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Are Cryptocurrency and Non-Cryptocurrency Investors Different in Terms of Financial Threats?

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Abstract

The purpose of this study is to reveal whether cryptocurrency and non-cryptocurrency investors are different in terms of financial threats. In order to measure financial threat, 5-Item FTS (Financial Threat Scale) is used. It is found that the Turkish version of a FTS is highly reliable, unidimensional, and a valid instrument for measuring the financial threat. According to the analysis, non-cryptocurrency investors have a more significant financial threat than cryptocurrency investors. Moreover, it is investigated that the working sector difference is not a distinguishing factor for financial threat. It is revealed that financial threat is associated with age, level of education, and monthly income. On the other hand, it is obtained that gender and marital status are not distinguishing factors for financial threat.

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1. Introduction

In order to sustain living standards, make savings and investments, individuals take care of their individual finances. Most people pay attention to personal finances for maintaining or increasing their standards of living, the amount of savings, and investments. Any probability of eventual deterioration of an individual's financial situation creates a financial threat and this situation is taken seriously by an individual. In times of economic crisis, this financial threat becomes more critical than usual (Marjanovic, Greenglass, Fiksenbaum, & Bell, 2013).

The financial threat is defined as a mechanism that individuals' perceptions, self-concern, fear, and uncertainty on financial stability and security (Marjanovic, Greenglass, Fiksenbaum, De Witte, Garcia-Santos, Buchwald, & Mañas, 2015).

In literature, the concept of financial threat is researched by multidisciplinary approaches in some studies. It is stated that financial threat would be higher for an individual who is financially unstable and insecure (Marjanovic et al., 2013). When financially stable&unstable and secure&insecure individuals compared, it is expected that their investments would be different. In order to measure an individual's financial threat, a five-item financial threat scale (FTS) is developed by Marjanovic et al. (2013) in compliance with existing measures and researches.

In the study conducted to develop this scale, it was aimed to measure the individual's financial threat with as few items, the widest scope and the most accurate way (Marjanovic et al., 2013). Five items of this scale evaluate the financial situation of the individual in terms of the uncertainty, risk, perceived threat, worry and cognitive preoccupation created by this situation on that individual.

In another study, the financial threat is found to relate positively to psychological distress, total debt, economic hardship, and anxiety (Fiksenbaum, Marjanovic, & Greenglass, 2017a).

It is stated in another study that, an increase in financial threat creates increases in economic hardship, suicide rate, and misunderstanding (Fiksenbaum, Marjanovic, Greenglass, & Garcia-Santos, 2017b).

Marjanovic, Fiksenbaum, & Greenglass (2018) have indicated in their study that financial threat, non-objective self-evaluation of personal financial situation, is an essential factor affecting the relationship between personal finance, health, and well-being.

In 2018, a study conducted by Viseu, Leal, de Jesus, Pinto, Pechorro, and Greenglass investigated the relationship between some economic stress factors and stress, anxiety, and depression, and how social support affects these relationships. It is obtained that the differences between financial threat and depression, and between economic hardship and stress, anxiety, and depression are statistically significant.

In the study of Matavelli, de Jesus, Pinto & Viseu (2020), how perceived financial threat and life satisfaction changes with social support is researched. It is stated that perceived financial threat is negatively related to life satisfaction and social support is positively related to life satisfaction.

According to the above-stated studies, the financial threat is related to different factors. On one hand, some factors are affecting the financial threat, on the other hand, financial threat are affecting some other factors. It is known that the investment behaviors of individuals vary

with different factors. From this point of view, the financial threat could be one of the factors affecting investment decisions and behaviors. For this reason, it should be investigated how financial threat differences might affect investment preferences. In this study, cryptocurrency investment is chosen as an affected factor by financial threat.

In recent years, it is observed that market capitalization and market share of cryptocurrency has a significant amount of fluctuations (Fry & Cheah, 2016). The popularity of cryptocurrencies is reached to significant amounts and cryptocurrencies are started to emerge in academic literature (Vigna & Casey, 2015). Cryptocurrency, developed by Satoshi Nakamoto in 2009 and traded without any regulatory and supervisory authorities, has become a growing instrument of investment and payments over the last few years and there are many cryptocurrencies and because of the volatility, high return rates and different characteristics from the conventional currency, cryptocurrency prices are still very unpredictable and risky (Andrianto & Diputra, 2017). When the return correlations are taken into account, according to the study of Chuen, Guo, & Wang (2017) correlations of return between cryptocurrencies and traditional assets are estimated to below.

In order to reveal whether cryptocurrency and non-cryptocurrency investors are different in terms of financial threats, this research study is performed. For this reason, FTS is carried out on investors who are investing in cryptocurrency and non-cryptocurrency.

The hypothesis of this work is stated as "cryptocurrency, and non-cryptocurrency investors are different in terms of financial threats". The correctness of the hypothesis is researched in this paper.

2. Material and Methods

In this study, five-item, with a five-point Likert scale (1 - not at all; 5 - a great deal/extremely) Financial Threat Scale (FTS) (Marjanovic et al. 2013) is used. To execute financial threat studies in Turkey, the validity and the reliability of this scale should be verified, and the factor structure should be analyzed.

In this work, forward and back-translation techniques are used. First of all, all items of FTS are translated into Turkish. The scale is then translated back to English by an independent translator. After the scale is controlled and approved by technical and linguistic experts, it is put into final form. Then, FTS is applied to the pilot test group (n=50). In this phase, it is observed that FTS has a reliable and valid instrument, and all five items have a positive effect on the scale.

In the primary phase, this study is performed to 329 participants, composed of cryptocurrency investors and non-cryptocurrency investors between April 2019 - July 2019. These people are Banking, ICT, and Education sector professionals working in Ankara, İstanbul, and İzmir in Turkey. Data is gathered using questionnaires on the internet and on paper and pencil.

In order to evaluate the internal validness of the scale, reliability analysis is carried out. To determine items of the scale could be grouped into a few original items, confirmatory factor analyses (CFA) are implemented. Social Sciences Statistics Package (SPSS) for Windows Ver.20 is used for all analyses.

3. Results

In this section, the results of analyses in the primary phase are given.

It is estimated that 31.61% (n=104) of the participants is cryptocurrency investors, 58.36% (n=192) is men, 63.93% (n=210) is married, 72.95% (n=240) is between 25-44 years old and 88.75% (n=292) has at least an undergraduate degree. Sector distribution of these participants is evaluated as Banking, 34.04%, ICT, 37.08%, and Education, 28.88%. The demographic variables of participants by sector are seen in Table 1. In this table, percentage values are evaluated regarding each sector separately.

Table 1: Demographic variables by sector of sample

Variable	Sector		
	Banking (n = 112)	ICT (n = 122)	Education (n = 95)
Female (n, %)	45 (40.18)	54 (44.26)	38 (40.00)
Age (n, %)			
18-24	9 (8.04)	11 (9.02)	3 (3.16)
25-34	39 (34.82)	43 (35.25)	38 (40.00)
35-44	42 (37.50)	45 (36.89)	33 (34.74)
45-54	5 (4.46)	9 (7.38)	10 (10.53)
55-64	13 (11.61)	11 (9.02)	9 (9.47)
65+	4 (3.57)	3 (2.46)	2 (2.11)
Married (n, %)	75 (66.96)	75 (61.48)	60 (63.16)
Level of education (n, %)			
associate's degree	8 (7.14)	15 (12.30)	0 (0.00)
Undergraduate degree	50 (44.64)	59 (48.36)	54 (56.84)
Graduate degree	42 (37.50)	37 (30.33)	33 (34.74)
Doctorate degree	12 (10.71)	11 (9.02)	8 (8.42)
Monthly income (n, %)			
4000-5999 ₺	27 (24.11)	32 (26.23)	55 (57.89)
6000-7999 ₺	22 (19.64)	31 (25.41)	35 (36.84)
8000-9999 ₺	46 (41.07)	39 (31.97)	5 (5.26)

10000+ ₺	17 (15.18)	20 (16.39)	0 (0.00)
Cryptocurrency investor (n, %)	42 (37.50)	44 (36.07)	18 (18.95)

Note: ₺ = Turkish Liras

To measure the reliability of the scale, the Cronbach alpha value of the 5-Item scale is calculated as α = 0.944 when all participants are included. Cronbach alpha values are evaluated by sectors as 0.950 for banking, 0.948 for ICT, and 0.927 for education. Also, this value is found as 0.908 for cryptocurrency investors and 0.879 for non-cryptocurrency investors.

Descriptive items and total scale statistic values are given in Table 2. In Table 2, it is seen that all Cronbach's Alpha values for each item if the item is deleted is smaller than the scale. For this reason, it could be said each of the 5 Items makes a significant contribution to the scale.

Table 2: 5-Item Descriptive and Total Scale Statistics

	Mean	SD	Corrected Item-Total	Cronbach's Alpha if Item
Item 1	3.19	1.246	.790	.941
Item 2	3.36	1.181	.886	.925
Item 3	3.22	1.279	.870	.927
Item 4	3.32	1.278	.841	.933
Item 5	3.15	1.291	.858	.930

note: n = 329. SD = standard deviation. Scale range for items: 1= not at all to 5 = a great deal/extremely.

The Kaiser-Meyer-Olkin (KMO) value (.855) and the Bartlett sphericity test (df=10. Sig.=0.000) results obtained by CFA show that this scale is suitable for factor analysis.

Table 3: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared		
Factor/Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative
1	3.19	1.246	.790	4.096	81.929	81.929
2	3.36	1.181	.886			
3	3.22	1.279	.870			
4	3.32	1.278	.841			
5	3.15	1.291	.858			

Not: Extraction Method: Principal Component Analysis.

Results of the CFA show that 5 Items are structured into a single factor, and this factor is explaining 81.929 % of the variance (see Table 3). The same single factor structure is evaluated in all sectors separately (83.536% for banking, 82.794% for ICT, and 77.565% for education). This value is found as 73.625% for cryptocurrency investors and 67.604% for non-cryptocurrency investors.

Factor loading values are given in Table 4. In this table, these values are stated in total; in Banking, ICT, and Education sectors, in cryptocurrency and non-cryptocurrency investors separately. Factor loading values are ranged between 0.751 and 0.930. In the Total column, factor loading values for five items are aligned in descending order as Item 2, Item 3, Item 5, Item 4, and Item 1.

Table 4: Factor loading matrixes of the 5-item scale in different groups

		Sector				
Item	Total*a	Banking**a	ICT***a	Education***a	Crypt. Inv.	Non-Crypt. Inv.
Item 1	.866	.868	.874	.842	.765	.751
Item 2	.930	.944	.926	.912	.888	.878
Item 3	.920	.935	.922	.891	.863	.849
Item 4	.899	.905	.915	.859	.872	.790
Item 5	.910	.916	.912	.897	.896	.837

Not: Extraction Method = Principal Component Analysis. a = 1 components extracted.
Total* = all 329 participants working in all three sectors is included.

Banking** = only participants working in the banking sector are included.

ICT*** = only participants working in the ICT sector are included.

Education**** = only participants working in the education sector are included.

Cryp. Inv. = cryptocurrency investors. Non-Cryp. Inv. = non-cryptocurrency investors.

In order to find whether the financial threat variable has a normal distribution and is homogeneous or not, One-Sample Kolmogorov-Smirnov Test and Oneway Anova Test are used respectively. The result of the analysis shows that the financial threat variable has not a normal distribution and is not homogeneous. For this reason, non-parametric tests are decided to use.

It is found that the mean value of financial threat scores is 16.25 when all 329 participants are included, the standard deviation is 5.678, the minimum is 5, the maximum is 25. In the financial threat scale, the scale ranges for 5 items from 1 (not at all) to 5 (a great deal/extremely).

In order to compare the averages of two separate groups (cryptocurrency and non-cryptocurrency investors) for a certain variable (financial threat), Mann-Whitney Test is used. Results of the test for threat values of cryptocurrency and non-cryptocurrency investors are given in Table. 5. According to the analysis, there is a statistically significant difference between the financial threat values of cryptocurrency and non-cryptocurrency investors ($p = 0.000 < 0.01$). The mean rank value of financial threat for cryptocurrency investors is smaller than non-cryptocurrency investors (see Table 5).

Table 5: Financial Threat Scores of cryptocurrency and non-cryptocurrency investors

	n	Mean Rank	Sum of Ranks	U	Z	p
Crypt. Inv.	104	68.44	7117.50	1657.50	-12.56	0.000**
Non-Crypt. Inv.	225	209.63	47167.50			

Not: n = number of participants. Crypt. Inv. = cryptocurrency investors. Non-Crypt. Inv. = non-cryptocurrency investors. p = significance level, ** Significant at the 0.01 level (2-tailed).

To compare the averages of financial threat scores for banking, ICT, and education sectors, the Kruskal-Wallis test is performed. Mean rank values of financial threat values according to working sectors, banking, ICT, and education, are given in Table. 6. It is not found any significant differences between financial threat and sector ($p = 0.082 > 0.05$). Although there are not any statistically significant differences, the financial threat score of the education sector is the highest one, banking and ICT sectors come after it.

Table 6: Financial Threat Scores by sectors

Sector	n	Mean Rank	Chi-Square	df	p
Banking	112	160.37			
ICT	122	155.20	5.013	2	0.082**
Education	95	183.05			

Not: n = number of participants. df = degree of freedom. p = significance level.

When gender and marital status are wanted to include analysis, Mann-Whitney Tests are applied for both demographic factors. According to the results, it is not found any statistically significant differences between financial threat and gender ($p = 0.279 > 0.05$), financial threat and marital status ($p = 0.734 > 0.05$) (see Table 7). In Table 7, the mean rank value of the financial threat score for women is higher than men. On the other hand, single ones have higher financial threat than married ones.

Table 7: Financial Threat Scores by gender and marital status

Gender	n	Mean Rank	Sum of Ranks	U	Z	p
Women	137	171.70	23523.50	12233.50	-1.083	0.279
Men	192	160.22	30761.50			
Marital Status						
Married	210	163.66	34369,50	12214.50	-0.34	0.734
Single	119	167.36	19915,50			

Not: n = number of participants. p = significance level.

In order to obtain whether financial threat score differences according to age, level of education, and monthly income, Kruskal-Wallis Tests are used. The results of the analysis are given in Table 8. According to Table 8, there are statistically significant financial threat differences among age groups ($p = 0.038 < 0.05$). Moreover, it is seen in Table 8 that; financial threat is decreasing with the level of education ($p = 0.007 < 0.01$) and monthly income ($p = 0.000 < 0.01$). The higher the level of education and monthly income an individual has, the less the financial threat occurs.

Table 8: Financial Threat Scores by age, level of education and monthly income

Age	n	Mean Rank	Chi-Square	df	p
18-24	23	211.67			
25-34	120	153.93			
35-44	120	156.71	11.758	5	0.038*
45-54	24	169.33			
55-64	33	189.73			
65+	9	201.56			
Level of education					
Associate's degree	23	213.57			
Undergraduate degree	163	173.37	12.214	3	0.007**
Graduate degree	112	146.20			
Doctorate degree	31	152.89			
Monthly income					
4000-5999 ₺	114	187.15			
6000-7999 ₺	88	184.57	35.643	3	0.000**
8000-9999 ₺	90	148.50			
10000 + ₺	37	90.34			

Not: n = number of participants. ₺ = Turkish Liras. df = degree of freedom. p = significance level.

* Significant at the 0.05 level (2-tailed). ** Significant at the 0.01 level (2-tailed).

4. Discussion and Conclusion

This is the first study that evaluated the factor structure of the Turkish version of FTS and one of a few studies performing a factor analysis of FTS, within accessible studies. According to results, it is achieved that the Turkish version of FTS has sufficient competence in order to implement for researches. It means that FTS could be used for multidisciplinary works as well as mainly focusing on financial threat studies.

Our findings confirm with the study of Marjanovic et al. (2015). In this reference study executed on non-student European samples in Belgium, Germany, Portugal, and Spain, it is stated that FTS has a one-dimensional structure, appropriate internal consistency, and mean scores around the scale's thematic point.

As a matter of design, this work is the first attempt to apply FTS to cryptocurrency and non-cryptocurrency investors within accessible researches. It is found that non-cryptocurrency investors have a higher mean value of financial threat than cryptocurrency investors. In other words, the financial threat of cryptocurrency investors is smaller. This comparison thought us that financial threat could be one of the possible reasons for choosing a non-cryptocurrency investment. The less financial threat on people might create the more eagerness to invest in cryptocurrency.

On the other hand, the lack of price stability and anonymity, speculative components, and extreme volatility, legal, regulatory and ethical challenges on cryptocurrencies have the potential to create financial and economic risks on investors (Fry & Cheah, 2016). If an investor is a risk averse, above stated risk factors for cryptocurrencies could cause to be chosen non-cryptocurrency investments. For this reason, above mentioned potential risk factors could be an explanation of why financial threat is higher in non-cryptocurrency investment. In order to reveal the real mechanism, other possible affecting factors should be included in the next researches.

Moreover, banking, ICT, and education sector employees is another design parameter included in the research. It is investigated that sector difference is not an affecting factor for financial threat. In other words, the financial threat does not vary with sector differences. In subsequent studies, it could be recommended that other sectors could be investigated for financial threat.

Furthermore, it is found that gender and marital status have no statistically significant effect on the financial threat. Although there are not any statistically significant differences between financial threat and gender and marital status, the mean financial threat score of women is higher than men and single ones have higher financial threat than married ones.

According to the result, financial threat changes with age. It is found that financial threat varies with monthly income. In early (18-24) and old (65+) ages, the financial threat is higher. There is a big drop in financial threat score moving away from 18-24 ages to 25-34 ages. From 25-34 ages to 65+ ages, there are increases in financial threat by different age groups. According to Fiksenbaum et al. (2017b), economic hardship increases with the financial threat. In the study of Butterworth, Rodgers, and Windsor (2009) it is found that financial hardship and depression don't vary with age. This result is not compatible with ours.

It is analyzed that, when the level of education increases, the mean rank values of the financial threat scores decrease. The same finding is achieved for monthly income. Although the monthly income increases, the financial treat score is getting lowered. These findings could be interpreted that, level of education and income have an ability to create more confidence about financial issues on an individual.

Jesus, Leal, Viseu, Valle, Matavelli, Pereira, & Greenglass (2016) noticed that a person who has high-level internal sources and abilities having less vulnerability to the financial threat. It could be interpreted that high-level internal sources and abilities could be increased with the level of education. According to this perspective, this result is consistent with our result which the financial threat differs according to the level of education.

In the study of Diener, Harter, and Arora (2010), well-being, depression, and worry are associated with low growth domestic product (GDP) per capita. This result could be commented in favor of our findings that the financial threat varies according to income.

It is found that financial stress is positively related to some factors, these include a willingness to change one's financial behavior, job search, and psychological distress (Fiksenbaum, Marjanovic and Greenglass, 2017). It is recommended that multidisciplinary studies focused on financial threat should be performed. The more factors related to financial threat are researched, the deeper structure of financial threat could be discovered. Notably, the effects of financial threat on society, financial behaviors of investors, and investment decisions are some of the possible relations for the next researches.

It is thought that, one of the possible reasons for the emergence of the perceived financial threat might be previous negative crypto currency experiences of individuals. In this case, negative investment experiences might create financial threat on individuals, and this financial threat might cause other less risky investment tools to be preferred instead of crypto currency. It could be thought that investors who have previously invested in crypto currency and lost would not prefer crypto currency in their new investments under the influence of the financial threat and loss aversion bias. Therefore, in future studies, it is recommended to investigate whether investors have a previous crypto money investment history and how this investment turned out.

There are some limitations in this research, although it has statistically significant results. It is important to highlight these limitations for the next researches. The number of participants, sector diversity, comparison of cryptocurrency investors with other asset investors are the determined limitations of this study. For the subsequent studies, it is recommended that the number of participants and the diversity of sectors should be increased. Moreover, the financial threat of other financial asset investors apart from cryptocurrency investors should be included. Lastly, other cities of Turkey could be added for the next researches.

It is believed that this study would add some contributions to financial threat and cryptocurrency literature. Above mentioned findings and recommendations could contribute to further studies. In order to validate acquired evidence, new studies are needed.

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