

# Evaluation of investment preference with phantasy, emotional intelligence, confidence, trust, financial literacy and risk preference

Evaluation of  
investment  
preferences

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## Abstract

**Purpose** – There is strong excitement during Ponzi schemes and financial bubble periods. This emotion causes investors to turn to “unknown and new investment instruments”. This study, the factors that made “unknown and new investment instruments” preferable to “known and experienced investment instruments” were investigated.

**Design/methodology/approach** – It was taken into account unconscious like phantasy, emotional like emotional intelligence, both affective and cognitive like financial literacy and subjective beliefs like trust and overconfidence. In addition, risk preferences were measured with four different risk variables. In this context, data were collected by online survey method between November 2020 and May 2021 with convenience sampling. First, the data were collected from 832 participants in the pilot study. Additional data were also collected using convenience sampling and online surveys, and a total of 1,692 participants were obtained. Data were analyzed using Statistical Package for the Social Sciences (SPSS) 25 and AMOS 24.

**Findings** – As a result of the analyses made, the variables that lead investors to choose “unknown and new investment instruments” were determined as risky investment intention, phantasy, risk taking/risk avoidance, confidence, risk tolerance and subjective financial literacy. Trust and risk perception have a very weak effect on preferences. However, no effect of emotional intelligence and objective financial literacy was detected. In addition, a moderately positive and significant relationship was found between objective and subjective financial literacy. Subjective financial literacy was found to have a strong and significant relationship with emotional intelligence, confidence, trust, risky investment intention and phantasy.

**Originality/value** – This study investigates the factors underlying individuals’ investment preferences from a broad perspective. We think that this study is unique in this structure and wide variables. We believe that the findings obtained in this manner are unique to both academics and practitioners. We also believe that the findings of the study will make an important contribution to understanding participation behavior in various Ponzi schemes and financial bubbles.

**Keywords** Phantasy, Emotional intelligence, Financial literacy, Confidence, Trust, Risk, Investment preference

**Paper type** Research paper

## 1. Introduction

Investors’ investment preferences cannot be explained only by financial figures (Aren and Hamamci, 2021e). Therefore, economists have empirically investigated the effects of emotions, opinions and views on financial decisions in recent years (Kalaycı *et al.*, 2020). Investors first perceive financial instruments as good or bad and then evaluate what they perceive as good as low risk and what they perceive as bad as high risk (Slovic *et al.*, 2004). For this reason, investors’ preferences can be observed, but the variables that lead to this preference cannot be learned from market data (Bikhchandani and Sharma, 2001; Çelen and Kariv, 2004).

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Unknown and new investment instruments create fear or excitement for investors (Aren and Hamamci, 2021e). This emotion leads them to own the instrument or move away from it. These feelings, which are devoid of awareness in the financial markets, can be used against investors by different interest groups and may lead to negative consequences for the economy of the individual and society (Aren and Hamamci, 2021b). In Turkey, where the data of the study were collected, in the last few years, various “unknown and new investment instruments” (!) created an emotion of excitement in some investors and this emotion had devastating consequences for them. Between 2016 and 2017, more than 130,000 people deposited \$300 million into the structure under the name of “çiftlikbank”, which is essentially a Ponzi scheme, and was defrauded. In 2018, a company called Hipper collected more than \$20 million from nearly 10,000 people, with the promise of up to 35% monthly returns (the deposit rate was 24% annually at the time). In 2021, money of more than \$150 million has evaporated in Thodex crypto money market fraud, which has 390,000 users.

These and similar Ponzi schemes are actually the result of individuals seeking phantastic objects. Phantasy is unconscious dream and wishes whose roots go back to infancy (Raines and Leather, 2011; Aren, 2019; Aren and Hamamci, 2021e). Phantastic objects, on the other hand, are mental representations that meet phantasies, which are unconscious wishes and desires (Taffler, 2014; Aren and Hamamci, 2021e). When the reality of the phantastic object is believed, doubt and anxiety disappear (Tuckett and Taffler, 2008; Tuckett, 2011), which provides the satisfaction of unconscious dreams (Tuckett and Taffler, 2008; Aren and Hamamci, 2021e). All new and exciting financial instruments in financial markets have the potential to become phantastic objects (Tuckett, 2009; Aren and Hamamci, 2021e).

In this framework, the factors that cause individuals to prefer “unknown and new investment” over “known and experienced investment” were investigated in this study. The first variable to be considered in this context is phantasy and the phantastic object that embodies its form. However, although unconscious processes are important in decision making, they are not the only determinants. In addition, many conscious factors were effective. Some of these are emotional and some are cognitive factors. In this framework, emotional intelligence, financial literacy, trust, confidence and various risk variables were included in our study, including these elements.

The investment decision process is affected by various emotional and cognitive factors that differ from person to person (Kanagasabai and Aggarwal, 2019). Emotional intelligence is the ability to perceive, feel, understand and regulate emotions that are innate and develop over time (Moradi *et al.*, 2011; Salehi and Mohammadi, 2017; Bouzguenda, 2018; Enns *et al.*, 2018; Pathak and Goltz, 2021). Owing to emotional intelligence, individuals perceive and evaluate information by connecting their emotions and cognition (Bouzguenda, 2018). While high-level emotional intelligence helps make successful decisions by managing emotions correctly (Belanger *et al.*, 2007; Salehi and Mohammadi, 2017), they also perceive stress and risk lower (Enns *et al.*, 2018; Morales-Rodríguez and Perez-Marmol, 2019; Chandra, 2021) and causes high-risk behaviors (Salehi and Mohammadi, 2017). For this reason, while evaluating the “unknown and new investment”, it is important to determine whether these characteristics lead them to take uncalculated risks or make the right decisions as well as their emotional intelligence levels.

There are two risks that are associated with the unknown and new investment instruments: performance risk and security risk. While one is the risk that the asset will not provide the expected return, the other is the risk that the asset will not be able to fulfill any of its obligations. Therefore, risk assessments are related to the judgment regarding the instrument (Rougier, 2019). Investors who buy new and unknown assets perceive both risks as low, and trust that negative consequences will not occur. Trust in the financial instrument is the trust in the institution that issues the instrument, the structure that organizes the market and the public authority in general (Klein and Shtudiner, 2016). When individuals perceive low environmental uncertainty, they have a higher perception of control (Marafon

*et al.*, 2018). High perception of control leads to high levels of trust and confidence. This leads to a low perception of risk too (Siegrist *et al.*, 2005). Risk and trust variables together form the financial risk-taking desire and risky instrument investment action (Klein and Shtudiner, 2016). In fact, the investor is aware of the risks, and he/she just has the self-confidence that it will not happen to her/him. Confidence is the belief in one's own knowledge and ability.

As new products and financial services were introduced, financial markets have become more accessible to individual investors (Hizgilov and Silber, 2020). At this point, the importance of financial literacy emerged. Financial literacy refers to financial attitudes, awareness, skills, knowledge and behavior (Kanagasabai and Aggarwal, 2019). While financial literacy helps to understand financial instruments, it also causes overconfidence and trust (Kawamura *et al.*, 2021). Therefore, this does not guarantee the right decision (Lusardi and Mitchell, 2011, 2014; Kawamura *et al.*, 2021). However, the awareness of the factors that may cause the wrong decision is again with the help of financial literacy (Kanagasabai and Aggarwal, 2019). Financial literacy is divided into two as individuals' real knowledge (objective financial literacy) and perceptions regarding their knowledge (subjective financial literacy). Although these two concepts are related, they have different characteristics (Bellofatto *et al.*, 2018) and different effects (Xiao and O'Neill, 2016; Xiao and Porto, 2017; Nejad and Javid, 2018).

Cruwys *et al.* (2021) state that risk is experienced subjectively and those two situations with similar negative outcome probabilities may differ in the degree to which they are perceived as dangerous. Individual differences are important in decision-making (Campbell *et al.*, 2004), but context is just as important (Marafon *et al.*, 2018). Because emotions play a central role in risk perception (Loewenstein *et al.*, 2001) and do not consist entirely of cognitive evaluations (Cruwys *et al.*, 2021). Risk taking differs from risk perception. Not only wish but also behavior is necessary (Masoud and Albaity, 2021). As a result, financial behavior differs significantly according to risk preferences, trust and confidence levels, objective and subjective financial literacy levels (Mudzingiri *et al.*, 2018).

The main question explored in this study is what motivates individuals to "unknown and new investment instruments" when there is "known and experienced investment instruments". It was taken into account unconscious like phantasy, emotional like emotional intelligence, both affective and cognitive like financial literacy and subjective beliefs like trust and overconfidence. In addition, the risk was analyzed not as a single variable, but as four different variables: risk perception, risk tolerance, risk-taking/risk avoidance and risky investment intention. In this way, detailed risk traits were examined rather than a general risk evaluation. We believe that this study is unique with its complex structure and wide variables, and that the findings are important for both academics and practitioners. In addition, these findings make a significant contribution to the literature, especially in terms of understanding participation behavior in various Ponzi schemes and financial bubbles.

The following section presents a detailed literature review. Next, we present the methodology, analysis and discussion sections.

## 2. Literature review

### 2.1 Phantasy

Phantasy is unconscious dreams (Aren and Hamamci, 2021e) and wishes (Spillius, 2001; Taffler and Tuckett, 2010; Raines and Leather, 2011). It is based upon the infancy periods of the individual and continues to develop throughout his/her life (Aren, 2019). Unconscious processes are also effective in decision-making such as conscious processes (Bargh and Chartrand, 1999; Turnbull and Solms, 2007; Bargh and Morsella, 2008; Taffler, 2018), and help manage stress and anxiety (Aren and Hamamci, 2021d). The existence of phantasy causes the desired situation to be felt (Taffler, 2018) rather than the existing one. For this

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reason, although it is not real, it is felt at an unconscious level and has an effect on behavior (Spillius, 2001).

It is the phantastic object that makes the phantasies that exist in the unconscious mind visible at the conscious level. Phantastic objects are mental representations that meet phantasies, which are unconscious wishes and desires (Taffler, 2014; Aren and Hamamcı, 2021e). It is a perception that connects the phantastic object to the real object. The common point between phantasy and perception is intuition (Lohmar, 2020). When an individual perceives an object that will intuitively realize her phantasies in the real world, he/she wants to possess it. Once the existence of the phantastic object is believed, there is no doubt and anxiety (Tuckett and Taffler, 2008; Tuckett, 2011). Possession of it allows unconscious dreams to be satisfied (Tuckett and Taffler, 2008; Aren and Hamamcı, 2021e). All new and exciting instruments in the financial markets are considered to have the potential to become phantastic objects (Tuckett, 2009; Aren and Hamamcı, 2021e). The desire to realize phantasies leads individuals to buy (Montazeribarforoushi *et al.*, 2017); in particular, this unconscious desire that creates financial bubbles or leads people to enter Ponzi schemes (Taffler and Tuckett, 2003; Aren, 2019).

Investment contains uncertainty (Aren and Hamamcı, 2021e). Uncertainty causes conflicting emotions such as fear and hope or anxiety and pleasure in the individual. This is where phantasies come into play and nurture positive emotions while suppressing negative ones. Knowledge is not only at the conscious level (Aren and Hamamcı, 2021e). Phantasy and phantastic objects affect the perception of information and become an important determinant of the decision (Taffler and Tuckett, 2010; Taffler, 2014). If unknown and new financial instruments with the potential of phantasy objects evoke the same feeling in many markets, phantasy will dominate the market (Tuckett and Taffler, 2008) and the individual will appropriate the ideas of others (Aren, 2019). For this reason, Aren and Hamamcı (2021e) point out that phantasy is the main factor in investors' tendencies towards unknown and new investment instruments.

Studies investigating the effect of phantasy on financial decisions are limited and have recent history. Tuckett and Taffler in their studies at different times (Tuckett, 2009; Taffler and Tuckett, 2010; Taffler, 2014) emphasize that phantasy increases risk-taking. The studies of Aren and Hamamcı (2021a, e) also presented empirical findings on the relationship between phantasy and risky investment intention and identified positive relations.

Tuckett and Taffler (2008) mentioned that financial instruments can become a phantastic object in financial markets in their publications that can be regarded as the first study on emotional finance and stated that trade should be evaluated in this context. Tuckett (2009) also states that excitement or anxiety seen in financial bubbles produces strong emotions and is supported by phantasy. These two emotions are opposite emotions and cannot be experienced at the same time. Experiencing only one is associated with phantasy based on the infancy period of the individual and is effective in individuals' financial transactions. Taffler and Tuckett (2010), on the other hand, emphasize the basic variables of emotional finance. They point out the role of unconscious processes of integrated state of mind in financial decisions and its effect on phantasy. Taffler (2014) also states that phantasy will be useful in evaluating and understanding dot-com and Chinese stocks bubbles.

Aren and Hamamcı first developed scales that could measure the basic variables of emotional finance in their work in 2021 and determined the model of the theoretical framework based on empirical findings. In their work in 2022, they found the relationship between defense mechanisms, which are one of the unconscious processes, and phantasy, and determined these effects on the risky investment intention. In their study, Aren and Hamamcı (2021d) reported findings on the existence of a relationship between phantasy and a risky investment intention, and determined that individual cultural values, which are considered a kind of personality traits, have an important effect on this relationship.

## 2.2 Trust

Trust is the belief that the outcome will be positive (Colquitt *et al.*, 2007; Cruwys *et al.*, 2021) and the subjective probability that individuals attribute to the state of being cheated (Kanagaretnam *et al.*, 2019; Sun, 2021). It is accepted as an intention, action and personality trait that is formed in the first infancy and develops with experience over time (Colquitt *et al.*, 2007). It shapes the attitudes and preferences of individual (Zeffane, 2015a, b). It is both affect-based and cognition-based (Colquitt *et al.*, 2007). On the one hand, while there is the perception dimension, on the other hand, there are cognitive evaluations. In this context, the individuals experience a psychological process in which they accept vulnerability while basing their choice and action on positive expectations (Colquitt *et al.*, 2007). With this feature, it is an important explanation of behavior (Breuer *et al.*, 2020). When individuals lose their trust, they transfer their investments to safer financial institutions (Masoud and Albaity, 2021). For this reason, trust is central to understanding individual's possibility of approving risks in socio-economic activities, including financial initiatives (Zeffane, 2015b).

Every financial trade harbors trust in itself (Masoud and Albaity, 2021). Mistrust to trade causes the expected return to be perceived as low (Masoud and Albaity, 2021). Trust affects individual risk-taking decisions and financial preferences (Zeffane, 2015a, b). It is predicted that participation in financial markets will increase as trust levels increase (Xu, 2018; Cui and Zhang, 2021). There are many studies have indicated that trust increases risk-taking (Cook *et al.*, 2005; Sun, 2021; Masoud and Albaity, 2021). However, interestingly, as financial knowledge decreases, the effect of trust on participation in financial markets increases (Cui and Zhang, 2021). People with high financial knowledge rely less on trust in participating in financial markets (Cui and Zhang, 2021). In this context, trust affects financial risk-taking in different ways and at different levels (Xu, 2018).

Trust has two different effects on participation in financial markets: The first is in the perception of risks regarding the expected return and the other in the formation of belief that "the unknown can be known" (Cui and Zhang, 2021). Inherently, in risky situations, individuals perceive the risk lower through social interaction, feel more confident and engage in more risky behavior (Xu, 2018; Cruwys *et al.*, 2021). Belonging to the group gives a feeling of trust (Cruwys *et al.*, 2021), and trust causes a low perception of risk. When excitement prevails in financial markets and individuals unconsciously search for a phantastic object, anxiety leaves its place to trust; existing risks are not felt, perceived and ignored. Klein and Shtudiner (2016) state that trust is an important variable in risky investment behavior and mention that individuals not only act risky by buying risk investment instruments, but also make risky instruments their main investment because they believe that they know the unknown (Cui and Zhang, 2021).

Klein and Shtudiner (2016) evaluated trust in two dimensions (trust in the world versus self-trust), similar to the one in this study, in their study on novice investors. According to this study, they have a very low sample ( $n = 101$ ). In addition to this, they found that both trust variables had different effects on investment preference. While people who trust others do not make investment diversification in an interesting way, self-confident investors both make diversification and prefer lower-risk investments. Similarly, Cruwys *et al.* (2021) investigated the effects of disgust and trust on risk perception in their research, which was structured within the framework of eight different experimental studies. Both emotions affect risk perception. They also found that belonging to a group had a particularly positive effect on trust, and reported findings that trust in the group ironically leads individuals to riskier investments. Xu (2018), who collected data from a relatively different sample compared to previous studies such as China, also investigated the relationship between trust and financial risk taking. He considered trust as a generalized trust with different meanings, such as perceived fairness or trust by strangers. In this framework, he evaluated stock market participation and found that when the trust rose, the stock market participation also rose.

However, he also pointed out the importance of cultural differences in trust. [Cui and Zhang \(2021\)](#), who investigated trust and financial market participation with Chinese data, reported findings that wealth and financial knowledge may also be important variables in this relationship.

In this context, we think that trust is an important variable in choosing “unknown and new investment” over “known and experienced investment”.

### 2.3 Confidence

Confidence and trust are related but different concepts ([Reid, 2009](#)). Trust is the belief that individuals can trust others, gain importance in the absence of knowledge, and it is based on social relations, group membership and shared values ([Siegrist et al., 2005](#)). Confidence, on the other hand, is a person’s feeling of positive emotion about the outcome of the decision ([Bayat et al., 2019](#)) and the subjective belief that a positive outcome will occur ([Campbell et al., 2004](#)). Confidence, in essence, is the individual’s confidence in himself/herself and his/her decisions, and the belief that events related to himself/herself will develop positively. Contrary to trust, as information increases, confidence increases ([Marafon et al., 2018](#)) and uncertainty is perceived as low and high values are attributed to control ability ([Siegrist et al., 2005](#)). However, what individual actually knows (objective financial knowledge) and his/her belief about what he/she knows (subjective financial knowledge) are different ([Yao and Rabbani, 2021](#)). For this reason, beliefs are critical in the assessment of confidence ([Rougier, 2019](#)) and affect the self-confidence judgment process ([Bogdan et al., 2017](#)).

Overconfidence is an evaluation of individuals’ own knowledge and abilities more than actual ([Glaser and Weber, 2007](#); [Deaves et al., 2009](#); [Graham et al., 2009](#); [Ludwig and Nafziger, 2011](#); [Aren and Canikli, 2018b](#)). These people position themselves above average and ignore the uncertainty in the nature of financial markets ([Busenitz and Barney, 1997](#); [Mota et al., 2015](#)). Uncertainty is different from risk; it is incalculable and not fully predictable. For this reason, overconfidence manifests itself in the evaluation phase of uncertain future ([Peón et al., 2016](#)) and determines which information is taken into account and which is not ([Peng and Xiong, 2006](#)).

There is a large literature that confidence increases risk taking ([Tajeddini and Tajeddini, 2008](#); [Marafon et al., 2018](#); [Yao and Rabbani, 2021](#)). However, its impact on financial decisions is not limited to risk taking. It plays a critical role in both investment and savings decisions ([Mudzingiri et al., 2018](#)) and in the formation of stocks and bond prices ([Zhao, 2017](#)). Unrealistic self-confidence causes reluctance to take financial advice ([Yao and Rabbani, 2021](#)) and ignores important signals in the financial decision process ([Mudzingiri et al., 2018](#)). For this reason, although the relationship between risk perception and risk tolerance and risky investment is accepted, the effect of confidence on this relationship ([Marafon et al., 2018](#); [Yao and Rabbani, 2021](#)) should not be ignored.

[Broihanne et al. \(2014\)](#) investigated the effect of risk perception and overconfidence on risky behavior using the data collected through interviews with 64 finance professionals. As expected, they found that overconfidence had a positive effect on risky behavior and risk perception had a negative effect. However, stock return volatility, which is a measure of financial risk, is not a strong precursor to risky behavior of financial professionals. Similarly, [Campbell et al. \(2004\)](#) also reported a similar finding that risk perception and overconfidence are more effective in risky preference. In their research designed within the framework of three studies, they showed that narcissism causes overconfidence, that overconfidence leads to more risky behavior, and performance estimates are based on expected performance rather than actual performance results. In this context, it is seen that individuals with overconfidence give importance to expected results rather than actual results when making risky choices.

It is generally accepted that overconfidence increases risk taking. This finding is supported by data from different countries. [Marafon et al. \(2018\)](#) found that overconfidence reduces risk perception but increases risk-taking in survey on 180 Brazilian banking customers [Yao and Rabbani \(2021\)](#), in their study on 2049 individuals over the age of 25 in the United States US, determined that the higher the level of confidence in the relationship between risk tolerance and portfolio risk, the higher the portfolio risk. [Mudzingiri et al. \(2018\)](#), in their study on 191 university students in South Africa, found that students with low financial literacy levels were more self-confident and preferred more risk, and they pointed out that this behavior may be the main cause of financial crises in the world. [Zhao \(2017\)](#) examined the period of 1968–2014 in the study on market data and showed that changes in financial asset prices such as stock and bond price variations are related to confidence.

In addition to these findings, [Tajeddini and Tajeddini \(2008\)](#) did not report a relationship between overconfidence and both profit growth and employment growth in their study on 174 Swiss small-sized service retailers. They discussed that this was a finding that could not be found in the context of entrepreneurship and stated that its reasons should be investigated. In this context, [Rougier \(2019\)](#) also approached confidence and risk assessments in a purely theoretical and conceptual framework. He stated that risk taking is related to the level of confidence, but it can vary from person to person.

#### 2.4 Emotional intelligence

Emotional intelligence is the ability to perceive, feel, understand and regulate emotions ([Salehi and Mohammadi, 2017](#); [Kovacevic et al., 2018](#); [Pathak and Goltz, 2021](#)). Emotional intelligence theories state that emotional intelligence is innate and evolves over time ([Salehi and Mohammadi, 2017](#); [Bouzguenda, 2018](#)). An individual's experience and knowledge contribute to his/her emotional intelligence level. Individuals evaluate their information by making a connection between emotions and cognition ([Bouzguenda, 2018](#)) and tend to accept their emotions as information ([Sullivan, 2011](#)). For this reason, emotions are a mental ability and one of the descriptors of behavior ([Thomas et al., 2017](#); [Bouzguenda, 2018](#)). It is assumed that an emotionally intelligent individual has a high level of abstract reasoning capacity to analyze a particular problem and controls the situation to find an "emotionally intelligent" solution ([Bouzguenda, 2018](#)).

Emotions increase the quality of decisions ([Sullivan, 2011](#)) and are also the source of anomalies observed in financial markets ([Bouzguenda, 2018](#)). Especially in complex situations, intuition helps decisions better ([Sullivan, 2011](#)). People with high emotional intelligence can take the right risks by controlling and managing their emotions correctly ([Salehi and Mohammadi, 2017](#)). For this reason, it has a greater impact on successful decision making than cognitive abilities ([Belanger et al., 2007](#)). While low emotional intelligence causes fear and anxiety ([Panno et al., 2015](#); [Cheung et al., 2017](#); [Salehi and Mohammadi, 2017](#)), individuals with high emotional intelligence levels accept stressful events as a challenge, not as a threat ([Buccioli et al., 2021](#)). For this reason, they perceive stress and risk lower ([Moradi et al., 2011](#); [Morales-Rodríguez and Perez-Marmol, 2019](#); [Chandra, 2021](#)) and show more risk-taking behavior ([Salehi and Mohammadi, 2017](#)).

People who rely on their emotional intelligence have better financial preferences ([Bouzguenda, 2018](#)). For this reason, it is predicted that emotional intelligence will increase decision quality ([Sullivan, 2011](#); [Salehi and Mohammadi, 2017](#)). People with high emotional intelligence establish successful social relationships and have high self-confidence ([Salehi and Mohammadi, 2017](#)). Financing decisions are also affected by people's emotional intelligence ([Bouzguenda, 2018](#)). High emotional intelligence is associated with high risk-taking ([Panno, 2016](#); [Aydemir and Aren, 2017](#); [Buccioli et al., 2021](#)).

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The association of emotional intelligence with the preferences of unknown and new investment instruments is quite interesting. Because, on the one hand, while high emotional intelligence is associated with the correct financial decision (Sullivan, 2011; Salehi and Mohammadi, 2017), low stress and low-risk perception (Enns *et al.*, 2018; Morales-Rodriguez and Perez-Marmol, 2019; Chandra, 2021) and high risk-taking (Panno, 2016; Aydemir and Aren, 2017; Salehi and Mohammadi, 2017; Bucciol *et al.*, 2021), on the other hand, it is evaluated as the source of not having fear and anxiety (Panno *et al.*, 2015; Panno, 2016; Cheung *et al.*, 2017), high self-confidence (Salehi and Mohammadi, 2017) and financial markets anomalies (Bouzguenda, 2018).

The relationship of emotional intelligence with decision making and risk-taking was investigated in different studies. Salehi and Mohammadi (2017) investigated the relationship between thinking styles, emotional intelligence and decision-making by collecting data from university students and academics through questionnaires. While they could not detect a relationship between emotional intelligence and thinking styles, they found a relationship between emotional intelligence and quality of decision-making.

Chandra (2021) collected data through online questionnaire and telephonic discussion with 94 university students in Indian during the COVID-19 pandemic period. They investigated coping strategies used by individuals to cope with the stress caused by the COVID-19 pandemic and evaluated the effect of emotional intelligence. They found that individuals with a high level of emotional intelligence cope with stress using different coping strategies.

Enns *et al.* (2018) collected data from 203 university students in the US with the questionnaire. They examined the relationship between emotional intelligence, perceived stress and coping strategies. High emotional intelligence reduces perceived stress and affects the preference of coping strategies. Moradi *et al.* (2011) found a similar finding in data collected from 200 university students in Iran by survey. They also found significant relationships between emotional intelligence and coping strategies. Morales-Rodriguez and Perez-Marmol (2019) investigated a similar phenomenon by collecting data from 258 students in Spain by survey. They also pointed out the relationship between coping strategies and emotional intelligence. Panno (2016) found a relationship between emotional intelligence and risk taking and decision making in her study on 94 adolescents in Italy. Panno *et al.* (2015), on the other hand, in their study on 158 university students in Italy, showed that negative mood and anticipated fear had a mediating effect on the relationship between emotional intelligence and risk taking.

In addition, there are studies investigating the relationship between emotional intelligence and financial risk taking. Sullivan (2011) in her theoretical conceptual study points out the interaction of unconscious with the conscious brain, states that decision making can be improved in this way, and calls it financial emotional intelligence. Financial intelligence combines intuitive and deliberate decision-making processes. In this way, the unconscious processes affect the conscious processes and help to make better decisions in complex situations.

Aydemir and Aren (2017) collected data from 496 individuals from Turkey by survey and found that the higher the emotional intelligence level, the higher the level of financial risk taking. Cheung *et al.* (2017) in their study on 305 university students in Hong Kong analyzed separately emotional intelligence with its four dimensions. Likewise, they evaluated risk-seeking as ethical, financial, health/safety, social and recreational in five different dimensions. However, they could not report any direct relationships between emotional intelligence and risk taking. They explained some items in the scales they used were meaningless for the Chinese subjects participating in the survey as a strong reason for this.

Bouzguenda (2018) investigated the effect of emotional intelligence on financial decisions with a survey study on 50 Tunisian companies. In this context, it has reported the existence of



a partial effect. Firm managers with high emotional intelligence believe that they can improve the financing opportunities of their firms, on the one hand, and on the other hand, they are careful not to exceed the target debt ratio.

Buccioli *et al.* (2021) investigated the relationship between emotional intelligence and financial risk taking by collecting data from 163 participants reached via MTurk platform by survey. They found a positive relationship between emotional intelligence and financial risk taking. However, this does not apply to all sub-dimensions of emotional intelligence. While there were positive relationships between well-being, self-control and emotionality and financial risk taking, they found a negative relationship with sociability and financial risk taking. They explained the relationship to these differences in the context of gender differences.

For this reason, it is important which aspect of emotional intelligence will come to the fore in the preference of “unknown and new investment” and “known and experienced investment”.

### 2.5 Objective and subjective financial literacy

Financial literacy is the financial attitude, awareness, skills, knowledge and behavior that help make decisions (Kanagasabai and Aggarwal, 2019). It would be incomplete to consider this only as knowledge. Along with knowledge, understanding, attitude, behavior, skills and confidence are also required (Kanagasabai and Aggarwal, 2019; Hizgilov and Silber, 2020). Financial literacy is important in the decision making process (Jappelli and Padula, 2013; Fernandes *et al.*, 2014; Aren and Aydemir, 2015; Raut, 2020; Zaki *et al.*, 2020). However, most of these behaviors are intuitive (Kawamura *et al.*, 2021). Personality traits and affective and cognitive biases play important roles in the financial decision-making process (Kanagasabai and Aggarwal, 2019). Increasing knowledge and skills leads to greater reliance on overconfidence and intuition (Kawamura *et al.*, 2021). Therefore, high financial literacy does not guarantee the right decision (Lusardi and Mitchell, 2011, 2014; Kawamura *et al.*, 2021). Increasing financial literacy increases trust in both the judiciary (Kanagasabai and Aggarwal, 2019) and risk perception (Mudzingiri and Koumba, 2021). These factors, which negatively interfere with the judiciary for investors, can be controlled with the help of financial literacy (Kanagasabai and Aggarwal, 2019). In recent years, more financially complex products have emerged in financial markets, and it has been seen that many of them are difficult to understand by individual investors (Hizgilov and Silber, 2020). For this reason, financial instrument knowledge and financial literacy gained importance (Kanagasabai and Aggarwal, 2019).

There are two applications of measuring financial literacy. The first is the measurement of a person's real knowledge, and this is evaluated as objective financial literacy, while the other is the belief and evaluation of a person's self-knowledge (Xiao *et al.*, 2015; Nejad and Javid, 2018). Objective financial literacy is based on knowledge. This is one's true knowledge and skills. However, in subjective financial literacy, the individual's perceptions and evaluations regarding his/her own knowledge is in question. Although these two are related, they have different characteristics (Bellofatto *et al.*, 2018) and have different effects on behavior (Xiao *et al.*, 2015; Xiao and O'Neill, 2016; Xiao and Porto, 2017; Nejad and Javid, 2018).

In addition, there are also studies that found it to be associated with risk avoidance (Aren and Zengin, 2016; Mudzingiri *et al.*, 2018) and even could not detect any relationship (Aren and Aydemir, 2014; Cox *et al.*, 2015; Anindita and Ulpah, 2020; Aren and Hamamci, 2020). Some studies have investigated its relationship with risk-taking by distinguishing objective and subjective financial literacy and found that only subjective financial literacy increases risk-taking (Aren and Akgunes, 2019). In this context, it can be said that the relationship between financial literacy and risk-taking is not certain (Bannier and Neubert, 2016; Noviarini *et al.*, 2021)

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Aren and Zengin (2016) point out that while investors with low-level financial literacy mostly prefer foreign currency and deposits, those with high-level financial literacy tend to stocks. Similarly, Kawamura *et al.* (2021) also state that investors with high-level financial literacy prefer more speculative and risky investments and also exhibit more daring behaviors.

Most of the studies on financial literacy are based on data collection by survey method and investigate its effect on risk taking, risk perception, risk avoidance, investment choice or financial behavior. In this context, Nicolini *et al.* (2017) collected data from a total of 1,150 people from Italy, Sweden and Spain through questionnaires. They referred to the fact that financial literacy affects investment decisions in different ways, and that the lack of understanding of financial risk, especially due to low financial literacy, may lead to a negative risk attitude.

Aren and Canikli (2018a) found a negative relationship between risk perception and financial literacy in their study, in which they collected data from 92 individuals from Turkey through questionnaires. They reported that as individuals' financial literacy levels increase, they perceive risks less. In addition, they showed that financial literacy has a decisive role on investment preferences with discriminant analysis.

Niazi and Malik (2020), on the other hand, collected data from 775 nonfinancial professionals, 85 of whom were military personnel, from Pakistan, Canada, Tunisia, Romania, Jordan, Moldova and UK. In their study, they found that financial literacy and education increased diversification while investing and reduced risk taking.

Aren and Zengin (2016) also collected data from 94 individuals from Turkey with questionnaire. They found that financial literacy is effective on both risk perception and investment preferences. Individuals with low financial literacy also have lower risk investment preferences.

Aren and Aydemir (2014) in their review study of financial literacy, after considering the relationship of financial literacy with various variables, recommended that its effect on financial decision making should be taken together with other potential variables. In this context, Anindita and Ulpah (2020) collected questionnaires from 475 people from Java and BAli. They found that emotional intelligence and locus of control have an effect on financial behavior and investment decisions. In addition, they stated that objective financial literacy has an effect on investment decisions, but subjective financial literacy has no effect.

Nejad and Javid (2018) investigated the use of retail financial services with subjective and objective financial literacy, using survey data from 486 participants from the US. They analyzed objective financial literacy at three levels and found that individuals with moderate financial literacy reported lower subjective financial literacy than individuals with low and high financial literacy. In addition, people with high financial literacy use online and mobile banking services more.

Noviarini *et al.* (2021) carried out their studies with the data they collected from 1,191 New Zealanders over 55 years old. They formed subcategories according to various variables such as ethnicity, gender, marital status, etc. Although significant relationships were reported between financial literacy and retirement planning, the findings between financial literacy and risk tolerance are complex and differ according to subgroups.

Aren and Akgunes (2019) collected data from 135 university students in Turkey with a questionnaire. Together with personality traits and thinking styles, they investigated the effect of objective and subjective financial literacy on risk perception. They reported findings that subjective and objective financial literacy is related. However, the level of subjective financial literacy is reported as 60% higher than objective financial literacy. In addition, as subjective financial literacy increased, risk perception increased, but no such effect of objective financial literacy could be detected.

Aren and Hamamci (2020) collected data from 446 people from Turkey through questionnaires. While investigating the effect of emotions and personality traits on risk avoidance, risky investment intention and investment choices, they also investigated differentiation according to objective and subjective financial literacy. They could not find a significant effect of both objective and subjective financial literacy on the three risk variables. However, while they detected a positive correlation between objective financial literacy and risky investment intention, they also reported findings that investment choices differ from subjective financial literacy.

Cox *et al.* (2015)'s study is based on data obtained from the Dutch National Bank (DNB) Household Survey from the USA. They examined households' mortgage choices, and the sample consisted of 292 amortizing mortgages, 137 deferred amortization mortgages and 348 interest-only mortgages. Their results showed that households with high financial literacy are more likely to choose interest-only mortgages.

The research data of Bannier and Neubert (2016) consists of 2047 responses obtained by survey German households conducted by the Munich Center for the Economics of Aging. They evaluated the investments as standard and sophisticated and associated them with both objective and subjective financial literacy according to gender. Standard investments are associated with both objective and subjective financial literacy in men, and only objective financial literacy in women. Sophisticated investments are more strongly associated with subjective financial literacy, and this relationship is even higher for women.

Korkmaz *et al.* (2021) reached 31,432 households data using the China Household Finance Survey. They found an inconsistency between risk preference and risk behavior. Financial literacy has two different effects on this inconsistency. While it increases this inconsistency in risk-averse people, it decreases it in risk-taking people.

Hermansson and Jonsson (2021) combined the banking information of 12,156 Swedish bank customers with the data they collected through the survey and reported a positive relationship between financial literacy and risk tolerance. However, they also emphasized that the effect of financial interest on risk tolerance is greater than that of financial literacy.

Kawamura *et al.* (2021) reached the data of 5,848 people using a web survey company in Japan. They found that financial literacy is important in financial decision making and individuals with high financial literacy take more risks but better at retirement planning. However, they stated that the main determinant of behavior is intuitive.

Mudzingiri *et al.* (2018) collected data from 191 students at a university in South Africa with a questionnaire to determine the determinants of financial behavior. They indicated that individuals with low financial literacy are more overconfident and take more risks. The authors was also evaluated this behavior as the main cause of financial crises.

In this context, investors are expected to prefer "unknown and new investment" to "known and experienced investments" as their financial literacy level increases.

### *2.6 Risk perception, risk tolerance, risk taking/risk avoidance and risky investment intention*

Risk is the possibility to emerge an undesirable outcome (Remm, 1998). While possible outcomes and their probabilities are known in risky situations, only possible outcomes are known in uncertain situations, but their probability of occurrence is unknown (Aren, 2018). There is uncertainty in financial markets and the uncertainty cannot be calculated mathematically. In this case, emotions are involved in the evaluation process (Aren and Hamamci, 2021c), and how and how much the risk is perceived becomes more important than calculating it.

Perception is a sensory feature formed by experience and expectations (Romo and Rossi-Pool, 2020). Risk perception is the subjective emotions (Li *et al.*, 2020) and evaluation (Nigam *et al.*, 2018) related to losses. It is influenced by the external environment (Garling *et al.*, 2009; Malmendier and Nagel, 2011; Sakha, 2019; Browne *et al.*, 2019), and has both quantitative and

qualitative features (Sachse *et al.*, 2012). If an individual has positive emotions about the situation, he/she perceives the risk as low, on the contrary, has negative emotions, he/she perceives the risk as high (Slovic and Peters, 2006).

There are three features that form risk perception: perceived likelihood, perceived susceptibility and perceived severity (Brewer *et al.*, 2007). Perceived likelihood is the probability that the situation, that the individual does not know, will result in his/her. Perceived susceptibility refers to an individual's state of vulnerability when an adverse outcome occurs. Finally, perceived severity is the size of the effect that negative outcome will create on the individual. The higher these three characteristics are evaluated by the individual, the higher is the perceived risk. For this reason, perception may differ according to the situation in which the decision is made, but risk preferences do not change (Spinks *et al.*, 2021). Risk preference is a concept associated with risk perception that leads individual to risk-taking or risk avoidance behavior (Spinks *et al.*, 2021). In other words, risk preference is a range of preferences whose one pole is risk avoidance and the other pole is risk-taking (or risk neutral) (Weber and Milliman, 1997; Ribes and González-Pachon, 2021; Aren and Hamamci, 2021c). It is also stated in the literature that it is used in the same mean as risk attitude (Korkmaz *et al.*, 2021).

The decision of individuals to occurrence in risk-taking or risk avoidance behavior depends on one's risk perception, risk preferences and one's general risk knowledge (Albrecht *et al.*, 2021). Although the typical theoretical estimation is that risk perception is negatively associated with risk-taking behavior, not all empirical findings support this (Mills *et al.*, 2008). While some studies found a positive relationship, others reported a negative relationship or no relationship (Brewer *et al.*, 2007). This may be due to the fact that risk perception is affected by the consequences of the last risky choice, as Weber and Milliman (1997) stated, or it can also be caused by measurement methods, as mentioned by Mills *et al.* (2008). As a result, studies show that individuals do not constantly evaluate themselves as risk-taking or risk avoidance (Weber and Milliman, 1997).

While people evaluate their future decisions as safe or risky, they also predict their future emotional reactions (Pano, 2016) and may show different risk behavior in different contexts (Ferreira, 2019). At this point, risk tolerance is included in the process. Financial risk tolerance can be defined as the amount of financial uncertainty that individuals want to accept (Sulaiman, 2012; Kannadhasan, 2015; Mishra and Mishra, 2016; Pinjisakikool, 2018; Sutejo *et al.*, 2018). It is subjective, associated with financial knowledge (Grable, 2000; Rabbani *et al.*, 2021), financial literacy (Fisher and Yao, 2017; Bayar *et al.*, 2020) and emotional intelligence, and it has emotional, cognitive and psychological dimensions (Nigam *et al.*, 2018; Lucarelli *et al.*, 2015; Ferreira, 2019).

Risky investments are investments that do not have a certain nominal return and the investor does not know how much they will gain or lose, and the plan to buy these instruments is also accepted as risky investment intention (Aydemir and Aren, 2017). One's perception affects behavioral intention (Lim *et al.*, 2018). In addition, the group to which one belongs, personal values, social tendencies and experience are also important in risk assessment (Renn, 1998; Sjöberg, 2000). Even public perception affects individual risk perception (Renn, 1998). As a result, when individuals have to make a choice between "unknown and new investment" or "known and experienced investment", there is not only one risk variable that affects this choice. Risk perception, risk tolerance, risk taking or risk avoidance behavior and risky investment intention can also be effective in this risky financial preference.

### 3. Methodology

#### 3.1 Aim

The aim of the study is to investigate the variables that affect the preference of individuals between "known and experienced investment instruments" and "unknown and new

investment instruments". For this purpose, it was taken into account unconscious like phantasy, emotional like emotional intelligence, both affective and cognitive like financial literacy and subjective beliefs like trust and overconfidence. In addition, risk preferences were measured with four different risk variables: risk perception, risk tolerance, risk-taking/risk avoidance and risky investment intention.

### 3.2 Data

**3.2.1 Pilot study.** Since the confidence and trust variables used in the study were developed by us, exploratory factor analysis and reliability analysis need to be done for them. For this purpose, pilot study data was needed. Pilot study data was collected using the online survey method between 24 November 2020 and 02 January 2021 in Turkey on the basis of convenience sampling and volunteering. The questionnaire was prepared online and our graduate students shared the link on their social networks. 832 people participated in the survey and the participants gave complete answers to all questions.

381 (45.8%) of the respondents were male and 451 (54.2%) were female. 530 (63.7%) participants were in the 20–30 age range, 226 (27.2%) were in the 31–40 age range, 55 (6.6%) were in the 41–50 age group and 21 (2.5%) participants were also in the +51 age group. 15 (1.8%) of the participants have primary school, 88 (10.6%) high school, 566 (68.0%) undergraduate and 163 (19.6%) graduate diplomas. Finally, 304 (36.5%) subjects were married and 528 (63.5%) were single. Pilot study data are young, single, highly educated and gender-balanced.

**3.2.2 Original study.** The original study data was collected between 03 and 21 May 2021 in Turkey on the basis of convenience sampling and volunteering by online survey method. Questionnaire was prepared online and our graduate students shared the link on their social networks. 1,692 people participated in the survey and the participants gave complete answers to all questions.

As can be seen from [Table 1](#), data that can be considered balanced in terms of gender and balanced in terms of marital status were reached. As our graduate students are helpful in sharing the survey link, as expected, young and undergraduate degree participants are predominant.

### 3.3 Variables

Ten independent variables and one dependent variable were used in the study. In order to measure the dependent variable, as in the study of [Aren and Hamamci \(2021e\)](#), the participants were asked about their investment preferences and they were asked to choose

Variable	Category	Frequency	Percent
Gender	Male	874	51.7%
	Female	818	48.3%
Age	20–30	946	55.9%
	31–40	477	28.2%
	41–50	174	10.3%
	+51	95	5.6%
Education	Primary school	31	1.9%
	High school	179	10.6%
	Undergraduate	1,135	67.1%
	Graduate	347	20.5%
Marital Status	Married	675	39.9%
	Single	1,017	60.1%

**Table 1.** Demographic variables

one of the “known and experienced investment” or “unknown and new investment”. The dependent variable has nominal feature. For this reason, discriminant analysis was preferred as analysis method.

Items and scale information about independent variables are also presented in [Table 2](#).

Subjective financial literacy is the perception regarding one’s own knowledge. For this reason, it was measured with a single question like [Aren and Canikli \(2018a\)](#), “What is your level of knowledge about financial matters? (1 lowest; 5 highest)”. Objective financial literacy was evaluated with a scale belonging to [Van Rooij et al. \(2011\)](#). The scales of [Aydemir and Aren \(2017\)](#) were used for emotional intelligence, risk avoidance and risky investment intention. Financial risk tolerance scale belongs to [Grable and Joo \(2004\)](#).

**4. Results**

Since confidence (KG1–KG5) and trust (VG1–VG5) were developed by us, exploratory factor analysis and reliability analyses were performed for these two variables. Kaiser-Meyer-Olkin (KMO) statistics, which is a criterion, is used to calculate the consistency of variable values, and the formula for calculating the KMO value is shown in [Formula \(1\) \(Pett et al., 2003\)](#). In addition, while performing the reliability analysis of the factors, alpha values were calculated using the formula shown in [formula \(2\) \(Cronbach, 1951\)](#). Analysis results are presented in [Table 3](#).

**Table 2.**  
Scales

Variable	Item	Scale
Objective financial literacy	11	<a href="#">Van Rooij et al. (2011)</a>
Subjective financial literacy	1	<a href="#">Aren and Canikli (2018a)</a>
Emotional intelligence	16	<a href="#">Aydemir and Aren (2017)</a>
Confidence	5	Developed by us
Trust	5	Developed by us
Risky investment intention	4	<a href="#">Aydemir and Aren (2017)</a>
Financial risk tolerance	5	<a href="#">Grable and Joo (2004)</a>
Risk perception	6	<a href="#">Chang and Chen (2008)</a>
Risk avoidance	7	<a href="#">Aydemir and Aren (2017)</a>
Phantasy	6	<a href="#">Aren and Hamamcı (2021e)</a>

**Table 3.**  
Exploratory factor  
analysis for varimax  
rotation

Items	Confidence	Trust
KG1: I trust my ability to find good financial investment (it has high return)	0.798	
KG2: I know how to find investments that will provide the highest return	0.872	
KG3: I know the right questions to ask to make good financial (investment) decisions	0.855	
KG4: I have the necessary skills to make good financial investments	0.832	
KG5: I know the resources I will refer to make good financial decisions	0.711	
VG1: I trust that the financial instrument I take will give the expected return		0.661
VG2: I think that the financial instrument I have bought is a safe investment		0.805
VG3: I trust the financial instrument I buy		0.802
VG4: I think that the financial instrument I have bought will not fail my trust		0.826
VG5: If I have taken a financial instrument, it shows my trust in it		0.818
% of Variance	39.839	35.838
Cronbach alpha (Reliability)	0.921	0.908
KMO		0.931
Bartlett’s test of Sphericity		6463.661 <sup>(0,000)</sup>

$$KMO = \frac{\sum_{i \neq u} \sum r_{iu}^2}{\sum_{i \neq u} \sum r_{iu}^2 + \sum_{i \neq u} \sum a_{iu}^2} \tag{1}$$

$$a = \frac{k}{k-1} \left( 1 - \frac{\sum s^2 i}{s^2 x} \right) \tag{2}$$

KMO and Bartlett’s test of Sphericity values, which show the suitability of the data for exploratory analysis, are quite good and significant at 0.000 error level. The factor loading of each item is over 0.600. While looking at the reliability of the factors, the Cronbach alpha value is taken into account and this value is generally expected to be above 0.7 (Eymen, 2007). Reliability analysis results also show that the scales have high reliability. After ensuring the reliability of the scales with the pilot study data, the analysis of the research was performed with the original study data.

KMO and Bartlett’s test of Sphericity values were calculated to evaluate the suitability of the original study data for factor analysis. KMO was calculated as 0.932 and Bartlett’s test of Sphericity 49,807,924 (0.000). The KMO value is still well above the threshold value and is acceptable. Bartlett’s test of Sphericity value is also quite good and significant at 0.000 error level. Following this step, confirmatory factor analysis of all variables was performed with the original study data. The scale of Aydemir and Aren (2017), preferred for emotional intelligence, has four sub-dimensions (Perception emotions, managing one’s own emotions, managing others’ emotions, using emotions). As Aydemir and Aren (2017) did in their studies, a two-step approach confirmatory factor analysis was applied to this variable. Since the variables of confidence, trust, risky investment intention, financial risk tolerance, risk perception, risk avoidance and phantasy are one-dimensional, one-step approach confirmatory factor analyses were made regarding them. Analysis results are reported in Table 4. Objective financial literacy is assessed by the number of correct answers to eleven questions. Subjective financial literacy was evaluated with a single question “What is your level of knowledge about financial matters? (1 lowest; 5 highest)”. Therefore, there is no need for factor analysis for objective and subjective financial literacy.

As a result of the confirmatory factor analyses, one item (number 13) was removed from the emotional intelligence scale with 16 items and one item (number 6) from the risk avoidance scale with 7 items, since it had a low factor load.

According to the outputs of the confirmation factor analysis, it is requested that the chi-square/degree of freedom (CMIN/DF) value be less than the threshold value of 5,000 and the root mean square error of approximation (RMSEA) value should be less than the threshold value of 0.500. For other fit indexes, the threshold value is 0.900 and the results are expected to be higher than this value. Even Sadia et al. (2018) and Aren and Hamamci (2021c, e) emphasize

Variable	CMIN/DF	RMSEA	GFI	AGFI	CFI	TLI	NFI	RFI
Emotional intelligence	4.145	0.043	0.973	0.962	0.960	0.950	0.948	0.935
Confidence	1.567	0.018	0.999	0.994	1.000	0.999	0.999	0.998
Trust	4.465	0.045	0.996	0.984	0.998	0.994	0.997	0.992
Risky investment intention	2.193	0.027	0.999	0.994	1.000	0.999	1.000	0.998
Financial risk tolerance	3.096	0.035	0.997	0.989	0.996	0.990	0.994	0.985
Risk perception	2.180	0.026	0.997	0.991	0.998	0.996	0.997	0.992
Risk avoidance	2.106	0.026	0.997	0.991	0.999	0.997	0.997	0.994
Phantasy	3.627	0.039	0.997	0.985	0.998	0.993	0.998	0.991

**Table 4.** Confirmatory analyses

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that values above 0.55 are acceptable. In this framework, it was seen that the fit index values obtained are at a very good level.

After confirmatory analyses, correlation analysis was performed to see the relationships between variables. Analysis results are reported in [Table 5](#).

There is no significant relationship between emotional intelligence and risky investment intention and risk tolerance. In addition, risk perception has no significant relationship with objective financial literacy, subjective financial literacy, confidence and trust. All relations except these are significant at 0.000 error level.

There is a positive and significant relationship between objective and subjective financial literacy. However, the relationship is moderate. In addition, the relationship of subjective financial literacy with other variables except for risk tolerance and risk avoidance is higher than that of objective financial literacy. In this context, it can be said that subjective financial literacy has stronger relationships than objective financial literacy for the related variables. Particularly, there is a very strong and significant positive relationship between subjective financial literacy and confidence and trust. Confidence also has positive and strong significant relationships with trust and risky investment intention. The two variables that have significant relationships with all the variables in the study are risk avoidance and phantasy.

Following the correlation analysis, the mean and standard deviation values for ten independent variables were calculated separately for the subjects who preferred “known and experienced investments” or “unknown and new investments”, and it was tested whether there was any differentiation according to the investment preferences. Independent sample *t*-test results performed for this purpose are presented in [Table 6](#).

As can be seen in [Table 6](#), those who prefer “unknown and new investments” have higher objective financial literacy levels than those who prefer “known and experienced investments”. In contrast, those who prefer “known and experienced investments” have higher emotional intelligence levels than those who prefer “unknown and new investments”. However, both differences are not significant even at the 0.10 error level. On the other hand, investment preferences differ significantly compared to other variables. Those who prefer “unknown and new investments” have higher levels of subjective financial literacy, confidence, trust, risky investment intention and risk tolerance than those who prefer “known and experienced investments”. On the contrary, those who prefer “known and experienced investments” have higher risk avoidance and risk perception than those who prefer “unknown and new investments”.

In this study, in order to evaluate and classify ten independent variables and “known and experienced investments” or “unknown and new investments” preferences, discriminant analysis was performed. Analysis results are reported in [Table 7](#).

As can be seen from [Table 7](#), variables that are significant in classification can be seen in the column that is written “*F*” values. Since the “*F*” values of the objective financial literacy and emotional intelligence variables are not significant, these variables are not effective in the classification. Independent sample *t*-test values also show that these two variables are not effective in investment preferences. Risk perception is significant only at 0.10 error level; whereas, other variables are significant at 0.000 error level. Structure matrix shows the variables that are effective in the analysis. As [Aren and Hamamci \(2021a\)](#) pointed out, it is expected to be higher than 0.300. Risk perception, which was significant at 0.10 error level, could not reach this threshold value. Although the trust is very close to the relevant value, it still remains below the threshold value. As a result, respectively, risky investment intention, phantasy, risk avoidance, confidence, risk tolerance and subjective financial literacy variables were found to be significant and effective in the discriminant process. The discriminant analysis performed is significant at 0.000 error level. The correct classification rate of discriminant analysis is quite high at 70.7%. This rate increases to 79.3% in



	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$	$X_{10}$
$X_1$	1									
$X_2$	0.443***	1								
$X_3$	0.092***	0.126***	1							
$X_4$	0.349***	0.655***	0.136***	1						
$X_5$	0.309***	0.513***	0.243***	0.670***	1					
$X_6$	0.205***	0.413***	-0.019	0.537***	0.324***	1				
$X_7$	0.422***	0.295***	-0.042	0.284***	0.207***	0.254***	1			
$X_8$	-0.229***	-0.207***	-0.099***	-0.270***	-0.110***	-0.473***	-0.617***	1		
$X_9$	0.001	-0.005	-0.169***	-0.016	0.030	-0.090***	0.185***	-0.130***	1	
$X_{10}$	0.184***	0.390***	0.178***	0.583***	0.491***	0.159***	-0.237***	-0.100***	-0.100***	1

**Note(s):**  $X_1$ : Objective Financial Literacy,  $X_2$ : Subjective Financial Literacy,  $X_3$ : Emotional Intelligence,  $X_4$ : Confidence,  $X_5$ : Trust,  $X_6$ : Risky Investment Intention,  $X_7$ : Risk Tolerance,  $X_8$ : Risk Avoidance,  $X_9$ : Risk Perception,  $X_{10}$ : Phantasy  
 \*\*\*<0.001; \*\*<0.01; \*<0.1  
 “-” is expresses negative relationship

**Table 5.**  
 Correlation analysis

**Table 6.**  
Independent sample  
T test

	Known and experienced investment		Unknown and new investment		Ind. Sam. T test T
	Mean	Std. deviation	Mean	Std. deviation	
<i>Obj. financial literacy</i>	4.6186	2.92936	4.8740	2.96202	-1.494
Sub. financial literacy	2.7399	1.06230	3.1627	1.09534	-6.791***
<i>Emotional intelligence</i>	4.1049	0.53307	4.0822	0.54526	0.725
Confidence	2.8365	1.04324	3.4436	0.92582	-10.246***
Trust	3.3567	0.91432	3.6273	0.79887	-5.226***
Risky invest. intention	2.3103	1.01585	3.2054	0.99471	-15.210***
Risk tolerance	2.8229	0.90762	3.1958	0.96190	-6.964**
Risk avoidance	3.6694	0.84959	3.1080	0.86780	11.299***
Risk perception	2.4686	0.82423	2.3609	0.77547	2.275**
Phantasy	2.9347	0.98365	3.7423	0.80661	-14.658***

**Note(s):** \*\*\*<0.001; \*\*<0.01; \*<0.1  
“-” is expresses negative relationship

**Table 7.**  
Discriminant analysis  
for investment  
preferences

	Wilks' lambda	F	Structure matrix
Objective financial literacy	0.999	2.233	0.077
Subjective financial literacy	0.973	46.116***	0.351
Emotional intelligence	1.000	0.526	-0.037
Confidence	0.942	104.990***	0.529
Trust	0.984	27.315***	0.270
Risky investment intention	0.880	231.350***	0.786
Risk tolerance	0.972	48.493***	0.360
Risk avoidance	0.930	127.658***	-0.584
Risk perception	0.997	5.175*	-0.117
Phantasy	0.887	214.863***	0.757

  

Function	Eigenvalue	Canonical correlation	Wilks' lambda	Chi-square	Sig
1	0.222	0.426	0.818	337.525	0.000

  

	Known and experienced investments	Unknown and new investments
Known and experienced investments	68.0%	31.7%
Unknown and new investments	20.7%	79.3%

Correct classify rate: 70.7%

**Note (s):** InvestmentPreference = -0.761 + 0.078X<sub>1</sub> + 0.028X<sub>2</sub> - 0.164X<sub>3</sub> + 0.071X<sub>4</sub> - 0.184X<sub>5</sub> + 0.425X<sub>6</sub> + 0.182X<sub>7</sub> - 0.302X<sub>8</sub> - 0.140 X<sub>9</sub> + 0.624X<sub>10</sub>  
X<sub>1</sub>: Objective Financial Literacy, X<sub>2</sub>: Subjective Financial Literacy, X<sub>3</sub>: Emotional Intelligence, X<sub>4</sub>: Confidence, X<sub>5</sub>: Trust, X<sub>6</sub>: Risky Investment Intention, X<sub>7</sub>: Risk Tolerance, X<sub>8</sub>: Risk Avoidance, X<sub>9</sub>: Risk Perception, X<sub>10</sub>: Phantasy  
Threshold value: 0.30959  
Below the threshold “known and experienced investments”  
Above the threshold “unknown and new investments”  
\*\*\*<0.001, \*\*<0.01; \*<0.1  
“-” is expresses negative relationship

estimating “unknown and new investments” correctly. In other words, with the help of the investment preference equation, approximately 80.0% of those who prefer “unknown and new investments”, that is, four out of five people, are estimated correctly.

Finally, it was also tested whether the investment preference differed according to demographic variables. For this purpose,  $\chi^2$  analyses were made. The results of the analyses are reported in Table 8. While 30.7% of male prefers “unknown and new investments”, this rate drops to 13.8% for females. This difference between genders is also significant at 0.000 error level. For this reason, it can be said that men prefer “unknown and new investments” more than women.

It was seen that there is a difference of 0.000 error levels in investment preferences according to age. The oldest group (+51) preferred “unknown and new investments” less (6.3%) compared to other age groups. There are very few participants (6 people) in this age group. For this reason, when the  $\chi^2$  analysis was repeated excluding this age group, the  $\chi^2$  value was calculated as 4.204 and it was not found significant even at 0.1 error level. In other words, it can be stated that there is no differentiation in investment preference according to age, especially in the 20–50 range.

There is a differentiation in investment preference 0.000 error level according to education level. However, when the people with the lowest education level (6 people) were excluded and the  $\chi^2$  analysis was repeated, the  $\chi^2$  value was calculated as 2.229 and it was not found significant even at 0.1 error level. For this reason, there is no difference in investment preference according to education level, except for primary school graduates.

Finally, a significant difference was found at 0.000 error level in terms of marital status. Singles prefer “unknown and new investments” at a higher rate than married.

### 5. Discussion of results and conclusions

The main feature of the Ponzi schemes and financial bubble periods was “unknown and new investment instruments”. While many investors are very excited about these instruments, they do not feel any anxiety or fear. Few investors are left out of this dominant enthusiasm. In this study, the factors that made “unknown and new investment instruments” preferable to “known and experienced investment instruments” were investigated. In this context, it was incorporated unconscious like phantasy, emotional like emotional intelligence, both affective and cognitive like financial literacy and subjective beliefs like trust and overconfidence in the study. In addition, risk preference was measured with four different risk variables: risk perception, risk tolerance, risk taking/risk avoidance and risky investment intention. In this

Variables	Known and experienced investments	Unknown and new investments	$\chi^2$
Male	606 (69.3%)	268 (30.7%)	68.756***
Female	705 (86.2%)	113 (13.8%)	
20–30	708 (74.8%)	238 (25.2%)	19.473***
31–40	373 (78.2%)	104 (21.8%)	
41–50	141 (81.0%)	33 (19.0%)	
51+	89 (93.7%)	6 (6.3%)	
Primary school	25 (80.6%)	6 (19.4%)	
High school	143 (79.9%)	36 (20.1%)	12.710***
Undergraduate	884 (77.9%)	251 (22.1%)	
Graduate	259 (74.6%)	88 (25.4%)	
Married	553 (81.9%)	122 (18.1%)	
Single	758 (74.5%)	259 (25.5%)	

Note(s): \*\*\*<0.001; \*\*<0.01; \*<0.1

Table 8.  $\chi^2$  analysis results

way, the factors underlying investment preferences were investigated from a very broad perspective and with ten independent variables.

In this study, firstly, the correlations of independent variables among themselves were examined. A moderate positive and significant relationship was found between objective and subjective financial literacy. This finding is consistent with previous studies stating that the two financial literacies are similar but different (Bellofatto *et al.*, 2018) and moderately related (Aren and Akgunes, 2019). In addition, subjective financial literacy has stronger and more significant relationships with emotional intelligence, confidence, trust, risky investment intention and phantasy than objective financial literacy. On the other hand, objective financial literacy is more strongly and significantly associated with risk tolerance and risk avoidance variables than subjective financial literacy. These findings also support the literature stating that the two financial literacy have different effects on behavior (Xiao *et al.*, 2015; Xiao and O'Neill, 2016; Xiao and Porto, 2017; Nejad and Javid, 2018). We also determined that there are strong positive relationships between the self-confidence of the individual and the trust of the instrument and risky investment intention. This finding is also consistent with the literature that states that confidence and trust are related (Reid, 2009) and emphasizes that confidence increases risk taking (Broihanne *et al.*, 2014; Campbell *et al.*, 2004; Tajeddini and Tajeddini, 2008; Marafon *et al.*, 2018; Rougier, 2019; Yao and Rabbani, 2021).

A discriminant analysis was conducted to determine the basic characteristics of individuals who preferred “unknown and new investment instruments” and “known and experienced investment instruments”, which is the main purpose of the study. As a result of the analysis, the success of correct classification exceeding 70% was achieved. The variables that are important in the distinction are risk investment intention, phantasy, risk avoidance, confidence, risk tolerance and subjective financial literacy. On the other hand, emotional intelligence and objective financial literacy levels do not differ in people who choose two different investment alternatives. In the literature, there are studies that state that emotional intelligence is associated with correct financial decisions (Sullivan, 2011; Salehi and Mohammadi, 2017), as well as, there are also studies that evaluate it as the source of anomalies in financial markets (Bouzguenda, 2018). On the other hand, we determined that emotional intelligence is somewhere between these two, and we provided findings that it was not effective in choosing “unknown and new investment instruments” or “known and experienced investment instruments”.

Similarly, there are studies that financial literacy and risk taking are positively related (Nicolini *et al.*, 2017; Aren and Canikli, 2018a; Niazi and Malik, 2020; Hermansson and Jonsson, 2021; Korkmaz *et al.*, 2021), negatively related (Aren and Zengin, 2016; Mudzingiri *et al.*, 2018) or unrelated (Aren and Aydemir, 2014; Cox *et al.*, 2015; Anindita and Ulpah, 2020; Aren and Hamamci, 2020). In this study, objective and subjective financial literacy were measured simultaneously and we could not find a relationship between investment preference and objective financial literacy, but we found that it was associated with subjective financial literacy. In this way, we tried to clarify the different findings presented in previous studies by making this distinction.

Although trust of the asset and risk perception has a significant difference between the two groups, they have a relatively less effect on the discrimination process than the other variables because risk perception is formed by experience and expectations (Romo and Rossi-Pool, 2020). It is affected by the external environment (Garling *et al.*, 2009; Malmendier and Nagel, 2011; Sakha, 2019; Browne *et al.*, 2019) and may differ depending on the situation in which the decision is made (Spinks *et al.*, 2021). The faulty trust for the financial instrument affects the risk perception (Masoud and Albaity, 2021) and financial risk-taking (Xu, 2018) in different ways and at different levels. Therefore, although trust and risk perception are important in the risky investment preferences, since it is affected by many other factors, its effect on the choice may be weak or strong depending on the situation and conditions. For this

reason, the main factors that push people to choose “unknown and new investment instruments” are not their risk perception or their trust in the instrument. In addition, their objective financial literacy is not effective in this. On the other hand, phantasies (Tuckett and Taffler, 2008; Taffler and Tuckett, 2010; Taffler, 2014; Aren and Hamamci, 2021d, e), which have existed since infancy but are not even aware of their existence, and risky investment intentions (Aydemir and Aren, 2017) are extremely important in this choice. One of the most basic phantasies is the dream of getting rich easily and quickly. Even if people are not aware of this belief and dream, it affects their decisions and preferences. Aren and Hamamci (2021e) referred to the relationship between fantasy and risky investment intention and investment preferences in their work. In this study, the existence and strength of this relationship were shown again and the previous study findings were supported. In addition, individuals’ perceptions of their knowledge, not their actual knowledge, namely their subjective financial literacy, are effective in their investment preferences. Many studies frequently emphasize the role of objective financial literacy in making the right investment. However, the critical role of subjective financial literacy in investment preferences is at least as important as the other. We attach great importance to this finding, which was expressed in previous studies (e.g. Aren and Akgunes, 2019), because it is not always enough to increase the knowledge of individuals for the right decision. At the same time, it is necessary to ensure that they have the right awareness of their perceptions regarding knowledge. Otherwise, individuals may take risks that have not been properly evaluated.

Another remarkable finding is that it is not very important to trust the asset in “unknown and new investment instruments”. The most important thing is the self-confidence of individuals. There is a situation similar to objective and subjective financial literacy in this situation. Confidence in the individual’s own decisions is critical, rather than the trust in assets. The individual who believes that he/she will make the right choice and buy the right asset at the right time and sell it at the right time, trades even if he/she does not trust the asset very much. This finding actually explains why individuals buy the instrument even at the stage when the bubble reaches the bursting point during the financial bubbles periods when the prices are high. Even if confident investors think that the prices are rising and/or that it is not very safe to buy the asset, they think that they will not make a loss by making a sale at the right time. Finally, we found that education and age are not very important in choosing “unknown and new investment instruments”, but single and male individuals are more prone to this preference.

In conclusion, we think that our study provides useful findings for academics and practitioners. Many academics measure objective and subjective and financial literacy together in their studies and try to analyze separately their effects on risk taking, investment choices and financial behavior. However, this study provides a reference in this regard with a holistic approach. While objective and subjective financial literacy has a statistically significant relationship, declared financial literacy (subjective) is higher than measured financial literacy (objective), and it has a stronger effect on risk investment intention and investment preferences. This finding is also useful for financial advisors. The relationships that financial advisors establish with their clients are shaped by the simple financial literacy questionnaires they apply to them or the training of the client. Accordingly, the advice they give and the approach they adopt (data, information-supported recommendations or giving advice by drawing a general framework) are perceived differently by clients. Even if the clients’ objective financial literacy is low, they claim and expect more detailed explanations when their subjective financial literacy is high. When financial advisors give advice with simpler explanations according to the level of objective financial literacy, it creates distrust in the customer and his/her competence becomes questioned. For this reason, using subjective financial literacy in the financial advisor-client relationship may provide more useful results.

The factors underlying the preference of “unknown and new investment instruments” over “known and experienced investment instruments”, which is typical feature of financial bubbles, have been attracting the attention of academics for a long time. The fact that those adopting neoclassical finance could not provide enough convincing rational justifications excites those who adopt behavioral finance, and especially emotional finance approach, to offer new explanations. This study also provides a reference for academics who adopt the second view. We think that showing the effects of psychological and individual variables such as risky investment intention, subjective financial literacy, confidence, and especially unconscious processes such as phantasy, on investment preference will provide very important results for future research.

These results are also useful for market maker and financial advisors. Some recent studies have drawn attention to unconscious processes in financial bubbles. This study supports this emphasis. The market maker usually looks at the numerical data and pays attention to the rationally measured variables. However, financial bubbles are not based on rational reasons and the numerical data are mostly formed after the sentiment formed in market. For this reason, the relevant perspective is incomplete. For this reason, being aware of the fact that the concept of phantasy is an important element underlying the excitement and fear in the market may allow the market maker to manage individual unconscious processes with the right nudges.

For financial advisors, knowing that the main factor in choosing “unknown and new investment instruments” is the individual’s confident and perception of subjective financial literacy, rather than the trust or distrust of the investment instrument, can bring important implications. For investors with self-confidence and high subjective financial literacy level, investment instruments do not create any reservations whether instruments are distrust or “unknown and new” for them. For this reason, we believe that the findings of this study will be beneficial for financial advisors who want to establish the right relationship with their client.

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