

**Arařtırma Makalesi / Research Article**

**The Relationship Between Participation Banking Personal Finance Loans and Individual Credit Cards Risk with the Consumer Price Index**

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***Abstract***

*Economic circles have constantly been debating whether the loans extended by the banking sector cause inflation or whether inflation increases the volume of credit in the banking sector. It is expected that the funds provided by participation banking, where only real trade is financed, will be included in the production process and will not cause inflation. Despite this, there is no research specific to participation banking in the literature. In this research, it is aimed to investigate the relationship between CPI and participation banking personal finance loans and individual credit cards risk. In the research, monthly personal finance loans and individual credit cards risk data of participation banking published by the BRSA between the periods 2016:01 and 2022:02, and the independent audit reports of participation banks published in quarterly periods were used. In order to determine the relationship between the variables, the series were subjected to the Granger causality test. As a result of the analysis, it has been determined that there is a reciprocal causality relationship between the personal finance loans and the CPI, whereas there is no causal relationship between the individual credit cards risk and the CPI. In addition, according to 2021Q4 data, it has been observed that 75.66% of the total personal finance loan financing in participation banking is provided by Türkiye Finans Katılım Bankası. In the conclusion part of the research, suggestions were made for participation banks and policy-makers.*

**Anahtar Kelimeler:** Participation Banking, CPI, Personal Finance Loan, Individual Credit Cards, Inflation

**Jel Kodları:** D12, E31, E51, G21

**Katılım Bankacılıđı İhtiyaç Kredileri ve Bireysel Kredi Kartları Riski ile Tüketici Fiyat Endeksi Arasındaki İliřki**

**Öz**

*Ekonomi çevreleri bankacılık sektörü tarafından kullanılan kredilerin mi enflasyona neden olduğunu, yoksa enflasyonun mu bankacılık sektöründeki kredi hacmini arttığını sürekli tartışmaktadır. Sadece reel ticaretin finanse edildiđi katılım bankacılıđı tarafından sağlanan fonların üretim sürecine dahil olması ve enflasyona neden olmaması beklenmektedir. Buna rağmen literatürde katılım bankacılıđına özgü herhangi bir arařtırma yer almamaktadır. Bu arařtırmada TÜFE ile katılım bankacılıđı ihtiyaç kredileri ve bireysel kredi kartları riski arasındaki ilişkinin arařtırılması amaçlanmaktadır. Arařtırmada 2016:01 – 2022:02 dönemleri arasında BDDK tarafından yayınlanan aylık katılım bankacılıđı bireysel ihtiyaç kredisi ve tüketici kredi kartları risk verileri ile katılım bankalarının 3'er aylık periyotlarda yayınlanan bağımsız denetim raporlarından yararlanılmıştır. Deđişkenler arası nedensellik ilişkisinin belirlenmesi amacıyla*

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*seriler Granger nedensellik testine tabi tutulmuştur. Yapılan analiz sonucunda katılım bankacılığı ihtiyaç kredileri ile TÜFE arasında karşılıklı bir nedensellik ilişkisinin olduğu, buna karşılık bireysel kredi kartları riski ile TÜFE arasında herhangi bir nedensellik ilişkisinin olmadığı tespit edilmiştir. Ayrıca 2021Q4 verilerine göre katılım bankacılığı toplam ihtiyaç kredisi finansmanının %75,66'sının Türkiye Finans Katılım Bankası tarafından kullanıldığı gözlenmiştir. Araştırmanın sonuç bölümünde katılım bankalarına ve politika yapıcılara yönelik önerilerde bulunulmuştur.*

**Keywords:** Katılım Bankacılığı, TÜFE, İhtiyaç Kredisi, Bireysel Kredi Kartları, Enflasyon

**Jel Codes:** D12, E31, E51, G21

## 1. Introduction

The banking sector, which acts as an intermediary by transferring the funds collected from the units with surplus funds to the units in need of funds, plays an important role in economic development by transferring purchasing power to real or legal persons. The purchasing power transferred by banks to the units in need of funds by making loans available causes an increase in the demand for goods and services. For this reason, loans may cause demand inflation to rise in some periods. In addition, the risks that may arise from inflation cause also the intermediary activities of the banking sector to be adversely affected. For this reason, policy-makers take decisions to keep the bank loan channel in balance in order not to deteriorate the supply-demand balance in the economy and to ensure price stability. In other words, the economic policies implemented are closely related to the relationship between individual loan volume and inflation. However, there is no consensus among economic circles as to whether the change in the banking sector loan volume affects inflation or whether the change in inflation affects the loan volume in the banking sector.

Turkey has a dual banking system where both conventional banking and participation banking are done together. Since only real trade is financed in participation banking, participation banking and conventional banking differ from each other in fund disbursement transactions. In other words, in participation banking, loans are not provided to the needy in the form of direct cash payment, as in the conventional banking system. In addition, there is also no cash advance option in the credit card service offered to customers by participation banking. Such reasons cause the number of individual loans and credit cards provided by participation banks to remain at a very low level compared to conventional banks. Despite this, the share of participation banks in the Turkish banking sector has increased rapidly in recent years due to the increase in the number of participation banks, changes in marketing strategies, technological developments and increasing financial inclusion.

In the Turkish economy, especially as of 2021Q4, CPI rates started to rise rapidly and reached the level of 54.44%<sup>2</sup> in February 2022. In addition, the volume of personal finance loans extended by the banking sector reached TL 486,915 million<sup>3</sup> and the individual credit cards risk reached TL 228,208 million. The rapid increase in consumer price index (CPI) and personal finance loan volume in the Turkish economy, especially in recent years, makes it important to investigate the relationship between personal finance loans and CPI. It is observed that the previous researches were carried out for the general banking sector or for the conventional banking specific.

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<sup>2</sup> CPI rates were obtained from the CBRT (Central Bank of the Republic of Turkey) website. URL: <https://www.tcmb.gov.tr/wps/wcm/connect/TR/TCMB+TR/Main+Menu/Istatistikler/Enflasyon+Verileri/Tuketici+Fiyatlari>. Access Date: 25.04.2022

<sup>3</sup> The data on the banking sector personal finance loans volume and individual credit cards risk are obtained from the monthly banking sector data published by the BRSA (Banking Regulation and Supervision Agency) and represent the sum of personal finance loans, individual credit card risk and follow-up amounts of these variables. URL: <https://www.bddk.org.tr/BultenAylık>. Access Date: 25.04.2022.

Fund disbursement and credit card services in participation banking are carried out with the philosophy of financing real trade only. For this reason, it is expected that the funds provided by participation banks will tend towards reproduction and will not have any effect on inflation. According to February 2022 data, the volume of participation banking personal finance loans increased to 4.335 million TL, and the risk of individual credit cards to 2.264 million TL<sup>4</sup>. Considering the difference in the products and services of participation banks and conventional banks, especially in recent years, the increase in the volume of personal finance loans, the increase in the risk of individual credit cards and the increase in its share in the banking sector draws attention. For this reason, especially it has become important to investigate the relationship between the participation banking personal finance loans and individual credit cards risk with CPI.

In this research, it is aimed to investigate the relationship between the risk of participation banking personal finance loans and individual credit cards with the CPI. In the research, information is given about the conceptual framework of the relationship between the loans provided by the banking sector and credit cards with inflation, and previous studies in the literature. In addition, the relationship between the participation banking personal finance loans and individual credit cards risk with the CPI was analyzed. In the conclusion part of the research, suggestions were made for participation banks and policy-makers based on the findings of the analysis.

## 2. Conceptual Framework

The systematic increase in the general level of prices in the economy is defined as inflation and it is stated that inflation has a negative effect on the development of the country's economy (Arslan and Yapraklı, 2008, p. 89). However, it is stated that high inflation will lead to the deterioration of resource distribution, increase in economic instability (İşcan, 2003, p. 112) and social discontent (Houerou, 1995, p. 38).

There are different theories explaining the relationship between the inflation phenomenon and the money supply. Fisher's "Classical Quantity Theory" states that the general level of prices is determined by the increase or decrease in the money supply (Aktan, 2010, p. 175). The Neo-classical approach states that changes in money supply are effective on inflation in the long and short-term (Korkmaz, 2017, p. 117), the Keynesian approach states that the main cause of inflation is the deterioration in income and expenditure balance (Şahinoğlu et al, 2010, p. 30), the Neo-Keynesians say that increases in money supply will not cause inflation in the short run (Cesur, 2006, p. 90) and the Monetarists state that the expansion in money supply will cause an increase in real income in the short run and cause inflation in the long run (Karacan and Sanal Çevik, 2015, p. 165).

Since the spending power transferred to consumers by the banking sector causes an increase in the money supply in the economy, it has a demand-increasing effect. For this reason, central banks' monetary policies aim to keep the money supply in balance by creating a contraction or expansion effect on the banking sector loan volume (Aklan and Nargeleçekenler, 2008, p. 117). Since this situation is important in the fight against inflation, the relationship between bank loans and inflation is constantly being examined by researchers. However, there is no consensus among economists as to which of these variables has an effect on the other. While Marshall (1890), Pigou (1917) and Fisher (1930) stated that changes in credit volume had an effect on inflation, Keynes (1936) and Hicks (1937) stated that the change in inflation had an effect on credit volume.

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<sup>4</sup> The data on the participation banking personal finance loans volume and individual credit cards risk are obtained from the monthly banking sector data published by the BRSA and represent the sum of personal finance loans, individual credit card risk and follow-up amounts of these variables. URL: <https://www.bddk.org.tr/BultenAylık>. Access Date: 25.04.2022.

The banking sector is faced with many risks while carrying out its intermediation activities (Okay, 2002, p. 101) and some of these risks arise from inflation. It is stated that increasing inflation causes a decrease in equity (Doğan and Şarsel, 1994, p. 16) and an increase in non-performing loans (Parasız, 2000, p. 126) in the banking sector. In addition, it is stated that the increase in the uncertainty in inflation rates negatively affects the volumes of banks' fundraising and loan disbursement (Ruthenberg and Zaken, 2001, p. 72).

### 3. Literature Review

In the literature research, it was observed that all of the studies investigating the relationship between loans in the banking sector and inflation were conducted for the general banking sector or for conventional banking. However, participation banking differs from the conventional banking system in both individual and commercial fund disbursements. For this reason, the volume of individual fund disbursements of the participation banks, which only finance real trade, is far behind the conventional banks. Since the funds provided by participation banks only finance real trade, it is expected that these funds will tend to production again in the economy, therefore, they will not cause any change in the supply-demand balance and will not cause inflation. The increase in the share of participation banks in the Turkish banking sector in the total banking sector, the rapid increase of the participation banking personal finance loans and the individual credit cards risk, and the rapid rise in CPI rates have made it important to investigate the relationship between the participation banking personal finance loans and individual credit cards risk with the CPI.

Although there is no research specific to participation banking in the literature research, the researches examining the relationship between banking sector personal loans and credit cards with inflation are as follows;

Yardımcı (2006) investigated the relationship between banking sector credit card risk and inflation between 1994Q1 and 2004Q4 periods with the help of cointegration and Granger causality test. As a result of the analysis, it is detected that the increase in credit card risk in the banking sector caused an increase in inflation.

Ezengin (2009) investigated the relationship between consumer loans, credit card usage and inflation between 1997:01 and 2008:11 periods in Turkey with the Granger causality test. As a result of the research, it is detected that there is a one-way causality relationship from credit card usage volume to inflation, while there is no causality relationship between individual consumer loans and inflation.

Geanakoplos and Dubey (2009), examining the relationship between credit card risk and inflation, stated that the increase in credit card risk causes an increase in inflation in the absence of monetary intervention, while the decrease in credit card risk causes stagflation after a certain period of time.

Akçacı and Yöntem (2011) investigated the relationship between consumer loan types and inflation between 2005:12 and 2010:11 periods by using regression and Granger causality test. As a result of the research, they stated that there is a one-way causality relationship between consumer loans and inflation.

Moinescu (2012) investigated the relationship between inflation and personal loans of 7 EU countries and 3 non-EU countries between 2000 and 2011 using panel regression analysis. As a result of the research, it is detected that the increase in individual loans increased inflation.

Mert (2013) investigated the relationship between consumer loans and inflation between 2006 and 2011 in Turkey with the help of Johansen cointegration and Granger causality analysis. As a result of the research, it is detected that there is no causal relationship between inflation and consumer loans.

Tiryaki (2014) investigated the relationship between personal loans, current account balance and GDP between 1999 and 2014 in Turkey using VAR analysis. As a result of the research, it is detected that inflation showed a decreasing trend with the decrease in the rate of increase in consumer loans.

Demirezen (2015) investigated the effect of loans extended between 2002Q4 and 2014Q1 in Turkey on private consumption expenditures using VAR analysis. It is stated that the increase in the volume of individual loans in the banking sector caused inflation by increasing private consumption expenditures at the end of the research.

Yüksel and Özseri (2016) investigated the relationship between consumer loans and inflation in Turkey using the quarterly data between 1994:01 and 2015:03 periods with Johansen cointegration and Toda Yamamoto causality tests. As a result of the research, they stated that there is no causal relationship between individual loans and inflation.

Karahan and Gürbüz (2017) investigated the relationship between individual bank loans and inflation in Turkey between 2002 and 2016 periods with the Johansen cointegration and Error Correction Model. As a result of the research, they stated that there is a reciprocal relationship between individual loans and inflation, and that the relationship from inflation to individual bank loans is stronger.

Kılıç and Torun (2018) investigated the relationship between personal loan types, credit card risk and inflation in Turkey between 2004:11 and 2015:03 periods using Granger causality test. As a result of the research, they stated that there is no causality relationship between consumer loans and inflation, whereas there is a bidirectional causality relationship between individual credit card expenditures and inflation.

Korkmaz (2019) investigated the relationship between consumer loans and CPI between 2005:12 and 2018:10 periods using symmetrical and asymmetric conditional variable variance models. As a result of the research, it is detected that consumer loans increased the CPI.

Durmuş and Şahin (2019) investigated the relationship between consumer loans and some macroeconomic variables in Turkey between 2006Q1 and 2018Q2 using Gregory-Hansen cointegration and Toda-Yamamoto causality tests. As a result of the research, they stated that there is no reciprocal relationship between consumer loans and inflation.

Sönmezler, Gündüz, and Torun (2019) investigated the relationship between credit card expenditures, consumer confidence index and inflation in Turkey between 2012:02 and 2018:02 periods with ARDL test. As a result of the research, they stated that there is a cointegration relationship between credit card expenditures and inflation.

Nar (2020) investigated the relationship between individual loan types and inflation between 2005:01 and 2020:04 in Turkey using Granger causality test. As a result of the research, it is detected that there is no causality relationship from consumer loans and individual credit cards to CPI, whereas there is a one-way causality relationship from CPI to individual credit cards.

Adımlı and Telatar (2022) investigated the relationship between consumer loan types and CPI in Turkey between 2005Q4 and 2020Q4 using Johansen cointegration and Granger causality tests. As a result of the research, they stated that there is no causality relationship between consumer loans extended by the banking sector and CPI.

As can be seen in the literature review above, there is no research specific to participation banking regarding the relationship between individual loans or credit cards risk and inflation in the banking sector. With this research, it is aimed to fill this gap in the participation banking literature and to contribute to the literature.

#### 4. Methodology

In the research, first of all, the relationship between the monthly participation banking personal finance loans volume and individual credit cards risk published by the BRSA between the periods 2016:01 - 2022:02 with the CPI published by TURKSTAT was analyzed. Before the analysis of the relationship between the variables, the stationarity analysis of the series was performed with the Augmented Dickey-Fuller (ADF) developed by Dickey and Fuller (1979, 1981) and the Phillips-Perron (PP) unit root tests developed by Phillips and Perron (1988). After the stationarity analysis, the causality relationship between the variables was analyzed with the Granger causality test developed by Granger (1969). Finally, personal finance loans disbursement data obtained from the independent audit reports of participation banks operating in the Turkish banking sector between the years 2016-2021 were examined comparatively.

#### 5. Analysis and Findings

The empirical analysis of the research, the analysis of the change in personal finance loans volume in participation banks over time, and the findings of the research are given below.

##### 5.1. Empirical Analysis

###### 5.1.1. Unit Root Tests

In econometric analyzes in which time series are applied, it is necessary to examine the stationarity levels of the series before performing the tests between the variables. In this research, series of participation banking personal finance loans (IHTYC), individual credit cards risk (KKART) and CPI ratios (TUFE) were firstly subjected to the Fourier unit root test, which takes into account structural breaks. Since the trigonometric terms in the Fourier unit root test were not significant, the series were subjected to Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests.

The Fourier unit root test, developed by Enders and Lee (2012), also takes structural breaks into account when analyzing the series for stationarity. The Fourier unit root test equation is as follows;

$$a(t) = a_0 + \sum_{k=1}^n a_k \sin(2\pi kt / T) + \sum_{k=1}^n \beta_k \cos(2\pi kt / T) \quad (1)$$

In the equation "n" represents the number of frequencies in the approximation, "k" represents the unit root frequency, and "T" represents the number of observations. In the Fourier unit root test, the regression equation is estimated for all "k" values from 1 to 5. The smallest sum of squares residuals (SSR) is determined as the "k" value of the regression equation. In the second step of the test, the F-statistics of the trigonometric terms in the regression equation are examined. If the F-statistic of the equation is less than the critical values of the Fourier unit root test, the null hypothesis cannot be rejected, and in this case, ADF unit root test is recommended for the series (Enders and Lee, 2012, p. 197).

**Table 1.** Results of Fourier Unit Root Test

		IHTYC	TUFE	KKART
Sum squared residuals	1	387487,7	423,89	750681,5
	2	425843,3	472,91	720156,3
	3	406846,9	451,70	732009,8
	4	395450,3	452,98	731271
	5	404740,8	454,41	728493,4
Lag Length		9	11	0
F-statistic		3,63	3,07	2,40
Critical values	1%	12,21		
	5%	9,14		
	10%	7,78		

Table 1 shows the Fourier stationarity test results of the series. It is observed that the F-statistics values of all series are smaller than the Fourier unit root test critical values. In other words, the trigonometric terms in the Fourier unit root test regression equation, which takes into account structural breaks, are not significant. For this reason, the series were subjected to ADF and PP unit root tests, in which structural breaks were not taken into account.

**Table 2.** Results of ADF and PP Unit Root Tests

Augmented Dickey-Fuller (ADF) Unit Root Test				
Dependents	Level		1st Difference	
	ADF t-Statistic	Test Critical Values (%5)	ADF t-Statistic	Test Critical Values (%5)
IHTYC <sup>a</sup>	1.897	-2.902 (1)	-3.955	-2.902 (0)
IHTYC <sup>b</sup>	-0.395	-3.473 (1)	-5.144	-3.473 (0)
TUFE <sup>a</sup>	0.150	-2.902 (1)	-4.267	-2.902 (0)
TUFE <sup>b</sup>	-0.817	-3.473 (1)	-4.566	-3.473 (0)
KKART <sup>a</sup>	0.857	-2.901 (0)	-4.853	-2.902 (1)
KKART <sup>b</sup>	-1.576	-3.472 (0)	-8.609	-3.473 (0)
Phillips-Perron (PP) Unit Root Test				
Dependents	Level		1st Difference	
	PP t-Statistic	Test Critical Values (%5)	PP t-Statistic	Test Critical Values (%5)
IHTYC <sup>a</sup>	2.678	-2.901 (4)	-3.919	-2.902 (3)
IHTYC <sup>b</sup>	-0.130	-3.472 (4)	-5.133	-3.473 (1)
TUFE <sup>a</sup>	2.152	-2.901 (2)	-4.213	-2.902 (4)
TUFE <sup>b</sup>	0.858	-3.472 (3)	-4.512	-3.473 (4)
KKART <sup>a</sup>	0.547	-2.901 (3)	-7.485	-2.902 (3)
KKART <sup>b</sup>	-1.489	-3.472 (4)	-8.636	-3.473 (3)

**Note:** “The fields marked with “a” show the values of the intercept model, the fields marked with “b” show the values of the model where the trend and intercept are together. Maximum lag length of ADF test was determined as 11 and according to the Schwarz information criterion. Bartlett

Kernell method was used in PP unit root test, Bandwidth width was determined by Newey-West method. The values in parentheses represent ADF test's lag length and PP test's Bandwidth width.

According to the ADF and PP unit root tests in Table 1, it is seen that time series of participation banking personal finance loans, individual credit cards risk and CPI contain unit root at level. However, when the 1st degree differences of the series are taken, they become statistically stationary at the 5% significance level.

### 5.1.2. Granger Causality Test

If the series are stationary at the same level, the Granger causality test is used to determine the existence and direction of the short-term relationship between the series. Since the series become stationary when first differences are taken, the series have been subjected to the Granger causality test by taking the first differences of the series. Granger causality test results are given in Table 2.

**Table 3.** *Granger Causality Test Results*

<b>Granger Causality Test Between IHTYC and TUFÉ</b>				
H <sub>0</sub>	F-statistic	Prob.	df	Included Observations
$\Delta$ IHTYC is not the cause of $\Delta$ TUFÉ	2.4975	0.0900*	2	71
$\Delta$ TUFÉ is not the cause of $\Delta$ IHTYC	4.2000	0.0192**	2	71
<b>Granger Causality Test Between KKKART and TUFÉ</b>				
H <sub>0</sub>	F-statistic	Prob.	df	Included Observations
$\Delta$ KKART is not the cause of $\Delta$ TUFÉ	2.2468	0.1384	1	72
$\Delta$ TUFÉ is not the cause of $\Delta$ KKART	1.1468	0.2879	1	72

**Note:** The appropriate number of delays have determined by checking the information criteria. The “ $\Delta$ ” symbol indicates that the analysis was performed by taking the 1<sup>st</sup> degree differences of the series. “\*” and “\*\*” indicate statistical significance at the 10% and 5% levels, respectively.

According to the results of the Granger causality test applied to the series, it has been detected that there is a causality relationship at the 10% significance level from the participation banking personal finance loans to the CPI. In addition, it has been detected that there is a causal relationship at the 5% significance level from CPI to participation banking personal finance loans. In previous studies of Akçacı and Yöntem (2011), Mert (2013), Durmuş and Şahin (2019), Kılıç and Torun (2018), and Adımlı and Telatar (2022), which investigated the relationship between consumer loans in the banking sector and inflation, it was concluded that there was no causality relationship between consumer loans and inflation. In addition, in the research conducted by Korkmaz (2019), it was stated that there is a one-way causality relationship from consumer loans to inflation. In this research, which is specific to participation banking, it has been determined that there is a reciprocal causality relationship between participation banking personal finance loans and CPI. With this aspect, it has been determined that this research differs from the previous researches specific to the banking sector.

In the research, no causal relationship was found between the risk of participation banking individual credit cards and the CPI. In the previous studies conducted by Yardımcı (2006), Ezengin (2009), Geanakoplos and Dubey (2009), Kılıç and Torun (2018), Sönmezler, Gündüz and Torun (2019), and Nar (2020), it was stated that there is a causal relationship between the use of individual credit cards and inflation. The result of this research, which examines the

relationship between the risk of participation banking individual credit cards risk and inflation, differs from the previous researches.

## 5.2. Personal Finance Loans of Participation Banks

The development of personal finance loans volume extended by participation banking between 2016Q1-2021Q4 is given in Table 4.

**Table 4.** *Personal Finance Loans of Participation Banks (Thousand TL)*

	Türkiye Finans	Kuveyt Türk	Albaraka Türk	Ziraat Katılım	Vakıf Katılım	Emlak Katılım
2016Q1	982.157	149.994	167.412	17.960	0	0
2016Q2	889.303	172.278	165.002	24.259	0	0
2016Q3	801.690	187.176	173.151	25.465	567	0
2016Q4	724.219	189.962	182.712	20.895	545	0
2017Q1	638.101	196.254	287.960	34.162	5.984	0
2017Q2	552.915	226.340	181.421	45.887	2.465	0
2017Q3	497.507	250.256	163.213	57.406	1.383	0
2017Q4	413.461	254.623	168.841	60.340	2.847	0
2018Q1	365.314	284.644	230.956	66.918	6.508	0
2018Q2	345.228	300.346	134.058	71.571	3.625	0
2018Q3	416.243	287.831	119.273	67.865	2.783	0
2018Q4	461.131	264.029	107.018	63.580	4.355	0
2019Q1	533.595	238.159	106.571	59.670	3.405	0
2019Q2	684.368	254.890	100.182	67.321	22.463	0
2019Q3	794.070	258.560	101.289	66.973	20.181	0
2019Q4	1.048.775	273.275	111.643	79.718	8.580	0
2020Q1	1.195.757	281.509	105.511	60.784	22.257	4.658
2020Q2	1.660.033	303.895	109.097	96.894	80.157	4.727
2020Q3	2.125.633	286.596	149.274	136.451	94.645	4.847
2020Q4	2.045.429	272.365	156.283	168.719	101.546	20.884
2021Q1	2.019.016	273.857	175.993	160.409	101.291	20.857
2021Q2	2.238.115	288.560	182.349	165.385	101.199	20.806
2021Q3	2.421.300	280.484	197.063	201.615	104.893	20.549
2021Q4	2.858.437	286.601	220.111	239.195	127.342	46.264

In Table 4, it is striking that Türkiye Finans Katılım Bankası differs from other participation banks in the disbursement of personal finance loans. When evaluated together with Figure 1, which includes the total personal finance loans volume extended by participation banks, it is striking

that 75.66%<sup>5</sup> of the total personal finance loans disbursements in participation banking are provided by Türkiye Finans Katılım Bankası.

## 6. Conclusion and Recommendations

In this research, the relationship between participation banking personal finance loans and individual credit cards risk with CPI was analyzed using the Granger causality test between 2016:01 and 2022:02. As a result of the research, it has been determined that there is a mutual causality relationship between participation banking personal finance loans and CPI. In addition, it has been determined that there is no causal relationship between participation banking individual credit cards risk and CPI.

The mutual causality relationship between personal finance loans and CPI indicates that customers need personal finance loans to meet their needs due to the increase in inflation, personal finance loans increase the total demand, and the increase in demand causes inflation to rise again. It is thought that this situation, which has become two factors that feed each other, may cause customers' cash needs to increase constantly and have difficulties in loan payments. Additionally, it is thought that customers who cannot make their loan payments on time may cause an increase in the credit risk in banks.

No causal relationship was found between the risk of participation banking individual credit cards and inflation. It is thought that participation banking individual credit cards are only used in real trade and therefore do not cause inflation, due to reasons such as the credit cards offered to individual customers by participation banks do not provide cash advances, and there are spending restrictions on certain sectors due to participation banking principles.

Since the loans extended by participation banks are used to finance real trade, it is expected that participation banking personal finance loans will indirectly lead to production again and will not cause inflation, assuming that they will not cause any effect on the supply-demand balance. However, the findings obtained from the research indicate the existence of a situation opposite to this expectation. Anti-inflation measures implemented in order for the economy to show a sustainable growth performance suffer from the fact that loans feed inflation. For this reason, it is recommended to the participation banks create loan policies that will ensure that personal finance loan disbursements are made in a controlled manner and that they prevent uncontrolled personal finance loan disbursements.

In the research, it is observed that personal finance loans extended by participation banks remained at a stable risk level until 2019, but entered a rapid upward trend after 2019. In the analysis made specifically for participation banks operating in the Turkish banking sector, it is striking that 75.66% of the risk of personal finance loans belongs to Türkiye Finans Katılım Bankası. It is thought that the development that caused Türkiye Finans Participation Bank to differ from other participation banks in the use of personal finance loans is due to the "Trouble Solving Financing" product, which was started to be implemented by the bank towards the end of 2018. The Trouble Solving Financing service makes it possible to finance essential needs that cannot be invoiced by customers based on the *taverruk* method (Türkiye Finans Katılım Bankası, 2019). With the implementation of this financing product, Türkiye Finans Katılım Bankası's personal finance loan disbursements have risen to much higher levels than other participation banks. Unbilled expenses are the needs that put the customers of the participation bank the most and cause them to turn to the conventional banks. Financing non-billing expenses by a participation bank is a positive development for participation banking and its customers. In addition, customers' use of financing up to 100,000 TL for non-billing expenses makes this situation open to abuse.

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<sup>5</sup> Calculated by using personal finance loan data included in the independent audit reports of participation banks.

Despite this, it is thought that this situation may cause abuses and increase the credit risk of the bank. For this reason, it is recommended that participation banks, which finance non-billing expenditures, take a loan allocation decision by questioning the customer statement as much as possible and prevent fictitious transactions. Otherwise, it is thought that the separation between conventional banking and participation banking in the eyes of the society may disappear and this situation may harm the basic principles of participation banking.

Due to their beliefs and religious sensitivities, there is a large customer base that prefers participation banking only. This customer group, like other customers, may have financing needs in some periods. Today, due to the changing structure of the society, it has become very difficult to meet the financing need through cooperation. For this reason, it is thought that the financing needs of these customers, who prefer participation banking due to their religious sensitivities, should be met by participation banks in accordance with the philosophy of Islamic finance. Taking this situation into account, participation banks are recommended to create a separate fund and meet their customer needs through microfinance without any profit expectation from this fund.

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