous works. Limitation of the study and future suggestions for improving the analysis will also be discussed.

The results associated with the influence of age confirm the fact that age is not a direct determinant of participation in the stock exchange, this hypothesis is confirmed by Alan (2006) in his work. Two age groups showed significances in several regression models (from 18 to 24; and from 35 to 44), which in particular corresponds with a suggestion that young people are more likely to participate in the stock market (Guiso and Jappelli (2005). It is worth noting that the reason for this could be the fact that the sample size was relatively small, and that younger individuals predominated in the sample. The results suggest that gender has a statistical significance, which is in line with Almenberg and Dreber (2012) study, which found that men are more likely to participate in the stock market. The results suggest that gender has a statistical significance, which is in line with Leon's study, which found that men are more likely to participate in the stock market. In the survey, the number of women exceeds the number of men by 11.6%. However, after adding the remaining independent variables, you can see that gender starts to lose its significance.

Another finding was that people with the lowest income in the Russian Federation managed to get a statistical value throughout the entire logit binary regression analysis. In the first models, this value fell within 1% of significance, but when other variables were added, this value dropped to the 10% limits. This result is quite logical, since wages in the regions of the Russian Federation are categorically miserable, which contributes to the prevalence of this category in the sample, namely, 126 people out of 240 have a monthly income of only 30,000 rubles, which is equal to 343.46 euro on April 18, 2022. The highest wage category which is equal to 100,000 rubles and more (Income_4) was left out of the analysis, as it represented less than 10% of the respondents. The coefficients for the variables “Income_1” and “Income_2” are negative, it indicates that individuals with this monthly income are less likely to invest. Other categories did not find any significance during the analysis. Thus, the results on income did not find their support in findings of Van Rooij, M., Lusardi, A., & Alessie, R. (2011) indicating that stock market participation is directly proportional to both income and wealth levels. In the process of adding the last category of income, the regression did not work properly, as the results of coefficients and odds ratios were too large, therefore,

it was decided to leave it out of study. The higher level of education showed significance in the several models, which suggests that the level of education plays a role in participation in the stock market in the Russian Federation. This finding finds the confirmation in the work of Guiso and Jappelli (2005) stating that an individual with an education is more likely to participate in the stock market.

The variable associated with people who like risk has demonstrated its significance in several models, the other risk variables did not show their significance in any model, which confirms in part the finding of Dimmock and Kouwenberg (2010) that risk averse people are more likely to not take part in stock market. Self-confidence in one's financial knowledge throughout the study showed its significance in several models within 1% and 5% significance. These results are supported by the findings in study of Xia, et al. (2014) stating that self-confidence is positively correlated with participation in stock market. Trust in stock markets also finds its significance in the course of work, which correlates with the finding in the study of Georgarakos and Pasini (2011).

The purpose of the first hypothesis was to prove that the impact of knowledge in the field of financial literacy is significant, and that an individual with a high score is more likely to participate in the stock market. The knowledge-related variable was added to Model 5 and immediately showed the highest level of significance. This level has been maintained throughout all subsequent models, up to the most recent one. From the table of correlations, it is worth noting that it is this variable that has the highest indicator with participation in the stock market. (see Appendix 3). When conducting additional regressions, the knowledge variable was included in all of them, to ensure the reliability of the results. As a result, financial literacy managed to maintain its importance at the level of 1%. This finding finds its support in many works, for example in Kadoya et Al. (2017), where evidence supports the positive impact of financial literacy on participation in the stock market. In addition, van Rooij et Al. (2011) also proves that individuals with lower level of financial literacy are less likely to have stocks on their name.

The second hypothesis was aimed at clarifying the existence of any relationship between the influence of the family on decision-making on the participation of an individual in the stock market. People tend to consult with their loved ones about making important decisions in their lives, this is not only related to finances. Watching how parents behave, what they do and are fond of, children absorb this information like sponges, so it was important to make sure that there is any relationship between the influence of the family and participation in the stock market. In the first seven models, two family-related independent variables were not significant. For this reason, they were included in additional regressions to confirm or negate the results of the primary regressions. From models 9 and 10, it can be noted that family participation in the stock market has a statistical significance at the level of 10%, while advice from the family on decision-

making only gained significance in model 9 at the same level of 10%. Based on these results, it can be stated that the family has an insignificant value on the dependent variable but is not its main determinant.

The limitations of this work may be that the data were collected in one specific period with the participation of a relatively small number of respondents. This makes its own adjustments to the results and the reliability of outcomes. The large scatter in the data also had an impact on decision making in the analysis. Also, it's worth keeping in mind that people may have used external resources to provide answers to some of the questions related to the choice of the correct answer, which amends the results. In the Russian Federation, the distribution of income varies greatly between the two significant cities of Moscow and St. Petersburg, so it is rather difficult to assess the true picture of average earnings in such a huge country in terms of scale.

For further research, it is worth assessing the specific place of residence of the respondents, for a deeper analysis of the impact of income and wealth on participation in the stock market. In addition, not only a monthly income of the individual must be included in the analysis but the personal income of the individual that he/she is willing to invest. This substitution could lead to more detailed analysis because a monthly income does not illustrate clear picture in this case, as these finances could be shared in the family and only a little percent could be left for the investment. Also, it is worth bringing in the question of what people invest in other than stocks, as this can show a completely different picture in relation to this country against the background of its investment abilities. Investments in NFTs, cryptocurrencies and other new projects are starting to gain more and more popularity among not only young people; therefore, it is important to include this section in one of the survey questions in future studies. The number of people interviewed should be increased for more detailed analysis and compiled in such a way that there is not a huge overbalance in categories.

CONCLUSION

Various determinants of participation in the stock market have been analyzed during this thesis.

The main goal of all the work was to prove that people who are more financially literate are more likely to participate in the stock market. A secondary objective was to look at the influence of the family on investment decision making.

Research questions received their answers during the analysis of this thesis. The questions were:

1. What is the relationship of the financial literacy and stock market participation in the Russian Federation?
2. To what extend family affects stock market participation decisions?

Based on these two questions, as well as the purpose of the thesis, two hypotheses were drawn up:

1. There is no relationship between financial literacy and stock market participation in the Russian Federation
2. There is no relationship between influence from family and participation in the stock market.

In conclusion, it is worth stating that not all previously discovered variables were confirmed during this work. Gender, age, financial literacy, education, risk taking, self-confidence in knowledge, trust in stock markets and willingness to invest can be recognized in this thesis and confirm the previous findings. Income is a conflicting variable in the resulting regression results and does not converge with past findings. Among the four categories of income, only the lowest category showed that these people are less likely to invest and took on versatile significance. This leads to the fact that income is weakly correlated with participation in the stock market.

Knowledge in the field of financial literacy gained its significance at the 1% level immediately after being added to the logit
binary model and maintained this level throughout the study. The decision to run Model 7 in a robustness test (Model 8) helped ensure that the underlying model is robust, as are the results in it. Parents' participation in the stock market, as well as their support and decision-making advice, mattered at the lowest acceptable

level of 10% in only the last two models. Based on these results, it cannot be said with high certainty that these variables are direct determinants of participation in the stock market.

Based on the results, can be confidently stated that hypothesis 1 could not be rejected, since the impact of a high level of financial literacy is statistically significant. Hypothesis 2 could not be rejected as well, but, on the other hand, there is not high certainty due to the lack of confirmation level.

The purpose of the thesis was to confirm the impact of a high level of financial literacy and family influence on participation in the stock market in the Russian Federation. From the results obtained, one can better imagine a person more inclined to participate in the stock market. It is worth adding that people should develop in this area, as this can simplify their current and future life.

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APPENDICES

Appendix 1. Questionnaire

	Demography Data		
N	**Question**	**Description**	**Measurement**
1	Please, select your gender	Gender selection	Male or Female
2	Please, input your age	Statement of Age	Respondents input their age. Afterwards, the age results are distributed between following brackets: < 18; 18 to 24; 25 to 34; 35 to 44; 45 to 54 and > 55
3	Please, select your highest level of education	Determination of the level of education	Respondents choose between high school/higher university education/ none
4	What is your average monthly income?	Determination of the level of monthly income	Respondents choose between: < ₽30,000; ₽30,001 to ₽60,000; ₽60,001 to ₽100,000 and >₽100,001
5	Please, describe your current employment level	Determination of the current employment level	Student/employed/unemployed/ retired/self-employed
	Financial Literacy		
S/N	**Question**	**Description**	**Measurement**
6	Before moving on to the questions, how would you rate your level of financial literacy on a scale of 1 to 10? Where 1 is the lowest, and 10 is the highest	Respondents' self-evaluation	1-6 is considered as low self-confidence 7-10 is considered as high self-confidence
7	Do you possess any shares of companies?	Determination of the current stock market participation	Yes or no
8	What do "bear and bull markets" mean?	Basic financial literacy question	Bearish means stocks are up, and bullish means stocks are down; bearish means stocks are down, and bullish means stocks are up; The signs that the stock market is open and closed; I do not know
9	What does "stock market volatility" mean?	Basic financial literacy question	Measurement of how much the total value of a stock market fluctuates up and down; immediate order to buy or sell a stock; how quickly shares can be bought or sold without significantly affecting the share price; I do not know

10	If interest rates fall, what do you think will happen to stock prices?	Basic financial literacy question	They fall/they rise/they remain unchanged/I do not know
11	You are going to invest 1 million rubles, which of the following will give the highest income?	Basic financial literacy question	Savings account/bonds/stocks/I do not know
12	Imagine your savings account has an interest rate of 1% per year and inflation is 2% per year. After 1 year, how much can you buy with the money in this account?	Numeration Question	More than today/the same/less than today, I do not know
13	Suppose you owe ₽100,000 on a loan and the interest rate you pay is 20% per annum compounded annually. If you didn't pay anything at that interest rate, in how many years would your debt double?	Numeration Question	Less than 2 years/ at least 2 years but less than 5 years/ at least 5 years but less than 10 years/ at least 10 years/ I do not know
14	Suppose you have ₽100,000 in a savings account and the interest rate is 2% per year. How much do you think you will have in your account in 5 years if you leave money for growth?	Numeration Question	More than ₽102,000/Less than ₽102,000/Exactly ₽102,000/ I do not know
15	A 15-year mortgage requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.	Numeration Question	Agree/disagree/I do not know
16	Citizen N believes that investing in stocks is less risky than investing in mutual funds. Do you agree with his statement?	Basic financial literacy question	Yes/No/I do not know

Appendix 1. Questionnaire continued

	Individuals' decisions to investment based on Households/Risk appetite		
S/N	**Question**	**Description**	**Measurement**
17	How would you assess your attitude to risk?	Risk perception of the respondents	Risk lover/Risk neutral/Risk averse
18	Who are you most likely to turn to for financial advice?	Respondents' attitude to savings and investments influenced by their environment	Family/peers/stockbroker/the internet/none of the above
19	Citizen N began to save money while studying at school for a retirement plan. How would you evaluate his choice?	Investment reasoning	Agree with his choice/disagree with his choice
20	Imagine that you received a salary, what percentage of this amount would you be willing to invest in the stock market?	Risk appetite of the respondents	Less 10%/ 10%-25%/ 25%-50%/50%-75%/75%-100%/
21	Citizen N says that it is better to put his money in a savings account than to invest it in company shares. What do you think about this statement?	Investment trust	Agree/disagree/I do not know
22	Imagine a situation that you received 100,000 rubles as a gift, what would you do with this money?	Investment willingness	Would spend on myself/would invest in the stock market (stocks, bonds)/would put money in a savings account/would pay off existing debts and loans
23	Does anyone in your family possess any shares of companies?	Family participation	Yes or No

Source: Tikhonov (2022) author's survey

Appendix 2. Socio-demographic statistics

Demographics Distribution		
Variable	Frequency	Percentage
Gender:		
Male	106	44.2%
Female	134	55.8%
Age:		
<18	36	15.0%
18-24	103	42.9%
25-34	35	14.6%
35-44	23	9.6%
45-54	27	11.3%
>55	16	6.7%
Education level:		
High school education	82	34.2%
Higher university education	156	65.0%
No education	2	0.8%

Appendix 2. Socio-demographic statistics (continued)

Monthly income level:		
less than 30,000 rubles	126	52.5%
30,001 – 60,000 rubles	62	25.8%
60,001 – 100,000 rubles	30	12.5%
more than 100,001 rubles	22	9.2%
Employment status:		
Student	83	34.6%
Employed	133	52.5%
Unemployed	24	12.9%

Source: Tikhonov (2022), author's calculations

Appendix 3. Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Participation	1.00																
2. Gender	0.28	1.00															
3. Age_2	0.20	0.29	1.00														
4. Age_4	0.06	-0.23	-0.28	1.00													
5. Income_1	-0.23	-0.04	0.13	-0.17	1.00												
6. Income_2	0.07	-0.03	0.03	0.03	-0.62	1.00											
7. Edu_High	-0.06	-0.24	-0.09	0.24	-0.26	0.13	1.00										
8. Employment_1	-0.06	0.20	0.47	-0.24	0.39	-0.19	-0.33	1.00									
9. Self-confidence	0.28	0.20	-0.03	-0.02	-0.15	0.01	0.01	0.01	1.00								
10. Knowledge	0.41	0.30	0.20	-0.01	-0.21	0.06	0.03	0.05	0.18	1.00							
11. High_risk	0.16	0.01	-0.12	0.00	-0.14	0.07	0.02	-0.10	0.04	0.14	1.00						
12. Risk_appetite	0.26	0.25	0.30	-0.14	0.05	-0.08	-0.19	0.22	0.14	0.23	-0.11	1.00					
13. Trust	0.33	0.19	0.09	0.02	-0.04	-0.02	0.07	0.03	0.04	0.15	-0.04	0.28	1.00				
14. Family_Adv	-0.20	-0.22	-0.11	-0.01	0.16	-0.08	-0.11	0.08	-0.05	-0.21	0.01	-0.21	-0.20	1.00			
15. Peers_Adv	-0.01	0.07	-0.03	0.04	-0.15	0.02	0.00	-0.07	-0.06	-0.01	-0.11	-0.05	-0.06	-0.17	1.00		
16. Willingness	0.42	0.16	0.14	0.04	-0.02	-0.05	-0.08	0.09	0.15	0.18	0.05	0.33	0.34	-0.20	-0.01	1.00	
17. Fam_Part	-0.02	0.00	0.04	-0.03	0.03	-0.06	-0.04	0.09	-0.11	0.00	-0.05	0.02	-0.11	0.00	-0.04	-0.03	1.00

Source: Tikhonov (2022), author's calculations

Appendix 4. Notation of dummy variables

Variable definition	Variable coding	Number of the question in the questionnaire (see Appendix 1)	Level / scale
Possession of stocks	Participation	7	0 – No; 1 – Yes
Gender	Gender	1	0 – Female; 1 – Male
Age			
Younger than 18 years old	Age_1	2	0 – No; 1 – Yes
Between 18 and 24 years old	Age_2	2	0 – No; 1 – Yes
Between 25 and 34 years old	Age_3	2	0 – No; 1 – Yes
Between 35 and 44 years old	Age_4	2	0 – No; 1 – Yes
Between 45 and 54 years old	Age_5	2	0 – No; 1 – Yes
Older than 55 years old	Age_6	2	0 – No; 1 – Yes
Montlhy income			
Less than 30,000 rubles	Income_1	4	0 – No; 1 – Yes
30,001 – 60,000 rubles	Income_2	4	0 – No; 1 – Yes
60,001 – 100,000 rubles	Income_3	4	0 – No; 1 – Yes
More than 100,001 rubles	Income_4	4	0 – No; 1 – Yes
The highest obtained level of education			
High school	Edu_sch	3	0 – No; 1 – Yes
Bachelor's, master's degree or higher	Edu_high	3	0 – No; 1 – Yes
Level of employment			
Student	Employment_1	5	0 – No; 1 – Yes
Employed or self-employed	Employment_2	5	0 – No; 1 – Yes

Appendix 4. Notation of dummy variables (continued)

Unemployed or retired	Employment_3	5	0 – No; 1 – Yes
Assessment of own knowledge	Self-confidence	6	0 – if chosen from 1 to 6; 1 – if chosen from 7 to 10
Level of financial literacy	Knowledge	8 - 16	0 – if given 0 to 6 correct answers on financial literacy questions; 1 – if given from 7 to 9 correct answers.
Rather invest in stocks than put money in a saving account	Trust	21	0 – No; 1 – Yes
Risk attitude			
Risk averse	Low_risk	17	0 – No; 1 – Yes
Risk neutral	Mid_risk	17	0 – No; 1 – Yes
Risk lover	High_risk	17	0 – No; 1 – Yes
Readinees to invest more than 10% of their salary	Risk_appetite	20	0 – No; 1 – Yes
Would invest in stock market if were given a present of a lump sum	Willingness	22	0 – No; 1 – Yes
At least one family member owns shares	Family_participation	23	0 – No; 1 – Yes
Making financial decisions on the basis of family advice	Family_advice	18	0 – No; 1 – Yes
Making financial decisions on the basis of advice from peers	Peers_advice	18	0 – No; 1 – Yes

Source: Tikhonov (2022), author's questionnaire

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