An Empirical Investigation of the Reasons of Financial Needs and Preference of Islamic Banking Customers in Türkiye

Türkiye'deki İslami Banka Müşterilerinin Mali İhtiyaçlarının ve Tercihlerinin Ampirik Araştırılması

Araş. Gör. Dr. Berna DOĞAN BAŞAR [ID][1], Doç. Dr. Ömer Faruk RENÇBER [ID][2], Prof. Dr. İbrahim Halil EKŞİ [ID][3]

Abstract

Many interest-free financial organs are operating in a similar system all over the world, especially in Muslim countries. Islamic banks are banks that operate in the financial sector, support the real economy, and offer banking services. Islamic banks collect funds from savers, make them available in industry and trade sectors according to interest-free financing ethics and share profit or loss with savers. Alternative financing systems are one of the issues discussed in recent years to reduce the problems arising from the traditional banking system, which has become controversial especially with the recent crises. One of these alternatives is Islamic finance practices. As in all the world, the rising market share in Türkiye is increasing interest in the bank. This study aims to guide banks in product development by using data mining techniques in Islamic banking in terms of being a service enterprise. For this purpose, a face-to-face survey was conducted with 212 customers registered at 5 branches of an Islamic bank. In the study in which decision tree methodology is conducted, the satisfaction, needs, and expectations of the bank are determined according to the different characteristics of the customers (socio-economic factors, financial and Islamic literacy levels etc.). From this point of view, product and policy development suggestions were brought to Islamic banks according to customer characteristics.

Keywords: Participation bank, customer preference, empirical review

Paper Type: Research

Öz

Birçok faizsiz finans kurumu, başta Müslüman ülkeler olmak üzere tüm dünyada benzer bir sistem içinde faaliyet göstermektedir. İslami bankalar, finans sektöründe faaliyet gösteren, reel ekonomiyi destekleyen ve bankacılık hizmetleri sunan bankalardır. İslami bankalar tasarruf sahiplerinden fon toplar, bunları faizsiz finansman etiğine göre sanayi ve ticaret sektörlerinde kullanılabilir hale getirir ve kâr veya zararı tasarruf sahipleriyle paylaşır. Alternatif finansman sistemleri, özellikle son dönemde yaşanan krizlerle birlikte tartışmalı hale gelen geleneksel bankacılık sisteminden kaynaklanan sorunları azaltmak için son yıllarda tartışılan konulardan biridir. Bu alternatiflerden biri de İslami finans uygulamalarıdır. Tüm dünyada olduğu gibi Türkiye'de de artan pazar payı bankaya olan ilgiyi artırıyor. Bu çalışma, bir hizmet işletmesi olması açısından İslami bankacılıkta veri madenciliği tekniklerini kullanarak ürün geliştirmede bankalara rehberlik etmeyi amaçlamaktadır. Bu amaçla, İslami bir bankanın 5 şubesinde kayıtlı 212 müşteri ile yüz yüze anket yapılmıştır. Karar ağacı metodolojisinin uygulandığı çalışmada, müşterilerin farklı özelliklerine (sosyo-ekonomik faktörler, finansal ve İslami okuryazarlık düzeyleri vb.) göre bankanın memnuniyet, ihtiyaç ve beklentileri belirlenmektedir. Bu açıdan İslami bankalara müşteri özelliklerine göre ürün ve politika geliştirme önerileri getirilmiştir.

Anahtar Kelimeler: Katılım bankası, müşteri tercihi, ampirik inceleme

[1] Gaziantep Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, bernadogan@gantep.edu.tr
[2] Gaziantep Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, dr.ofrencber@gmail.com
[3] Gaziantep Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, ieksi@gantep.edu.tr

Makale Türü: Araştırma

Introduction

In daily life, people have very different financial needs and expectations. To meet these needs and expectations, individuals have to make some financial decisions and seek answers to many questions while making these decisions. In this sense, individuals face many questions such as how, when and which borrowing tools to cover needed funds will be met; their cost; if an investment decision is to be made, what the investment horizon will be and what investment instrument to choose; estimation of the maturity, risk and return ratio of the said investment; what will be the most suitable accumulation tool when looking for answers to future concerns; which pension system it needs; what kind of precautions should be taken for unforeseen situations. Making correct and effective decisions for these questions is important today. The banking system is coming at the head of the solution areas of people's financial problems. In the banking system developed with globalization and innovation, various products and services are tried to be offered by all kinds of needs of people (Aras and Mutlu Yıldırım, 2019).

As with other service businesses, intense competition and saturation experienced in the banking sector have forced banks to develop new strategies that will affect customers and increase their loyalty to the bank to be more individual-oriented so that they can survive (Sevim and Çöllü, 2017). Another dimension of competition in the sector more market share and higher profit rates banks of developed countries beyond its borders to achieve that they are directed to developing countries such as Türkiye. Customer satisfaction and service quality are highly interrelated. When service quality is high, satisfaction will be greater, and vice versa. Cronin and Taylor, (1992) concluded that it is quite difficult to find consistent standards of service quality in the banking sector, and therefore, the competitive advantage lies in the high level of service quality provided and thus is considered as a powerful weapon for survival and continuity. Moreover, some studies found that increasing the satisfaction of the customers leads to increase in the profitability of the companies in the future (Anderson, Fornell and Lehmann, 1994). It is also possible to follow this situation from the market shares of foreign banks in the sector. Foreign banks placed in the market and local banks face more intense competition brought the necessity to increase the variety and quality of the services offered in other words competition (The Banks Association of Turkey, 2005).

On the other hand, both Islamic and other banks have to conduct a more customer-oriented activity than businesses operating in other sectors to sustain their activities. Unlike many other businesses, banks have to run a customer-based valuation system rather than product costs to continue their operations (Çıkrıkçı and Karakaya, 2004). The aim of this customer-oriented activity should be to try to provide quality service that bringing the customer to the forefront, determining their needs and expectations and ensuring their satisfaction. Customer is one of the most important resources businesses need today to survive (Bilir and Özgen, 2010). In this framework, today, banks as they segment their customers can also segment their branches to meet the needs of their customers, who are divided into segments, from the right channel, and in the right way. Customer segmentation to banks enables different marketing strategies to be applied according to the characteristics of the customers and the development of new strategies continuously. Banks' segmentation of their customers will help both branches that will serve customers from different segments and branch employees will analyze the needs of customers in the relevant segment more accurately and produce a faster and professional solution to customer needs (Baysa and Karaca, 2016).

Islamic finance, which has started to take an important place in the banking system, has become one of the most rapidly developing and growing agendas of the academic world and financial markets, especially in the last quarter-century. The size of Islamic finance has reached a level exceeding two trillion US dollars today (Durak et al., 2017). Islamic banking, which is one of the most important elements of Islamic finance, has been operating seriously not only in

Muslim countries but also in non-Muslim countries especially in the last 30 years (Mbawuni and Nimako, 2017).

Islamic banking is an ethical banking practice and its performance plays an important role in economic progress. Banking activities play an important role in healthy economies, and these activities are known to contribute to transforming developing countries into developed countries (Maryam et al., 2019). Islamic banking helps facilitate the growth and development of the country's economy even during the financial crisis (Ezeh and Nkamnebe, 2019). In this context, it is stated that Islamic banks outperform conventional banks and carry less risk in the 2007-2008 crisis (Uddin et al., 2017). In parallel with the increasing importance of Islamic banks, an increase is observed in the studies on this subject. One of the outstanding studies in Islamic banking is customer demands and expectations.

Understanding the needs and expectations of customers of Islamic banks will enable banks to optimize their products and services, thereby establishing a strong relationship with them and improving them (Ltifi et al., 2016). To be competitive, Islamic banks must understand how customers choose financial institutions, how their preferences are formed, and their expectations.

Banks are in a healthy relationship with them to ensure the continuity of their customers and to minimize the risk they face while performing their functions. To do this consciously, customers should be well defined in terms of their characteristics.

Besides, the literature shows that one of the important reasons for customers to choose Islamic banking is due to the quality of their products and services. This means that Islamic banks should be able to maintain the quality of their products and services and offer products and services that meet customers' needs. In the current highly competitive global market, Islamic banks should focus on improving and maintaining customer satisfaction by offering diverse and innovative products and services (Yumna, 2019). This fact emphasizes the urgency to research to understand the needs of customers for the product development of Islamic banks all over the world. Moving from all this, in this study, it was tried to bring different product and policy suggestions according to the determination of customer needs of Islamic banks and segmentation (Gül et al. 2017). Determining this need in advance and developing products and policies accordingly will provide an advantage to banks in competition. The reason for choosing Türkiye is not at the desired level in Türkiye's Islamic banking as of 2019 in the banking sector with a 5.5% share in Türkiye's Islamic banking despite Islamic banking practices and social, economic, and geographic potential that started in the 1980s. In this sense, the findings of the study are expected to contribute to raising this level.

In the literature, it has not been observed in another study of the development of products and policies with data mining (decision tree technique) the evaluation of individual customers of Islamic banks operating in Türkiye, according to the customer profile. With this aspect, it is aimed to contribute to both literature and Islamic banks in developing policies.

1. Islamic Banks in The World and Türkiye

For Islamic banking in the world, the 1960s are known as the prenatal period rather than the birth of this system. The reason why it is known like this is that the Islamic banking system did not go beyond the Gulf countries and the Middle East geography during this period and this banking system was inadequate in terms of the products offered by the general banking system. In the 1970s, although the number of institutions established in the Islamic banking system was insufficient, the system started to develop in terms of products. This period is seen as the real birth period of the Islamic banking system (The Participation Banks Association of Turkey, 2018a).

As the first institution established in the Islamic banking system; A banking model established by Ahmet En-Neccar in Egypt between 1963 and 1966 is accepted as a banking

model that takes the savings of people and transfers them back to trade (The Participation Banks Association of Turkey, 2012).

Interest-free banking is one of the remarkable areas of activity in the banking sector today. Islamic banks are not the only institutions that are unique to Türkiye. Many interest-free financial organs are operating in a similar system all over the world, especially in Muslim countries. The system, which consists of such institutions operating based on profit and loss initiatives, is known as "Interest-free banking" or "Islamic banking" in the world, while it is first considered as a "private financial institution" and is considered as "Islamic banking" in Turkish laws (Sayım, 2015).

The biggest players of Islamic banking such as the Islamic Development Bank, Kuwait Finance House, Dubai Islamic Bank appeared in the 1970s. In the 1980s, interest-free banking in the financial field began to spread from the Gulf to other Muslim countries and even to western countries within the framework of a mixed practice called the Islamic window. In the 1990s, the center of gravity of interest-free banking shifted from the Gulf to Southeast Asia and Malaysia, and many new products and services were developed by Islamic law (The Participation Banks Association of Turkey, 2018). In the USA, Islamic finance began in the 1980s with the establishment of two financial institutions that used Ijarah and Murabaha (Alharbi, 2016). In the 2000s, the Islamic financial institution became widespread and today the USA hosts more than 30 Islamic financial institutions scattered across various states (Aldarabseh, 2019). There are 3 sub-sectors in the world under the heading of Islamic finance, basically banking, capital markets, and Tekaful. At the beginning of these, according to 2017 figures Islamic banking, which constitutes 71% of the total assets in the sector (approximately 1.7 Trillion USD), has come. As of 2017, there are 505 Islamic banks in the world (Research and Markets, 2019). Islamic banking accounts for more than 15 percent of total financial assets in countries such as Saudi Arabia, Kuwait, Qatar, and Malaysia (Islamic Finance Bulletin, 2018).

Türkiye while you scroll through a closed economy to a liberal and open economy in the 1980s, at the end of this year, met with the Islamic banking model. During these years, efforts in terms of enhanced financial instruments and institutions of the Türkiye economic system has gained intensity. Thus, Islamic banks as a result of these efforts, Türkiye has been included in the economic system (Batir and Güngör, 2016).

Albaraka Türk Private Finance Institution was established in 1985, Faisal Finans Private Finance Institution was established in 1985 and Kuveyt Türk Private Finance Institution was established in 1989. In 2001, now known as Turkey Association of Islamic Banks, representing the Special Finance Houses have been established. Anadolu Finance Private Finance Corporation merged in 2005 and the bank's name was changed to Turkey Islamic Finance Bank. In 1991, Anadolu Private Finance Corporation was established, and later in 2005, it was merged with the Family Finance Private Finance Corporation. Islamic banks could not improve in terms of asset size and product diversity before 2005 due to the effects of economic crises and the lack of necessary legislative regulations. After 2005, legislative arrangements have been made that open the way for the sector and support its development (The Participation Banks Association of Turkey, 2015). Despite these positive developments, the desired level has not been reached yet.

Istanbul is Türkiye's goal by 2023 is to become the center of Islamic Finance and in addition to Malaysia and UAE school in this field, Türkiye school to provide as an alternative to the world's financial markets. Türkiye has a history, culture, geographical location, with the accumulation of experience and many have the potential to realize the objectives in this area in 2023 (Durak et al. 2017).

2. Literature Review and Hypotheses Development

According to the lifetime hypothesis developed by Modigliani and Brumberg (1954), consumption spending is not only a function of current income but more importantly, long-term or lifetime income expectations. Besides, the value of wealth, which is a stock variable in the current period, is among the explanatory variables of the consumption function. The theory predicts that changes in current income and wealth on consumption expenditures are low, whereas changes in life expectancy expectations have a high impact on consumption expenditures. In other words, the marginal consumption tendency calculated over wealth and current income is low and the marginal consumption tendency calculated over lifetime income expectations is high. Finally, it should be noted that the lifetime hypothesis sees consumption expenditures as a flat rate of lifelong income expectations.

The behavior of bank customers towards financial products and services is widely discussed in the literature. These discussions on traditional and Islamic banks have focused on customer satisfaction, particularly with bank selection, and a very limited number of studies have focused on researching customers' financial needs and expectations. In this respect like with research into traditional banks outside Türkiye, studies on Islamic banks have also gained intensity recently. Studies in many countries, such as Bahrain (Metawa and Almossawi, 1998), Malaysia (Amin and Isa, 2008), Bangladesh (Khan et al., 2007), Abdullrahim and Robson (2017) show that the savings and deposit products are most widely used, while financing products are the least preferred products by consumers.

Many studies on Islamic banks state that although Islamic banks mostly perform the same functions as traditional banks, they do this in different ways (Ahmad, 2000; Iqbal and Molyneux, 2006; Warde, 2000). The most important feature that distinguishes Islamic banks from traditional banks is that, as the Islamic economy predicts, transactions are done without interest. For example, Özsoy et al. (2013) investigated the reason for the preference for interest-free banks in operation in Türkiye and found that respectively service/product quality, image and trust, personnel quality, and religious/environmental motivations are the most important reasons for customers to prefer Islamic banks. Therefore, we hypothesize the following:

H1. Interest-free in banks has a effect on the attitude of customers towards Islamic banks.

H2. There is a significant relation between perceived bank reputation and the Turkish consumer intention to adopt Islamic banking.

H3. Service/product quality has a effect on the attitude of customers towards Islamic banking.

The choice of financial products is greatly influenced by demographic profiles, such as age, education levels, number of children, and income levels of customers. While savings accounts are very popular among all Islamic bank customers, investment accounts are mainly used by high-income and well-educated customers (Metawa and Almossawi, 1998; Khan et al. 2007). In their study, Duramaz and Erol (2018) found that the age factor of the customers is the factor in preferring Islamic banks. Buchari et al. (2015) in their studies in Bahrain, they concluded that the demographic and income levels of the customers were influential on the selection of Islamic banks, and the perception and awareness of Islamic banking according to the gender and education level of the customers were different, but there was no difference according to age and income level. These findings are related to the life cycle hypothesis theory proposed by Modigliani and Brumberg (1954), which states that income stability and spending levels affect a person in the selection of financial assets (Coleman, 2006).

H4. Individualism has a effect on the attitude of customers towards Islamic banking.

H5. Customers' level of awareness about Islamic banking concepts and mechanism has a effect on their attitude towards Islamic banks.

Haron et al. (1994) examined non-Muslims and Muslims who are not customers of an Islamic bank in Malaysia concerning the relative importance of specific bank selection criteria. They found that the most important criteria in choosing a bank for Muslims were "providing a fast and effective service", then "transaction speed" and the third "friend of the bank staff". For non-Muslims, choosing a bank was first observed as "friend of the bank staff", secondly "providing fast and efficient service" and thirdly "the reputation and image of the bank". This study is important to show that there are statistically significant differences between Muslims and non-Muslims in terms of bank selection criteria. Kaabachi and Obeid (2016) and Echchabi et al. (2016) investigated the main factors affecting the decision of Islamic banks in Tunisia to use their services. As a result of these efforts, focusing on non-Islamic bank customers, they found that factors such as bank reputation, relative advantages, and Islamic beliefs, values, and compatibility with lifestyle would positively affect their willingness to protect them. Okumuş (2005) has researched Islamic banking customers in Türkiye and was determined that as the most important criteria for customers to prefer Islamic banks, religious reasons, Islamic banks also provide services from traditional banks and the close attention of the staff. Akhtar and Zaheer (2014) measure the service quality of Islamic banks showed in their studies that concrete, reliable and empathy variables affect customer satisfaction positively, while responding has negative effects on customer satisfaction. Berthon, Money and Caruana (2000) found that quality of service is the primary gateway to customer satisfaction.

H6. There is a significant relation between the perceived relative advantage and Turkish consumer intention to adopt Islamic banking.

Dusuki and Abdullah (2007), Aris et al. (2013), and Yumna (2019) proposed the Islamic banks to the Maslahah pyramid so that they can serve customers better. The Maslahah pyramid recommends that Islamic banking provides financial products that meet the three needs of the society, the necessary needs, complementary needs, and luxurious needs. The pyramid shows the different significance of each need that is interrelated and mutually dependent. Using this pyramid, Ahmed (2011) suggests that Islamic banks should have three types of banking products, namely demand deposits, savings, mortgages, security products that cover insurance, retirement savings and deposits, and growth and investment products. Yumna (2019) aimed to develop products in sharia banking using the Maslahah Pyramid theory and this study presented some innovations in Islamic banking customer behavior, especially in understanding the financial needs based on the Maslahah Pyramid theory. As a result of the study, it was revealed that participants with similar characteristics in terms of age, marital status, and the number of children have similar financial needs. Also, this study proposes to provide Islamic banking with financial products that meet three types of needs, including basic needs, complementary needs, and luxury needs, to better serve the real economy.

H7. Maslahah pyramid in banks has a effect on the attitude of customers towards Islamic banks.

In the literature, it is seen that the insufficient understanding of how these banks work is an important factor in preventing Muslims from doing business with Islamic banks. Islam and Rahman (2017) stated that many people do not understand how Islamic banking works, especially in countries where Muslims such as India do not make up the majority of the population. In contrast, Erol and El-Bdour (1989) found that customers who prefer Islamic banks are very aware of how these banks operate.

The findings of a study conducted by Awan and Buhari (2011) in Pakistan show that Muslims pay more attention to product features and service quality when choosing a bank. Similarly, in a study conducted by Dusuki and Abdullah (2007), it was found that customers in Malaysia chose the bank according to a combination of Islamic and financial reputation and quality services offered by the bank. Durak et al. (2017) as a result of their work on the clients

of Islamic banks in Düzce, Bolu, and Zonguldak provinces, it was observed that the most effective reason for choosing Islamic banks was close relations with branch personnel.

In this study, in Islamic banking in Türkiye with the decision tree technique which is not applied to customer expectations, satisfaction and needs will be tried to be determined. In this study, as different from other studies in the literature participation banks in Türkiye examined according to the socioeconomic level of its customers by identifying their expectations from these banks, banks, was aimed to help develop products according to customer specifications.

3. Data and Methodology

Kuveyt Türk bank, between participation banks branchs in Türkiye has a share of about 37% as of August, 2020 (The Participation Banks Association of Turkey, 2020). This study was carried out on Kuveyt Türk bank bank customers located branches in Türkiye. The sample of this study consists of 212 customers actively using its products and services in 5 of 8 branches of Kuveyt Türk Participation Bank in Gaziantep. There are 25 participation banks branchs located in the city of Gaziantep and 5 of these banks were examined in this study. The "convenience sampling" method, one of the non-random sampling methods, was used as the sampling method in this study. In this sampling method, the elements in the sample are determined statistically in non-random ways (Robson, 2002). Therefore, it can be quite difficult to generalize statistically the results of studies based on samples determined by non-random sampling method. However, as in this study, in cases where there is no precise information about the elements and the number of elements in the population, " simple random sampling" method can be used to make some estimates about the current situation in the light of the information obtained based on a particular sample, although it is not statistically coincidental (Robson, 2002).

In the creation of survey questions consisting of 21 questions in total, Yumna, 2018, Altunbaş, 2019, Kılıç et al. 2015 studies were used. In the first part of the survey, there are questions including information such as gender, age, type of income, monthly income of the bank customers, and their financial priorities. The second part of the survey consists of questions for determining the financial and Islamic literacy levels of individual customers. These variables, which are not found in the studies, are considered as another contribution of the study to the literature and banks. In the third part of the survey, questions were asked about the reasons for the banks' preferences, saving trends, and pension plans.

Gaziantep province where surveys are applied, Türkiye is the 6th largest city. Therefore, the effect of geographical differences constitutes the limitation of the study. The survey form was applied to a pilot group before it was applied to individual customers and then the opinions of the bank branch managers were taken and the questionnaire was finalized. The surveys were conducted face to face between February-March 2020. The survey data were carried out with statistical programs Statistical Package for the Social Sciences (SPSS) and KNIME software used in data mining applications.

3.1. Method

3.1.1. Decision Tree Algorithm

The decision tree algorithm is a data mining technique grounded on a tree-based model and intended for classification or regression. This method consists of a structure resembling a tree made up of sub-variables that best classify a previously determined target variable. In this respect, the tree image makes it possible for accurate rule extraction from the top downwards. An example of a decision tree image is shown below (Ulgen,2020).

Figure 1: Decision tree algorithm
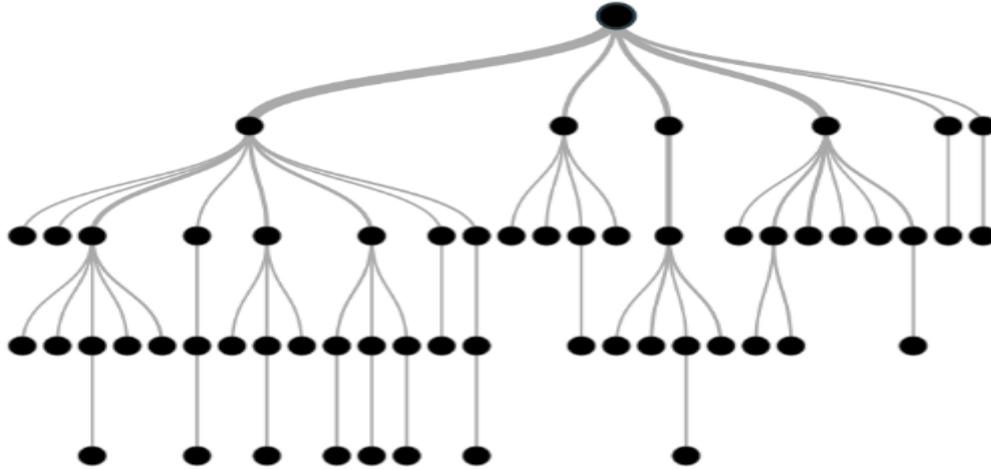
As can be seen in the figure, the variable placed at the top of the tree is the target variable in terms of the algorithm. The lower branches are other variables that classify the target variable. The basic aim of the algorithm is to develop rules that classify the target variable. For this purpose, the Entropy, Gini, Gain, or least-squares method (LSM) is used. In cases where the target variable is continuous, LSM is used, whereas if it is categorical, the other variables are used. The Gini algorithm is based on binary splitting, and the Gini index value is used as the splitting criterion (Kumar and Kiruthika, 2015). This index value, also called the Gini split, is calculated for all characteristics defined as dataset input at every stage of the formation of the decision tree, and a decision node is created with the characteristic of having the lowest Gini index value (Özkan, 2016).

3.2. Application

Different from other studies examined in the literature, this study aims to assist participation banks in Türkiye to develop products according to their customers' characteristics by identifying the customers' expectations from these banks according to customers' socioeconomic levels.

3.2.1. Scale, Limitations, and Methodology

The sample of this study consists of 212 customers who actively use products and services at 5 of the 8 branches of Kuveyt Türk Participation Bank in the province of Gaziantep. In the creation of the questionnaire, consisting of a total of 21 questions, the studies by Yumna, 2018; Altunbaş, 2019; and Kılıç et al., 2015, were utilized. In the first part of the questionnaire, customer information such as gender, age, income type, and monthly income, and questions containing their financial preferences, are included. The second part of the questionnaire comprises questions created to determine customers' financial status and their levels of Islamic literacy. It is considered that these variables, which are not encountered in the conducted studies, will be another contribution of the study to the literature and the banks. In the third part of the questionnaire, questions related to reasons for preferring the banks, saving tendencies, and retirement plans are directed. The reason for selecting Gaziantep as the application area was the researchers' financial resources. Therefore, the effect of geographical differences constitutes a limitation of the study. In addition to the geographical constraint, since the study was conducted only with individual bank customers, no deductions could be made concerning commercial bank customers. These were determined as limitations of our study.

3. Results

Firstly, frequency analyzes were carried out with the survey data collected in the study. Then, k-averages to examine the literacy status of customers in finance and Islamic finance; decision tree algorithm to determine the demographic features that are effective in the reasons and preferences of customers' participation banking was used. In the study, each demographic feature question was taken as a target variable. The main purpose is to determine what the distinguishing features of the customers are according to the target variable. Therefore, a separate application was made for each target variable, and rules were achieved accordingly. In the conclusion part, the rules obtained were interpreted together and recommendations were made to the bank managers. So, gender, age, income status, marital status, number of children (if married), and credit card use were taken as target variables. In addition, the participants were divided into groups with cluster analysis according to their answers to the questions of financial and Islamic finance literacy. In the study, the decision tree method was applied according to the classes obtained from here together with the demographic characteristics.

The frequency table regarding the demographic information of the participants is as in Table 1 below. The alpha reliability coefficient of the questions was determined as 89%. There are missing data in some questions in the research. In this case, for the decision tree algorithm to work correctly, missing data at the scales level was completed according to the mod value of the series.

Table 1. Personal information

|		Number	%
Gender	Male	125	59,0
	Women	78	36,8
Age	18-30	47	22,2
	31-40	107	50,5
	41-50	37	17,5
	50 and above	13	6,1
Income Type	Fixed Income	107	50,5
	Variable Income	93	43,9
Monthly Income	500-2000	26	12,3
	2000-5000	126	59,4
	5000 and above	45	21,2
Marital Status	Single	63	29,7
	Married	142	67,0
Number of Children	0	69	32,5
	1	69	32,5
	2	33	15,6
	3 and above	30	14,2
If yes, is your child going to school?	Yes	74	34,9
	No	112	52,8
Do you use a credit card?	Yes	141	66,5
	No	63	29,7
Do you only work with participation banks?	Yes	56	26,4
	No	148	69,8
Do you have any non-Turkish Lira accounts in your Bank Account?	Yes	112	52,8
	No	38	17,9
Can you get education assurance ınsurance for your child?	Yes	73	34,4
	No	125	59,0
I have an early retirement fund preparation	Yes	58	27,4
	No	142	67,0
How many times a year do you travel domestically and abroad?	No	21	9,9
	1 time	50	23,6
	2 and above	117	55,2

It is stated that the scale is reliable when the Cronbach's Alpha value is 0.70 and above (Durmuş et al., 2011). The Cronbach alpha reliability of the scale we used in the study was found to be 83.7%. It seems that this reliability value is quite sufficient. In other words, the reliability of the substances is high. The study also classified the customers according to their financial literacy status. The main purpose here is to investigate whether demographic features and financial literacy are effective in customers' preference for participation banking and whether there will be a marketing strategy accordingly. Accordingly, the participants were asked questions related to basic finance and Islamic finance, and the answers obtained were evaluated as true-false. Then, the decision tree technique was applied to the data set obtained in this way. Accordingly, it was deemed appropriate to divide the customers into 3 main groups according to the Silhouette index. Accordingly, customers are clustered according to low, medium, and high literacy levels. According to the results obtained, the frequency table formed is as follows.

Table 2. Frequency table

	Islamic Financial Literacy Level			Financial Literacy Level	
	Frequency	Percent		Frequency	Percent
High	155	73,1	High	145	68,4
Middle	36	17,0	Middle	35	16,5
Low	21	9,9	Low	32	15,1
Total	212	100,0	Total	212	100,0

Rule implications were made according to the characteristics of the participant with the decision tree application based on data mining. Accordingly, a decision tree was created for each demographic feature. However, due to a large number of trees due to a large number of variables and a large number of trees not all figures are included in this section. Instead, for example, a screenshot of a tree algorithm is as follows:

Figure 2. Decision tree example
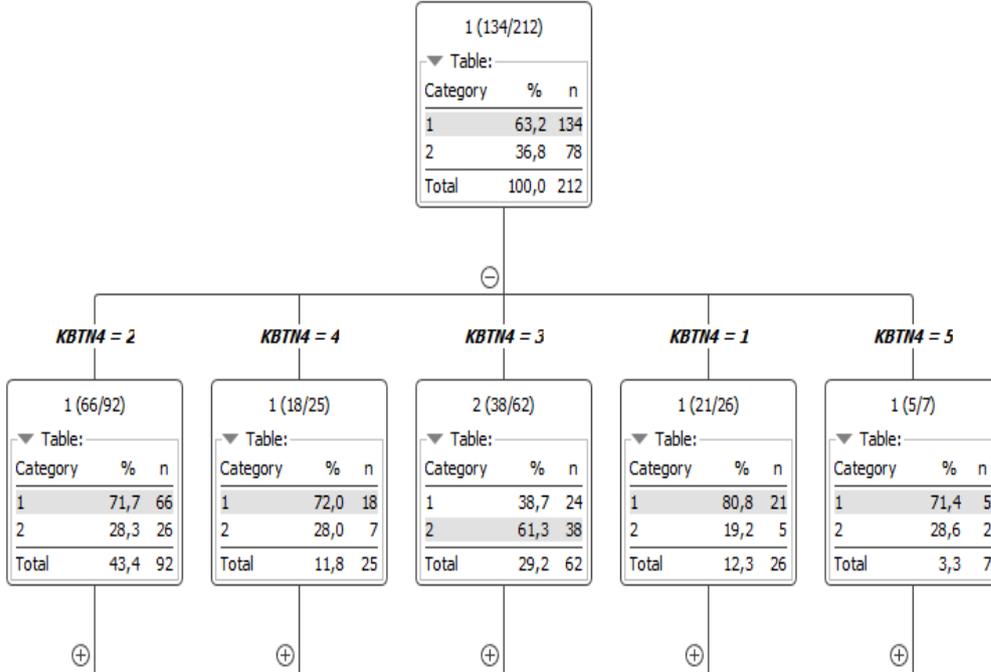
In the tree in the figure, the reasons for preferring participation banking by gender were examined. Accordingly, it can be interpreted in the form of 2-Agree is effective that the answer to the question "What is your preference for participation banking?" in men. In this way,

applications have been made according to all demographic features and financial literacy status, some of the results obtained are as follows:

In case the participants are examined according to their gender; it is concluded that men have middle-income status (2,000 ₺ - 5,000 ₺ per month), they use their income to meet their daily needs instead of saving, whereas those who use savings prefer gold and real estate investment instruments and use participation banking because of the opportunities they could not find in other banks. Women are different from men; It was observed that they made savings and preferred profit and loss partnerships for this purpose and preferred participation banking to obtain additional income. It was also noted that women are not very interested in the loan rates provided by the bank.

In case the participants are examined according to their ages; It was determined that the participants between the ages of 18-30 preferred the partnership of profit and loss for saving in the same way as the participants between the ages of 31-40. Also, participants between the ages of 18-30 do not think that the credit rates of participation banks are attractive. It was found that participants between the ages of 31-40 and 41-50 preferred participation banks for their banking image and popularity, while participants between the ages of 31-40 also preferred participation banks because they offered some services and facilities that other banks did not provide. Besides, it is among the findings that participants between the ages of 41-50 have planned and continuous savings.

When the reasons of the participants to choose participation banks according to their income types are analyzed; while it was observed that the participants with fixed and variable income preferred the participation banks for their banking image and popularity, it was observed that the participants with variable income also turned to these banks due to their interest sensitivity. It is concluded that fixed income participants make savings and prefer simple savings products and securities as a means of saving. Variable income participants need financial resources primarily to meet their daily needs.

When the attitudes of the participants are examined according to their monthly income; due to the attractive loan rates of the participation banks of the participants with a monthly income of 500-2.000 TL, the image and popularity of the banking and interest sensitivity; participants with a monthly income of 2,000-5,000 TL, on the other hand, are due to the attractive interest rates and interest rates of the participation banks, and the participants with monthly earnings of 5.000 ₺ and above are preferred due to the interest sensitivity of the participation banks. Besides, it was determined that the participants with a monthly income of 500 - 2.000 ₺ did not look at having fund accounts in their bank accounts and made savings with other financial instruments. Participants with a monthly income of 5,000 ₺ and above, it was determined that they primarily need financial resources to meet their daily needs and prefer simple savings products for savings.

When the attitudes of the participants are examined according to their marital status; it has been determined that married participants primarily need financial resources to provide additional income and use foreign currency as a means of saving, and single people use gold as a means of saving. It is also observed that married participants have foreign currency accounts other than ₺ in their bank accounts.

When the attitudes of the participants according to the number of children are examined; that childless and single participants do not save much and use all their income for their daily needs; when they have savings, it is determined that there are foreign currency and fund accounts other than ₺ in the bank accounts and they make savings there. It was also determined that these participants had early retirement fund preparations. It was determined that the participants having 1 child made savings and applied to real estate as a means of saving. Besides, it was observed that these participants have non-₺ participation accounts in their bank accounts and primarily need financial resources to meet their daily needs and provide additional

income. For the participants who have 2 children, it was determined that they do not prefer fund accounts in their bank accounts but prefer gold for savings. Besides, it was determined that these participants preferred the participation banks because of their interest sensitivity. It has been observed that the participants with 3 or more children do not prefer gold as a means of saving and tend towards other investment tools.

In cases where it is categorized considering credit card uses; It was determined that both participants using and not using credit cards made savings and these participants had fixed income. Also, investors using credit cards primarily need financial resources to meet their daily needs and grow their businesses, it has been observed that investors who do not use credit cards only need financial resources to meet their daily needs. It was found that participants using credit cards preferred bank deposits for savings and preferred participation banks because of their interest sensitivity. When the results are analyzed according to financial literacy levels, it has been concluded that the participants with high financial literacy and Islamic financial literacy are preparing pension funds and paying for private pensions every month.

Conclusion and Suggestions

Alternative financing systems are one of the issues discussed in recent years to reduce the problems arising from the traditional banking system, which has become controversial especially with the recent crises. One of these alternatives is Islamic finance practices. As in all the world, the rising market share in Türkiye is increasing interest in the bank.

In this study, the decision tree technique has been applied to determine the preferences and expectations of the individual customers of the banks in question and to make suggestions on product and policy development. Depending on the results of the analysis revealed within this framework, the following suggestions can be presented to participation banks;

- Unlike men, for women development of private investment products because they can save money,
- Because women are not very interested in the loan rates provided by the bank, developing products that will be of interest to women in this field and providing more appropriate funding opportunities for men,
- To participants between the ages of 18-30, because they do not think that this group's funding rates are attractive, funding should be provided to customers in this age range with more favorable conditions,
- Participants between the ages of 41-50, should be providing financial tools that will help them make continuous savings for these customers, as they make planned and continuous savings,
- Because variable income participants turn to participation banks because of their interest sensitivity, carrying out promotional activities that will bring these features to the fore,
- As fixed income participants prefer simple savings products and securities as a means of saving, should be developing products that will enable these customers to save continuously; also, since these customers turn to securities, studies in this area should be carried out,
- It is observed that married participants use foreign currency as a means of saving, and single people use gold as a means of saving, and should be introducing innovations for these customers, which will facilitate their operations in these areas and make them continuous,
- Childless and single participants have early retirement fund preparations and should be focused on retirement, especially this segment,
- It can be said that the general trend of the participants is towards classical investment instruments such as gold and foreign exchange and due to the low number of customers who turn to the profit and loss partnership, which is different

from other traditional banks, it is necessary to give people more information about the promotion and attractiveness of the profit loss partnership and to make it attractive.

- Participants with high levels of financial literacy and Islamic financial literacy, it has been determined that they are preparing pension funds and that they make regular payments for private pensions, it is thought that it may be appropriate for the participation banks to increase their efforts towards the pension fund and to develop different products for this field.

Also, it has been observed that customers do not meet education assurance, early retirement funds, and travel-related financial products from participation banks. The high number of customers in question revealed that new products should be developed for this group. It has been revealed that since approximately 79% of the participants travel at least once a year, policies should be produced for this segment.

The findings of our study are Yumna (2019), Duramaz, and Erol (2018) and Özsoy et al. (2013) match his work. In future studies, the expectations of commercial customers from participation banks can be determined with similar techniques, and products and policies can be developed for commercial customers. In addition, it can be suggested to use different algorithms such as a different scale or random forest in future studies. While interpreting the findings, the previous limitations of our study should not be neglected.

References

Abdullrahim, N., and Robson, J. (2017). The importance of service quality in British Muslim's choice of an Islamic or non-Islamic bank account. *Journal of Financial Services Marketing*, *22*(2), 54-63.

Aldarabseh, W. M. (2019). How popular is Islamic finance in the USA? Findings from Google Trends. *International Journal of Finance & Banking Studies*, (2147-4486), 8(3), 58-65.

Alharbı, A. (2016). Development of Islamic Finance in Europe and North America: Opportunities and Challenges. *Uluslararası İslam Ekonomisi ve Finansı Araştırmaları Dergisi,* 2(3), 109-136.

Ahmad, A. (2000). Economic development in Islamic perspective revisited. *Review of Islamic Economics*, 9, 83-102.

Ahmed, H. (2011). Product development in Islamic banks. Edinburgh University Press.

Akhtar, A., and Zaheer, A. (2014). Service Quality Dimensions Development Approach of Islamic Banks: A Scale Development Approach. *Global Journal of Management and Business Research: A Administration and Management*, *14*(5), 11–19.

Altunbas, S. T. (2019). İslami Finansal Okuryazarlık ve Helal Okuryazarlık İlişkisi. *Istanbul Management Journal*, (86), 57-73.

Amın, M., and Isa, Z. (2008). An examination of the relationship between service quality perception and customer satisfaction. *International Journal of Islamic and Middle Eastern Finance and Management*.

Anderson, E. W., Fornell, C., and Lehmann, D. R. (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing*, *58*(3), 53. doi: 10.2307/1252310

Aras, G., and Mutlu Yıldırım, F. (2019). Entegre raporlamada çoklu sermaye öğelerini temsil eden göstergelerin belirlenmesi: türk bankacılık sektörü örneği (determining ındicators representing multiple capitals in ıntegrated reporting: the case of Turkish banking sector). *Mehmet Akif Ersoy Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *6*(2), 408-422.

Arıs, N. A., OthmaN, R., and Azlı, R. M. (2013). Pyramid of Maslahah for social and economic welfare: the case of Bank Islam Malaysia Berhad. *Journal of Energy Technologies and Policy, 3*(11), 457-470.

Awan, H. M., and Bukharı, K. S. (2011). Customer's criteria for selecting an Islamic bank: evidence from Pakistan. *Journal of Islamic marketing*.

Baysa, E., and Karaca, S. S. (2016). Finansal Okuryazarlık ve Banka Müşteri Segmentasyonları Üzerine Bir Uygulama. *Muhasebe ve Finansman Dergisi*, (71), 109-126.

Batır, E. T. and Güngör, B. (2016). Bank Efficiency in TURKEY: Participation Banks Versus Conventional Banks. *International Journal Of Business And Management Studies,* 9-22.

Berthon, P. R., Money, A. H. and Caruana, A. (2000). Service quality and satisfaction – the moderating role of value. *European Journal of Marketing, 34*(11/12), 1338–1353. doi: 10.1108/03090560010764432

Bilir, A., and Özgen, H. (2010). Katılım Bankalarında Müşteri Memnuniyetinin Belirlenmesi Üzerine Hatay İlinde Bir Araştırma. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *19*(3), 39-62.

Bucharı, I., RafıkI, A., and Al Qassab, M. A. H. (2015). Awareness and attitudes of employees towards islamic banking products in Bahrain. *Procedia Economics and Finance,* 30, 68-78.

Coleman, A. (2006). The life-cycle model, savings and growth. *In Reserve Bank workshop on Housing, savings, and the household balance sheet,*14.

Cronin, J. J. and Taylor, S. A. (1992). Measuring Quality : A Reexamination and Extension. *Journal of Marketing,* 56(3), 55–68. doi: 10.2307/1252296

Çıkrıkçı, M., and Karakaya, A. (2004). Finansal ürünlerin kullanımı ve memnuniyeti: Türkiye'deki banka müşterileri üzerine bir çalışma. *Bankacılar Dergisi,* 51, 37-49.

Çöllü, D. A., and Sevim, U. (2017). Müşterilerin banka seçimini etkileyen kriterlerin belirlenmesi: Giresun ili örneği. *Uluslararası İktisadi ve İdari İncelemeler Dergisi*, (18), 201-220.

Durak, İ., Bayat, M., and Arslan, H. M. M. (2017). Banka Seçiminde Müşteri Tercihleri: Katılım Bankaları Üzerine Amprik Bir İnceleme. *The Journal of Social Science, 1*(2), 60-70.

Duramaz, S., and Erol, İ. (2018). Banka Müşterilerinin Katılım Bankası Tercihlerine Yönelik Bir Araştırma: Ege Bölgesi Örneği. *Yönetim ve Ekonomi: Celal Bayar Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 25(1), 251-267.*

Durmus, B., Yurtkoru, E. S., and Çinko, M. (2011). *Sosyal Bilimlerde SPSS' le Veri Analizi.* 4. Baskı, Beta Yayıncılık, İstanbul.

Dusukı, A. W., and Abdullah, N. I. (2007). Maqasid al-Shariah, Maslahah, and corporate social responsibility. *American Journal of Islamic Social Sciences*, *24*(1), 25.

Echchabı, A., Azouzı, D., and Azız, H. A. (2016). The future prospects of Islamic banking in Tunisia: an empirical survey. *EuroMed Journal of Business*.

Erol, C., and El-Bdour, R. (1989). Attitudes, behaviour, and patronage factors of bank customers towards Islamic banks. *International Journal of Bank Marketing*.

Ezeh, P. C., and NkamnebE, A. D. (2019). Islamic bank selection criteria in Nigeria: a model development. *Journal of Islamic Marketing*.

Haron, S., Ahmad, N., and Planısek, S. L. (1994). Bank patronage factors of Muslim and non-Muslim customers. *International Journal of Bank Marketing*.

Gül, M. E., Torun, T., and Dumrul, C. (2017). Türk Katılım Bankalarının Fon Kaynaklarını Etkileyen Faktörler Ve Bu Bankaların Klasik Bankalarla İlişkileri Üzerine Bir Uygulama. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, (50), 141-166.

Khan, M. S. N., Hassan, M. K., and Shahıd, A. I. (2007). Banking behavior of Islamic bank customers in Bangladesh. *Journal of Islamic Economics, Banking and Finance,* 3(2), 159-194.

Kaabachı, S., and Obeıd, H. (2016). Determinants of Islamic banking adoption in Tunisia: empirical analysis. *International Journal of Bank Marketing.*

Kantardzıc, M. (2011). Data Mining Concepts, Models, Methods, and Algorithms. A John Wiley & Sons, International Journal of Advanced Research in Computer and Communication Engineering. *IJARCCE*, 4(12), 255-257, https://www.ijarcce.com/upload/2015/december-15/ IJARCCE%2059.pdf (19.01.2020).

Kılıç, Y., Ata, H. A., and Seyrek, İ. H. (2015). Finansal Okuryazarlık: Üniversite Öğrencilerine Yönelik Bir Araştırma. *Journal of Accounting & Finance.*

Kumar, S. V. K., and Kiruthika, P. (2015). An Overview of Classification Algorithm in Data Mining. *International Journal of Advanced Research in Computer and Communication Engineering,* 4(12), 255-257.

Ltıfı, M., Hıkkerova, L., Alıouat, B., and Gharbı, J. (2016). The determinants of the choice of Islamic banks in Tunisia. *International Journal of Bank Marketing.*

Maryam, S. Z., Mehmood, M. S., and Khalıq, C. A. (2019). Factors influencing the community behavioral intention for adoption of Islamic banking. *International Journal of Islamic and Middle Eastern Finance and Management.*

Metawa, S. A., and Almossawı, M. (1998). Banking behavior of Islamic bank customers: perspectives and implications. *International journal of bank marketing.*

Mbawunı, J., and Nımako, S. G. (2017). Determinants of Islamic banking adoption in Ghana. *International Journal of Islamic and Middle Eastern Finance and Management.*

Metawa, S. A., and Almossawı, M. (1998). Banking behavior of Islamic bank customers: perspectives and implications. *International journal of bank marketing.*

Modıglıanı, F., and Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. *Franco Modigliani, 1*(1), 388-436.

Okumus, H. (2005). Interest-free banking in Turkey: a study of customer satisfaction and bank selection criteria. *Journal of Economic Cooperation*, 26(4), 51-86.

Özsoy, İ., Görmez, B., and Mekik, S. (2013). Türkiye'de katılım bankalarının tercih edilme sebepleri: Ampirik bir tetkik. *Yönetim ve Ekonomi: Celal Bayar Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 20(1), 187-206.

Özkan Y. (2016). Veri Madenciliği Yöntemleri. Papatya Yayıncılık, İstanbul.

Research and Markets. (2019). Global Islamic Finance Market Growth, Trends, and Forecast (2018-2024). https://www.globenewswire.com/news-release/2019/03/20/1758003/0/en/Global-Islamic-Finance-Markets-Report-2019-Islamic-Banking-is-the-Largest-Sector-Contributing-to-71-or-USD-1-72-Trillion.html Erişim Tarihi: 11.02.2020.

Robson, C. (2002). Real World Research. Oxford: Blackwell Publishers.

Sayım, F. (2015). The participation banking as a distinctive method and the its growing in the turkish finance market-period: 2007-2013. *Emerging Markets Journal*, 5(1), 93-111.

Islam, J. U., and Rahman, Z. (2017). The impact of online brand community characteristics on customer engagement: An application of Stimulus-Organism-Response paradigm. *Telematics and Informatics, 34*(4), 96-109.

Islamic Finance Bulletin. (2018). World Bank Group, 35.

Iqbal, M., Molyneux, P., and Conermann, S. (2006). Thirty years of Islamic banking: History, Performance and Prospects. *Bankhistorisches Archiv*, *32*(2), 155.

The Banks Association of Turkey (2005). Türkiye'de Yabancı Bankalar. *Bankacılar Dergisi*, (52), 3-9.

The Participation Banks Association of Turkey. (2012). Finansal Yenilik ve Açılımları ile Katılım Bankacılığı. İstanbul: TKBB Yayınları.

The Participation Banks Association of Turkey. (2015). Türkiye Katılım Bankacılığı Strateji Belgesi 2015-2025. TKBB Yayını, 5.

The Participation Banks Association of Turkey. (2018). Katılım Finans, *2*(9), 32-33.

The Participation Banks Association of Turkey. (2018a). Kobi'ler için Adım Adım Katılım Bankacılığı. İstanbul: TKBB.

Uddın, A., Chowdhury, M. A. F., and ISLAM, M. N. (2017). Resiliency between Islamic and conventional banks in Bangladesh. *International Journal of Islamic and Middle Eastern Finance and Management.*

Ulgen K. (2020). Makine Öğrenimi Bölüm 5-Karar Ağaçları (https://medium.com/@k.ulgen90/makine-%C3%B6%C4%9Frenimi-b%C3%B6l%C3%BCm-5-karar-a%C4%9Fa%C3%A7lar%C4%B1-c90bd7593010).

Yumna, A. (2019). Examining financial needs of banking customers for product development in Islamic banking in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management.*

Warde, I. (2000). Islamic finance in the global economy. Edinburgh University Press.