

The Relationship of Financial Behaviors with Personality Traits and Financial Literacy: An Empirical Research

Muhammed KALAYCI¹, Salih TUTAR²

ABSTRACT

People's transactions in financial markets may vary according to their financial literacy levels and personality traits. The main goal of this paper is to evaluate the connection between the characters and financial literacy levels of individuals and their financial behaviors. This study used a quantitative research method to reveal the relationship between variables. A simple random sampling technique determined the study's sample, and the survey technique was chosen to collect data. The questionnaire was created from the Type A and B Personality Scale and the Self-Determination Scale. In addition, a section to determine the level of finance literacy was added to the survey. In line with the findings got from the research data analysis, it was seen that the financial literacy level of people with type A personality traits is higher, and people with this personality type make more rational decisions in financial behaviors. These findings show that financial behaviors vary according to personality traits and actors can act irrationally in financial markets.

Keywords: Financial Literacy, Financial Behavior, Personality Traits, Type A and B Personality Characteristics, Self Determination.

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INTRODUCTION

Financial literacy is frequently on the agenda of policymakers and economists due to the increasing number of people making transactions in financial markets and the growing volume of transactions. In particular, the relative increase in the short-term return rates of capital market instruments in the recent period has triggered the use of instruments traded in these markets by abandoning traditional investment instruments, and the fact that a specific part of the households seeks investment in this field, regardless of profession and area of expertise. In addition, the increase in product diversity and the high rate of return in the capital markets have increased the incentives for investors to obtain returns. From this perspective, it is inevitable for individuals with low financial knowledge to make wrong decisions while developing an investment strategy (Bozkurt et al., 2019). It was carried out to reveal whether there is a connection between individuals' financial literacy levels and personality traits when making investment decisions. In this regard, after first discussing the concepts of financial

literacy level and personality traits, individuals' financial behaviors were examined in more depth within the framework of these concepts.

Financial literacy is an important phenomenon that closely concerns the decision-making processes of individuals in financial markets. Financial literacy is an individual's ability to understand financial concepts and terms, make informed financial decisions, and effectively manage personal financial resources. These abilities enable individuals to make conscious financial decisions and can, therefore, affect their financial success (Kılıç et al., 2015). Moreover, personality traits are also one of the main factors affecting individuals' behavior. Personality types can shape individuals' risk tolerance, financial preferences, and investment decisions. Differences in personality traits are a subject that has been researched from the past to the present. The studies which the difference in personality traits require dealing with a structure difficult to observe at first glances, such as detecting behavioral differences (Chamorro & Premuzic, 2014). Considering the environment in which individuals

¹ Sakarya Üniversitesi, Sosyal Bilimler Enstitüsü Maliye Bölümü, muhammedkalayci@subu.edu.tr

² Sakarya Uygulamalı Bilimler Üniversitesi, Hendek MYO, Muhasebe ve Vergi Uygulamaları, salihutar@subu.edu.tr

live, personality types are the expressions of the attitudes in the life processes of human nature, such as people's worldview, their attitude towards the people around them, working principles, and the conduct of daily relationships. (Adler, 2011).

Research on personality traits generally concerns the similarities and differences between people. The fact that human behaviors are organized regularly and can be observed and that they can be classified with specific patterns allows us to measure how much behavior change can occur in people depending on these variables. The aim is to predict the differences between many stereotypes, such as health, happiness, and stress, by measuring them over time. It offers a universal framework to compare personality traits and individuals among themselves and explain their characteristics (Chamorro & Premuzic, 2014).

The main reason why we chose the self-determination scale and type A and B personality scales among the personality traits scales in our study is the main points that these scales focus on in person. The analysis of whether individuals are affected by environmental factors during self-determination-scale decision-making is closely related to our subject. On the other hand, the Type A and B personality scale makes it possible for individuals to distinguish between two essential personality traits and limit their character traits to two main factors, allowing us to examine investors under two types of characteristics. The strategy that individuals follow while investing within the framework of their own financial knowledge, decision-making skills, and personality type forms the basis of the study. In this sense, it is explained why self-determination scale and type A and B personality scales are chosen among personality traits theories, and the concepts are explained.

The experiences of individuals from childhood to developmental age and maturity age are effective in the formation of personality as a whole, and these personality traits play an active role in directing the individual. (Cemalcılar, 1999). Personality traits, among the determinants of household investment strategies, are generally used to monitor and analyze consumption habits. In terms of investment policies, the decision-making mechanisms of individuals can take shape according to their personality traits, just as in consumption. While individuals transfer some of their income to savings and investment instruments, they will be willing to choose vehicles with potentially high returns and high-profit expectations. While deciding on this choice, the level of risk-return factors for the individual

becomes more important than financial information. (Ergün & Şahin, 2014). At this point, personality traits have an important role in individuals' Preference for high-risk, medium-risk, or low-risk investment instruments.

Along with the essential characteristics that make up personality, the choice of investment instruments is also related to the people's financial information, and the determination of their options with these two primary factors makes the concepts of personality traits and financial literacy connected. Financial knowledge is an indicator of the way individuals will follow while investing. For this reason, individuals' financial skills, knowledge, and savings have a share in the share they allocate from their income to investors. Their personality traits have a decisive stake in their decisions while taking these financial actions (Hamza & Arif, 2019; Potrich & Vieira, 2018; Jain et. al., 2022; Bhargava et.al., 2022)

This study focuses on the variables that affect the investment decision-making criteria of individuals. The study emphasizes that personality traits, the variables that individuals are influenced by when making investment decisions, and the level of financial knowledge can be based on a significant relationship. Personality traits are based on many theories, such as dual process theory, social learning theory, bounded rationality theory, consumer socialization theory, psychological learning theory, self-determination theory, and the five-factor model of personality. Scales enable the descriptive analysis of the theories regarding many personality traits (Mcleod, 2021). The study examined the relationship between financial behaviors, personality traits and financial literacy. Environmental factors, social factors, and past experiences are influential in analyzing the criteria that make up the personality. Therefore, personality traits were analyzed within the framework of these factors. The study's main question is how the personality traits and financial literacy levels that affect investors' financial decisions and sensitivity to risk affect financial behavior.

A questionnaire method was applied in our research. The survey was carried out with 400 participants selected according to the random sampling method, without dividing the households into groups based on occupation, age, and education level. The degree of financial literacy of the participants, as well as their personality traits and how these influenced their financial actions, were examined. The fact that individuals who want to trade in financial markets act according to their financial literacy level within the framework of their personality traits can contribute to making the right decisions during market

transactions and healthily making investment decisions. Similarly, the question of whether it is possible to stop investment ideas from leading to losses due to low financial literacy due to personality traits and people making poor decisions during their transactions in financial markets also arises.

Although the studies on the topic published in the literature mainly examined the relationship between financial literacy level and personality traits, no assessment of the participants' financial behaviors was done. Studies on the subject have investigated the impact of personality traits on financial literacy and identified significant relationships (Pinjisakikool, 2017; Goulart et al., 2022). There are also studies examining the relationship between investors' financial literacy levels and financial behaviors within the framework of investors' preferences against risk (Aren & Aydemir, 2015; Waheed et al., 2020; Khan, 2016; Adil et al., 2021; Sadiq & Azad, 2019). The five-factor personality trait scale (Jain et al., 2022; Hamza & Arif, 2019) was used in studies addressing the effect of personality traits on the relationship between financial literacy level and financial behavior. In addition, the same issue was taken with the personality colors scale of the participants' personality traits (Bhargava et al., 2022). The unique aspect of this study is that it used the Type A and B personality traits scale when comparing the participants' personality traits and financial literacy levels with their financial behaviors. While the A and B type personality traits scale mainly measures people's behaviors, such as coping with stress, competitiveness, and haste, the five-factor personality traits deal with people's behaviors in social relationships. With the idea that financial behaviors will be more affected by factors such as stress and competition rather than social relations, personality traits were tried to be measured within this framework and were included in the study. In addition, unlike the existing literature, whether investors are affected by environmental factors when making decisions was taken into account with the autonomous self scale. In this way, it contributes to the advancement of the literature scientifically by filling the gap identified in the literature.

In the first part of the study, the conceptual framework of the research will be discussed. Then, the method and data collection process will be explained, and the analysis of the obtained data will be presented. The results and discussion section will discuss the effects of financial literacy level and personality traits on financial behavior.

CONCEPTUAL FRAMEWORK

Financial literacy can be defined as the ability of individuals to understand financial concepts, interpret financial terms, and manage personal financial resources effectively. This concept is of fundamental importance for individuals to make conscious financial decisions (Kılıç et al., 2015). At the same time, personality traits are an important factor that shapes individuals' behavior. This study examines the personality traits of investors within the framework of type A and B personality traits and the autonomous self-trait, which expresses individuals' internal motivation and confidence in their decision-making abilities (Ryan & Deci, 2004). While type A personality describes competitive, ambitious, and sensitive individuals about time management, type B personality refers to more relaxed and patient individuals who cope better with stress (Friedman & Rosenman, 1974). Type A and B personality types were included in the study because their risk tolerance, potential to influence financial preferences and investment decisions, and autonomous self-scale will help us understand how individuals independently make their financial decisions. Under this heading, more detailed information about the financial autonomous self, Type A and B personality types, and financial literacy concepts will be given.

Self-Determination

Self-determination is a self-sufficient, independently thought self. Taking ownership of one's principles and deeds leads to a sense of competence in yourself, regardless of the cultural norms and social structures of the society in which one lives. The individual's view of life and the thought system based on this view, the philosophy of life, and self-determination are shown as the counterpart of the sense of self-sufficiency. While individuals continue their daily lives, they can offer different reactions to the same events with the influence of their past experiences (Akin et al., 2010).

At this point, the self-determination theory suggests a point of view that classifies the individual's motivation regarding the behavior within itself. The theory predicts that the individual's internal and external motivation differs according to his situation. For example, intrinsic motivation shows the result of obtaining the personal pleasure aimed by the action that the person will perform. On the other hand, extrinsic motivation is the desire to receive rewards rather than personal gratification, or it is the performance of an action based on obtaining a benefit from the action that will occur as a result of the action to be taken (Markus & Kitayama, 1991).

The self-determination theory defines people as beings who tend to develop since birth. This development process that people have shown only happens by chance. Along with the social environment, people build their personalities and character traits. While the social environment makes the activities of people easier at some times, it can make it difficult at other times. The effect of social norms on people directly affects their character traits. In this context, autonomous self-theory defines a human as a being prone to continuous development and bases the interaction with the social environment on the concepts of behavior, experience, and development. The concepts of self-contact and the choice fullness to illustrate two factors used in assessing these individual differences. The self-contact factor shows that the decision-making mechanisms of individuals are analyzed according to the level of being affected by external factors. The choice fullness is the factor of self-determination, which is analyzed whether individuals make decisions by being exposed to any motivation in their decision-making processes (Ryan & Deci, 2004).

The capacity to decide for oneself and take independent action free from outside influence or control is referred to as self-determination. It emerges as a scale that explains personality traits in which individual differences are considered in autonomous decision-making. It is an essential aspect of personal freedom and can be characterized as a source of satisfaction. The self-determination scale defines individuals as active creatures that show natural reflexes to develop. It is included in the autonomous self-explanation of the theory that this natural reflex does not develop spontaneously but occurs with the support of the social environment. For this reason, the fact that people's activities are affected positively or negatively by their social environment forms the basis of the emergence of the independent self-concept. The need for autonomy relates to the feeling that one can decide for himself in his actions rather than feeling that his actions are controlled or compelled to take them (Güldü & Kart, 2008).

Type A and B Personality Characteristics

They were categorizing the individuals that make up society in terms of their various distinctive features helps individuals to be better known. The theories of personality traits are studies on the analysis of the characteristics of individuals and on what reaction they give or can give to which effect. The analysis of personality traits helps to analyze what type of people can react to the event that is the subject of the research.

The Friedman and Rosenman (1974) Type A and B Personality Model tries to reveal the social and psychological makeup of the individual. Although not precisely, this approach allows for classifying people based on particular traits they possess (Durna, 2004). Type A and B personality is a concept that classifies individuals according to different personality traits and divides them into two other trait groups. The studies carried out, it was aimed to categorize the personality traits into two separate groups and to categorize the people with certain traits as A type and B type, and these two types were analyzed over their personalities. It has been determined that people with type A personality traits are generally faster and are in constant competition. The outcome of this contest and speed, they show stressful and hectic characteristics (Sakalli, 2019). Individuals with A-type personality traits make the necessary effort to reach the goal they have set for themselves. For this purpose, they are the personalities who can determine work time management correctly. People with A-type personality traits are generally described as impatient, weak bilateral relations, incapable of planning, aggressive, and generally work-oriented. In addition, it is determined as a personality trait that aims to have many talents as an individual talent and to do very successful work in a short time. People with A-type personality traits generally prefer to act quickly and keep busy (Ray & Bozek, 1980).

In the B-type personality trait, it has been stated that people have more positive, moderate, soft, and comfortable personalities. People with B-type personality traits prefer to reach the goal they want to achieve by planning, determining the right strategy, and generally acting more thoughtfully (Stroh et al., 2001). In B-type personality traits, people are expressed as the opposite of type A. People with B-type personality traits are less concerned with time. They prefer to have a more balanced life perspective. They make the choices that must be made about their lives and typically create a secure roadmap by carrying out this decision in a particular way. It would be incorrect to say whether type A or type B personality traits are more successful. The primary goal of a person with B-type personality traits is not necessarily success, though. The main factor is that people with type B personalities do not have exaggerated ambitions. Type B traits are more adaptable, less competitive, more relaxed, and less aggressive. They do not react very quickly to irritability and anger. Enjoying the activity they are doing is their primary goal. They have calm and orderly working principles. They prefer to be open to social circles and life (İbrahimoğlu & Karayılan, 2015).

The most fundamental criticism brought to the A, and B type personality scales is that the personality traits are sharply or oppositely separated from each other in this way, and it means that people have significant differences from each other. Individuals have unique personalities. The features that make up this personality are not only the features that can be counted among the A and B-type features. This personality trait, which provides a primary distinction between more than one factor that makes up the personality, has been used to classify people according to their general characteristics (Durna, 2010).

Financial Literacy

The notion of financial literacy has several definitions in the literature. Financial literacy is the capacity to logically assess an individual's income, expenses, and saves for investments, as well as the capacity to construct the proper budget balance in relation to the payments they have received (Schagen & Lines, 1996). Financial literacy is the skill of understanding and using financial terms and concepts. This skill is essential when trading in financial markets or making financial decisions. Financial literacy includes reading financial statements, understanding financial indicators, and communicating verbally and in writing on financial matters (Ergün & Şahin, 2014). Financial literacy demonstrates the ability of individuals to make an informed judgment about how they use and manage their income. The Program for International Student Assessment (PISA) defines financial literacy as understanding the concepts, risks, and skills necessary to make financial decisions to increase the economic development of individuals and society and having the motivation and self-confidence to use all these concepts and skills effectively (OECD, 2013).

Based on those definitions, the essential elements of financial literacy are comprehending the acquired financial information and implementing financial actions with self-confidence. The OECD has defined financial literacy as a critical concept that should be among individuals' achievements. Based on this, programs are being developed to increase the financial literacy competence of individuals. Along with the OECD, financial institutions see the concept of financial literacy as a tool to increase the financial participation of individuals. According to studies, the use of financial instruments and financial literacy are directly correlated. Financially literate individuals assess their savings more favorably than those with poor management, investing, and saving abilities. As a result of this assessment, people are seen putting more money or investment accounts into the financial markets (INFE, 2009).

Financial literacy level is an essential concept in terms of completing both individual and social development processes. The idea of financial literacy, which is shown as a concept that develops the skills of individuals, such as making investments and managing their savings, should also be mentioned from a social perspective. From a social point of view, individual savings can be seen as a usable fund for economic development (Yılmaz & Kaymakçı, 2021). Using some of society's income in savings instruments makes the policies implemented by the government through savings funds more manageable. In other words, the increase in the financial literacy level of the individuals who make up the society contributes to the rise in the capital accumulation, production opportunities, and employment opportunities in the society. When viewed with a snowball effect, we can associate the awareness of financial literacy with the level of financial literacy that will benefit social development, manage economic crises, and mitigate the situation's impact (Kılıç et. al., 2015).

The level of individual welfare must be sustainable at a certain level. Financial literacy has a significant impact on ensuring this sustainability. The importance of the level of financial literacy becomes clearer thanks to the different financial asset levels of individuals with the same income level in the long run. Financial risks are a factor that threatens the welfare level of individuals as well as increases their responsibilities in decision-making processes. The fact that these risks can be minimized and that individuals have a sufficient level of knowledge against financial risks are attributed to the importance of financial literacy (Karadeniz & Öztepe, 2013).

DATA AND METHODOLOGY

In this study, which was conducted to reveal the relationship of financial behaviors with type A-B personality traits, autonomous self-levels, and financial literacy, data obtained from 400 randomly determined people were used. The study's main question is, are financial literacy level and personality traits effective in financial behaviors or financial decisions? This study's fundamental supposition is that financial literacy levels and type A personality traits will be positively correlated. In addition, in this study, it is assumed that people with type A personality traits will engage in financial behaviors that will be considered more risky, and people with a high choice factor will make more rational decisions in their financial behavior. The survey approach was chosen as the primary way for gathering data because the study was designed as quantitative research. The SPSS Statistics program was used to examine the data collected from

400 individuals. Difference tests and correlation tests were run within the parameters of the investigation. In addition, cluster analysis and tree diagram were used to support the quantitative analysis findings.

The study's main limitation is that the data collection process is not collected at different times but continuously until a sufficient sample is reached. For this reason, the findings obtained from the study were interpreted on possible situations instead of revealing a definite cause-effect relationship.

In the questionnaire created to collect data within the scope of the study, four different sections were created: demographic characteristics of the participants, financial literacy levels, self-determination scale, and type A and B personality scale. While determining the questions to determine the level of financial literacy, Ozdemir et al. (2021) and developed by Sargül (2015). Financial literacy scales were used. In addition, in line with the opinions of academicians who are competent in their fields, questions about financial literacy were added, and a Likert -structured survey section consisting of 22 questions was created.

The self-determination scale, developed by (Ryan et al., 1996) and adapted into Turkish by Kart and Güldü in 2008, was used to measure the independent selves of the participants. (Ryan et al., 1996) The 10-item, 5-point Likert-type scale has a minimum scoring threshold of 10 points and a maximum scoring threshold of 50 points. The greater the participant's self-determination and understanding of personal requirements, the higher their score on the scale. The Güldü & Kart (2008) Cronbach's alpha value of the Self-Determination Scale was found to be 0.72 in the study.

Bortner Rating Scale is widely used to measure the participants' type A and B personnel characteristics. The scale in question consists of 14 questions prepared to be opposite each other. Aktas (2001) and Erdogan (2012) abbreviated the Bortner Rating Scale and published the Short Form of the Bortner Rating Scale. This study used the Likert -type short form of the scale, the Bortner Rating Scale. The participant's scores on the scale with seven opposing statements are multiplied by three to produce a score that ranges from 21 to 168. Participants are classified as having Type A personality traits if their scores are 100 or higher and Type B personality traits if they receive scores below 100 (Aktaş, 2001).

To measure the financial behavior of the participants, the transactions they carried out in the financial markets

were taken into account. The markets in which people can invest are classified in different ways. Markets can be categorized according to their maturities, whether they are over-the-counter or centralized, whether they are primary or secondary, and as derivative markets developed to protect against financial risks with the increasing product diversity today (Anson et.al, 2010; Fabozzi et.al., 2019). Markets are divided into two, money and capital markets, according to their maturities (Sayim, 2021). Short-term, low-risk, and high-liquid instruments such as bonds, deposits, and repos are traded in money markets. Financial instruments such as stocks and bonds are used in capital markets, which have maturities longer than one year and have a relatively higher risk rate. Investors can also trade in precious metals, foreign exchange, and commodity markets besides money and capital markets. In addition, there are investment instruments such as futures, forwards, options, and swaps in derivative markets (Sayim, 2021; Kaya, 2023). The choices investors make among all these financial instruments are generally an important indicator that reflects their financial behavior and financial management abilities (Paksoy, 2021; Aydın & Büşra, 2016). Choices made in financial market instruments reflect individuals' financial goals, risk tolerance, and financial awareness (Ritter, 2003; Shleifer, 2000; Jain et.al., 2020). In this context, within the scope of the study, people were asked which financial investment instrument they turned to to measure their financial behavior, and inferences were made according to the features and differences of financial investment instruments. For example, it is accepted that a person investing in stocks has a higher risk tolerance. In contrast, a person investing in foreign currency or precious metals has a lower risk tolerance, and the behaviors of investors are grouped within this framework.

To assess the internal consistency of the scales over the correlations of the items targeted at survey study participants with one another, reliability analysis is carried out (Çevik & Akgül, 2005). According to Özdamar (2004), if the Cronbach alpha value of each scale is less than 0.4 as a result of the analysis, the scale is unreliable. 0.4 to 0.6 is low reliable; 0.6 to 0.8 is reasonably reliable; finally, it is highly reliable if it is more significant than 0.8. The reliability analysis results for each scale made with the SPSS package program are shown in the table below. In addition, the reliability value of the study is 0.822, which shows that the findings of the analyzes performed with the obtained data are reliable.

Table 1. Reliability Analysis

Name of Scale	Cronbach Alpha	Confidence Level
Self-Determination Scale	0.752	Reasonably Reliable
Bortner Rating Scale	0.777	Reasonably Reliable
Financial Literacy	0.900	Highly Reliable

Table 2. Analysis of Normality

Name Of Scale	Skewness	Kurtosis	Distribution
Self-Determination Scale	-,944	,255	Normally Distributed
Bortner Rating Scale	-1,218	-,518	Normally Distributed
Financial Literacy	-,110	-,681	Normally Distributed

To determine if the data were parametric or non-parametric and which analysis should be made to the variables in the SPSS statistics program, the normality analysis was conducted within the study's parameters. First, a normality analysis was performed to determine whether the data were parametric. The sample size for a parametric test must be greater than 30, the data must be quantitative (likert scale), and the data must be regularly distributed (Abbott, 2011). Among the parametric test assumptions in this study, it is quantitative, and the sample is more than 30. According to Tabacknick and Fidell, the Skewness and Kurtosis values produced as a

consequence of the normality study are adequate to accept that the data are usually distributed if they are between -1.5 and +1.5. (Tabachnick & Fidel, 2013). The table below displays the findings of the normalcy analysis of the study's scales.

The Skewness and Kurtosis values of each scale used in the survey varied from -1.5 to +1.5, which according to the results of the normality analysis suggested that the data collected from the participants had a normal distribution. In addition, as the obtained data provided all of the parametric test assumptions, the decided was made to do parametric analyses on the data.

Table 3. Demographic Characteristics

VARIABLE	PIECE	PERCENTAGE %
Gender	Woman	47
	Male	53
Age	18-25	15.5
	26-35	46.5
	36-45	28.8
	46-55	7.5
	56 and above	1,2
	Marital Status	Single
	Married	56.5
Income Level	5000 and below	14.8
	5001-10000	15.3
	10001-15000	30.5
	15001-20000	21.8
	20001-25000	7
	25001 and above	10.8
Education Level	Middle School	1.3
	High school	7
	Associate Degree	13
	Licence	44
	Masters's Degree	23.8
	Doctorate	11

The study group consists of 400 randomly determined people. The table below shows details on the study participants' demographic characteristics.

47 of the participants from whom we obtained data within the scope of the study were female, and 53 were male. Approximately 75% of the participants are between the ages of 26-45, 43.5% are single, and 56.5% are married. It can be seen that the distributions of the research participants' monthly income levels are reasonably similar to one another. Additionally, when the participants' level of education is looked at, it is discovered that almost 80% have at least a bachelor's degree.

RESULTS

The table below displays the results of the analysis performed using the independent sample t-test for questions with two possible answers and the ANOVA test for questions with multiple possible answers to determine whether there is a statistically significant difference between the scales used in the study in light of the demographic information gathered from the participants.

It may be claimed that the analysis findings with a significant value less than 0.05 reveal a statistically significant difference when taking into consideration the significant values acquired as a consequence of the difference studies carried out. The analysis findings that reveal statistically significant differences are highlighted in italics in the table above. Only financial literacy levels

To ascertain the direction and magnitude of the linear relationship between two random variables, correlation analysis is used. Although different correlation coefficients have been developed for different situations, the best known of these coefficients and the most frequently used one in social sciences is the Pearson correlation coefficient. By dividing the covariances of two random variables by the sum of their standard deviations, the Pearson correlation coefficient is calculated. The range of values for this coefficient is (-1) to (+1). A positive coefficient represents a direct linear relationship between the variables, and a negative coefficient represents an inverse linear relationship (Özdamar, 2004). The closer the absolute value of the coefficient is to 1, the stronger the relationship between the two variables. (İslamoğlu & Alınçık, 2014) according to; weak correlation if the correlation coefficient is less than 0.3; If it is in the range of 0.3-0.5, medium relationship; If it is between 0.5-0.8, there is a strong relationship, and if it is more significant than 0.8, there is a more strong relationship. The fact that this coefficient takes the value (0) indicates no linear relationship between the variables included in the research.

In order to ascertain whether there is a significant association between financial literacy level, Type A and B personality traits, and self-determination level, as well as the direction of that relationship, Pearson correlation analysis was performed.

The table was created using the results of a Pearson Correlation analysis, which examined the correlation between the variables using the 400 pieces of data

Table 4. Test Results for Difference Between Demographic Information and Scales

SCALE	Sig . Value				
	Gender	Marital Status	Age	Education Level	Income Level
Financial Literacy	<i>0.00</i>	<i>0.005</i>	0.125	<i>0.000</i>	<i>0.001</i>
Self-Determination	0.078	<i>0.002</i>	<i>0.001</i>	<i>0.040</i>	<i>0.004</i>
Type A Type B Personality	0.366	0.858	0.142	0.698	0.449

differ by participant gender, according to the table. Based on the factors of marriage status, educational attainment, and income level, it can be demonstrated that there is a significant statistical difference among financial literacy and self-determination. Based on the age variable, only the self-determination scale exhibits a significant difference. For any demographic factor, there isn't a significant statistical difference between the Type A and B personality measures.

collected for the study. The table shows a statistically significant relationship between financial literacy level, Type A and B personality, and Self-determination level. At a significance level of 0.05, there is a statistically significant correlation between Type A and B personality and financial literacy. Additionally, at a significance level of 0.01, there is a statistically significant correlation between financial literacy and self-determination levels. Additionally, it can be shown that both major

Table 5. Relationship Between Scales

Correlations		Financial Literacy
Financial Literacy	Pearson correlation	1
	Sig . (2-tailed)	
Type A and B Personality	Pearson correlation	,055*
	Sig . (2-tailed)	,027
Self-Determination	Pearson correlation	,192 **
	Sig . (2-tailed)	,000

** 0.01 level (2-tailed).

* 0.05 level (2-tailed).

relationships are moving in a favorable way because both relationships have positive Pearson correlation coefficients.

The analysis results to examine the relationship between the level of financial literacy and demographic characteristics are given in the table below. According to the table, there is a statistically significant relationship at 0.01 significance level between gender, marital status, education level, income level, and financial literacy levels. In addition, when the Pearson Correlation coefficient of the significant relationships that emerged as a result of the analysis is examined, it is seen that there is a positive relationship.

Based on the data obtained from 400 randomly selected people, the analysis results to look at the relationship between all dependent and independent variables and demographic variables and the direction of the relationship are given in the table below.

Cluster Analysis

Cluster analysis is one of the many statistical methods that detect the closeness between the data included in the analysis. Statistical clustering methods are divided into two progressive and non-staged. Although advanced clustering methods depend on the difference or distance values between units, all events are grouped until they are members of a single group. Ward's method aims to achieve optimum groups, minimize the spread between groups, and variance within groups, which aims to minimize it, is the most widely used cluster analysis (He, 1996). Data can be grouped together using the multivariate statistical procedure known as cluster analysis. This analysis aims to group variables with different characteristics within the framework of their similarities. It is expected that each group formed by cluster analysis will have the same sensitivity, and all variables will be homogeneous groups (Sala & Bragulat, 2004; Dahl & Næs, 2004).

Table 6. The Relationship Between Demographic Characteristics and Financial Literacy

Correlations		Financial Literacy
Financial Literacy	Pearson Corr.	1
	Sig . (2-tailed)	
Age	Pearson correlation	,085
	Sig . (2-tailed)	,091
Gender	Pearson correlation	,253 **
	Sig . (2-tailed)	,000
Marital Status	Pearson correlation	,140 **
	Sig . (2-tailed)	,005
Education Level	Pearson correlation	,291 **
	Sig . (2-tailed)	,000
Income Level	Pearson correlation	,192 **
	Sig . (2-tailed)	,000

** 0.01 level (2-tailed).

* 0.05 level (2-tailed).

Table 7. Summary Table of Relationship Results


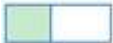


	Financial Literacy Self-Determination			Self-Determination			Type A and B Personality		
	Direction	Significance	Value	Direction	Conclusion	Value	Direction	Conclusion	Value
Age	+	X	$\frac{,085_c}{,091_s}$	+	✓	$\frac{,192_c^{**}}{,000_s}$	+	X	$\frac{,069_c}{,171_s}$
Gender	+	✓	$\frac{,253_c^{**}}{,000_s}$	+	✓	$\frac{,089_c}{,075_s}$	+	X	$\frac{,046_c}{,364_s}$
Marital status	+	✓	$\frac{0.140_c^{**}}{,005_s}$	+	✓	$\frac{,153_c^{**}}{,002_s}$	-	X	$\frac{,009_c}{,858_s}$
Education level	+	✓	$\frac{,291_c^{**}}{,000_s}$	+	✓	$\frac{,140_c^{**}}{,005_s}$	+	X	$\frac{,013_c}{,796_s}$
Income Level	+	✓	$\frac{,192_c^{**}}{,000_s}$	+	✓	$\frac{,130_c^{**}}{,009_s}$	+	X	$\frac{,081_c}{,106_s}$
Self-Determination	+	✓	$\frac{0.192_c^{**}}{,000_s}$	1			+	✓	$\frac{,118_c^*}{,018_s}$
A-B Type Personality	+	✓	$\frac{,055_c^*}{,027_s}$	1	✓	$\frac{,118_c^*}{,018_s}$	1		
Financial Literacy	1			+	✓	$\frac{,192_c^{**}}{,000_s}$	+	✓	$\frac{,055_c^*}{,027_s}$

** 0.01 level (2-tailed).
 * 0.05 level (2-tailed).
c. Pearson Correlation Coefficient
s. Significant Value

This study attempted to identify the attributes of the clusters produced by grouping the participants' financial literacy levels according to their personality traits. The distance between the variables used in the clustering analysis was specified as the squared euclidean distance. In cluster analysis, two steps were used as an algorithm. Five variables were included in the analysis: financial literacy, autonomous self, type A-B personality, those who trade in precious metals, and foreign currency, and those who trade in the stock market. As a result of the research performed with these variables, 3 clusters were formed. The quality range of the clusters created was reasonable (between 0.0 and 0.05). The sample size of the smallest group among the three clusters formed is 83 people (20.8%), and the largest cluster is 170 people (42.5%). The size of the third cluster is 147 people (36.8%). The largest group to lowest cluster ratio is 2.05. Cluster analysis findings performed in the SPSS Statistics program are shown below.

The importance of the linked variables in the clustering process and the homogeneity of the resulting cluster are considered when deciding the order of the columns in the table produced by the clustering analysis. In this direction, respectively, trading on stock market (1.00), trading with precious metals, or foreign currency, etc. (0.82), financial literacy (0.09), self-determination (0.04), and Type A and B personality characteristics (0.01) are the variables with the importance degrees. The clustering analysis produced information regarding the inputs of the groups. The 2nd group does not participate in stock market trading. Instead, these people deal with financial instruments such as precious metals, and foreign currency. They have low financial literacy, high self-contact, and type B personality characteristics. Persons in the 1st group trade on the stock market. It deals with financial instruments such as precious metals, and foreign exchange. They have low financial literacy levels, high self-contact, and type A personality characteristics. The

Table 8: Cluster Analysis Results

Input (Predictor) Importance			
			
Cluster	2	1	3
Label			
Size	 42,5% (170)	 36,8% (147)	 20,8%(83)
Inputs	Trading on stock market	Trading on stock market	Trading on stock market
	Trading with precious metals and foreign currency	Trading with precious metals and foreign currency	Trading with precious metals and foreign currency
	Financial literacy 4,81	Financial literacy 5,19	Financial literacy 4,53
	Self-determination 1,77	Self-determination 1,75	Self-determination 1,18
	A-B type 108,62	A-B type 149,71	A-B type 110,17

3rd group of people doesn't trade in the stock market or other financial products like precious metals, or foreign money. They have low financial literacy levels, high choice fullness, and type B personality characteristics.

Tree Diagrams

Based on the information gathered for the study, a tree diagram of participants' financial activities and literacy levels, as determined by their scores on the self-

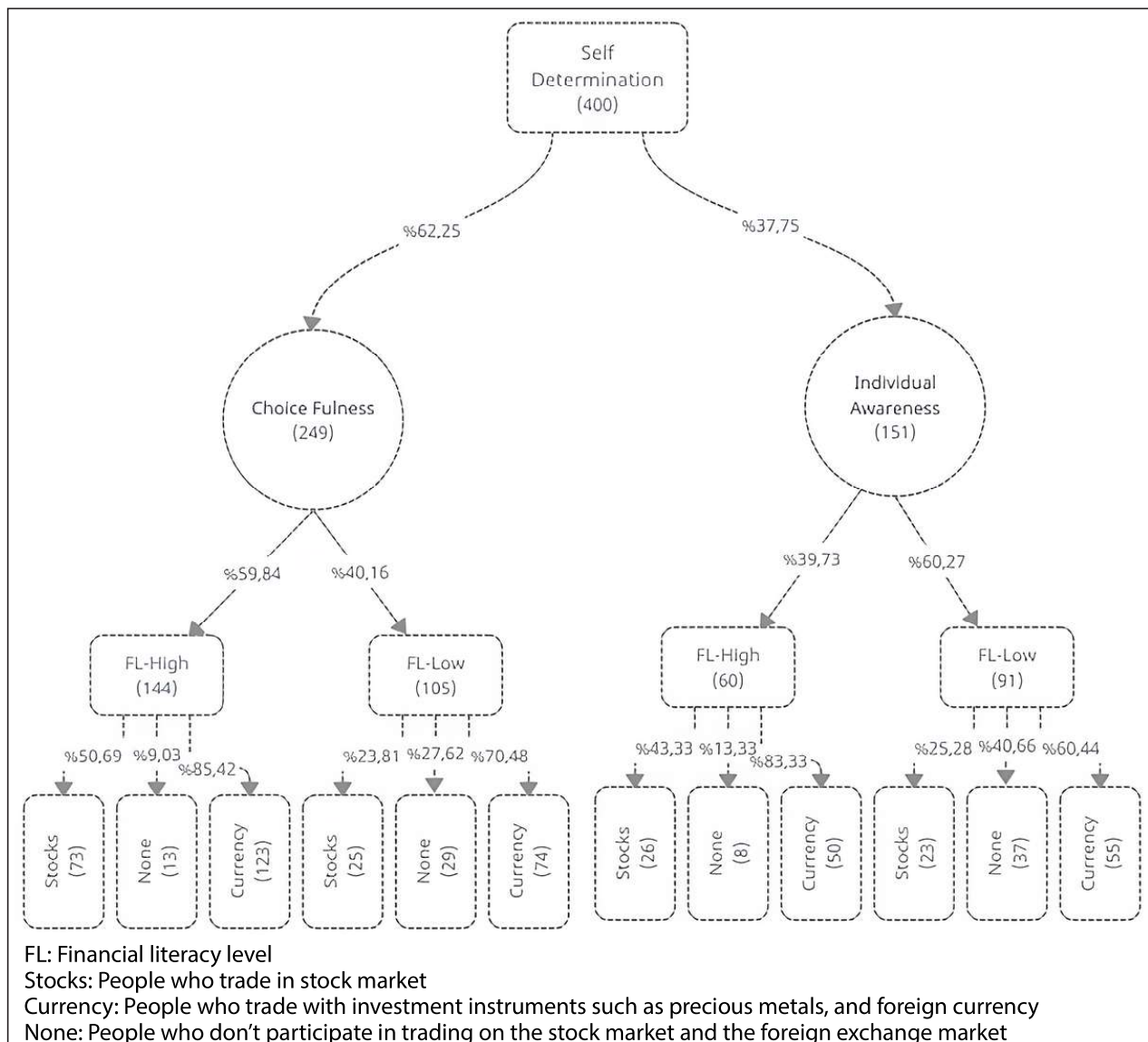


Figure 1: Self Determination Tree Diagram

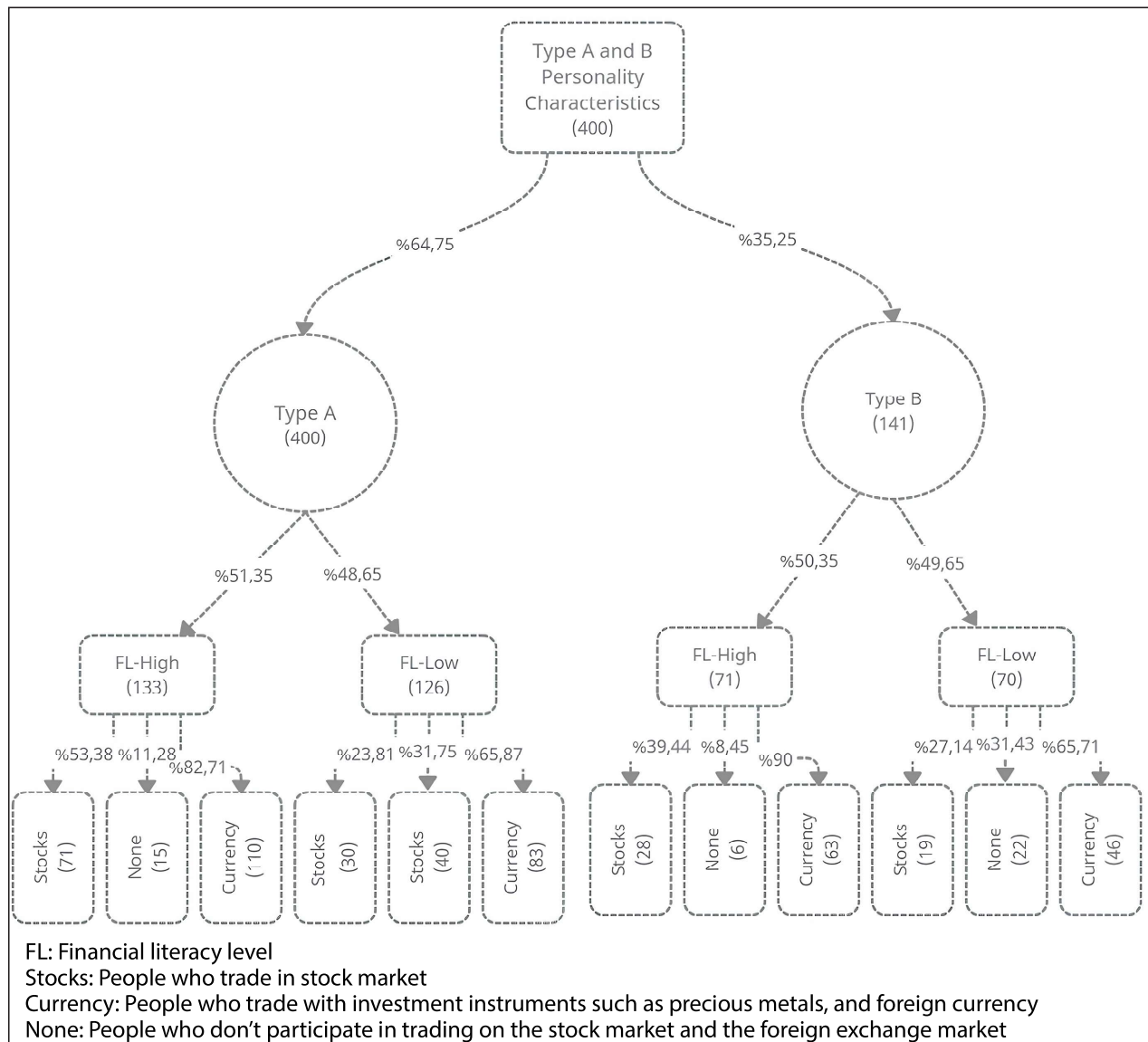


Figure2: Type A and B Personality Characteristics Tree Diagram

determination scale and their Type A and B personality scores, is displayed in the figures below. Self-determination scale while creating tree diagram; It is divided into two sub-dimensions, the choice fullness, and self-contact. The sub-dimensions are divided into groups with high and low financial literacy (FL). Financial literacy levels are divided into 3 dimensions. Those who engage in stock market trading (stocks), Those who trade with precious metals, currency, etc. investment instruments (currency), and those who do not trade on the stock market or other traditional investment instruments (none). The numbers between the concepts show the number of people, and the numbers on the lines between the images show the percentages. The percentage ratios related to financial behavior are more than one hundred because participants trade both on the stock market and with traditional investment instruments.

According to the tree diagram prepared according to the self-determination scale, 62% of the 400 participants had a high level of choice fullness, while 38% had a high level of self-contact. The rate of people with high financial literacy is higher among people with high choice fullness. In both subgroups, more than 80% of the financially literate respondents trade in foreign exchange markets. It has been observed that persons with a high degree of choice fullness have a rate of stock market trading that is 7% lower than that of those who are financially knowledgeable. On the other side, those with a high level of self-contact have a higher percentage of financial literacy but do not trade stocks or use investment vehicles like precious metals, or foreign currency.

When the financial behaviors of the participants who are financially illiterate according to the When the self-determination scale is looked at, it can be seen that the ratio of stock market traders who are not financially literate

is near to one another in both sub-dimensions. Despite their lack of financial literacy, those who have a high level of choice are more likely to trade with investment assets like precious metals, and foreign currency. Conversely, people with higher levels of self-awareness tend to have a higher percentage of nonfinancial literate individuals who don't trade on the stock market or use investment vehicles like precious metals, or foreign currency.

According to the tree diagram prepared for the type A and B personality scale, 65% of 400 participants exhibit A-type personality characteristics and 35% B-type personality characteristics. Although the number of people with a high financial literacy level of type A personality characteristics is more elevated than people with type B personality characteristics, they are proportionally close to each other. Among the financially literate participants, 82.71% of type A people trade in foreign exchange markets, while 90% of type B people trade in foreign exchange markets. People with type A personality traits have a 13% higher rate of stock market traders among those who are financially literate. People with type A personality traits tend to have a higher percentage of people who are financially aware but do not trade on the stock market or with investment vehicles like precious metals, and foreign currency.

The percentage of participants who trade in the stock market despite being financially educated is 23.81% for type A people when the financial behaviors of the participants who are financially illiterate according to the Type A and B personality traits scale are evaluated. When compared to Type B individuals, it is 27.14%. Despite the lack of financial literacy, the proportion of people who trade with investing products like precious metals, and foreign currency is very close to each other (65%) in both personality types. The rate of people who are not financially literate and do not trade with investing products like precious metals, and foreign currency is similar in both personality types (31%).

CONCLUSION AND RECOMMENDATIONS

This study aims to address people's financial behaviors in terms of financial literacy level and personality traits. For this purpose, quantitative analysis methods were preferred, and the clustering analysis method and tree diagram were used to support the findings. This study differs from others that have looked at the connection between financial literacy and personality traits in that it interprets the topic in light of the participants' financial behavior. One of the study's limitations is that it does not reveal a definite cause-effect relationship as a result of the collected data not being collected at different times and being collected continuously until a sufficient number of samples is reached.

People's marital status, education level, and income level were shown to have a statistically significant and favorable link when the relationships between financial literacy level and demographic features were evaluated. The positive relationship between the marital status variable and financial literacy may be because married individuals tend to have financial issues with the responsibility of avoiding future economic uncertainties. It was believed that there would be a correlation between education level and financial literacy. The positive relationship between income level and financial literacy, the other hand, as people's income level increases, they may be because tend to evaluate the remaining income by investing after meeting their basic needs. For this reason, the higher the income, the higher the probability of trading in financial markets and the greater the need for financial information.

Our sample was separated into three groups as a consequence of the cluster analysis. Each cluster-derived category is made up of participants with inadequate financial literacy. The main points where they differ are financial behaviors, self-determination, and type A and B personality characteristics. Group no 1, obtained as a result of the analysis, consists of people with type A personality features, with high self-contact, and who trade both in the stock market and with traditional investing products like precious metals, and foreign currency. The people in group 2 have B-type personality traits, have high self-contact, and do not trade in the stock market but with traditional investing products like precious metals, and foreign currency. Group 3, unlike the other two groups, consists of people with a higher right to choose fullness. Persons in the 3rd group have B-type personality traits and do not trade on the stock market or with traditional investment instruments. While groups 1 and 2 are affected by their social environment while making decisions, group 3 makes decisions individually.

When Groups 1 and 2 are compared, both consist of people affected by their social environment while making decisions but differ according to A and B-type personality traits. As a result of this difference, those in the 2nd group tend to make rational decisions by being more cautious in their financial behaviors. On the other hand, those in the 1st group are more ambitious and result-oriented, so they tend to make riskier transactions despite their low level of financial literacy in their financial behavior. When group 2 and group 3 are compared, although both groups exhibit B-type personality traits, the main difference between the two groups is that the people in group 3 make their decisions individually. As a result, although they have B-type personality traits, individuals who make their decisions individually do not turn to any investment instrument, being aware of their low financial literacy level. However, people with B-type personalities, whose decisions are influenced by their social environment, trade with less risky traditional investing products like precious metals, and foreign currency, although their financial literacy levels are low.

The tree diagram method was used to assess the people with high financial literacy because the levels of financial literacy are low in each group that was created as a result of the cluster analysis. According to the figure, persons with greater choice fullness are more likely than those with greater self-contact to trade in the stock market and conventional investments like precious metals, and foreign currency. The fundamental cause of this discrepancy is that self-contact might choose to trade in riskier markets since they have a high level of financial understanding. According to the tree diagram created according to the type A and B personality characteristics, Among people with high financial literacy, type A personality traits are more likely to trade in the stock market compared to type B personality traits. However, among those who trade with traditional investment instruments such as precious metals, and foreign currency, the proportion of people with type B personality traits is higher. This is because the tendency to trade with stock market instruments that can be considered riskier is higher in more ambitious people.

As a result, it has been discovered that personality traits and levels of financial literacy have an impact on how individuals make judgments about their financial behaviors. This study is also consistent with previous research revealing the importance of financial literacy on financial behavior (Agnew & Szykman, 2005; Lusardi & Mitchell 2011; Aren & Aydemir, 2015; Sadiq & Khan, 2019; Waheed et.al, 2020). Financial literacy affects a person's income and ability to use financial instruments.

The study's results show that personality traits also affect financial behavior, similar to studies on the subject (Diacon & Ennew, 2001; Warneryd, 2001; Hamza & Arif, 2019, Bhargava et.al., 2022). Financial habits are influenced by a variety of factors, including education and financial literacy. Every factor that affects a person's character, such as past experiences and environmental factors, can affect people's financial decisions and financial behaviors. The most crucial issue this study emphasizes is that, besides the impact of personality traits and financial literacy level parameters on financial behavior, many social issues such as individual experience, social environment, culture and religion, social norms, law, and legislation can affect financial behavior.

To deal with the subject in more detail in future studies, the risk aversion or risk-taking attitudes of the people in the sample can be included in the research and evaluated in terms of personality traits. In addition, the data gleaned from participants can be compared not continuously but by collecting them in different periods or before and after financial literacy training. Also, in the suitability test applied to individuals by banks that act as intermediaries in financial markets, it is possible to determine which risk group the person will be included in by asking questions about personality traits. In this way, it could contribute to more stable and reliable financial markets in the country.

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