



Examining the Financial Decisions of Traditional and Islamic Bank Customers from the Perspective of Behavioral Finance

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Abstract: Traditional finance assumes people to be rational and ignores the psychological and emotional factors that influence their decisions and behaviors. Behavioral finance is where psychology and finance science meet on common grounds and does not accept the rational human assumption of traditional finance, because various psychological biases exist that affect people's decisions. The aim of this study is to investigate in the context of behavioral finance whether any differences exist between the biases that affect the financial decisions of participation bank customers and traditional bank customers throughout Türkiye. The study used a questionnaire to collect data from a total of 855 participants and performed frequency analyses, validity and reliability analyses, and descriptive statistics based on the survey data. The study then used the non-parametric Mann-Whitney U test to test the hypotheses. The results show behavioral finance biases to affect the financial decisions of participation bank customers and traditional bank customers and both bank groups to be broadly similar in terms of the financial biases that influence customers' financial decisions. The study has unique value in that it provides the opportunity to compare the biases that affect the financial decisions of Islamic bank customers and traditional bank customers in the context of behavioral finance.


Keywords: Traditional Finance, Behavioral Finance, Islamic Finance, Traditional Banking, Islamic Banking, Participation Banking.


JEL Classification: G21, G4, G41.

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Introduction

Traditional finance assumes people to be rational and ignores the psychological and emotional factors that influence their decisions and behaviors. Behavioral finance is where psychology and finance science meet on common grounds and does not accept traditional finance's assumption that humans are rational.

Many academic studies in the field of behavioral finance have revealed individuals to not be completely rational but to have various psychological biases, including cognitive, emotional and social, that prevent them from making rational decisions and behaving in accordance with the assumptions of traditional finance. These biases cause individuals to exhibit erroneous and irrational behaviors.

In addition to the theoretical developments in the field of finance, other important developments have also occurred in the sector. Institutions and organizations related to the Islamic finance and banking sector have emerged against the traditional finance and banking sector. The human perspective of Islamic finance and banking is similar to behavioral finance, and Islamic finance and banking offer a new perspective to individuals and economies regarding the points where the understanding in traditional finance and banking is incomplete or unable to produce a solution (Tekin, 2020).

The aim of this study is to investigate whether any differences exist between the biases that affect the financial decisions of participation bank customers and traditional bank customers throughout Türkiye in the context of behavioral finance. The study has unique value in that it provides an opportunity to compare the biases that affect the financial decisions of Islamic bank customers and traditional bank customers in the context of behavioral finance.

Conceptual Framework

Traditional finance is based on the assumptions that individuals make rational decisions and lack psychological biases when making predictions about the future. Meanwhile, behavioral finance has been accepted in the field of finance for a time and states the assumptions of traditional finance to be unrealistic, with individuals systematically violating its assumptions. According to behavioral finance in this context, individuals often make irrational decisions and have psychological biases regarding their predictions about the future (Nofsinger, 2014).

No common agree-upon classification exists regarding the psychological biases that affect individuals' financial decisions. While some authors refer to biases

as heuristic and others as beliefs, judgments, or preferences, biases are generally classified as cognitive and emotional (Pompian, 2006). Cognitive biases refer to systematic judgment errors and namely are defined as the mental errors that lead to a deterioration in the way individuals sense validity due to simplifying their information processing strategy (Zindel et al., 2014).

Individuals' limited information processing capacity leads them to simplify their decision-making process and to develop mental shortcuts. Individuals use mental shortcuts to make decisions, especially in competitive environments and when uncertain (Ansari, 2006). Tversky and Kahneman (1974) explained cognitive biases to stem from three basic heuristics (mental shortcuts) that are used when making decisions while uncertain: representativeness, availability, and anchoring and adjustment. Meanwhile, Pompian (2006) classified cognitive biases such as overconfidence, representativeness, anchoring and adjustment, cognitive dissonance, availability, self-attribution, illusion of control, conservatism, ambiguity aversion, mental accounting, confirmation, hindsight, recency, and framing. The study lastly mentioned familiarity bias as one of the cognitive shortcuts individuals use when making decisions.

One of the most common cognitive biases is overconfidence, which refers to an individual's excessive belief in their intuitive thinking, decision-making, and cognitive abilities (Pompian, 2006). Many researchers in psychology and behavioral finance who've studied overconfidence found individuals to tend to overestimate their own skills and estimates of success (Ricciardi & Simon, 2000). The human brain uses short cuts (heuristics) to simplify the complex information it encounters. As one of the biases caused by shortcuts, representation bias refers to the brain's assumption that events with similar characteristics are the same (Nofsinger, 2014).

Anchoring and adjustment bias refers to how individuals make their final decisions by starting with an initial value and then making some adjustments to it (Pech & Milan, 2009). Anchoring is a common and important effect in daily life that occurs when individuals make a decision based on a certain value while estimating a numerical value they do not know. Studies have shown the decisions individuals make to be affected by a numerical value that contains no information, because the decisions they make result in a numerical value close to the one they'd taken into account when making the decision (Kahneman, 2011).

When the knowledge an individual newly obtains conflicts with previously available knowledge, a mental disorder usually arises known as cognitive disso-

nance, which is a psychological phenomenon. Cognitive dissonance refers to a situation of unbalance that emerges when one encounters contradictory cognitions. Cognitive dissonance covers the reaction that occurs when individuals attempt to alleviate their mental discomfort by reconciling conflicting cognitions (Pompian, 2006).

Availability refers to situations in which individuals assess the frequency of a category or the probability of an event according to the ease with which examples or events come to mind (Tversky & Kahneman, 1974). Biased evaluations arise inasmuch as individuals do not remember all memories equally. This is because individuals tend to more easily remember events that occur more frequently or most recently and that are more specific, more effective, and more personally relevant (McMahon, 2005). As another cognitive bias, self-attribution bias describes how individuals attribute their success to their personal abilities and foresight and their failures to external factors such as bad luck (Pompian, 2006).

The illusion of control refers to the belief that individuals can influence the conclusion of events over which they have no control (Montier, 2007). Meanwhile, conservatism bias refers to a mental process in which individuals adhere to previous opinions or predictions rather than accept new information (Pompian, 2006). In other words, individuals adhere to their previous beliefs over new information (Byrne & Brooks, 2008). As yet another cognitive bias, ambiguity aversion is a tendency individuals often experience when not enough information is present regarding a decision to be made or when an uncertain and complex structure exists, with changes that occur fast and are difficult to predict (Saka, 2018). This tendency expresses individuals' hesitancy in the face of uncertain situations (Pompian, 2006).

Mental accounting plays a role in individuals' lives similar to the role of the accounting system businesses use. Accounting refers to enterprises' recording and summarizing of financial transactions in their books, as well as how they analyze, verify, and report the results. Just like businesses, individuals use a mental accounting system to track where their money goes as a result of their financial activities and to control their expenses. In this context, mental accounting refers to the cognitive bias that individuals use to organize, evaluate, and track their financial activities (Thaler, 1999).

Meanwhile, confirmation bias refers to a kind of selective perception that values the ideas that support an individual's beliefs while devaluing the ideas that

contradict one's beliefs. Still another cognitive bias, hindsight bias is the tendency to perceive an event to be predictable in advance, despite the occurrence of an event being unpredictable. Put more simply, hindsight bias is like someone saying, "I knew it all along." In addition, recency bias is a cognitive bias that leads individuals to remember the most recent events more clearly than events that had occurred in the recent or distant past. This bias results in ignoring incidents and observations that are not new in the memory by prioritizing knowledge recalled about recent times. The way events or situations are expressed affects individuals' decisions. In this context, framing bias refers to the tendency decision makers have to reply in different ways to various situations based on the framework in which a choice is presented (Pompian, 2006). On the other hand, familiarity bias refers to individuals' preference for situations and phenomena that are more familiar to them (Nofsinger, 2014).

Emotional biases involve decision-making processes that are affected by emotional factors (Hamurcu & Aslanoğlu, 2016), and this study will discuss the emotional biases that affect individuals' financial decisions in the form of endowment, self-control, over-optimism, loss aversion, regret aversion, and status quo, as based on the literature. Endowment bias an important emotional bias, because ownership pervades individuals' lives and shapes many things. Individuals devote a significant part of their lives to the ownership of certain things. Therefore, being able to make proper decisions about ownership is important (Ariely, 2008). However, individuals can make erroneous decisions by attributing more value to what they have than to what they do not have (Thaler, 1980).

Individuals struggle throughout their lives with decisions that will make the present more enjoyable and the future better. Many decisions individuals struggle to make require a balance to be achieved (Nofsinger, 2014). What makes achieving this balance difficult is the lack of self-control. Self-control bias leads individuals to consume today instead of saving for tomorrow (Pompian, 2006). As another emotional bias, over-optimism refers to overestimating the likelihood of a positive outcome or underestimating the likelihood of a negative outcome. In this context, over-optimism has been stated to be able to lead to dangerous and unhealthy decisions (Puri & Robinson, 2007).

Prospect theory has within its scope put forth the value function, through which losses are revealed to be more important than gains and individuals to have loss aversion bias (Kahneman, 2011). Studies conducted on loss aversion have revealed a basic widespread rule. The likelihood of a loss has twice as much a psycho-

logical motivation on individuals than the likelihood of a gain of equal magnitude (Pompian, 2006).

Individuals want to avoid regrets about their decisions, with regret referring to the emotional pain felt in the event of a poor decision. Individuals avoid activities that will cause this pain (Nofsinger, 2014), thus exhibiting regret aversion bias. Another possible behavior always present is that individuals will do nothing in the decision-making process and continue their current/previous decisions. Individuals often have status quo bias when faced with new options (Samuelson & Zeckhauser, 1988).

Literature Review

The literature shows various studies to have examined the effective factors in individuals' financial decision-making processes. Studies are found in the literature to have investigated the effect of psychological biases on financial decisions. For example, Masomi & Ghayekhloo (2011) investigated whether behavioral factors affect the decision-making process of institutional investors in the Tehran Stock Exchange and concluded the decisions of institutional investors trading in the Tehran Stock Exchange to be mostly influenced by the anchoring and gambler's fallacy biases, as well as by the representativeness, overconfidence, loss aversion, regret aversion, and mental accounting biases. Adeyemi & Haron (2016) examined the effect of religiosity levels on behavioral biases (e.g., mental accounting, regret aversion, anchoring, familiarity bias, and herding) regarding the Islamic banking and finance activities of Muslims in Malaysia. Except for regret aversion, differences were found to occur for all behavioral biases based on the level of religiosity. Ateşci (2020) examined the factors that affect the preference for participation banking in Türkiye's Erzincan province within the scope of behavioral finance and determined seven factors to affect individuals' preference for participation banking, concluding behavioral finance to affect those who prefer participation banking.

Studies in the literature are additionally found to have examined the effect of attitudes and intentions. Wahyuni (2012) investigated the factors affecting the behavior of Muslims in Surakarta regarding using Islamic banking services and, as a result, concluded the variables of attitude and knowledge to affect the intention to use Islamic banking services, with social influence also being found to be a significant factor in the early stages of testing. Another study by Oladapo et al. (2019) examined the mediating effect of positive attitudes and subjective norms on customers' behavioral intention to choose Islamic banking in Nigeria; the study's results found that, while customers'

positive attitude affects their behavioral intention to prefer Islamic banking, they did not need others' opinions before making a decision, thus showing subjective norms to be ineffective.

The literature also shows studies to have revealed the impact of religious events such as Ramadan on financial decisions. Bialkowski et al. (2012) investigated stock returns during Ramadan for 14 predominantly Muslim countries in the 1989-2007 period; despite finding no significant difference in trading volume during Ramadan, their study concluded stock returns to increase approximately 900% and to be less volatile during Ramadan compared to the rest of the year. Ramadan is shown to positively affect investor psychology and to lead to optimistic beliefs about investment decisions. Gavriilidis et al. (2015) examined whether herd behavior exists in stock markets during Ramadan based on the relationship between herd behavior and mood in seven Muslim-majority countries and also discussed whether positive mood (if any) during Ramadan would lead to an increase in herd behavior compared to the rest of the year. The findings revealed herd behavior to be exhibited in the stock markets of Bangladesh, Egypt, Indonesia, Morocco, and Türkiye during the month of Ramadan, but not in Malaysia or Pakistan. They additionally concluded herd behavior to be higher during Ramadan compared to the rest of the year. Their study was important in terms of showing how a religious event can be an important determinant in terms of herd behavior and how religion has a significant effect on financial decisions.

Studies are also found to have compared the two bank groups based on risk. Erdem & Iqbal (2014) examined whether a difference was present in terms of risk behavior between Islamic and traditional investors in Borsa Istanbul, Türkiye's only stock exchange institution. Their study concluded rapid changes in market volatility to cause the two types of investors to act differently, with Islamic investors being less risk-averse than other investors. Selçuk et al.'s (2022) study is another one conducted on risk and examined the financial risk tolerances and risk perceptions of participation bank customers and traditional bank customers in Türkiye; they concluded participation bank customers to be more risk averse than traditional bank customers.

Musse et al.'s (2015) work critically examined the literature on Islamic and traditional behavioral finance. Studies in the field of Islamic behavioral finance have investigated whether those who do not use Islamic products are willing to invest in or use Islamic products, rather than investigating the behavior of investors who make Islamic investments. Studies in the field of traditional behavioral finance are seen to have investigated the behavior of investors making stock market or fund investments, and results have emphasized Islamic behavioral finance to be a new field of study compared

to traditional behavioral finance and that more studies need to occur in this field. Tekin (2020) carried out a study as a literature review in order to reveal the interaction between Islamic finance and behavioral finance, producing a descriptive study based on other studies in the literature. The results from Tekin's literature review concluded Islamic finance and behavioral finance to intersect in many areas such as human perspectives and emphasized both financial fields to be able to produce more effective financial models together, with more effective product and service models able to be developed in order to meet the demands and needs of financial actors.

When examining the literature, although studies have examined the factors affecting the financial decision-making processes of individuals from various perspectives, studies that deal with Islamic finance from a behavioral finance perspective alongside traditional finance can be said to be more limited. When examining the studies that have dealt with Islamic finance from a behavioral finance perspective, criticisms are found that claim the studies to be predominantly aimed at determining the attitudes and intentions of individuals toward Islamic finance and banking, with the financial biases affecting financial decisions not having been investigated. In recent years, studies on Islamic finance from a behavioral finance perspective have begun being published. Within the scope of behavioral finance, however, the number of studies that consider the psychological biases that influence Islamic bank customers regarding their financial decisions is still limited. The current study has unique value in that it provides an opportunity to compare the biases that affect the financial decisions of Islamic bank customers and traditional bank customers in the context of behavioral finance.

Methodology

Research Design

This study uses the screening model, a quantitative research design. This model enables the research population's bias, attitudes, and views to be presented numerically as a result of working with a sample representing the population. These studies use data collection tools such as structured interviews and questionnaires to generalize the sample to the population (Fowler, 2008 & Creswell, 2017).

Population and Sample

The population of the research consists of customers aged 18 or older who use the products and services of participation banks or traditional banks (deposit banks)

throughout Türkiye. Determining the exact number of participation bank customers and traditional bank customers throughout Türkiye is not possible, as a bank customer may additionally be a customer of more than one bank. In this context, the non-probabilistic (random) sampling method of convenience sampling was used to select the sample of the study. When the number of individuals in the target population is unknown, the following formula is used to determine the sample size:

$$(1) n = (t^2 \times p \times q) / d^2$$

where n represents the sample volume, p represents the probability that the studied event will occur, q represents the probability that the event under study will not occur, t represents the theoretical value found in the t -table at a certain significance level, and d represents the accepted \pm sampling error according to the frequency of the event's occurrence (Yazıcıoğlu & Erdoğan, 2004). Minimum sample size was calculated as $n = [(1.96)^2 \times (0.5) \times (0.5)] \div (0.05)^2 = 384$ people at a 95% confidence level ($SD = \pm 0.05$). The study collected data from a total of 855 participants, including 390 participation bank customers and 465 traditional bank customers from 33 provinces.

Data Collection Method

The research used a questionnaire as a quantitative data collection tool within its scope. The survey was conducted online in March and June of 2021. The reason why the study preferred the online survey method was due to the coronavirus disease (COVID-19) pandemic that was active during the research period. Collecting data from face-to-face surveys was thought to possibly involve risks due to the pandemic.

In order to determine the behavioral finance biases that underlie the financial decisions of bank customers, two surveys with minor differences were created as a result of a detailed examination of the relevant literature and after receiving expert opinions. The questionnaire was applied to the two groups (i.e., participation bank customers and traditional bank customers). The questions were prepared by considering that participation banks differ from traditional banking in terms of structure and functioning and taking concepts into account such as interest, dividends, loans, and financing that express different issues the banks use in their transactions.

Separate surveys were created for the participation bank customers and the traditional bank customers, and these had statements to determine the demographic infor-

mation of bank customers and behavioral finance biases underlying their financial decisions. While some of the statements about behavioral biases were inspired by specific sources in the literature (Pompian, 2006; Kahneman, 2011; Nofsinger, 2014; Ariely & Kreisler, 2020; Ede, 2007; Ateş, 2007; Büyükaslan, 2012), the researcher created other statements. This section is classified using a 5-point Likert-type scale, where participants were asked to answer the statements as 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The data collected through the questionnaire were analyzed using the package program SPSS 21.

Findings

Demographic Findings

Table 1 shows the distributions of the participants' demographic information. According to the results of the frequency analysis of this information, the vast majority of participants are young, female, and single. When examining the participants' distributions according to their education level, the majority of participants are seen to be university graduates. Examining the participants' distributions by occupation shows the majority of them to be government officials. Finally, when analyzing the participants' distributions according to monthly income, those with an income between 3,001-5,500 TL are seen to be in the majority.

Table 1

Distribution of Demographic Information of the Participants

Demographic Information		Frequency	%
Gender	Female	449	52.5
	Male	406	47.5
Age Range	18-25	245	28.7
	26-33	228	26.7
	34-41	201	23.5
	42-49	121	14.2
	50 and over	60	7.0
Marital Status	Married	359	42.0
	Single	496	58.0

Education Level	Primary School	33	3.9
	Secondary School	47	5.5
	High School	159	18.6
	University	456	53.3
	Master's degree	128	15.0
	Doctoral degree	32	3.7
Occupation	Business Owner or Partner	108	12.6
	Manager	73	8.5
	Officer	179	20.9
	Employee	178	20.8
	Craft	95	11.1
	Merchant	75	8.8
	Farmer	39	4.6
	Self-employment	93	10.9
	Other	15	1.8
Monthly Income	TL 3000 and below	240	28.1
	TL 3001-5500	279	32.6
	TL 5501-8000	199	23.3
	TL 8001-10,500	79	9.2
	TL 10,501 and above	58	6.8

Reliability and Validity

Validity refers to the degree to which what is intended to be measured can be measured (Karasar, 2011). Within the scope of the study, content validity was provided using expert opinion, and construct validity was provided using factor analysis, which enables the discovery of a small number of new variables by bringing together a large number of related variables (Çokluk et al., 2021).

The study uses the exploratory factor analysis method within its scope to test the construct validity by determining how many factors the items in the previously categorized question pool can be separated into based on the literature, with principal component analysis being used as the factorization technique. The suitability of the data for factor analysis has been determined using the Kaiser-Meyer-Olkin (KMO) coefficient and Barlett's test of sphericity. The Kaiser-Meyer-Olkin (KMO > 0.60) and the chi-square statistics calculated with Barlett's test of sphericity are significant, indicating the data to be suitable for factor analysis (Büyükoztürk,

2017). When examining the KMO and Bartlett values from the participation bank customers' and traditional bank customers' data in this context, the study is seen to be suitable for factor analysis.

Table 2

KMO and Bartlett Values of Data of Participation Bank and Traditional Bank Customers

	KMO and Bartlett Test		Participation Bank	Traditional Bank
Cognitive Biases	Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.914	0.900
	Barlett's test of sphericity	Approx. chi-square	2844.732	3143.927
		df	136	136
		p	0.000	0.000
Emotional Biases	Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.851	0.823
	Barlett's test of sphericity	Approx. chi-square	1320.214	1081.467
		df	36	36
		p	0.000	0.000

As a result of the factor analysis performed to test the construct validity, nine dimensions and 26 expressions measuring behavioral finance biases consisting of cognitive and emotional biases were determined for both groups. The nine dimensions that were obtained as a result of the factor analysis have been named to represent their respective sub-expressions.

As can be seen in Tables 3 and 4, the results from the factor analysis of behavioral finance biases for the participation bank customers and traditional bank customers identified six factors related to cognitive bias and three factors related to emotional bias. Tables 3 and 4 show the cognitive bias factor to explain 71.062% and 70.0495% of the total variance for the respective bank customers, as well as the emotional bias factor to explain 69.087% and 63.638% of the total variance for the two respective bank type customers.

Reliability refers to the stability between the measurements of what is being measured (Karasar, 2011). The current study tested the reliability of the scale within its scope by calculating Cronbach's alpha for the reliability analysis. Cronbach's alpha values show a scale to be unreliable at $0.00 \leq \alpha < 0.40$, to have low reliability at $0.40 \leq \alpha < 0.60$, to be quite reliable at $0.60 \leq \alpha < 0.80$, and to be highly reliable at $0.80 \leq \alpha < 1.00$ (Özdamar, 1999; as cited in Tavşancıl, 2014). When considering the reliability values calculated for the scales prepared separately for the participation bank customers and for the traditional bank customers, the scales are seen to be generally highly reliable.

Table 3

Factor and Reliability Analysis of Participation Bank Customers' Behavioral Finance Biases

Factor Dimensions and Variables	Variance	Eigen Value	Cronbach Alfa
Availability	13.793	2.345	(n=3): 0.817
Overconfidence	12.334	2.097	(n=4): 0.775
Anchoring/Taking Reference Point	11.813	2.008	(n=2): 0.697
Conservatism	11.686	1.987	(n=3): 0.778
Self-Attribution	11.496	1.954	(n=3): 0.753
Familiarity	9.941	1.690	(n=2): 0.694
Cognitive Bias Factor Variance Explanation (% Cumulative): 71.062			
Cronbach Alpha (n=17): 0.911			
Aversion Bias	27.073	2.437	(n=4): 0.806
Endowment Bias	21.307	1.918	(n=2): 0.793
Over-Optimism	20.708	1.864	(n=3): 0.713
Emotional Bias Factor Variance Explanation (% Cumulative): 69.087			
Cronbach Alpha (n=9): 0.856			

Table 4

Factor and Reliability Analysis of Traditional Bank Customers' Behavioral Finance Biases

Factor Dimensions and Variables	Variance	E i g e n Value	Cronbach Alfa
Availability	13.654	2.321	(n=3): 0.793
Conservatism	12.452	2.117	(n=3): 0.770
Overconfidence	11.942	2.030	(n=4): 0.772
Anchoring/Taking Reference Point	11.056	1.879	(n=2): 0.693
Familiarity	10.834	1.842	(n=2): 0.725
Self-Attribution	10.557	1.795	(n=3): 0.737
Cognitive Bias Factor Variance Explanation (% Cumulative): 70.495			
Cronbach Alpha (n=17): 0.895			
Aversion Bias	25.194	2.267	(n=4): 0.749

Endowment Bias	20.354	1.832	(n=2): 0.651
Over-Optimism	18.090	1.628	(n=3): 0.636
Emotional Bias Factor Variance Explanation (% Cumulative): 63.638			
Cronbach Alpha (n=9): 0.806			

Descriptive Statistics

This section presents the mean and standard deviation distributions of the factors that were determined as a result of the factor analysis. When evaluating the means of the factors related to how behavioral finance biases affect the financial decisions of participation bank customers, cognitive bias is seen to have the highest value ($\bar{\chi} = 2.87$), as well as the sub-factors of familiarity bias ($\bar{\chi} = 3.10$) and anchoring/reference point bias ($\bar{\chi} = 2.99$), followed respectively by self-attribution bias ($\bar{\chi} = 2.86$), conservatism bias ($\bar{\chi} = 2.85$), availability bias ($\bar{\chi} = 2.82$), and overconfidence bias ($\bar{\chi} = 2.76$). When evaluating the means for the factor of emotional biases ($\bar{\chi} = 2.82$) and its sub-factors, over-optimism bias has a $\bar{\chi} = 2.89$, aversion bias has a $\bar{\chi} = 2.84$, and endowment bias has a $\bar{\chi} = 2.66$.

Table 5

Mean and Standard Deviation of Participation Bank Customers' Behavioral Finance Biases

Identified Factors Regarding Behavioral Finance Biases of Participation Bank Customers	Mean	Standard Deviation
Cognitive Biases	2.87	0.79
Availability	2.82	1.07
Overconfidence	2.76	0.94
Anchoring/Taking Reference Point	2.99	1.11
Conservatism	2.85	1.02
Self-Attribution	2.86	0.97
Familiarity	3.10	1.11
Emotional Biases	2.82	0.81
Aversion Bias	2.84	0.94
Endowment Bias	2.66	1.11
Over-Optimism	2.89	0.95

When evaluating the means of the factors related to how behavioral finance biases affect the financial decisions of traditional bank customers, the factor of cognitive biases is again seen to be highest ($\bar{\chi} = 2.88$), with the means evaluated for the sub-factors showing familiarity bias to be highest ($\bar{\chi} = 3.30$), followed by anchoring/reference point bias ($\bar{\chi} = 3.18$), self-attribution bias ($\bar{\chi} = 2.85$), conservatism bias ($\bar{\chi} = 2.81$), overconfidence bias ($\bar{\chi} = 2.74$), and availability bias ($\bar{\chi} = 2.71$). Evaluating the factor of emotional biases revealed a $\bar{\chi} = 2.80$, with the means evaluated for its sub-factors showing aversion bias ($\bar{\chi} = 2.91$) to be highest, followed by over-optimism bias ($\bar{\chi} = 2.83$) and endowment bias ($\bar{\chi} = 2.54$).

Table 6

Mean and Standard Deviation of Traditional Bank Customers' Behavioral Finance Biases

Identified Factors Regarding Behavioral Finance Biases of Traditional Bank Customers	Mean	Standard Deviation
Cognitive Biases	2.88	0.75
Availability	2.71	1.04
Conservatism	2.81	1.03
Overconfidence	2.74	0.89
Anchoring/Taking Reference Point	3.18	1.13
Familiarity	3.30	1.12
Self-Attribution	2.85	0.97
Emotional Biases	2.80	0.77
Aversion Bias	2.91	0.92
Endowment Bias	2.54	1.10
Over-Optimism	2.83	0.92

When examining the participation bank customers and traditional bank customers in terms of means tendency values in this context, the sub-factors of familiarity bias and anchoring/reference point bias were identified as the factors most influencing their financial decisions. When examining the participation bank customers and traditional bank customers in terms of the mean tendency values, availability bias and aversion bias were additionally seen to be among the sub-factors most affecting their financial decisions. When examining the sub-factors of over-optimism bias, conservatism bias, overconfidence bias, and self-attribution bias in terms of their mean tendency values, no significant difference was found

between the two groups. Endowment bias was found to be the least influential factor regarding financial decisions in both groups. As a result, behavioral finance biases expressing cognitive and emotional biases can be said to affect the financial decisions of customers from both bank groups.

Customer Comparison of Traditional and Participation Banks from the Perspective of Behavioral Finance

The study examines whether a significant difference exists between traditional bank customers and participation bank customers in terms of behavioral finance biases consisting of cognitive and emotional biases. For this purpose, the following main and sub-hypotheses have been formed.

H₁: Traditional bank customers and participation bank customers differ in terms of how cognitive biases affect their financial decisions.

h_{1a}: They differ in terms of how overconfidence bias affects their financial decisions.

h_{1b}: They differ in terms of how anchoring bias affects their financial decisions.

h_{1c}: They differ in terms of how conservatism bias affects their financial decisions.

h_{1d}: They differ in terms of how availability bias affects their financial decisions.

h_{1e}: They differ in terms of how self-attribution bias affects their financial decisions.

h_{1f}: They differ in terms of how familiarity bias affects their financial decisions.

H₂: Traditional bank customers and participation bank customers differ in terms of how emotional biases affect their financial decisions.

h_{2a}: They differ in terms of how endowment bias affects their financial decisions.

h_{2b}: They differ in terms of how over-optimism bias affects their financial decisions.

h_{2c}: They differ in terms of how aversion bias affects their financial decisions.

According to the Kolmogorov-Smirnov normality test results, $p < 0.05$ is considered significant, with this value being the limit in statistical significance calculations. For this reason, the Mann-Whitney U test, which is used for testing hypotheses established with two-level variables, was applied as a non-parametric test method.

Table 7

Bank Type- Behavioral Finance Biases Mann-Whitney U Test Results

Biases	Bank Type	N	Mean Rank	Sum of Ranks	U	Z	p
Cognitive Biases	Participation Bank	390	427.49	166721.00	90476.000	-0.055	0.956
	Traditional Bank	465	428.43	199219.00			
	Total	855					
Overconfidence	Participation Bank	390	426.53	166347.50	90102.500	-0.160	0.873
	Traditional Bank	465	429.23	199592.50			
	Total	855					
Anchoring	Participation Bank	390	406.59	158571.50	82326.500	-2.342	0.019
	Traditional Bank	465	445.95	207368.50			
	Total	855					
Conservatism	Participation Bank	390	433.12	168918.50	88676.500	-0.559	0.576
	Traditional Bank	465	423.70	197021.50			
	Total	855					
Availability	Participation Bank	390	441.84	172317.50	85277.500	-1.511	0.131
	Traditional Bank	465	416.39	193622.50			
	Total	855					
Self-Attribution	Participation Bank	390	431.50	168284.50	89310.500	-0.382	0.703
	Traditional Bank	465	425.07	197655.50			
	Total	855					

Familiarity	Participation Bank	390	405.74	158239.50	81994.500	-2.436	0.015
	Traditional Bank	465	446.67	207700.50			
	Total	855					
Emotional Biases	Participation Bank	390	431.52	168293.00	89302.000	-0.382	0.702
	Traditional Bank	465	425.05	197647.00			
	Total	855					
Endowment	Participation Bank	390	442.36	172522.00	85073.000	-1.574	0.115
	Traditional Bank	465	415.95	193418.00			
	Total	855					
Over-Optimism	Participation Bank	390	439.59	171441.50	86153.500	-1.266	0.206
	Traditional Bank	465	418.28	194498.50			
	Total	855					
Aversion Bias	Participation Bank	390	419.30	163528.00	87283.000	-0.947	0.344
	Traditional Bank	465	435.29	202412.00			
	Total	855					

Table 7 shows the Mann-Whitney U test analysis results. No significant difference was found between traditional and participation bank customers in terms of cognitive biases ($U = 90,476.000$; $p > .05$), overconfidence bias ($U = 90,102.500$; $p > .05$), conservatism bias ($U = 88,676.500$; $p > .05$), availability bias ($U = 85,277.500$; $p > .05$), self-attribution bias ($U = 89310.500$; $p > .05$), emotional biases ($U = 89,302.000$; $p > .05$), endowment bias ($U = 85,073.000$; $p > .05$), overoptimistic bias ($U = 86,153.500$; $p > .05$), or aversion bias ($U = 87,283.000$; $p > .05$). According to this result, cognitive biases such as overconfidence bias, conservatism bias, availability bias, and self-attribution bias and emotional biases such as endowment bias,

overoptimistic bias, and aversion bias can be said to not differ with respect to the two bank groups.

A significant difference was found between traditional and participation bank customers in terms of anchoring bias ($U = 82,326.500$; $p < .05$). The mean rank of anchoring bias was determined as Mean Rank = 406.59 for participation bank customers and as Mean Rank = 445.95 for participation bank customers. According to this result, traditional bank customers can be said to exhibit more anchoring bias in their financial decisions than participation bank customers.

A significant difference was also found between traditional and participation bank customers in terms of familiarity bias ($U = 81,994.500$; $p < .05$). The mean rank of familiarity bias was determined as Mean Rank = 405.74 for participation bank customers and as Mean Rank = 446.67 for traditional bank customers. According to this result, traditional bank customers can be said to have greater bias when choosing what is familiar/known to them compared to participation bank customers.

Conclusion and Evaluation

Traditional finance is based on the assumption that individuals will act rationally when making financial decisions. Unlike traditional finance, behavioral finance is based on the assumption that individuals by nature will often act irrationally or with limited rationality, because humans have certain psychological biases that cause them to act inappropriately when making financial decisions. Behavioral finance offers individuals who are faced with numerous financial decisions throughout their lives the opportunity to recognize and reduce the impact of these biases.

One field in which behavioral finance's assumption of limited rationality finds a full response is Islamic finance and its sub-branch of the banking field, as the field of Islamic finance and banking is based on the idea that individuals are not completely rational and that dynamics exist that affect financial decision-making processes and cause people to deviate from rational behaviors, similar to behavioral finance. Therefore, considering these two areas together is thought to be able to provide an important alternative to traditional finance, as well as enable the construction of a healthier financial structure (Tekin, 2020).

According to the results of the exploratory factor analysis that was applied to the questions that had been prepared regarding cognitive and emotional biases, the study identified a total of nine factors that affect bank customers' financial

decisions. While the study identified the factors of overconfidence bias, anchoring bias, conservatism bias, availability bias, self-attribution bias, and familiarity bias to be related to cognitive biases, it found over-optimistic bias, endowment bias, and aversion bias to be related to emotional biases.

When examining participation bank customers and traditional bank customers in terms of average trend values, the study obtained the following results: cognitive bias and its sub-factors of overconfidence bias, anchoring/reference point bias, conservatism bias, availability bias, self-attribution bias, and familiarity bias were found to be the biases that most affect bank customers' financial decisions, with the most influential sub-factor being familiarity bias, followed by the anchoring/reference point bias.

Individuals who exhibit cognitive biases can be said to resort to mental shortcuts to simplify the complex processes involved in financial life. Individuals with overconfidence bias tend to rely on their personal information and estimates more than they actually should when making a financial decision. This can lead to excessive risk-taking and over-trading, resulting in erroneous decisions. Individuals with anchoring/reference point bias can determine a random value in their minds as an anchor while making financial decisions and establish a link between this value and their financial decision; they may also act incorrectly by looking at the results from their past financial decisions as a guarantee of the results they will obtain in the future.

Individuals with the conservatism bias may prefer to stick to their previous views regarding financial decisions. Individuals with availability bias, which is another cognitive bias, may make the most common choices that come to mind when trying to evaluate their savings, meet their financing needs, or choose a bank or investment instrument. Self-attribution bias may lead individuals to attribute the results of their financial decisions to their own abilities and predictions if these predictions are good or to external factors when their predictions are bad. Individuals with familiarity bias, which is the last cognitive bias sub-factor discussed in the study, may turn to familiar local banks where they have more information about their products and services when making financial decisions.

When examining participation bank customers and traditional bank customers in terms of average trend values, the following results are obtained. Over-optimism bias, aversion bias, and endowment bias are the sub-factors of the emotional biases that affect bank customers' financial decisions. The emotions of individuals who

are emotional beings and who just don't have logic at the forefront can be said to be extremely effective regarding their financial decisions. Individuals with over-optimism bias can be said to be more optimistic than they should be about their future expectations and whatever situations may occur.

Individuals with aversion bias may exhibit erroneous behaviors in order not to experience loss and regret regarding their financial decisions. This situation may lead individuals to sell their profitable financial instruments and keep their losing financial instruments, rather than make bold financial decisions; they may also attach more importance to losses than to gains. Endowment bias is the last of the emotional biases discussed in the study and is the factor with the least effect on financial decisions in terms of average tendency values. Having this bias may indicate that a sense of ownership could arise regarding their financial decisions by causing individuals to not consider returning a credit card their bank sends them or to not change banks even if the opportunity arises.

According to the results from the difference of differences analysis conducted to determine whether a significant difference exists between the behavioral finance biases consisting of cognitive and emotional biases that affect financial decisions in terms of traditional bank customers and participation bank customers, a significant difference was found between these customers in terms of anchoring bias and familiarity bias. According to the obtained results, traditional bank customers can be said to exhibit more anchoring bias and familiarity bias regarding their financial decisions compared to participation bank customers. Moreover, according to the difference analysis, no difference was concluded to exist between traditional and participation bank customers in terms of other financial biases that affect their financial decisions.

As a result, behavioral finance biases, which are expressed as cognitive and emotional biases in this study, have been concluded to affect the financial decisions of participation bank customers and traditional bank customers, as they do not exhibit completely rational behaviors. Although different religious, economic, and social factors affect peoples bank preference in terms of participation or traditional bank, no significant difference was found between these two types in terms of the psychological biases that affect their financial decisions. Also, having participation and traditional bank customers become aware of the biases that underlie their financial decisions can allow them to make more rational decisions and reach more rational conclusions.

Recognizing and properly guiding psychological biases is also important for financial institutions in order for individuals to be able to make more informed financial decisions. In addition, biases that affect individuals' financial decision-making processes also affect financial institutions' decision-making processes. As a matter of fact, the 2008 global financial crisis saw financial institutions as well as individuals exhibiting certain psychological biases such as overconfidence and herd behavior. As a result, it is important for the development of participation banks and traditional banks to recognizing psychological biases and obtaining information about the behavioral profile of the customers they will address is important within the scope of the financial institutions discussed in the study (i.e., participation banks and traditional banks) and their development. The participation banking system has a small market share, and developing it in these terms is thought to be able to contribute to the growth of its share in the sector.

The study is also expected to contribute to the Islamic, traditional, and behavioral finance literature, as well as future studies in terms of revealing the biases that affect individuals' financial decision-making processes. Future research can be conducted on banking sector employees, different geographical areas, and other psychological biases.

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