# An Empirical Study of the Relationship between Financial Literacy and Tolerance towards Financial Risk among Entrepreneurs in Bosnia and Herzegovina

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Abstract: The purpose of this study is to explain difference in tolerance towards financial risk among entrepreneurs with different levels of financial literacy. Financial risk tolerance is the maximum amount of uncertainty an entrepreneur is willing to accept when making a financial decision. On the other hand, and according to the Organisation for Economic Co-operation and Development (OECD), financial literacy can be defined as a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing. Therefore, the aim of the study is to explain relationship between measured level of entrepreneurs' financial literacy and their assessed tolerance towards financial risk. This is a quantitative study, where we use a questionnaire to asses tolerance towards financial risk and to measure the level of financial literacy. Also, we use non-probability sampling methods where participants are recruited by e-mail. To gain better understanding of relationship between entrepreneurs' financial literacy and their assessed tolerance towards financial risk we use descriptive statistics, chi-square, correlation analysis and multiple regression analysis. The results of this study are expected to shed more light on understanding of relationship between entrepreneurs' overall financial literacy and their tolerance towards financial risk. Implications of this study suggest that entrepreneurs' tolerance towards financial risk may be driven more by their financial attitude and behaviour rather than their financial knowledge.

Key words: measurement of financial literacy, measuring tolerance towards financial risk, entrepreneurs

JEL: D81, C83, C1

# Introduction

The fact that financial illiteracy can have negative impact on the financial well-being of an individual and entire society was proven by the recent global financial crisis that exposed the low level of consumers' financial literacy necessary to make sound financial decision. According to Atkinson and Messy (2011) lack of financial literacy has been widely acknowledged as an

aggravating factor of the crisis. Some authors, such as Klapper, Lusardi and Panos (2013), even suggested that financial literacy may better equip individuals to deal with macroeconomic shocks.

Financial decisions are, in general, under influence of many factors, such as, education, income, gender, experience, tolerance towards financial risk etc. Grable (2016) stated that risk tolerance is an underlying factor within financial planning models, investment suitability analyses, and consumer decision frameworks. Therefore, understanding tolerance towards financial risk, particularly in the context of *transition economies, like Bosnia and Herzegovina (BiH), can be crucial for certain policy making.* 

It this paper we will focus on fragile relationship between financial literacy and tolerance towards financial risk among business decision makers, i. e. entrepreneurs. The research should result in responses to the following question: Is there a relationship between an entrepreneurs' financial literacy and their assessed tolerance towards financial risk? The main goal of this paper is to explain relationship between entrepreneurs' financial literacy and their assessed tolerance towards financial literacy and their assessed tolerance towards financial risk? The main goal of this paper is to explain relationship between entrepreneurs' financial literacy and their assessed tolerance towards financial risk. Having in mind the above said, the central research hypothesis shall be as follows: *Entrepreneurs' tolerance towards financial risk is driven more by their financial attitude and behaviour rather than their financial knowledge*. Possible limitation of examining relationship between financial literacy and tolerance towards financial risk is the probable presence of endogeneity. The results of this study *could* be a *good starting point* for creating and implementing financial literacy programs for entrepreneurs. The paper is organized as follows. After the introduction, part one gives a short overview of theoretical framework of some recent literature that is relevant to the main objective of the paper. Part two outlines the data and research methodology. Part three is the center of the paper and contains analysis and discussion of the original empirical results. The last part contains some final remarks and conclusions.

# Theoretical framework and literature review

The central issue addressed in this paper is the relationship between entrepreneurs' financial literacy and their assessed tolerance towards financial risk. So far, a significant number of scientific research has been conducted on the relationship between those two variables, so, the theoretical point of reference of this research will have its central foundation in preceding studies on measuring tolerance towards financial risk and assessing the level of financial literacy.

According to Huston (2010) it seems that large body of financial literacy literature has been lacking in defining the concept of financial literacy<sup>2</sup>. It was even mentioned by Aren and Dinç Aydemir (2014) that researchers approach this phenomenon from different points of view, where academicians, by examining financial literacy, want to explain economic wellbeing, financial decision making and behaviour, but they rarely deal with governance and social well-being. Similar, and according to the World Bank (2013), the terms financial literacy and financial capability are often used interchangeably. Here, the term financial literacy is often associated with financial knowledge and financial capability, as a broader term, encompasses behaviour and the interaction

 $<sup>^{2}</sup>$  Wagner (2015) and Aren and Dinç Aydemir (2014) give a comprehensive overview of the most used definitions of financial literacy in the recent literature.

of knowledge, skills and attitudes which is basically how OECD INFE (2011) sees financial literacy. According to the World Bank (2013), studies related to financial literacy in general measure three specific concepts: knowledge of fundamental financial concepts, awareness of products and services, offered by different financial service providers and an understanding of the risks associated with using these products and services, and understanding how to manage personal finances or use financial services. In this research we will use definition of financial literacy given by the OECD INFE (2011) and Atkinson and Messy (2012), where this concept is defined as a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.

In decision making process, according to Weber, Blais, and Betz (2002), risk tolerance is a person's standing on the continuum from risk aversion to risk seeking. When it comes to financial decision making process, Kahneman and Tversky (1979) define financial risk tolerance as a psychological element of decision making under financial ambiguity a situation in which a person estimate the probability of possible outcomes and their chances of occurrence. Furthermore, and again connected to financial decision making, tolerance toward financial risk, as defined by Grable (2000) and Grable and Joo (2004), is the maximum amount of uncertainty that someone is willing to accept when making a financial decision that reaches into almost every part of social and economic life. According to Irwin (1993), this phenomena can also be perceived as the willingness to engage in a financial behavior in which the outcomes are uncertain with the possibility of an identifiable loss. Grable (2016) noticed that financial risk tolerance affects the way people invest their resources and that it is to expect that people with varying levels of risk tolerance should act differently when making investment decisions. Tolerance towards financial risk may be influenced by many factors. Corter and Chen (2006), for example, documented increased risk tolerance with increasing investment experience. Summa summarum, tolerance towards financial risk determines financial decision making in general and even can even have impact on securities portfolio performance. For example, in the recent study authors, Zahirović and Okičić (2016) have revealed that, ceteris paribus, an increase in risk aversion leads to a decrease in expected return and the creation of more superior securities portfolio.

In this paper we want to examine relationship between financial literacy and tolerance towards financial risk. Given their multidimensional nature, it is difficult to measure financial literacy and tolerance towards financial risk with a single indicator. Therefore, we will measure financial literacy by using the following broad concepts (OECD INFE, 2011; Atkinson and Messy, 2011, 2012): financial attitude, financial knowledge and financial behaviour. Tolerance towards financial risk will be operationalized through different dimensions of risk. Figure 1 presents our theoretical concept.

#### Figure 1: Theoretical concept



Source: Authors' own work

### Data and methodology

*This research builds on existing knowledge in the fields of measuring* tolerance towards financial risk and assessing the level of financial literacy. This is a quantitative study, where, similar to Gustafson and Omark (2015), we use a questionnaire based on the questions developed by Grable and Lytton (1999) to asses tolerance towards financial risk. Instrument used for measuring financial literacy (financial knowledge, financial attitude and financial behaviour) was mainly based on the OECD INFE Core Questionnaire (2011) and some previous work of Atkinson and Messy (2011, 2012) as well as Lusardi and Mitchell (2011). We used snowball sampling technique where participants are recruited by e-mail. The main criterion for the participant selection was entrepreneurial experience. Contacts who decided to take part in the survey were asked to forward the request to their colleagues. The participation in the study was voluntary and anonymous. 51% of the distributed questionnaires (out of 100) were returned. Research was conducted during the first quarter of 2017. Figure 2 and 3 give overview of some basic characteristics of the sample.



Figure 2: Geographical distribution of the sample

Source: Authors' own work





Source: Authors' own work

Tolerance towards financial risk of entrepreneurs was measured by total financial risk score (TFRS). This score is obtained by using scale developed by Grable and Lytton (1999) which basically divides respondents into five different categories. Categorisation scale and risk category is given in Table 1.

# Table 1: Categorisation scale

Label	Tolerance towards financial risk category
$FRC_1$	A real risk avoider
FRC <sub>2</sub>	Cautious
FRC <sub>3</sub>	Somewhere in between
FRC <sub>4</sub>	Willing to take risk after completing adequate research
FRC <sub>5</sub>	A real gambler
	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$

Source: Gustafson and Omark (2015)

Financial literacy components are given in Table 2.

Financial									
literacy	Label	Item							
component									
	FK <sub>1</sub>	1.000,00 BAM available today is worth more than the same amount in the future.							
	EV	It is usually possible to reduce the risk of investing in the stock market by buying a wide							
	Γ <b>К</b> 2	range of stocks and shares							
		Suppose you put 100,00 BAM into a savings account with a guaranteed interest rate of							
	FV	2% per year. You don't make any further payments into this account and you don't							
	11K3	withdraw any money. How much would be in the account at the end of the first year,							
		once the interest payment is made?							
FKS <sup>*</sup>	FK <sub>4</sub>	and how much would be in the account at the end of five years?							
		Imagine that the interest rate on your savings account is 1 percent a year and inflation is							
	FK <sub>5</sub>	2 percent a year. After one year, would the money in the account buy more than it does							
		today, exactly the same or less than today?							
	FK <sub>6</sub>	An investment with a high return is likely to be high risk							
	FK	High inflation means that the cost of living is increasing							
	1° <b>K</b> 7	rapidly							
	FK <sub>8</sub>	The higher the bond's yield, the shorter the duration will be and vice versa.							
	FA <sub>1</sub>	I consider myself a thrifty person.							
	FA <sub>2</sub>	I think I need to give the best of me so my family could have a better life someday							
$FA^{**}$	FA <sub>3</sub>	I find it more satisfying to spend money than to save it for the long term							
	$FA_4$	Money is there to be spent.							
	FA <sub>5</sub>	I am willing to risk my money.							
	$FB_1$	I tend to live for today and let tomorrow take care of itself							
	FB <sub>2</sub>	Before I buy something I carefully consider whether I can afford it							
FB <sup>**</sup>	FB <sub>3</sub>	I pay my bills on time							
	$FB_4$	I keep a close personal watch on my financial affairs							
	FB <sub>5</sub>	I set long term financial goals and strive to achieve them							

FB5I set long term financial goals and strive to achieve themNote: \*FKS is created by summarizing number of correct answers on the financial literacy test ( $FK_i$ ,  $i = \overline{1,7}$ )

\*\* Participants responded to the items using a 5-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree")

When it comes to financial knowledge it is probably true to say that the most popular and most applied test of financial knowledge is possibly the one developed by Lusardi and Mitchell (2011). This test, initially consisted of three questions. The first two questions "Compound Interest" and "Inflation", indicated whether respondents understand the key economic concepts fundamental to saving. The third question, "Stock Risk," evaluates knowledge of risk diversification, crucial to informed investment decisions.

To gain better understanding of relationship between entrepreneurs' financial literacy (FL) and their assessed tolerance towards financial risk (TFR) we use descriptive statistics, *chi-square, correlation analysis and regression analysis*. Possible limitation of examining relationship between FL and TFR is the presence of possible endogeneity. FL, as an endogenous variable, has already been recognized in the research of Van Rooij, Lusardi and Alessi, 2011, Van Rooij, Kool and Prast, 2007 and many others.

# **Results and discussion**

According to the empirically assessed, previously mentioned, FKS, we have identified three categories of entrepreneurs, i.e. category of entrepreneurs with solid (maximum 3 correct answers), average (maximum 6 correct answers) and excellent (maximum 8 correct answers) financial knowledge. On the other hand, and according to the empirically assessed TFRS, we have identified five categories of entrepreneurs, i.e. a real risk avoider, cautious, somewhere in between, willing to take risk after completing adequate research and a real gambler. Descriptive statistics for TFRS and FKS is presented in Table 3.

Label	Variable	Minimum	Maximum	Mean	Standard	
	v arrable	score	score	score	deviation	
TFRS	Total tolerance towards financial	14	44	27.84	7 134	
	risk score	14	44	27.04	7.134	
FKS	Financial knowledge score	2	8	5.71	1.346	

Table 3: Descriptive statistics for TFRS and FKS

Source: Authors' own work

On average, entrepreneurs have average financial knowledge and they belong to third financial risk category (see Table 1). Figure 4 shows grouped bar chart for each categorical group.

#### Figure 4: Financial knowledge category vs. tolerance towards financial risk category



Source: Authors' own work

When it comes to level of financial literacy, it is probably good to mention that, accoding to Ćumurović and Hyll (2017) there are evidence in the literature (Bucher-Koenen and Lusardi, 2011, Klapper, Lusardi, Panos, 2013, Deuflhard, Georgarakos, Inderst, 2015 etc.) that entrepreneurs, or self-employed individuals, are more financially literate than regularly employed. This could be a good recommendation for another research.

A chi-square test of independence was performed to examine the relation between categorise of entrepreneurs' financial knowledge and categories of entrepreneurs' tolerance towards financial risk. The relation between these variables was significant,  $\chi^2$  (8, N = 51) = 16,388, p = .037. We used an alpha level of .05 for all statistical tests. According to Cramer's V coefficient this relationship is moderate,  $\varphi_c$  (N = 51) = .401, p = .037.

Other two components of financial literacy are financial attitudes and financial behaviour of entrepreneurs. Their descriptive statistics is given it Table 4.

Component	Label	Variable	Mean	Standard deviation
	FA <sub>2</sub>	I think I need to give the best of me so my family could have a better life someday	4.00	.917
EA	FA <sub>4</sub>	Money is there to be spent.	3.35	.955
ГА	FA <sub>3</sub>	I find it more satisfying to spend money than to save it for the long term.	3.29	.855
	FA <sub>1</sub>	I consider myself a thrifty person.	3.25	1.214
	FA <sub>5</sub>	I am willing to risk my money.	3.24	1.050
	FB <sub>3</sub>	I pay my bills on time.	4.12	.864
	$FB_4$	I keep a close personal watch on my financial affairs.	4.10	.953
FB	FB <sub>5</sub>	I set long term financial goals and strive to achieve them.	3.82	1.212
	FB <sub>2</sub>	Before I buy something I carefully consider whether I can afford it.	3.76	1.050
	$FB_1$	I tend to live for today and let tomorrow take care of itself.	2.04	1.038

# Table 4: Descriptive statistics for financial attitudes and behaviour of entrepreneurs

Source: Authors' own work

Results of correlation analysis between variables of financial attitude (FA), financial behaviour (FB), total tolerance towards financial risk score (TFRS) and financial knowledge score (FKS) are presented in the following table.

Person Correlation         1         1.08         -2.85         -0.45         -0.15         -5.03"         3.52"         5.54"         3.98"         -0.233         -0.125           FA1         Sig. C-tailed)         -5         51<			FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	$FB_1$	FA <sub>5</sub>	FB <sub>2</sub>	FB <sub>3</sub>	$FB_4$	FB <sub>5</sub>	TFRS	FKS
FA1         Sig. (2-tailed)         .451         .042         .756         .131         .224         .000         .011         .000         .004         .100         .384           N         51		Pearson Correlation	1	.108	285*	045	214	173	.503**	.352*	.554**	.398**	233	125
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	FA <sub>1</sub>	Sig. (2-tailed)		.451	.042	.756	.131	.224	.000	.011	.000	.004	.100	.384
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Ν		51	51	51	51	51	51	51	51	51	51	51
FA2         Sig. (2-tailed) N         A76         S74         T70         A68         T72         S71         T50         S30         L000         6.51           Pearson Correlation FA3         Pearson Correlation N         1         531         51		Pearson Correlation		1	102	.023	042	.104	.042	.126	046	090	.000	065
N         51 </td <td>FA<sub>2</sub></td> <td>Sig. (2-tailed)</td> <td></td> <td></td> <td>.476</td> <td>.874</td> <td>.770</td> <td>.468</td> <td>.772</td> <td>.377</td> <td>.750</td> <td>.530</td> <td>1.000</td> <td>.651</td>	FA <sub>2</sub>	Sig. (2-tailed)			.476	.874	.770	.468	.772	.377	.750	.530	1.000	.651
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Ν			51	51	51	51	51	51	51	51	51	51
FA3         Sig. (2-tailed)         000         4.88         .395         2.44         .139         2.63         .752         .031         .848           N         51         51         51         51         51         51         51         50         51         51         51         51         50         51		Pearson Correlation			1	.531**	.099	.122	166	210	161	045	.303*	028
N         51 </td <td>FA<sub>3</sub></td> <td>Sig. (2-tailed)</td> <td></td> <td></td> <td></td> <td>.000</td> <td>.488</td> <td>.395</td> <td>.244</td> <td>.139</td> <td>.263</td> <td>.752</td> <td>.031</td> <td>.848</td>	FA <sub>3</sub>	Sig. (2-tailed)				.000	.488	.395	.244	.139	.263	.752	.031	.848
Pearson Correlation         1         .066        075        003        066         .072         .196        133           FA4         Sig (2-tailed)         N		Ν				51	51	51	51	51	50	51	51	51
FA4         Sig. (2-tailed)         643         556         2.20         984         650         6.615         1.68         3.44           N         51 <t< td=""><td></td><td>Pearson Correlation</td><td></td><td></td><td></td><td>1</td><td>.066</td><td>084</td><td>175</td><td>003</td><td>066</td><td>.072</td><td>.196</td><td>135</td></t<>		Pearson Correlation				1	.066	084	175	003	066	.072	.196	135
N         51 </td <td><math>FA_4</math></td> <td>Sig. (2-tailed)</td> <td></td> <td></td> <td></td> <td></td> <td>.643</td> <td>.556</td> <td>.220</td> <td>.984</td> <td>.650</td> <td>.615</td> <td>.168</td> <td>.344</td>	$FA_4$	Sig. (2-tailed)					.643	.556	.220	.984	.650	.615	.168	.344
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Ν					51	51	51	51	51	51	51	51
FB1         Sig. (2-tailed)         0         0.15         001         .053         0.17         2.23         0.50         .346           N         51         51         51         51         51         50         51         51         50         51         51         51         51         50         51 <td< td=""><td></td><td>Pearson Correlation</td><td></td><td></td><td></td><td></td><td>1</td><td>.340*</td><td>450**</td><td>273</td><td>336*</td><td>153</td><td>.276*</td><td>135</td></td<>		Pearson Correlation					1	.340*	450**	273	336*	153	.276*	135
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$FB_1$	Sig. (2-tailed)						.015	.001	.053	.017	.283	.050	.346
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		N						51	51	51	50	51	51	51
FA3         Sig. (2-tailed) N         N         0         008         .828         .238         .990         .001         .519           Pearson Correlation         51		Pearson Correlation						1	366**	031	170	.002	.445**	.092
N         S1         S1 </td <td>FA<sub>5</sub></td> <td>Sig. (2-tailed)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>.008</td> <td>.828</td> <td>.238</td> <td>.990</td> <td>.001</td> <td>.519</td>	FA <sub>5</sub>	Sig. (2-tailed)							.008	.828	.238	.990	.001	.519
Pearson Correlation         Image: constraint of the system of the s		N							51	51	51	51	51	51
FB2         Sig. (2-tailed)         Image: field		Pearson Correlation							1	.560**	.650**	.595**	205	078
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$FB_2$	Sig. (2-tailed)								.000	.000	.000	.149	.585
Pearson Correlation         Image: black		N								51	50	51	51	51
FB3       Sig. (2-tailed)       .000       .003       .512       .698         N       51       51       51       51       51         Pearson Correlation       1       .661**       .045       .235         FB4       Sig. (2-tailed)       .000       .003       .512       .698         Parson Correlation       1       .661**       .045       .235         FB4       Sig. (2-tailed)       .000       .758       .100         Pearson Correlation       1       .661**       .045       .235         FB5       Sig. (2-tailed)       .000       .758       .100         FB5       Sig. (2-tailed)       .000       .682       .513         Pearson Correlation       .000       .01       .059       .094         FFR5       Sig. (2-tailed)       .00       .01       .059       .094         FFR5       Sig. (2-tailed)       .01       .02       .01       .1       .215         TFRS       Sig. (2-tailed)       .01       .01       .1       .215       .129         N       .01       .01       .01       .01       .1       .215         N       .01       .01		Pearson Correlation								1	.682**	.402**	.094	056
N         S1         S1 </td <td><math>FB_3</math></td> <td>Sig. (2-tailed)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>.000</td> <td>.003</td> <td>.512</td> <td>.698</td>	$FB_3$	Sig. (2-tailed)									.000	.003	.512	.698
Pearson Correlation         1         .661        045        235           FB4         Sig. (2-tailed)         .000         .758         .100           N         0         50         50         50           FB5         Sig. (2-tailed)         .000         .758         .100           FB5         Sig. (2-tailed)         .000         .758         .100           FB6         Sig. (2-tailed)         .000         .758         .100           FB7         Sig. (2-tailed)         .000         .758         .100           FR8         Sig. (2-tailed)         .01         .059         .094           FR8         Sig. (2-tailed)         .01         .059         .094           FR8         Sig. (2-tailed)         .01         .01         .11         .215           TFRS         Sig. (2-tailed)         .01         .129         .129         .11         .215           N         .01         .01         .01         .01         .11         .215           FKS         Sig. (2-tailed)         .01         .01         .01         .11         .215           FKS         Sig. (2-tailed)         .01         .01         .01	-	N									51	51	51	51
FB4       Sig. (2-tailed)       .000       .758       .100         N       N       50       50       50       50         Pearson Correlation       .100       .758       .100       .50       50       50       50       50         FB5       Sig. (2-tailed)       N       .100       .000       .758       .100         FB5       Sig. (2-tailed)       .100       .100       .000       .758       .001         Pearson Correlation       N       .100       .100       .000       .758       .001         TFRS       Sig. (2-tailed)       .100       .100       .100       .100       .100       .100       .100         FKS       Sig. (2-tailed)       .100       .100       .100       .100       .100       .110       .215       .1129         FKS       Sig. (2-tailed)       .100       .100       .100       .110       .110       .110       .129       .110		Pearson Correlation									1	.661**	045	235
N         Solution         So	$FB_4$	Sig. (2-tailed)										.000	.758	.100
Pearson Correlation       1      059      094         FB <sub>5</sub> Sig. (2-tailed)       .682       .513         N       51       51         Pearson Correlation       1      215         TFRS       Sig. (2-tailed)       .1      215         N       1      215         Pearson Correlation       .1       .215         N       .1       .129         Pearson Correlation       .1       .129         Sig. (2-tailed)       .1       .129         FKS       Sig. (2-tailed)       .1       .1         FKS       Sig. (2-tailed)       .1       .1         FKS       Sig. (2-tailed)       .1       .1	-	N										50	50	50
FB <sub>5</sub> Sig. (2-tailed) N     682     513       Pearson Correlation     51     51       TFRS     Sig. (2-tailed) N     1    215       Pearson Correlation     .129     51       FKS     Sig. (2-tailed)     1    215       FKS     Sig. (2-tailed)     1     1		Pearson Correlation										1	059	094
N     51       Pearson Correlation     1       Sig. (2-tailed)     1       N     1       Pearson Correlation     1       N     1       Pearson Correlation     1       Sig. (2-tailed)     1       FKS     Sig. (2-tailed)       FKS     Sig. (2-tailed)	$FB_5$	Sig. (2-tailed)											.682	.513
Pearson Correlation     1    215       TFRS     Sig. (2-tailed)     .129       N     51       Pearson Correlation     .1       FKS     Sig. (2-tailed)		N											51	51
TFRS     Sig. (2-tailed)     .129       N     51       Pearson Correlation     1       FKS     Sig. (2-tailed)     1	TFRS	Pearson Correlation											1	215
N     51       Pearson Correlation     1       FKS     Sig. (2-tailed)		Sig. (2-tailed)												.129
Pearson Correlation     1       FKS     Sig. (2-tailed)		N												51
FKS Sig. (2-tailed)		Pearson Correlation												1
	FKS	Sig. (2-tailed)												
		Ν												

# **Table 5: Correlation matrix**

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' own work

Correlation between TFRS and FKS was insignificant, r (N = 51) = -.215, p=.129. This is very interesting result because it makes sense in terms of practical significance meaning that as financial knowledge of entrepreneurs increases their tolerance towards financial risk decreases.

Furthermore, it is interesting to point out that FKS does not correlate, in terms of statistical significance, with other variables. On the other hand, TFRS has statistically significant correlation to

 $FB_1$  ("I tend to live for today and let tomorrow take care of itself"),  $FA_5$  ("I am willing to risk my money") and  $FA_3$  ("I find it more satisfying to spend money than to save it for the long term").

A Kruskal-Wallis H test showed that there was a statistically significant difference in FA<sub>5</sub> ("I am willing to risk my money") between the different categories of tolerance towards financial risk  $\chi^2$  (4, N = 51) = 12.260, p =.016, with a mean rank for Tolerance towards financial risk category of 23.94 for FRC<sub>1</sub> ("a real risk avoider"), 35.88 for FRC<sub>2</sub> ("cautious"), 45.33 for FRC<sub>3</sub> ("somewhere in between"), 32.38 for FRC<sub>4</sub> ("willing to take risk after completing adequate research") and 29.03 for FRC<sub>5</sub> ("a real gambler").

The same test showed that there was a statistically significant difference in FB<sub>1</sub> ("I tend to live for today and let tomorrow take care of itself") between the different categories of tolerance towards financial risk  $\chi^2$  (4, N = 51) = 12.520, p =.014, with a mean rank for Tolerance towards financial risk category of 23.63 for FRC<sub>1</sub>, 26.53 for FRC<sub>2</sub>, 18.86 for FRC<sub>3</sub>, 37.19 for FRC<sub>4</sub> and 39.00 for FRC<sub>5</sub>.

In order to go one step further in examining relationship between financial literacy of entrepreneurs and their tolerance towards financial risk, we decided to estimate multiple regression models.

Results of estimation are given in Table 6.

Model	Dependent variable	α	Independent variables and unstandardized coefficients											R <sup>2</sup>	F	
1		11 122	FKS	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA5	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>		2.528	
	TFR	(227)	-1.064	960	490	1.444	1.013	2.871	0.918	.037	2.459	145	336	.423		
		(.327)	(.155)	(.324)	(.637)	(.308)	(.443)	(0.013)	(.376)	(.982)	(.154)	(.937)	(.793)		(.017)	
		0.262	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB1	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>		1.001	
2	FKS	9.262	049	019	185	.130	215	.241	314	001	.302	573	023	.225	1.001	
		(.000)	(.155)	(.930)	(.408)	(.672)	(.450)	(.349)	(.157)	(.997)	(.420)	(.142)	(.934)		(.404)	
		181	FKS	TFR	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>		2 772	
3	$\mathbf{FA}_1$	.404	011	027	.114	401	.303	.157	.073	.444	296	.669	109	.445	(010)	
		(.800)	(.930)	(.324)	(.510)	(.086)	(.166)	(.433)	(.675)	(.101)	(.307)	(.024)	(.609)		(.010)	
		4.010	FKS	TFR	FA <sub>1</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB5		570	
4	FA <sub>2</sub>	(021)	098	012	.101	141	.160	.247	063	.209	.201	271	181	.142	(840)	
		(.021)	(.408)	(.637)	(.510)	(.527)	(.440)	(.185)	(.699)	(.418)	(.461)	(.345)	(.364)		(.0+0)	
		1 264	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>		3.108 (.005)	
5	FA <sub>3</sub>	(331)	.037	.019	189	075	.542	.184	009	.330	407	.197	145	.474		
		(.551)	(.672)	(.308)	(.086)	(.527)	(.000)	(.175)	(.940)	(.075)	(.037)	(.347)	(.318)			
6		2 124	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>	.492	3 351	
	$\mathbf{FA}_4$	(.126)	070	.015	.165	.099	.627	367	055	522	.354	261	.286		(003)	
			(.450)	(.443)	(.166)	(.440)	(.000)	(.009)	(.670)	(.007)	(.094)	(.245)	(.063)		(.005)	
		1 109	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	$FB_1$	$\mathbf{FB}_2$	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>		3.378 (.002)	
7	FA <sub>5</sub>	(.474)	.096	.053	.104	.186	.260	448	.089	625	.277	176	.372	.494		
			(.349)	(.013)	(.433)	(.185)	(.175)	(.009)	(.531)	(.003)	(.239)	(.479)	(.027)			
	$FB_1$	4 538	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	$\mathbf{FB}_2$	FB <sub>3</sub>	$FB_4$	FB <sub>5</sub>		1.623 (.131)	
8		(.008)	166	.023	.064	063	017	089	.117	326	062	257	.104	.320		
			(.157)	(.376)	(.675)	(.699)	(.940)	(.670)	(.531)	(.203)	(.820)	(.369)	(.602)			
		1 452	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>3</sub>	FB <sub>4</sub>	FB <sub>5</sub>	5 (	9 875	
9	$\mathbf{FB}_2$	(193)	.000	.000	.155	.083	.245	336	330	130	.450	100	.431	.741	(.000)	
		(.150)	(.997)	(.982)	(.101)	(.418)	(.075)	(.007)	(.003)	(.203)	(.006)	(.582)	(.000)		(1000)	
		020	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>4</sub>	FB5		6.288	
10	FB <sub>3</sub>	(.985)	.057	.021	093	.071	270	.203	.131	022	.402	.599	239	.645	(.000)	
		(.) (0)	(.420)	(.154)	(.307)	(.461)	(.037)	(.094)	(.239)	(.820)	(.006)	(.000)	(.039)		(1000)	
11		1 711	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>5</sub>		9.830	
	$\mathbf{FB}_4$	$\mathbf{FB}_4$ (0%)	098	001	.190	087	.118	136	075	083	081	.543	.322	.740	(000)	
		(.000)	(.142)	(.937)	(.024)	(.345)	(.347)	(.245)	(.479)	(.369)	(.582)	(.000)	(.003)		(.000)	
		_ 490	FKS	TFR	FA <sub>1</sub>	FA <sub>2</sub>	FA <sub>3</sub>	FA <sub>4</sub>	FA <sub>5</sub>	FB <sub>1</sub>	FB <sub>2</sub>	FB <sub>3</sub>	FB <sub>4</sub>		5 954	
12	FB <sub>5</sub>	(737)	008	005	064	120	181	.308	.329	.069	.724	449	.668	.633	(000)	
	(.		(.131)	(.934)	(.793)	(.609)	(.364)	(.318)	(.063)	(.027)	(.602)	(.000)	(.039)	(.003)		(.000)

# Table 6: Regression analysis

Source: Authors' own work

Only one variable, FA<sub>5</sub> ("I am willing to risk my money"), significantly predicted TFR,  $\beta_5$ = 2.871, p = .013 and explained a significant proportion of variance, 42.3%, in TFR. Also, although not statistically significant, there is inverse relationship between TFR and FKS,  $\beta$ = -1.064, p = .155. This, negative relationship between financial knowledge and tolerance towards financial risk among entrepreneurs in BiH, isn't surprising because previous correlation analysis showed similar results.

# Conclusion

To sum up, the analysis results have revealed that an entrepreneurs' tolerance towards financial risk is driven more by their financial attitude and behaviour rather than their financial knowledge. On a policy level, the real implications of the research can be seen in the tailoring of particular financial literacy programs for entrepreneurs in BiH. Empirical research was conducted on a relatively small sample size and the limited territory of BiH. Hence it, in order to obtain reliable and more relevant data regarding the relationship between entrepreneurs' tolerance towards financial risk and their assed level of financial literacy in BiH, research should include a larger number of respondents. Also, further research suggests a need for more in depth analysis of relationship between tolerance towards financial literacy with focus on dealing with potential endogeneity issue. It would be particularly interesting to examine the effect of *socio-economic* and *demographic* variables on the tolerance towards financial risk and on financial literacy in general. Furthermore, in the recent literature, it is argued that entrepreneurs are more financially literate than those individuals that are regularly employed. Therefore, this could also be a good starting point for further research in case of self-employed and regularly employed individuals in BiH.

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