



Varazdin Development and Entrepreneurship Agency
in cooperation with
Russian State Social University
University North, Croatia
Faculty of Management University of Warsaw, Poland



Economic and Social Development

25th International Scientific Conference on Economic and Social Development -
"XVII International Social Congress (ISC-2017)"



Editors:

Alexander Maloletko, Darko Tipuric, Marijan Cingula



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THE LEVEL OF FINANCIAL LITERACY OF MANAGERS AND ENTREPRENEURS: A COMPARISON BETWEEN PORTUGAL AND RUSSIA

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ABSTRACT

The aim of this study is to compare the level of financial literacy of managers and entrepreneurs of small and medium sized enterprises (SMEs) of Portugal and Russia. As secondary goal is to analyse if socioeconomic factors determine the level of financial literacy among managers/entrepreneurs. This research was conducted in the North of Portugal and some regions in Russian Federation for the period of March to May 2017. Secondary data (namely the contact data) for this research were gathered from SABI database (for Portuguese sample) and with the help of personal and business contacts of researchers (for Russian sample). It was adopted a quantitative design as research methodology. Collection of primary data (assessing the financial literacy level of SMEs' financial managers/entrepreneurs) was obtained with a structured questionnaire that is mostly based on methodology used on International Survey of Adult Financial Literacy Competencies from OECD in 2016. It was applied to managers/entrepreneurs of the companies selected for the survey. It carried out during March until 26th of May 2017, using three main approaches: by email, by telephone and by personal visits. It was obtained 62 respondents, 33 from Russia and 29 from Portugal. The results suggest entrepreneurs' Financial Literacy Level (FLL), generally speaking, it is unexpectedly high and there is no significant difference among countries' variable. The analysis did not confirm any significant differences of FLL' results between the five age groups in both countries, nor in relation to company' size. Surprisingly, the analysis did not identify any significant differences between formal education levels, which means the availability of Higher Education degree does not always guarantee the Financial Knowledge. It seems that there is no statistically significant difference of FLL among male and female respondents. Although the average score of men' responds seems to be higher that of female gender.

Keywords: *Financial Literacy Index, Portugal, Russia, Small and Medium sized Enterprises*

1. INTRODUCTION

An acute awareness of the need to improve financial literacy of people has become one of the main lessons of the current financial crisis. Knowing the basics on financial economy allows people not only to avoid a number of mistakes and financial losses, but also to see new benefits and interesting opportunities, regardless of what position and in what area they work. For the business' owners, in our opinion, financial literacy may help to guarantee health and stable economic situation. Many researchers have already recognized the importance of financial

literacy, as they have written dedicated research papers, as well as by the policymakers by investing resources in financial education programs. The trend of accessible financial markets and an enormous variety of financial services requires from people a better understanding of economic processes. Ignorance of financial literacy might be crucial on the existence key-factors, since it has influence on financial decision-making process (Lusardi & Mitchell, 2014). The aim of this study is to compare the level of financial literacy of managers and entrepreneurs of small and medium sized enterprises (SMEs) of Portugal and Russia. As secondary goal is to analyse if socioeconomic (and demographic) factors determine the financial literacy level (FLL) among managers/entrepreneurs. To assess the financial literacy level of Portuguese and Russian SME's managers/entrepreneurs, it was implemented a structured questionnaire that is mostly based on methodology used on International Survey of Adult Financial Literacy Competencies from OECD in 2016. It was applied to managers/entrepreneurs of companies selected for the survey. Contact data about managers/entrepreneurs was obtained through the SABI database (Iberian Balance Sheet Analysis System) for the Portuguese group and by personal and business contacts for Russian group. This research was conducted in the North of Portugal and some regions in Russian Federation for the period of March to May 2017.

The present paper is divided into five chapters. After the first chapter that introduces the problematic of the paper, there is a literature review chapter on financial literacy (Chapter 2), that gives a brief overview of existing research and the definition of «Financial literacy». The next chapter (Chapter 3) presents the research hypothesis, data and research design methods. It also explains the calculations method for FLL. All findings are presented in the chapter 4, starting with the characterisation of sample with descriptive statistics, then the hypothesis are tested, discussed and highlighted the key conclusions and assumptions according to each of them. The paper finishes with remarkable conclusions, some limitations on the research and some suggestions for further research.

2. LITERATURE REVIEW ON FINANCIAL LITERACY

Understanding basic financial concepts helps people to make day-to day life decisions, which can vary from buying a coffee and to taking a home on mortgage. Financially literate people have competency to decide about investments, savings, borrowing and more (Asaad, 2015). It is markedly important to have financial knowledge in times when complicated financial products are freely accessible on the market to a big number of customers. In many countries, government tries to expand access to financial services, thus the number of people with credit products will increase fast (Klapper, Lusardi & Van Oudheusden, 2015). Financial literacy should be linked to the concept of financial intelligence. This is a set of skills that must be held by all those who want to run their businesses successfully and to be able to follow and understand the financial world. Financial literacy is typically measured at the individual level and then aggregated by groups, such as high school students or low-income adults, to provide a macro view (Remund, 2010). Financial literacy is the concept in which individuals and households get the required education and skills to understand management of personal finances better. It is a set of knowledge and skills that one needs to make financial decisions that can affect their financial prosperity positively. By financial literacy is meant a positive thinking on the need for financial planning, good understanding of the various financial services, knowledge of the various products, a fair idea of the risks and rewards in terms of usage of the services, a reasonable grasp of the concepts like interest rate, compounding, inflation, diversification etc. (Asaad, 2015). Novo (2012) defines financial literacy as the ability to read, analyze, manage and write about personal financial conditions that affect material wellbeing. It includes an ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond competently to life events that affect every day financial decisions, including events in the general economy.

It consists of various constructs. Huston (2010) proposed a model (Figure 2) that includes relationships between financial literacy, knowledge, education, behavior, and financial wellbeing. In this model, inputs into financial literacy are human capital and financial education. Other influences such as demographics, culture, and family influences are associated with financial behaviors.

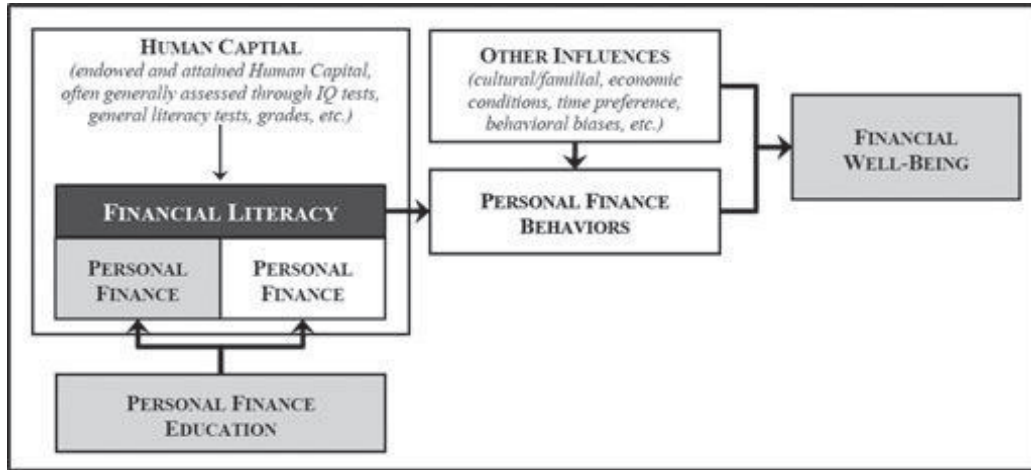


Figure 2. Relations among Financial Literacy, Knowledge, Education, Behavior and Well-Being (Huston, 2010, p. 5)

Financial literacy is a component of human capital that can be used in financial activities to increase expected lifetime utility from consumption (i.e., behaviors that enhance financial well-being). Other influences (such as behavioral/cognitive biases, self-control problems, family, peer, economic, community and institutional) can affect financial behaviors and financial well-being. A person who is financially literate (i.e., has the knowledge and the ability to apply the knowledge) may not exhibit predicted behaviors or increases in financial well-being because of these other influences (Huston, 2010). Financial education is an input intended to increase a person's human capital, specifically financial knowledge and/or application (i.e., financial literacy). A well-designed financial literacy instrument that adequately captures personal finance knowledge and application can provide insight into how well financial education improves the human capital needed to behave appropriately to enhance financial well-being (Huston, 2010). In recent years, researchers have created many types of assessments aimed at measuring financial literacy and levels of financial knowledge. A lack of financial knowledge has been associated with behaviors that led to financial mistakes such as over borrowing, high interest rate mortgages, and limited saving and investment (Henager & Cude, 2016). There are large numbers of stakeholders including state governments, financial regulators, financial institutions; civil society, educationists and others are involved in spreading financial literacy. The recent economic downturn has magnified overall awareness of financial illiteracy and its impact on world economy. One response has been increased academic research focusing on financial literacy as well as renewed interest in financial education and related policy. Financial education is increasingly prevalent in high schools, colleges and workplaces (Henager & Cude, 2016). Fast evolving financial landscape provides an easier access to financial services to citizens, while more risks are appearing as well. Financial literacy has become a key life skill for individuals as well as micro and small businesses. It can range from purchasing a vehicle, constructing a house, getting the children married, and savings for retirement etc. Financial education can help strengthen financial literacy by increasing financial knowledge, skills and attitudes (Grifoni & Messy, 2012). What adults know about household finance is important because of the many personal financial responsibilities people assume over a lifetime. Adults must manage household budgets subject to income constraints, buy goods and services, monitor

financial accounts, handle credit cards, save and invest for a future event such as a child's college education or retirement, purchase insurance to reduce risk, pay taxes, and seek sound financial advice. There are two essential elements of financial inclusion, one is access and the other is awareness. The acceptance of these two elements varies country to country. For developed countries with widespread financial infrastructure, the access to financial products/services is not a matter of concern. It is more of a financial literacy issue in that market players/consumers are required to be educated about the features of the available financial products/services, including their risks and returns (Singh, 2014). There are many research papers and investigations (e.g., Borodich, Deplazes, Kardash, Kovzik, & Oshkosh, 2010; Lusardi & Mitchell, 2014; Lusardi, Mitchell & Curto, 2010; Klapper et al, 2015; Porto & Xiao, 2016; Su, Hsiao, & Chen, 2015) that are aimed to find out levels of financial literacy among adults all over the world. Broader reports on financial literacy, comprising several countries, are not much but there is at least two examples: the Standard & Poor's Ratings Services Global Financial Literacy Survey and the OECD International survey of Adult financial literacy competencies. The latest report of Standard & Poor's Ratings Services Global Financial Literacy Survey, published on 2016 (Klapper et al, 2015), shows that the countries with the highest financial literacy rates are Australia, Canada, Denmark, Finland, Germany, Israel, the Netherlands, Norway, Sweden, and the United Kingdom, where about 65 % or more of adults are financially literate. On the other end of the spectrum, South Asia is home to countries with some of the lowest financial literacy scores, where only a quarter of adults - or fewer - are financially literate (Klapper et al, 2015). Not surprisingly, financial literacy rates differ enormously between the major advanced and emerging economies in the world. On average, 55 % of adults in the major advanced economies – Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States – are financially literate. Nevertheless, even across these countries, financial literacy rates range widely, from 37 % in Italy to 68 % in Canada. In contrast, in the major emerging economies - the so-called BRICS (Brazil, the Russian Federation, India, China, and South Africa) - on average, 28 % of adults are financially literate. Disparities exist among these countries, too, with rates ranging from 24 % in India to 42 % in South Africa (Klapper et al, 2015). A survey on financial literacy was conducted by the Organisation for Economic Co-operation and Development (OECD) in 30 countries; respondents were people aged from 18 to 79, with sample sizes ranges from 1,000 to 10,000 - 1000 was a minimum requirement in order to be able to facilitate comparative study (OECD, 2016). The findings of survey showed that (OECD, 2016), overall levels of financial literacy, indicated by combining scores on knowledge, attitudes and behaviour are relatively low. On average, only 56 % of respondents across participating countries have achieved the minimum target score. Adults particularly struggled with basic concepts on financial knowledge; only 42% are aware of the additional benefits of interest compounding on savings; only about two in three adults – across OECD and all participating countries and economies – were aware that it is possible to reduce investment risk by buying a range of different stocks. Gender differences in financial knowledge are needed to be mentioned, with 61% of men who achieved the minimum target score compared with only 51% of women across participating countries and economies (OECD, 2016). The weakest areas of financial behaviour across these measures appear to be related to budgeting, planning ahead, choosing products and using independent advice (OECD, 2016). Research on SMEs managers/entrepreneurs is scarce around the world. Fernandes (2015) report some research on managers/entrepreneurs or owners of SMEs' financial literacy and the main findings are that they have some lack or low level of financial literacy (e.g. Brown et al, 2006; Pearl & Eileen, 2014; Sage, 2012, referenced by Fernandes, 2015, p. 8-9). Two recent papers worthy to mention are Campo & Barnes (2017) and Plakalovic (2015). Campo and Barnes (2017) found that the association between age and basic financial literacy is statistically significant as the case of the association with education level. Gender is

statistically significant in the association with overall financial literacy. In their sample of Australian SME managers/owners, 109 of 116 respondents exhibit a 100% numeracy level of financial literacy, 95 (out of 116) have a score range of 100% in basic financial level, 72 have a score range of 83% to 100% in advanced financial level and overall financial level is shown by 67 (out of 116) as score range of 91% to 100% (Campo & Barnes, 2017). Plakalovic (2015), using data gathered from a sample of 51 owners/managers of SMEs from Banjaluka and East Sarajevo regions in Bosnia and Herzegovina, concludes that “only 20% of respondents can be considered financially literate” (p.414). These studies are not directly comparable with present research as the methodology of collecting data is slightly different. Finally, Fernandes (2015) using a sample of 103 micro and small companies from the north region of Portugal, concludes that “the average and the median are very near of each other with, respectively, 53 and 54, suggesting that, on average, the Portuguese small business owners present rather low financial literacy level” (p. 30). Notice that this research uses a very similar method for calculation of financial level of literacy. This is one of few investigations in Portugal that is similar to our paper but do not compare with other countries, using the same methodology.

3. RESEARCH HYPOTHESIS, DATA AND RESEARCH DESIGN METHODS

3.1. Research Hypothesis

Many researchers (e.g. Asaad, 2015; Dahmen, &, Rodriguez, 2014; Huston, 2010; Lusardi & Mitchell, 2014) have noticed the importance of financial literacy and its assessment. According to Lusardi and Scheresberg (2013) there is a correlation between the financial literacy level (FLL) and high cost borrowers. Their results showed the most high-cost borrowers demonstrated very low FLLs, very poor knowledge about basic financial concepts. In another related study, Lusardi and Mitchell (2014) found out similar low FLLs in countries with well-developed markets such as the United States, Germany, Australia, likewise in rapidly-changing markets. Therefore, the research hypotheses (RH) were defined as follows:

RH 1: “The median level of Financial Literacy Index of SME’s entrepreneurs/managers is equal in all its dimensions.”

RH 2: “The financial literacy index among Russian and Portuguese SME’s entrepreneurs/managers is below or equal to 50%.”

Since we have two different countries under analysis, it is intended to compare results of financial literacy index of both countries. Thus, another research hypothesis posted is as follows:

RH 2.1: “The FLL of Russian SME’s entrepreneurs/managers is equal to the FLL of Portuguese SME’s entrepreneurs/managers.”

Lusardi et al (2010) examined financial literacy among the young people and found that less than one-third of young adults maintain basic knowledge of financial concepts (interest rates, inflation and risk diversification).

RH 3: “The FLL is equal in the five age groups in both countries (Russia and Portugal).”

According to Worthington (2006), when all other things are equal, the gender factor can have an impact on FLL. Putting this into hypothesis can give us the following assumption:

RH 4: “Male respondents present higher FLLs than female gender.”

It may be also possible to find some difference of results among managers and owners of different company’ size, so the following hypothesis must be tested:

RH 5: “There is a difference in FLL of managers depending on size of their company.”

Differences in financial knowledge by education variable were demonstrated empirically by Lusardi and Mitchell (2014). It was especially poor for those respondents with low educational accomplishments. Therefore the related research hypothesis is:

RH 6: “There is a difference in FLL of business owners with a higher education degree than business owners without a higher education degree.”

3.2. Data and research design methods

In order to assess the FLL of SME’s managers/entrepreneurs, it was conducted a questionnaire, which is mostly similar to International Survey of Adult Financial Literacy Competencies from OECD in 2016. The questionnaire¹ consists of two parts. The first part intends to measure the level of financial literacy of manager or entrepreneur and the second part to characterize the respondents (managers or entrepreneurs), using sociodemographic variables (gender, age, level of education, and experience). Three major groups of questions (dimensions of financial literacy index) constitute the first part: financial inclusion and management of bank accounts (group A, with 8 questions); financial planning and company’s cash management (group B, with 11 questions); and financial understanding and knowledge (group C, with 11 questions). Although responses were not anonymous, it was assured that no information would be transferred under any circumstances to third parties.

With the aim to evaluate the respondents’ financial literacy, as suggested by Bank of Portugal (2010) and OECD (2016) for calculation of FLI, every answer to the survey questions was scored with a scale from +2 to -2 (where +2 reflects correct or the most appropriate answer, -2 reflects totally wrong or the most inappropriate answer). However, not all of the questions were included, questions number 1.4, 1.7, 1.8, 1.14, 1.17, 1.19, 1.29 are aimed to compile descriptive information or not every responder has to answer them. Therefore, for each individual surveyed it is summed the score for each question that measures the Financial Literacy Index (FLI) and divided by the number of questions answered. The Global Financial Literacy Index (GFLI) has a minimum score of -63 and a maximum score of 68 with 23 questions.

The next step was to transform the obtained results into FLLs. In order to allow comparison among group of individuals and order researches around the world, the score of FLI is standardized in a scale of 0 to 100. The minimum score (-63) is equal to 0 and maximum (68) is 100. As a result, each individual score of GFLI is transformed in the scale 0 to 100, using the formula:

$$\frac{(\text{original score} - \text{theoretical min})}{(\text{theoretical max} - \text{theoretical min})} \times 100 \quad (1).$$

For each of dimensions of FLI, that is the score for each surveyed per group of questions: for Group A, B and C, it was computed the partial FLI and transformed in a scale of 0-100, as presented in Table 1.

Table following on the next page

¹ The questionnaire is available by request to authors.

Table 2. Transforming FLI in standardized scale.

Dimension	Description	Formula
GFLI	Global Financial Literacy Index	$\frac{\text{Score}(i)-(-63)}{68-(-63)} * 100$ (2)
FLIA	“Financial inclusion and management of bank accounts” dimension is composed by 5 questions with maximum score 9 and minimum -9;	$\frac{\text{Score}(i)-(-9)}{9-(-9)} * 100$ (3)
FLIB	“Financial understanding” dimension is composed by 8 questions with maximum score 23 and minimum -19;	$\frac{\text{Score}(i)-(-19)}{23-(-19)} * 100$ (4)
FLIC	“Financial planning and company’s cash management” dimension is composed by 10 questions with maximum score 36 and minimum -35.	$\frac{\text{Score}(i)-(-35)}{36-(-35)} * 100$ (5)

The research sample was collected from SABI database, for Portuguese group, focusing on the textile industry, restaurants and accommodation industry in north region of Portugal. These areas were chosen due the companies’ presence in the both countries, but then sample was diversified because of the difficulty of collecting data for Russian market. The database contained 671 textiles companies (for CAE² 13 and 14), 584 companies for Accommodation and 5293 Restaurants (CAE 55 and 56, respectively). From these companies where selected those that have had contact information (telephone number and e-mail to be contacted) – the subsample reduced to 297 SMEs in textile sector, 315 in Restaurants sector and to 216 for Accommodation’ services. All pre-selected companies were contacted by sending e-mail with questionnaire and by phone to obtain the maximum number of answers. For the Russian part, the data was collected with the help of The Chamber of Commerce and Industry of the Pskov Region for Russian market and by personal and business contacts of researchers in Northwestern Federal District and Khanty-Mansi Autonomous Okrug of Russia. The choice of these regions is due the geographical location and concern about cross-country comparison of financial literacy levels among entrepreneurs and financial managers. In both situations, we have obtained sub-samples by convenience. The survey was carried out during March until 26th of May 2017.

4. FINDINGS

4.1. Sample Characterisation

Although we have contacted in general more than 800 companies, it was attainable to get answers from 62 companies’ managers/entrepreneurs in total, 33 respondents from Russia and 29 from Portugal. Companies, that took part of the survey, are located in the North region of Portugal and different regions in Russia. In relation to firm size, based on the number of a company's employees, in our sample there are micro, small or medium-sized firms. The majority of the companies have no more than 10 employees, which refers to micro-enterprise group, then come small-sized companies and the smallest group in our sampling is medium-sized companies with maximum 250

² CAE (rev. 3) is the classification and grouping of the producing statistical units of goods and services, according to economic activity; - Organization, in a coordinate and coherent form of the economic-social statistical information for branch of economic activity, in different domains (production, job, energy, investment, etc.); - Statistical comparability at national, communitarian and world-wide level. The CAE Rev 3 table is prepared by the National Statistical Institute (NSI) and its application is national. It was approved by Deliberation N° 327 of Statistical Council, of 19 March 2007 and final publication by decree-law N° 381/2007, of 14 November. It started be on force on 01-01-2008.

workers (Figure 3). As the sample size is limited, the results presented in this investigation are not applicable for the general population (managers/entrepreneurs of SMEs) in these countries.

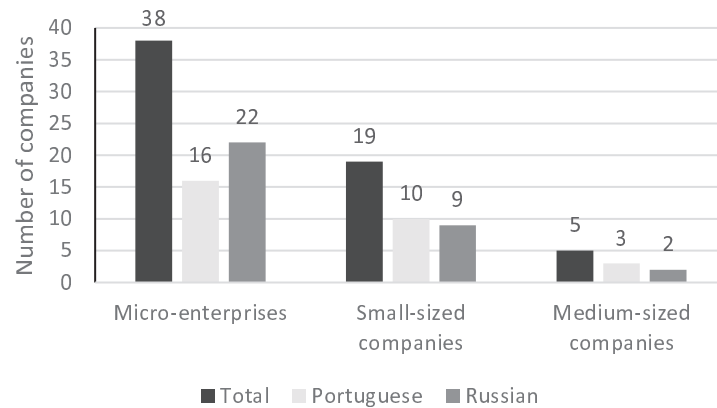


Figure 3. Companies' size distribution.

Main types of activity of the enterprises in our sample remain Manufacture of textiles and Retail trading, together they form more than 50%, Accommodation services are following them with 16 % out of 100%. More than the half of the respondents are men (36), which represents 58% of total sample, and 26 females (42%). In relation to countries, there are more women managers/entrepreneurs in business activities in Russia (19) than in Portugal (7).

The distribution of respondents according to age, in total sample, is 32% in the range of 45 to 54 years old, then comes range with 22-34 years old business owners and managers (22.58%). The following two groups have reached equal weights in sample size with 21 % each: 35-44 and 55-64 years old, the minority (only 3 %) was presented by 2 persons with age from 65 and older. In the both countries, the interval 45-54 years old contains the highest number of respondents (Figure 4).

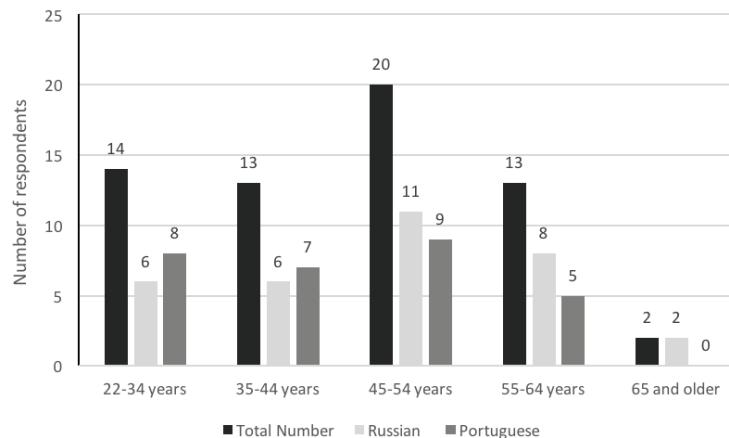


Figure 4. Distribution of respondents by age.

Concerning the academic qualifications, the biggest percentage of participants have Higher education level (Bachelor or master degree) with more than 50% of respondents, followed by those with High School degree (23 respondents), and the most basic education level is presented by 4 persons. By country, there are 4 cases presented by Portuguese respondents with only Basic education level, 7 with high school degree and 18 with higher education (bachelor or mater degree). For Russian group, 16 have high school degree and 17 have higher education.

4.2. Descriptive analysis of results from Financial Literacy Questionnaire

The 62 business' owners or managers have answered to the questionnaire and their responses have helped to expand the analysis of financial knowledge and executives' perceptions about its importance. The most first question applied to respondents was about the main ways in which they do control of the company's main bank account and frequency of controlling made by responsible persons. Table 3 summarises this results. It is clear that two favourite ways for such activities in both countries are by using Internet-banking services and by bank statements sent from a bank. The frequency with highest frequency is daily control.

Table 3. Ways and frequency of controlling the bank account of a company, for all sample and by country

	Total sample		Russian		Portuguese	
	n	%	n	%	n	%
Ways to control bank Account						
Internet-banking	41	69%	17	55%	24	86%
Bank statement from the Bank	12	20%	9	29%	3	11%
ATM	6	10%	5	16%	1	4%
Frequency of bank account control						
Daily	29	47%	9	27%	20	69%
More than once a week	18	29%	14	42%	4	14%
More than once a month	9	15%	6	18%	3	10%
Less than once a month	4	6%	2	6%	2	7%
Never	2	3%	2	6%	0	0%
total respondents	62		33		29	

The significance of planning and preparation of budget was covered by many academic publications and researchers. One of those investigations was made by Silver, Pyke & Peterson (1998), where 253 small firms were asked about whether they prepare written future plans and if there is a relationship between planning and organizational performance. At present research, about 62.9% out of all responds find this activity as very important for the company and 32.3% answered important. By country, 70% of Russian respondents consider very important and 27% consider important. For Portuguese respondents, 69% consider very important and 38% consider important. Brinckmann, Grichnik and Kapsa (2010) intended to investigate the business planning and company' performance relationship and aimed to discover proof of increased effectiveness when a firm has a financial and strategic planning. According to their research paper, financial planning "can be a critical factor for the survival and growth of new firms; it also can help firms communicate their goals, strategies, and operational tasks to internal and external stakeholders" (Brinckmann et al, 2010, p.29). Considering this, we have also asked the frequency with which a manager makes financial planning for his company. The 2 most often answers are weekly and monthly planning, that compiles more than 60 % out of the sampling group. There are 10 company cases that plan their finance every day and 7 respondents with a non-periodically frequency of finance preparing. These numbers may be considered as a good trend among enterprise' managers and owners since it has an influence on company's performance and on its future development.

4.3. Entrepreneurs/Managers Financial Literacy Level

Table 4 presents the descriptive statistics for original financial literacy index and for Global financial literacy index, showing the transformation' differences after implementing suggested

methodology to GFLI, for the whole sample and sub-samples by country. The average score for all sample is around 58 (standard deviation=13.8) and a median of 61. For Portuguese managers/entrepreneurs the mean is 57.98 (13.81) and for Russian is 58.47 (14.07).

Table 4. Descriptive Statistics of the Original Index and the Global FLI for the whole sample and sub-samples by country.

	Minimum	Maximum	Average	Median	Standard Deviation
Original Index	-30	40	13,31	17,5	18,13
Global FLI	25,19	78,63	58,25	61,45	13,8
Portugal					
Original Index	-30	37	12,96	18	18,09
Global FLI	25,19	76,34	57,98	61,83	13,81
Russia					
Original Index	-18	40	13,6	13	18,44
Global FLI	34,35	78,63	58,47	58,02	14,07

To test the RH1: “The median FLL of SME’s entrepreneurs/managers is equal in all its dimensions.”, first it was analysed the distribution of GFLI and each its dimensions, presented in Figure 5. The boxplot shows that FLI dimension “Financial inclusion and management of bank accounts” (FLISA) has the highest median and seems to be symmetric, with an interquartile range (IQR) smaller than the other dimensions. The dimension “Financial planning and company’s cash management” (FLISB) is right-skewed and the IQR is higher than for others dimensions. GFLI (FLIST in the graph), as well as the dimension “Financial Understanding” (FLIS C), is left-skewed.

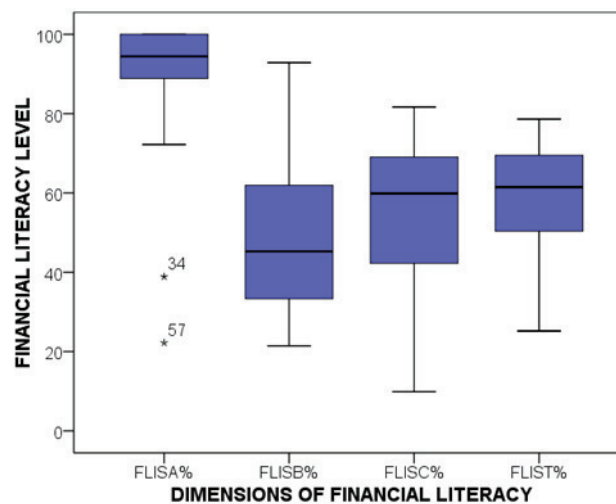


Figure 5. Boxplot of financial literacy index (as %) dimensions.

Then, to confirm that data is normally distributed, Kolmogorov-Smirnov Test was used, since the sample is above 50, and significance lower than 5%. Because data is not normally distributed, the Friedman test was used to compare the level of the three financial literacy’ dimensions. Since $p < .05$ in the Friedman Test, the null hypothesis is rejected and state significant differences in the three dimensions of financial literacy (Table 5). The highest mean is in FLISA dimension, which is indicative that financial managers and business’ owners have more knowledge about those topics. After comes “Financial understanding” dimension and the

lowest mean is presented by dimension C - “Financial planning and company’s cash management” (Table 5).

Table 5. Results of Friedman Test to compare the dimensions of financial literacy level.

DIMENSIONS	n	Kolmogorov-Smirnov	Mean Rank	Friedman Test	Mean ± Std. Deviation	Min. – Max.
FLISA%	62	KS = 0,244; p<,001 ***	2,95	$\chi^2=85,194$	90,41 ± 13,16	22,22 – 100,00
FLISB%	62	KS = 0,121; p=,025*	1,44	d.f. = 2	49,58 ± 19,35	21,43 – 92,86
FLISC%	62	KS = 0,131; p<,010**	1,61	p <,001 ***	55,22 ± 18,85	9,86 – 81,69

Note: d.f. is degrees of freedom; *is statistically significant at 5%; ** is statistically significant at 1%; *** is statistically significant at 0.1%; Std. Deviation is Standard Deviation, Min. is Minimum, Max. is Maximum.

RH2: “The FLL among Russian and Portuguese managers/entrepreneurs of SME is below or equal to 50%.”

As data has a normal distribution (using Kolmogorov Test, p-value >.05 – see Table 6), it was used the one sample T-test. The null hypothesis is rejected and conclude that FLL among Russian and Portuguese managers/entrepreneurs of SME is higher than 50%.

Table 6. One sample T- Test on FLL mean.

Kolmogorov-Smirnov	X ± S	Test Value	T Test
KS = 0.112			t=4.692
n=62	58.25 ± 13.84	50	d.f = 61
p=.052			p<.001 ***

Note: d.f. is degrees of freedom; *** is statistically significant at 1%; X is the mean and S is Standard Deviation

When it is analysed the SMEs’ managers/entrepreneurs FLL by country, it can be observed on Figure 6 that IQR is smaller among Portuguese managers/entrepreneurs than Russian ones and it is left-skewed. The Russian data is right-skewed but has higher variability (IQR is larger). The median is higher for Portuguese managers/entrepreneurs than for Russian ones.

Figure following on the next page

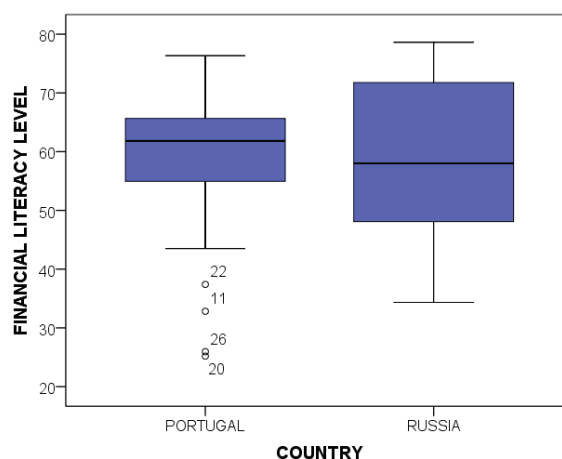


Figure 6. Boxplot of financial literacy level by country.

To test RH2.1: “The FLL of Russian SME’s entrepreneurs/managers is equal to the FLL of Portuguese SME’s entrepreneurs/managers.”, it was applied the Mann-Whitney test as presented in Table 7. According to Mann-Whitney test results, the null hypothesis cannot be rejected. Thus, there is no difference on FLL by country. Therefore, the RH2.1 is validated.

Table 7. Mann Whitney Test for compare the dimensions of financial literacy level by country

Country	n	Normality test	Mean Rank	Mann Whitney Test	Mean ± Std. Deviation	Min. – Max.
Portugal	29	SW = 0.886; p=.004 **	31.41	Z= -0.035	57.99 ± 13.82	25.19 – 76.34
Russia	33	KS = 0.116; p=.200	31.58	p=.972	58.48 ± 14.08	34.35 – 78.63

Note: d.f. is degrees of freedom; *is statistically significant at 5%; ** is statistically significant at 1%; *** is statistically significant at 0.1%; Std. Deviation is Standard Deviation; Min. is Minimum; Max. is Maximum; SW is Shapiro-Wilk Test; KS is Kolmogorov-Smirnov Test.

To test RH3: “The FLL is equal in the five age groups in both countries (Russia and Portugal).”, it was used non-parametric test - Kruskal-Wallis Test, as at least one of the groups are not normally distributed and the results presented in Table 8.

Table 8. Results of Kruskal-Wallis Test for FLL comparison by age.

AGE	n	Normality test	Mean Rank	Kruskal-Wallis Test	Mean ± Std. Deviation	Min. – Máx.
22-34	14	SW = 0.977; p=.957	26.93	$\chi^2=3.340$	55.94 ± 12.17	35.88 – 77.86
35-44	13	SW = 0.928; p=.325	31.50	d.f = 4	58.60 ± 13.92	25.95 – 76.34
45-54	20	SW = 0.871; p=.012*	36.90	p=.503	61.60 ± 14.49	25.19 – 78.63
55-64	13	SW = 0.910; p=.182	27.65		55.14 ± 13.84	34.35 – 73.28
65-older	2	----	34.,50		58.78 ± 26.99	39.69 – 77.86

Note: d.f. is degrees of freedom; *is statistically significant at 5%; ** is statistically significant at 1%;*** is statistically significant at 0.1%; Std. Deviation is Standard Deviation; Min. is Minimum;, Max. is Maximum; SW is Shapiro-Wilk Test; KS is Kolmogorov-Smirnov Test.

From Table 8 it concludes $p > .05$, which means we do not reject of the null hypothesis and by consequence, there is no relationship between age and financial literacy level. In relation to graphic presentation of the results, it can be seen from the Boxplot presented in Figure 7. In opposite, the results from S&P Rating Services Survey (Klapper et al, 2015) presented differences of FLL in relation to age variable, but that survey was done among general population, however in our research, we have specified group of respondents: managers/entrepreneurs of SMEs.

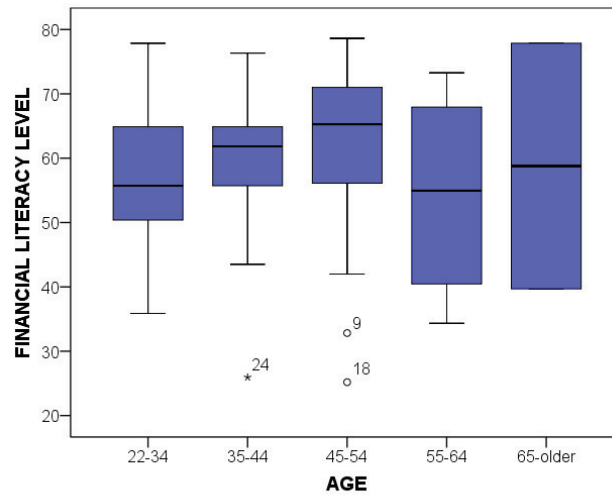


Figure 7. Boxplot of financial literacy level by age.

RH4: “Male respondents present higher FLL than female gender.”

For testing this hypothesis, it was used H_0 : “There is no difference between the female entrepreneur’s financial literacy level and male ones in both countries”. To do so, it was implemented the non-parametric test - Mann-Whitney Test and the results are showed in Table 9, the null hypothesis was not rejected, because $p > .05$, and remain with statement that there is a difference between females’ and males’ FLL. It concludes that there is no difference in relation to gender factor in FLL (Table 9).

Table 9. Results of Mann-Whitney Test for FLL comparison by gender.

Gender	n	Normality test	Mean Rank	Mann Whitney Test	Mean \pm Std. Deviation	Min. – Máx.
Male	36	KS = 0.166; p=.013 *	33.33	Z= -0.942 p=.346	60.05 \pm 11.74	25.95 – 77.86
Female	26	SW = 0.937; p=.111	28.96		55.75 \pm 16.23	25.19 – 78.63

Note: d.f. is degrees of freedom; *is statistically significant at 5%; ** is statistically significant at 1%; *** is statistically significant at 0.1%; Std. Deviation is Standard Deviation; Min. is Minimum; Max. is Maximum; SW is Shapiro-Wilk Test; KS is Kolmogorov-Smirnov Test.

The distribution of FLL by men has an IQR smaller than by women and seems to be right-skewed (see Figure 8). There are two outliers in males’ group as there are two cases with FLI below the quartile 1.

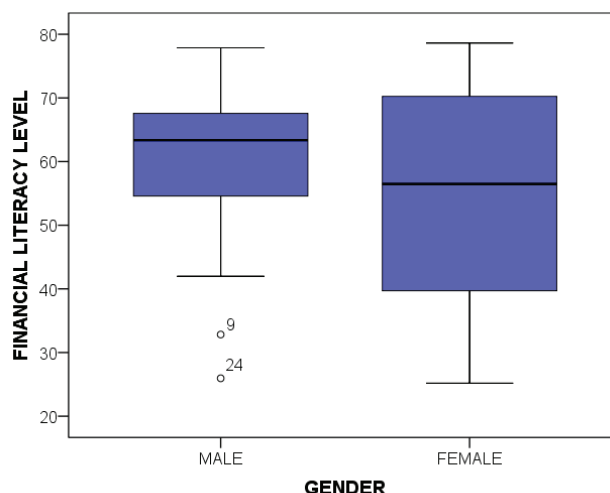


Figure 8. Boxplot of financial literacy level by gender.

RH 5: “There is a difference in FLL of managers depending on size of their company.”

The null hypothesis to be tested is H_0 : “There is no difference in FLL of managers depending on size of their company.” In order to analyse this hypothesis, we have tested the normality of groups’ distribution and applying the Kruskal-Wallis and Shapiro-Wilks tests. The results are presented in

Table 10. As p-values are $>.05$, the variable is normally distributed in each group. In addition, we tested the homogeneity of the variances, applying the Levene Statistic Test (Levene Stat=.585, $df_1=2$, $df_2= 59$, p -value=.561), this assumption is not violated. However, as the total sample is lower than 80 and there are two groups with less than 27 observations, according to Pestana and Gageiro (2014, p. 1008), it is not recommended to apply ANOVA test. In this way, it was used the Kruskal-Wallis Test. As $\chi^2 = .062$ with p -value=.970 $>.05$, the null hypothesis is not rejected and assume no difference between FLL of managers/entrepreneurs and size of their companies.

Table 10. Kruskal-Wallis Test’ results for comparison of managers/entrepreneurs’ financial literacy level by companies’ size.

Size of Company	n	Normality Test	Mean Rank	Kruskal-Wallis Test	Mean \pm Std. Deviation	Min. – Max.
Micro-enterprise	38	KS = 0.139; p=.063	31,72	$\chi^2= .062$	58.40 \pm 13.98	25.95 – 77.86
Small-sized	19	SW = 0.933; p=.198	31,55	$df=2$	57.89 \pm 15.13	25.19 – 78.63
Medium-sized	5	SW = 0.892; p=.367	29,16	p=.970	58.47 \pm 9.11	47.33 – 67.94

Note: d.f. is degrees of freedom; Std. Deviation is Standard Deviation; Min. is Minimum; Max. is Maximum; SW is Shapiro-Wilk Test; KS is Kolmogorov-Smirnov Test.

The FLL for micro-enterprises and medium-sized ones seem to be left-skewed, while for small sized companies seems to be right-skewed and presents one outlier (Figure 9).

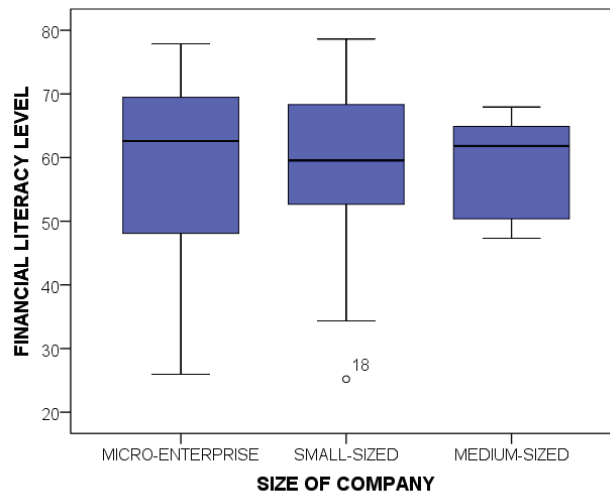


Figure 9. Boxplot of financial literacy level by company's size.

Related to RH6: “There is a difference in FLL of SMEs’ owners/managers with a higher education degree compared to SMEs’ owners/managers without a higher education degree.”, the null hypothesis is H_0 : “There is no difference between the FLL of SMEs’ owners/managers with higher education and the FLL of SMEs’ owners/managers with no higher education degree”. In order to analyse this hypothesis, we have tested the normality of groups’ distribution and applying the Kruskal-Wallis and Shapiro-Wilks tests. As p-values are $> .05$, the variable is normally distributed in each group. In addition, we tested the homogeneity of the variances, applying the Levene Statistic Test (Levene Stat.= .688, $df_1=1$, $df_2= 59$, p-value=.507). This assumption is not violated. However, as the total sample is lower than 80 and there are two groups with less than 27 observations, according to Pestana and Gageiro (2014, p. 1008), as in the previous hypothesis, it is not recommended to apply ANOVA test. In this way, it was used the Kruskal-Wallis Test. The test results presented in Table 11 allow not rejecting the null hypothesis and conclude that there is no statistical significant difference on FLL according to the Education Level.

Table 11. Kruskal-Wallis Test’ results for comparison of financial literacy level by education level of respondents.

Education	n	Normality Test	Mean Rank	Kruskal-Wallis Test	Mean \pm Std. Deviation	Min. – Max.
Basic education	4	SW = 0.808; p=.119	25,00	$\chi^2= 1,173$ df=2 p=.556	51.91 \pm 17.68	25.95 – 65.65
High school	23	SW = 0.945; p=.226	25,65		56.42 \pm 15.18	25.19 – 77.86
Bachelor/Master	35	KS* = 0.100; p=.200	33,46		60.17 \pm 12.50	35.88 – 78.63

Note: d.f. is degrees of freedom; Std. Deviation is Standard Deviation; Min. is Minimum; Max. is Maximum; SW is Shapiro-Wilk Test; KS is Kolmogorov-Smirnov Test.

The Table 11 shows how data is distributed by the Education degree of respondents and it can be seen, there is no significant differences of the FLI results among 3 groups (Basic education,

High school and Bachelor/Master), even though the average FLL of respondents with Bachelor or Master seems to be slightly higher.

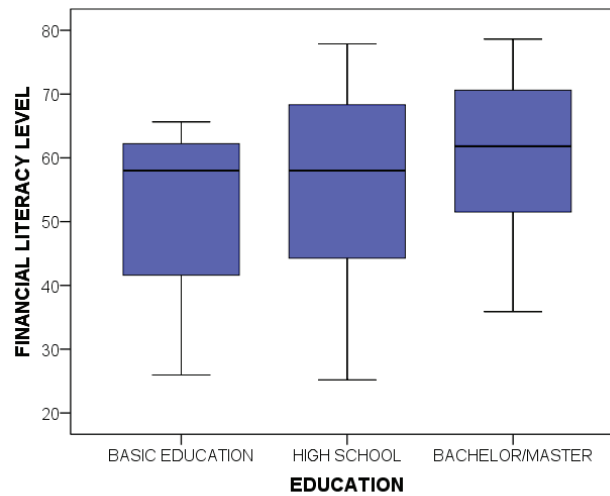


Figure 10. Boxplot of financial literacy level by education

5. CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH LINES

The present work has two main objectives: to determine the financial literacy level for SME's Manager and Entrepreneurs and test if sociodemographic factors have association with financial literacy level, comparing the two countries.

This paper has highlighted the general attitudes of managers/entrepreneurs about the importance of controlling a firm's bank account. On average, Portuguese and Russian managers/entrepreneurs seems to have higher FLL in this dimension. However, the average FLL on the other two dimensions (Financial understanding and Financial planning and company's cash management) is low, which indicate the priorities of planning processes and budget' preparation within SME in the both countries, Portugal and Russia. In relation to the results of entrepreneurs' FLL, generally speaking, it is unexpectedly high (as some previous studies in other countries show low FLL of SME's managers) and there is no significant difference between the two countries.

The analysis did not confirm any significant differences of FLL' results between the five age groups in both countries, nor in relation to a company' size differentiation. Surprisingly, the analysis did not identify any differences between formal education level, which means the availability of Higher Education degree doesn't always guarantee the Financial Knowledge. Although it was proposed by Worthington (2006), the evidence to differences of FLL results among male and female respondents, we have not found any differences in relation to gender variable.

We are aware that our research may have limitations related to the sample size. This fact highlights evidence of the difficulty of collecting data on questionnaires and financial statements from firms, although we were also contacting companies' owners and financial managers by using personal and working contacts. Nevertheless, we believe our work could be a starting point for the future broader research paper, expanding the sample and regions under analysis to validate with a larger sample. Another interesting avenue of research is to analyse the association of FLL of managers/entrepreneurs and the (financial) performance of SMEs.

These findings are relevant for educators, industry associations, financial institutions, government agencies and policy makers to find ways to improve these skills and to prepare oriented educational and training programs for this target group.

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