An Empirical Analysis of Inflation Targeting in Dual Banking System: Case Study of Turkey

Tawfik Azrak[1], Fatma Sayar[2]

Received: 24.03.2021 **Accepted:** 06.07.2021

Type: Research Article

Abstract

Inflation has many important macroeconomic issues in many countries like Turkey. The uncertainty resulting from high inflation is one of the negativities that closely affect the financial sector. The purpose of this paper is to explore the feasibility of inflation targeting monetary policy in the dual banking system. The study investigates the long-run relationship between inflation rate, interest rate, real effective exchange rate, narrow money, and profit rate. The data collected were monthly and the period is from 2007 to 2017. The result of the study showed that interest rate and narrow money have a positive correlation with the inflation rate. Inflation targeting may not be a proper monetary policy for the financial system of Turkey. Because of the high sensitivity, it is not always easy to achieve targeted inflation. Instead of inflation targeting, interest rate targeting may help monetary policies to exert more influence on the financial sector. Keeping the interest rate under control may be a more useful monetary policy. In this way, the effects of monetary policies will be reflected more directly in the financial sector. If the monetary policies implemented are become more effective for both types of finance, their contribution to the economy will be enhanced, and controlling the macroeconomic targets will be more easily fulfilled. Thus, controlling the interest rate will give the authorities more control over Islamic finance in the sector.

Keywords: Dual banking, Islamic finance, Inflation, Interest rate, Inflation targeting

JEL Codes: G2, G24

[1] Assistant Professor, Faculty of Islamic Studies, Social Science University of Ankara, Turkey. Email: tawfikazrak@gmail.com ORCID: 0000-0001-9059-2115

[2] PhD student, Institute of Social Sciences, Sakarya University, Turkey. ORCID: 0000-0001-6317-2625

Introduction

A measure of the average prices of goods and services in the economy is called price level. Inflation can be described as the percentage increase in the price level from one year to the other, when the price level rises in an economy, the average price of all goods and services sold is increasing. Inflation is calculated as the percentage increase in a country's price level over some period, usually a year. In other words, inflation is argued to be a decline in the values of money over a period and it is one of the important monetary indicators of the economic system. All countries aim to achieve economic growth and fight with inflation and financial imbalances. Inflation does not only show its effect on the economy but also consumer spending, the investment sector, and the labor market.

High inflation is not desirable because it leads an economy to allocate resources inefficiently and increases uncertainty. There is a negative relationship between output level and high inflation, for example the paper of Chandrashekar, Sampath, and Vadivel (2019) study the relationship between inflation and stock returns in India and the results prove that a significant negative relationship between inflation and output. High inflation does not only affect negatively output level but also the growth rate of potential output so it will add pressure on the production. Unemployment is also linked to inflation. In some countries, any attempt to reduce inflation results in an increase in inflation or vice versa.

Inflation targets may vary from country to country, but generally low level and stable inflation is the main goal of most of the central banks. High inflation costs in the economy can show themselves in many various ways. Unstable prices are influential in the behavior of producers and consumers and lead to serious fluctuations in production and consumption occur. The expectations of society are also get affected by inflation. Uncertainty, which is a result of high inflation, negatively affects investment activities, borrowing costs, and economic plans based on estimated prices (Terzioğlu, 2017).

Monetary policy has emerged as one of the most important responsibilities of the governments, who should try all the time to keep stable monetary policy in the country. One element of these responsibilities is to keep low and stable levels of inflation which consider a core element in the monetary policy.

On the other hand, implementing good and stable monetary policies is a big challenge for the central banks especially for the countries which have a dual financial system like Turkey. The challenge arises from the conflict of core principles of the conventional and Islamic financial system.

Islamic economy and finance are established on five important pillars as follows; prohibition of interest, prohibition of gambling and speculation and dealing with elements which contain uncertainty in contracts, prohibition of restricted assets and activities, implementing profit and

loss sharing method and obligation of using real assets in all transactions. A functional and effective Islamic financial system requires economic policies in which these important criteria are met. On the other hand, in conventional finance, the system is constructed on interest. There is the involvement of interest in fund collection and fund usage process. Money is used as a commercial product because it is bought and sold for a certain price. In other words, there is money trade in conventional banking. Because of these fundamental differences, in countries where the existence of Islamic banking, such as Turkey, implementing monetary policy and increasing the effectiveness of these policies on Islamic banking can be a problem for central banks. When the Islamic bank's response to interest rate change is slow, using interest as a monetary policy tool will not show the same effectiveness of the monetary policy on Islamic banks.

Concerning inflation, some governments try to implement a policy of inflation targeting to stabilize the inflation levels in the country. This inflation targeting can be defined as a framework for monetary policy characterized by the public announcement of official quantitative targets for the inflation rate over one or more time horizons, and by an explicit acknowledgment that low, stable inflation is monetary policy’s primary long-run goal.

There are many studies had been conducted to examine inflation targeting, but only a few studies have been focused on the dual banking system and the case study of Turkey.

The main objective of this paper is to investigate whether inflation targeting can be a proper monetary policy in a dual banking system. The paper will focus on Turkey as a case study of the dual banking system.

With the assistant of the increasing number of central banks implementing inflation targeting since the 1990s, the purpose of this study is to contribute to the literature specifically adding Islamic channels to the structure of inflation targeting.

This paper tries to answer the following questions:

Does inflation targeting be a good monetary policy in a dual banking system (for example, the case of Turkey)?

What is the effect of implementing the inflation targeting on Islamic and conventional banks in Turkey? and did this effect differ between Islamic and conventional banks?

How do the participation banks support the goals of the central bank in order to control the Inflation rate?

This study is important because it addresses inflation targeting policy in terms of the dual banking system. As of March 2019, 53 banks operated in the banking system. The number of

deposit banks is 34, the number of development and investment banks is 13 and the number of participation banks[3] is 6 (The Banks Association of Turkey, 2019).

Islamic finance, as it is in many parts of the world shows growth in Turkey. In 1983, with the decision of the Council of Ministers numbered 3/7506, the establishment of special financial institutions was allowed (The Participation Banks Association of Turkey, 2019). After that, with the opening of Albaraka Türk in 1984, Islamic banking activities started. With Emlak Bank opened in 2019, there are six Islamic banks serving in the banking sector. As of 2019, the total assets of Islamic banks amounted to 284,459 million TL, accounting for 6.3% of the sector (The Participation Banks Association of Turkey, 2019).

It is important for the economy and financial system to see the impact of inflation on the Islamic financial system as the impact on the conventional system for the future. Accordingly, there are few studies examining the relationship between inflation and Islamic finance. Therefore, the significance of this study is to try to see the impact of inflation on conventional banking as well as on Islamic banking and investigate the impacts of inflation targeting both banking types.

This paper consists of six sections, in the beginning the paper started with the background and rationale of this study, section 1 gives information about the concept of inflation. Section 2 discusses the theoretical and empirical literature. Section 3 describes the data, variables, and methodology. Section 4 consists of the results and a discussion of the findings. Finally, the study was completed with section 5 which states the conclusion and policy implications.

1. The Concept of Inflation

Inflation is explained by economists in different ways. The reason for disagreement is the difference in the causes of inflation. As a result of assumptions such as flexible wage and price, full employment, and full competition, the classical school has reached the following conclusion regarding inflation; there will be no deflationary environment in the economy and since the only cause of inflation is money supply increases, there will be no inflationary environment as long as the state controls the money supply (Öztürk, 2009). This is because, in the face of money supply increases, the economy maintains its balance only by price adjustment, and the employment and production volume are not affected. While Friedman defined the concept of inflation as a more increase in the quantity of money than the supply of output, Keynes claimed that the increase in the value of aggregate demand more than the value of aggregate supply at the full employment level causes inflation (Totonchi, 2011).

In general, inflation refers to the continuous and overall increase in the prices of goods and services in an economy (Central Bank of Turkey, 2013). According to this definition, two important factors need to be considered in inflation. Firstly, the general level of prices should be

[3] Participation banks it is known globally as Islamic banks, but it is known in this concept in Turkey.

increased not just the prices. Secondly, the increase in the general level of prices should be continuous (Eğilmez, 2012).

1.1. Inflation Targeting

Mishkin (2011), Allen & Rogoff (2011), and Visokavičienė (2010) demonstrated the importance of monetary policies on both local and global scales. Low and stable inflation is the ultimate goal of monetary policies prepared by the central banks (IMF, 2021). Inflation Targeting (IT) is a tool of monetary policy in which a central bank estimates and makes public a projected or target inflation rate and then attempts to direct actual inflation towards the target through its use of policy instruments. Inflation targeting policy is an important tool for market management, which enables the communication between actors in the state and economy. This policy, first implemented in New Zealand in 1990, started to implement by the central bank of many developed and developing countries.

According to Mishkin (2001) inflation targeting monetary policy requires five important elements:

Making the public announcement of targeted medium-term inflation values,

Making price stability a primary goal of monetary policy,

Formulating a strategy that includes many variables, not just monetary aggregates or exchange rates, when determining policy instruments,

Increasing transparency of the monetary policy strategy to communicate better with the public and the markets,

Increasing accountability of the central bank for reaching its inflation objectives.

In addition to the factors necessary for effective inflation targeting, Mishkin has also highlighted the weaknesses of this monetary policy. Unlike other exchange rates and monetary aggregates, inflation outcomes are obtained only after a substantial lag. Therefore, the inflation target cannot send urgent signals to the market about monetary policy. The difficulty of control of inflation may cause the targets not to be met, which may lead to the loss of credibility of the central bank. Also, dollarization can be a serious challenge for inflation targeting. Unavoidable exchange rate fluctuations create a massive deterioration of the balance sheets of firms, households, and banks (Mishkin, 2001).

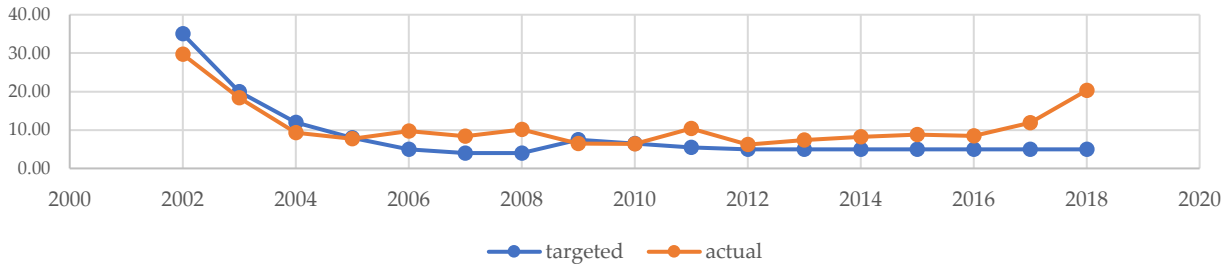
1.2. Implementation of Inflation Targeting in Turkey

High inflation, which manifests itself after the second world war and became chronic with the oil crisis, has caused major changes in the economic policies of Turkey during the 1980s. Monetary targeting and exchange rate targeting policies implemented until 2001 failed (Durmus, 2018). The inability to sustain indebtedness, high interest rates, and ever-increasing foreign exchange prices

caused serious damage to the economy. The loss of confidence of individuals in the Turkish Lira has made the economy more sensitive and prone to crises.

According to the Central Bank of Turkey, inflation targeting was introduced to Turkish practice after the 2001 economic crisis (TCMB, 2021). After the failure of the exchange rate-based monetary policy, the central bank of Turkey switched to fully-fledged inflation targeting policy in 2002. There was a transition period to prepare a suitable environment that required necessary conditions for the implementation of inflation targeting policy. This transition period was between 2002 and 2005 and was called the implicit inflation regime. An important difference of this process is that it can be used in other targets at the same time while setting the inflation target for the upcoming period. During the implicit inflation targeting process, the CB has gained enough experience for explicit inflation targeting (Şahan, 2018).

Graph 1: Targeted and Actual Inflation Rate Between 2002 and 2018 in Turkey



Source: Central Bank of Turkey

Graph number 1 showed the targeted and actual inflation rate of Turkey, between 2002 and 2018. The policy was successful from 2002 to 2005, and the actual inflation remained below the targeted level. The economy grew at an average annual rate of 7%, exchange rates, and interest rates became more stable and fluctuations in financial markets decreased (Şahan, 2018).

However, after that, in other years except for 2009 and 2010, the targeted value could not be achieved. Explicit inflation targeting, which has been implemented since 2006, coincided with a period in which the international economic conjuncture exhibited an unstable period. Therefore, the main reason for the failure to meet inflation targets can be shown as external shocks (Engin, 2011).

Turkey has a different financial system structure because of implementing conventional and Islamic banking systems at the same time. The implementation of monetary policy and the transmission mechanism of monetary policy can be a challenge for the central bank which is the highest authority in a country within such a system. Cevik and Charap (2011) found that there is a relationship between returns on one-year term deposits in conventional and retail Islamic banks in Malaysia and Turkey and this relationship exhibits a long-run equilibrium. They also reached that the rate of return of profit-loss sharing accounts of Islamic banks has an implicit relationship with conventional interest rates through debt-like instruments on the asset side. Thus, in general, in dual banking systems where conventional banking is dominant, Islamic banks must develop under the influence of interest rates.

1.3. Effects of Inflation on Islamic Finance

In the framework of honesty and justice sensitivity of Islam, price stability is important because inflation harms the welfare and economic situation of the society (Chapra, 1981). According to Islamic principles, the inflation rate should be zero because unlike the conventional financial system, instead of debt financing equity financing is encouraged and wasteful consumption is prohibited (Kia, 2014). However, whatever the causes of inflation, the negative effects on both conventional and Islamic financial systems are highly similar. High inflation leads to unemployment, decrease in purchasing power and investments. A decrease in investment creates more unemployment. Higher inflation results in lower capital circulation in the financial system and volume of business activities (Khan, 2011). According to the rules of the Islamic economy, uncertainty is strictly rejected, and therefore, Islamic banks act more cautiously when uncertainty occurs. Uncertainty arising from high inflation affects financial market actors negatively in both financial systems. In periods of high inflation, banks prefer to avoid risk and uncertainty, reduce trade volumes and work in safer areas. When there are multiple channels of monetary transmission, especially in the case of a dual banking system, it may be desirable to consider as many channels as possible to appraise the general stance of monetary policy, especially on the Islamic financial institutions. The central bank wants to control inflation in order to control interest rates because of the relationship between inflation and interest rates (Kılcı, 2019). Korkut & Özgür (2017) stated that Islamic banks' profit share rate gets affected markedly by the interest rate on government security and exchange rate. In their study, Ergenc & Arslan (2013) also concluded that Islamic banks were affected by the interest rate. Thus, the inflation rate also has a strong influence on Islamic banks indirectly. Mulkiaman (2016) emphasized that the objectives of monetary policy of conventional and Islamic systems are different from each other. While price stability, monetary stability, full employment, and optimum rate of economic growth are common targets in both monetary policy, Islamic monetary policy also targets the elimination of interest, uncertainty, gambling and speculation, socio-economic justice, and equitable distribution of income. Thus, their monetary policy instruments also are different from each other because of their philosophy.

In addition to the effects of inflation on Islamic finance, some other aspects affect the entire financial sector. The biggest effect of inflation is the uncertain environment in the economy. This uncertainty is also felt most in people's saving habits. Fewer savings triggers the lack of capital in the market. In other words, the transaction volume decreases and the possibility of fund collection decreases. Reporting and information transfer are important for the financial sector. The reports prepared with due consideration of transparency affect the credibility of financial institutions at home and abroad. The depreciation of money as a result of high inflation causes a decrease in the equity of financial institutions and reduces credibility (Gün, 2003).

2. Literature Review

As empirical literature, the results of the effect of inflation targeting in a country's macroeconomic performance are mixed.

The most recent study of inflation targeting in the dual banking system was done by Ndiaye & Masih (2017). They examined the appropriateness and consequently the feasibility of inflation targeting in an economy with a dual financial system in Malaysia, during the period from 2007 to 2017. The result of the study is that inflation targeting may not be ideal in a dual banking system in Malaysia. The Empirical study by Poon & Tong (2009) also has the same conclusion that inflation targeting may not fit in Malaysia because of its economic structure and institution.

On the other hand, the study of Andersena, Malchow-Moller & Nordvig (2015) was about OECD countries and they examined the efficiency of inflation targeting to the economic growth on countries that followed this particular monetary policy strategy during the crisis period 2007–13. The result of the study is that the countries with an IT monetary regime weathered the crisis much better than did countries with other monetary regimes, particularly countries with fixed exchange rates. Another study about OECD countries was done by Wu (2004). He analyzed the causal effect of a country's adoption of the IT monetary regime on that country's inflation rate decline between the years 1985-2002. The conclusion is that the countries that have officially adopted inflation targeting experienced a decrease in their average inflation rates after the adoption of the new regime. Another study about inflation targeting in Iran was done by Armesh, Slarzehi, Yaghoobi & Heydari (2010). They analyzed the effective factors on inflation in the Islamic Republic of Iran, from 1961 to 2005 and the summary of the study is that the central bank should, concerning intensive goals for inflation, reflects its efforts in achieving these goals in the regular and transparence explanation to the public. In the case of Bangladesh, Islam & Uddin (2011) stated that empirical findings jointly with few descriptive statistics provide strong evidence to recommend inflation targeting as the monetary policy strategy for Bangladesh.

There have been many studies examining the relationship between inflation and the financial sector. The empirical study of Huybens & Smith (1999) stated that higher inflation produces negative repercussions in the financial sector. The study also concluded that the lending volume and performances of banks decrease with the increasing inflation rate. Boyd, Levine & Smith (2001) found a nonlinear but strong negative relationship between inflation and both banking sector development and equity market activity.

Mahmood et al. (2019) investigated the impact of bank-specific factors and macro-specific factors on bank liquidity. The macro-specific factors were considered as GDP, inflation, monetary policy, and unemployment and the result states that inflation has an insignificant relationship with liquidity, so it does not influence the liquidity ratio of commercial banks. Bölükbaş (2019) examined the relationship between inflation, current account deficit, and banking sector credits and found a bidirectional causality relationship between inflation and banking sector credits. Also, the results showed that the effect of the banking sector on inflation is higher than the current account deficit. In their study, Umar & Maijama'a & Adamu (2014) researched conceptual exposition of the effect of inflation on bank performance. The study concludes that inflation influences banking sector performance adversely and has got a spillover effect that harms the overall economy. Ozturk & Karagoz (2012) examined the relationship between inflation and financial development in Turkey. In the study, the ratio of bank credits used by private firms to

GDP and broad money supply (M2) to GDP were used as banking sector development indicators. In the case of the ratio of the money supply to GDP, no long-run co-integrating relation was found between inflation and financial development. However, in the case of the ratio of credit to the private sector to GDP, there is a significant long-run relationship between inflation and financial depth. Thus, the study concluded that inflation affects financial development along with economic growth negatively.

As the effectiveness of inflation targeting in Turkey has been examined by many researchers. For example, Genc & Balcilar (2012) stated the inflation targeting policy is not effective and the observed levels of inflation would not have been any different from the forecasted ones if inflation targeting had not been adopted. While in other research Durmus (2018) also emphasized that the policy of implicit inflation targeting strategy was successful but the explicit inflation targeting strategy failed because of various problems.

3. Data and Methodology

The study investigates the long-run relationship between inflation rate, interest rate, real effective exchange rate, narrow money, and profit rate considering the major transmission mechanism channels in the conduct of monetary policy.

The model was constructed based on a published working paper by Ndiaye & Masih (2017), "Is inflation targeting the proper monetary policy regime in a dual banking system?".

The data of this study consist of secondary data. They are obtained from OECD Databank, International Financial Statistics IMF, Central Bank of Turkey, and Participation Banks Association of Turkey. The variables are expressed in logarithm 10 base and used in the analysis belongs to years 2007-2017 and are evaluated monthly. The data are analyzed using the econometrics software, namely SPSS.

Table 1: Symbols and Definitions of the Variables

Variable	Symbol	Definition
Inflation Rate	INF	Inflation measured by consumer price index (CPI) is defined as the change in the prices of a basket of goods and services that are typically purchased by specific groups of households
Interest Rate	INT	The central bank policy rate (CBPR) is the rate that is used by CB to implement or signal its monetary policy stance. It is most commonly set by the CB's policy making committee.
Exchange Rate	EXC	According to the definition used by IMF, the real effective exchange rate is computed as the weighted geometric average of the price of the domestic country relative to the prices of its trade partners.
Narrow Money	M	M1 includes currency i.e., banknotes and coins, plus overnight deposits.
Profit Rate	P	Rate of profit distributed by participation banks.

Table 2: Measurement, Sources and References of the Variables

Variable	Measurement	Source	Reference
Inflation rate	Total, Annual growth rate (%)	OECD (2019)	Wu (2004); AboZaid&Tuzemen (2009); Pong&Tong (2009); Tasar&Bayat (2015); Ndiaye&Masih (2017);
Interest rate	Percent per Annum	International Financial Statistics, IMF (2019)	Wu (2004); Ndiaye&Masih (2017);
Exchange rate	CPI Based Real Effective Exchange Rate 2003=100	Central Bank of Turkey (2019)	Pong&Tong (2009); Khatat, (2016); Ndiaye&Masih (2017);
Narrow money	Total, 2015=100	OECD (2019)	Pong&Tong (2009); Ndiaye&Masih (2017);
Profit rate	Percentage per month for Turkish Lira (TL)	The Participation Banks Association of Turkey (2019)	

Descriptive Statistics

Table 3: Descriptive Statistics of all Variables Used in the Study

Variables	N	Minimum	Maximum	Mean	Std. Deviation
INF	132	0,59988	1,11327	0,91273	0,10159049
INT	132	0,17609	1,24304	0,84336	0,25546581
EXC	132	1,93222	2,10626	2,03279	0,04045548
M	132	1,36725	2,18958	1,76096	0,24949297
P	132	0,77936	1,21405	0,95352	0,12935385

Table number 3 shows the minimum and maximum values of the variables with their mean, median, and standard deviations. These data are converted to the logarithm base 10 of the actual values. Thus, while the maximum value of the dependent variable which is the inflation rate is 1,11, the minimum value is 0,59. The Interest rate takes the highest value with 1,24 and the minimum value is 0,17.

The Exchange rate has the highest mean value in the variables with 2,03 but the lowest standard deviation is 0,04. The mean value of narrow money is 1,76, The standard deviation is 0,24. The mean values and the standard deviations of the inflation rate and interest rate are quite close to each other. As can be seen from the above table, the maximum values of interest and profit rate are remarkably close to each other.

The multiple linear regression equation is as follows:

$$INF_t = \beta 0 + \beta 1 INT_t + \beta 3 EXC_t + \beta 4 M_t + \beta 5 P_t + e_t$$

Where the inflation rate is the dependent variable, while interest rate, exchange rate, narrow money, and profit rate are the independent variables and (et) represents the error term.

4. Results and Discussion

The results obtained from the statistical program SPSS are presented below.

The correlation between the variables used in the study can be seen with the correlation matrix.

Table 4: Correlations Coefficients

Variables	INF	INT	EXC	M	P
INF	1				
(p-value)					
INT	0,471**	1			
(p-value)	0,000				
EXC	-0,185*	0,162	1		
(p-value)	0,034	0,064			
M	0,124	-0,348**	-0,853**	1	
(p-value)	0,155	0,000	0,000		
P	0,230**	0,760**	0,516**	-0,769**	1
(p-value)	0,008	0,000	0,000	0,000	

***. Correlation is significant at the 0.01 level (2 tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Table number 4 shows the correlations between the variables. The dependent variable of the linear equation has a positive correlation with the interest rate, narrow money, and profit rate.

However, it has a negative correlation only with the exchange rate. While the relation of inflation with interest rate and the profit rate is strong, its relations with the narrow money and exchange rate are not very strong relative to interest and profit rate.

The positive relationship between inflation and interest rate is contrary to expectations as there is a general tendency for interest rates and the rate of inflation to have an inverse relationship since when interest rates are low, the economy grows and inflation increases. In general, as interest rates are reduced, more people borrow more money. The result is that consumers have more money to spend. This causes the economy to grow and inflation to increase.

The correlation between interest rate and the profit rate is remarkable. It is positive and very strong. Another strong correlation is between exchange rate and narrow money but is a negative correlation.

Table 5: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,573	0,328	0,307	0,08458543

In the model summary, the R square appeared as 0,328. This means that in our model, the independent variables which are interest rate, exchange rate, narrow money, and profit rate account for 0,328 of the variance independent variable which is the inflation rate. In other words, 0.328 of the changes in inflation can be explained by independent variables of the model.

Table 6: F-test, ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.
Regression	0,443	4	0,111	15,492	0,000
Residual	0,909	127	0,007		
Total	1,352	131			

As a result of the F-test, the F value is 15,492 and the p-value is 0,000 which means the overall regression model is significant at a significance level of 0.05. Thus, this result may reveal a linear relationship between the four independent variables and dependent variable in the model.

Table 7: Coefficients Table

variables	model 1	model 2	model 3	model 4
constant	0.755**	2.109**	0.478	-0.300
	(0.027)	(0.380)	(0.848)	(0.994)

INT	0.187**	0.205**	0.233**	0.167**
	(0.031)	(0.030)	(0.032)	(0.055)
EXC		-0.673*	0.002	0.205
		(0.189)	(0.366)	(0.389)
M			0.134*	0.238*
			(0.062)	(0.094)
P				0.249
				(0.167)
R2	0.222	0.292	0.316	0.328
F	37.045	26.567	19.735	15.492
n	132	132	132	132

Standard errors are presented below the corresponding coefficient.

*Symbols * and **mean significant at 0.05 and at 0.01 level.*

The result in table number 7 gives detailed information about the significance of coefficients. According to the results, while interest rate and narrow money are significant at 0.01 and 0.05 significance levels, the exchange rate and profit rate are not significant. One unit increase in the interest rate causes an increase of 0,167 on inflation holding the other variables constant, and as we explained previously, the positive relationship between inflation and interest rate is contrary to expectations since there is a general tendency for interest rates and the rate of inflation to have an inverse relationship, since when interest rates are low, the economy grows and inflation increases, In general, as interest rates are reduced, more people can borrow more money. The result is that consumers have more money to spend. This causes the economy to grow and inflation to increase.

In addition, another significant variable, one unit increase in narrow money increases the inflation rate by 0.238 holding the other variables constant. This result was expected as according to Vaish (2002), inflation is a sustained rise in the general price level brought about by a high rate of expansion in the aggregate money supply. With the increase in money supply, individuals will have more on their hands and they will demand more goods. This will lead to demand pull inflation.

Finally, the effects of exchange rate and profit rate on inflation rate are relatively higher but they are not significant.

Conclusion and Policy Implications

Inflation is a problem that causes uncertainty, prevents taking healthy economic decisions, hampers economic growth, disrupts income distribution, and causes economic destruction.

Interest rate and narrow money have a positive correlation with the inflation rate. Especially any change in interest rate may have a strong effect on inflation compared to other variables. This result meets with the study of Torun & Karanfil (2016). They examined the relationship between inflation and interest rates in Turkey's economy for the period 1980-2013 and found unidirectional causality from interest rate to inflation.

The regression results show that many variables influence inflation in Turkey. This makes inflation more sensitive. Therefore, it is not always easy to achieve targeted inflation. Failure to achieve the inflation target undermines confidence in the economy. The uncertainty in the market is a situation that both conventional finance and Islamic finance do not want.

With the start of the Islamic banks operating in Turkey, they were integrated into the monetary policy and the consequences of the conventional systems. These monetary policies are not prepared according to Islamic sensitivities. The followed policies are governed by the conventional monetary policy and managed by bankers with a conventional bank mentality in Turkey. In the end, as Asutay (2007) said Islamic banks fail to perform their social duties because of operating within the conventional system and being exposed to the same policies. Because of conventional finance's dominance and a very small share of Islamic finance in Turkey, Islamic finance becomes a follower in the sector. Thus, Islamic banks are under the influence of the conventional system. This can be seen as a problem that moves Islamic finance away from working principles.

Going to this reason, inflation targeting may not be a proper monetary policy for the financial system of Turkey. This result favors the results of the studies of Ndiaye & Masih (2017) and Pong & Tong (2009). Ndiaye & Masih (2017) also suggest that interest rate targeting may be the proper monetary policy target instead of inflation targeting. This suggestion is in line with the results of this study. Interest targeting helps monetary policies to exert more influence on Islamic banks. In response to this suggestion, it is possible to ask how favorable the interest targeting in Islamic finance is. The problem here is that conventional finance is the leader in the sector, and Islamic finance is in the position of a follower. Although interest is prohibited in Islam, due to globalization and regulation of the financial services in most of the economies in the world, interest rates became the prominent actor in the process of carrying out the monetary policy. Thus, increasing the share of Islamic finance in the sector will ensure that Islamic finance is taken into account in the formation of monetary policies. Köse and (2021).

In a conclusion, inflation is an economic indicator that is affected by many different variables and interest rate is one of the most important variables. Inflation targeting may not be the right monetary policy tool for Turkey and the dual banking system does not affect the effectiveness of monetary policies aimed at controlling inflation in Turkey. Instead of inflation targeting, keeping the interest rate under control will be a more useful monetary policy. In this way, the effects of monetary policies will be reflected more directly in the financial sector. If the monetary policies implemented are become more effective for both types of finance, their contribution to the economy will be enhanced, and controlling the macroeconomic targets will be more easily fulfilled. Thus, controlling the interest rate will give the authorities more control over Islamic finance in the sector. The dominance of Islamic finance sensitivities in monetary policies is only achieved through the increase in the market share of Islamic finance.

References

Abo-Zaid, S., & Tuzemen, D. (2012). Inflation Targeting: A Three-Decade Perspective. *Journal of Policy Modeling*, *34*(5), 621-645.

Allen, F., & Rogoff, K. (2011). Asset Prices, Financial Stability and Monetary Policy.

Andersena, T. B., Malchow-Møller, N., & Nordvig, J. (2015). Inflation targeting and macroeconomic performance since the Great Recession. *Oxford Economic Papers, 67*(3), 598–613.

Armesh, H., Salarzehi, H., Yaghoobi, N. M., & Heydari, A. (2010). Causes of Inflation in the Iranian Economy. *International Review of Business Research Papers, 6*(3), 30-44.

Asutay, M. (2007). A Political Economy Approach to Islamic Economic Systemic Understanding for an Alternative Economic System. *Kyoto Bulletin of Islamic Area Studies, 1*(2), 3-18.

Boyd, J. H., Levine, R., & Smith, B. (2001). The Impact of Inflation on Financial Sector Performance. *Journal of Monetary Economics, 47*(2), 221-248.

Bölükbaş, M. (2019). Türkiye'de Enflasyon Cari Açık ve Bankacılık Sektörü Kredileri: 2006-2018 Dönemi İçin Bir İnceleme. *Social Sciences Research Journal, 8*(2), 77-92.

Central Bank of Turkey. (2013). *Enflasyon ve Fiyat İstikrarı.* Ankara.

Cevik, S., & Charap, J. (2011). The Behavior of Conventional and Islamic Bank Deposit Returns in Malaysia and Turkey. *IMF Working Paper No. 11/156*.

Chapra, M. U. (1981). Monetary Policy in an Islamic Economy. *International Seminar on Monetary and Fiscal Economics of Islam.* Islamabad.

Durmus, H. (2018). Türkiye'de Enflasyon Hedeflemesi: Örtük Enflasyon ve Açık Enflasyon Üzerine Bir Değerlendirme. *Sosyal Bilimler Enstitüsü Dergisi, 6*(11), 181-201.

Eğilmez, M. (2012). *Kendime Yazılar*. Enflasyon: http://www.mahfiegilmez.com/2012/09/enflasyon.html adresinden alındı

Engin, M. B. (2011). Bir Para Politikası Aracı Olarak Enflasyon Hedeflemesi. *Sosyal Bilimler Dergisi*(2), 45-53.

Ergeç, E. H., & Gülümser, A. B. (2013). Impact of Interest Rates on Islamic and Conventional Banks: The Case of Turkey. *Applied Economics, 45*(17), 2381-2388.

Franzoni, S., & Allali, A. A. (2018). Principles of Islamic Finance and Principles of Corporate Social Responsibility: What Convergence? *Sustainability, 10*(3), 637.

Freedman, C., & Laxton, D. (2009, April). Why Inflation Targeting. *IMF Working Paper No. 09/86*.

Freidman, M. (1970). The Counter Revolution in Monetary Theory. London: Institute of Economic Affairs.

Genc, I., & Balcilar, M. (2012). Effectiveness of Inflation Targeting in Turkey. *Emerging Markets Finance & Trade, 48*(5), 35-47.

Gün, A. (2003). Düşük Enflasyon Ortamının Bankacılık Sektörüne Olan Etkileri ve Alınması Gerekebilecek Önlemlerin Değerlendirilmesi. *Yüksek Lisans Tezi*. İstanbul Üniversitesi Sosyal Bilimler Enstitüsü.

Hubbard, R. G., & O'Brien, A. P. (2010). *Economics.* Boston: Pearson Education.

Huybens, E., & Smith, B. (1999). Inflation, Financial Markets and Long-Run Real Activity. *Journal of Monetary Economics, 43*(2), 283-315.

IMF. (2021). *https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/20/Monetary-Policy-and-Central-Banking*. Retrieved from https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/20/Monetary-Policy-and-Central-Banking

Islam, M. S., & Uddin, M. T. (2011). Inflation Targeting as the Monetary Policy Framework: Bangladesh Perspective. *Economia Seria Management, 14*(1), 106-119.

Islam, R., Ghani, A. B., Mahyudin, E., & Manickam, N. (2017). Determinants of Factors that Affecting Inflation in Malaysia. *International Journal of Economics and Financial Issues, 7*(2), 355-364.

Khan, S. Q. (2011). *How to Prosper the Islamic Way.* Mumbai: Tanveer Publication.

Khatat, M. E. (2016). Monetary Policy in the Presence of Islamic Banking. *IMF Working Paper No. 16/72*.

Kia, A. (2014). Inflation: Islamic and Conventional Economic Systems - Evidence. *International Journal of Economic Perspectives, 8*(3), 19-40.

Kılcı, E. N. (2019). Analysis of the Relationship Between Inflation and Central Bank Interest Rates in Turkey: Fourier Approach. *International Journal of Economic and Administrative Studies*(22), 135-146.

Korkut, C., & Özgür, Ö. (2017). Is There a Link Between Profit Share Rate of Participation Banks and Interest Rate: The Case of Turkey. *Journal of Economic Cooperation and Development, 38*(2), 135-158.

Mahmood, H., Khalid, S., Waheed, A., & Arif, M. (2019). Impact of Macro Specific Factor and Bank Specific Factor on Bank Liquidity using FMOLS Approach. *Emerging Science Journal, 3*(3), 168-178.

Mishkin, F. S. (2001). Inflation Targeting. Columbia: An Encyclopedia of Macroeconomics.

Mishkin, F. S. (2011, February). Monetary Policy Strategy: Lessons Fron the Crisis. *NBER Working Paper No. 16755*. Frankfurt.

Mulkiaman, M. Z. (2016). Impact of Monetary Policy and Macroeconomic Environment on Islamic Banking Operations in a Dual Banking System of Malaysia. *Durham Theses*. United Kingdom: Durham Doctoral Training Centre for Islamic Finance.

Ndiaye, N. D., & Masih, M. (2017). Is Inflation Targeting the Proper Monetary Policy Regime in a Dual Banking System? New Evidence from ARDL Bounds Test.

Ozturk, N., & Karagoz, K. (2012). Relationship Between Inflation and Financial Development: Evidence from Turkey. *Uluslararası Alanya İşletme Fakültesi Dergisi, 4*(2), 81-87.

Öztürk, F. (2009). Türkiye'de Enflasyon Dinamikleri ve Hedeflemesi Çerçevesinde Büyüme Olgusu. *Yüksek Lisans Tezi*. Sakarya Üniversitesi Sosyal Bilimler Enstitüsü.

Poon, W. C., & Tong, G.-K. (2009). The Feasibility of Inflation Targeting in Malaysia. *Economics Bulletin, 29*(2), 1035-1045.

Raghutla, C., Sampath, T., & Vadivel, A. (2019). Stock Prices, Inflation, and Output in India: An Emprical Analysis. *Journal of Public Affairs*.

Şahan, B. (2018). Enflasyon Hedeflemesi Stratejisinde Türkiye Cumhuriyet Merkez Bankası Faiz Politikasının Etkisi. *Yüksek Lisans Tezi*. Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü.

TCMB. (2021). *https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Core+Functions/Monetary+Policy/Central+Bank+Monetary+Policy+Framework*. Retrieved from TCMB: https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Core+Functions/Monetary+Policy/Central+Bank+Monetary+Policy+Framework

Terzioğlu, M. K. (2017). Çıktı Büyüklüğü Belirsizliği ve Ekonomi Politikaları Arasındaki Bağlatı: Asimetri Etkisi. *Uluslararası Yönetim İktisat ve İşletme Dergisi*(ICMEB17 Özel Sayısı), 920-927.

The Banks Association of Turkey. (2019). Retrieved from https://www.tbb.org.tr/en/home

The Participation Banks Association of Turkey. (2019). Retrieved from http://www.tkbb.org.tr/en

Torun, M., & Karanfil, M. (2016). 1980-2013 Dönemi Türkiye Ekonomisinde Enflasyon ve Faiz Oranı Arasındaki İlişki. *Journal of Administrative Sciences, 14*(27), 473-490.

Totonchi, J. (2011). Macroeconomic Theories of Inflation. *International Conference on Economics and Finance Research. 4*, pp. 459-462. IACSIT Press.

Umar, M., Maijama'a, D., & Adamu, M. (2014). Conceptual Exposition of the Effect of Inflation on Bank Performance. *Journal of World Economic Research, 3*(5), 55-59.

Visokavičienė, B. (2010). Monetary Policy Creates Macroeconomic Stability. *Ekonomika, 89*(3), 55-68.

Wu, T. Y. (2004). Does Inflation Targeting Reduce Inflation? An Analysis for the OECD Industrial Countries. *Central Bank of Brazil Working Papers Series 83*.