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The Relationship between Participation Funds and Macroeconomic Variables: SVAR Analysis Approach

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Abstract: Participation banks are in the same financial environment with the conventional banks, so the macro-economic variables are expected to affect the participation funds. The purpose of this study is to examine the relationship between participation funds and macroeconomic variables for Turkey. The relation between the total Turkish currency funds in participation banks and macroeconomic variables is examined using the weekly data series from 10th of July 2015 to 5th of November 2018 by applying VAR and SVAR analysis. The total amount of the deposits of participation banks, weighted average interest rates, Borsa Istanbul gold prices, deposit interest rates of conventional banks, M2 defined money supply and total foreign exchange reserves of Central Bank of the Turkish Republic and USD exchange rate data were used as the secondary data tools. As a result of the VAR analysis, it was found that the total deposits of Islamic banks are primarily affected by money supply and the quarterly deposit interest rates of conventional banks. The SVAR analysis on the basis of these variables reveals that there is a positive correlation between money supply and participation funds while the relation is negative with the quarterly deposit interest rates of conventional banks and the participation funds. According to these analyses, participation funds benefit from the expansionary monetary policy, however; the interest rate policy of conventional banks negatively affects the fund inflow of the Islamic banks.

Keywords: Participations banks, Aggregate funds, Macroeconomic variables, Time series analysis, SVAR analysis

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Introduction

Banks, being financial institutions, play a crucial role in today's economic environment. The funds in the banks provide the dynamism and liquidity for the economy. A high amount of funds decreases the foreign debt of countries while reducing

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the need for credit to be supplied from international markets. Therefore, aggregate funds in banks affect the macroeconomic factors, primarily the cost of borrowing and investment. Within this context, the proper management and guidance of financial savings and effective investment in order to satisfy the requirements in the environment is vital for the economies of countries.

With the help of the technology, most of the financial instruments are used all around the world. Muslim communities who started looking for financial instruments acceptable with Sharia, which brought the concern about having trustworthy Islamic financial institutions, are getting richer and hence becoming one of the major players in world-scale capital markets. Although the roots of banking go deep into history, participation banking or Islamic banking (hereafter referred as IB) is a quite new financial sector. There is tough competition between IB and Conventional banking (CB) in terms of attracting capital in which the major difference that lies (for IBs dividend) between the two financial institutions is interest. IBs employ a different system in terms of collecting deposits and investing their funds. An IB is, thus, based on profit-loss sharing and differs from a CB on how the payment is done in return of the deposits. The rate of return, to be paid to the depositor, namely the interest; is pre-determined in the CB system whereas the IB system considers the rate of profit sharing after the realization of the profit. Although IB offers similar products to those of the CB, the contents and names vary. For instance, the terms *murabaha, ijara, takaful and sukuk* in IB correspond to credit, leasing, insurance, bond and security in CB.

The fact that IBs are integrated within the same economic system with the CBs and they are subject to the same law and rules, any change in the system affects the IBs, accordingly. Based on the common perception that there is no interest in the IB system, "effect on IB system would change the interest on deposits that the CB system have" is among the top-ranking topics of academic research. Muhamad Abduh, Mohd Omar and Duasa (2011), Chong and Liu (2009) and, Zainol and Kassim (2010) indicated in their researches for the IB system prevalent in Malaysia that any change in the interest on deposits has a negative impact on the IB system. Similarly, Kasri and Kassim (2009) and, Akhtar, Akhter and Shahbaz (2017) reached the same conclusion in their studies for Indonesia and Pakistan, respectively. Aysan, Dişli and Ozturk (2014) studied the behavioural aspect of IB depositors within the dual banking system. It was revealed that IB depositors are more sensitive to interest rate changes and they do not hesitate to change their banks when opportunity costs are higher. A fund flow from the IB system towards the CB systems in

case of an increase in the interest rates was observed in some studies (e.g. Zainol and Kassim, 2010). In their research on Malaysia; Chong and Liu (2009) examined the interest relation between the IB and CB systems and reached the following arguments:

1. Interest on deposits in the CB system lead to change in the Islamic investment rates
2. In the long-run, there is a positive relation between the Islamic investment rates and the interest on deposits in the CB system
3. When the Islamic investment rate is above the long-term equilibrium level, it will adjust itself downwards, or vice versa.

Conventional banking system has much more opportunities and diversity in using financial instruments compared to the Islamic banking system. Notably, CB system during the economic crisis, although has a wide range of options, incurs the effects of crisis at the same time. For instance, assume that there are two assets and their yields are related to interest and gold, and interest yield is higher than gold. Naturally, IBs will tie up to choose gold as investment instrument. While the CBs are evaluating their money in instruments with high interest yield, it may be possible to lose their returns during a financial crisis period. In the same period, IBs will not suffer in terms of return as they will tie their funds to secure instruments such as gold. In this context, IBs will provide more profit than CBs. Therefore, IBs will be separated from CBs in terms of stability.

Economic crises are the times when fund holders and depositors change their behavioural patterns. It has come to attention that, based on its working principle, IB system is affected in a different manner from such a crisis when compared to the CB system. Abduh, Omar and Duasa (2011) and, Miniaoui and Ghou (2013) in their researches respectively on Malaysia and United Arab Emirates (UAE), concluded that banks within the IB system show a better performance than the CB system. In another study, Ibrahim and Sukmana (2011) showed that IB system is much stronger against the fluctuations in the stock markets and real activities in context of Malaysia. Kassim and Abdulle (2012) conducted a comparative analysis for the impact of 2007 financial crisis on IBs and CBs in Malaysia. They found that even though there was not any major difference in credit risk and profitability, IBs were more liquid so were less exposed to the liquidity risk. Likewise, Kassim and Abd Majid (2010) concluded that both IBs and CBs showed same vulnerability to 1997 Asian financial crisis and 2007 financial shocks. Mobarek and Kalorov (2013) stu-

died on the performance of IBs and CBs in the 2007 financial crisis. Based on the Data Envelopment Analysis (DEA), their study concluded that IBs were financially more stable than CBs, while the supremacy was lost afterwards.

Developments in the finance industry, globalization and oil-based monetary expansion forced Islamic countries to set-up a financial system acceptable and conformable to their values and faith. Early attempts to generate an alternative system in Islamic countries resulted in the establishment of the Islamic Development Bank in 1975 (Polat, 2009). As the world became an open market by means of the emergence of various financial instruments during the 80s; even though a little later, Turkey was also exposed to the effects of these changes within the international system. Following the legal regulations in 1984, the first private financial institution, "Al Baraka Türk", was founded in 1985 (Ergeç, Arslan and Toprak, 2014) followed by "Kuveyt Evkaf Kurumu" (1989), and "Anadolu Finans Kurumu" in 1991, the first domestic capital institution. In 1995, "İhlas Finans Kurumu" was founded, the second domestic-capital institution. On the other hand, in 2001, another institution, "Faysal Finans" was acquired by domestic capital holders and became "Family Finans". A merger between "Anadolu Finans" and "Family Finans" was finalised to introduce Türkiye Finans Participation Bank in 2005. However, the shutdown of İhlas Finans in 2001 caused a loss of reputation and trust in the participation banks. Political crises and recession affected the development of the participation banks in Turkey, nevertheless the interest of foreign investors increased when the political and economic stability was restored. The names of all these financial institutions were transformed to include "participation banks" in their titles, with the legal regulation in 2005 (Kalaycı, 2013). The lessons taken from 2001 crises had led to amendments in the law of banking which further attracted the attention of foreign investors to financial institutions. By 2008, a majority of the shares of the "Türkiye Finans Katılım Bank" were transferred to its Saudi partners. Even though the volume and depth of the financial markets were expected to develop in accordance with the overall development of the country, the participation banking industry failed to realize the expected boom. With the establishment of state controlled "Ziraat Katılım" (2015), "Vakıf Katılım" (2016) and "Emlak Katılım" banks, the number of active participation banks in the market has reached six.

Establishment of participation banks directly with the state interference and its continuous support increased the level of trust in the domestic market. By June of 2018, the share of participation banks in the overall banking industry reached 5.40% while the liabilities were approximately 4.85% (BDDK, 2018). On the other

hand, the issuance of the largest trading item, the lease certificate (*sukuk*) of the participation banks, increased considerably. Funding options and opportunities in issuing lease certificates multiplied together with the state warranty. However, product diversity is not functional in Islamic Banking and hence is mainly limited to *sukuk* and *murabaha* (Karagöl, Koç and Kızılkaya, 2017, p. 63).

The purpose of this study is to examine the relation between participation funds and macroeconomic variables for Turkey, such as the total amount for the deposits of participation banks, weighted average interest rates, Borsa Istanbul gold prices, deposit interest rates of conventional banks, M2 based money supply and total foreign exchange reserve of Central Bank of the Turkish Republic and the USD exchange rate. This article consists of 4 sections and is organized as follows. The second section covers the major studies on participation banking in Turkey. The third section introduces the data set, model and the method together with the tables showing the results of the econometric analyses. The fourth section presents the conclusion with a general evaluation.

Literature Review

There also are studies based on various macroeconomic variables other than interest and crisis in the literature attempting to measure the performance of banks in the IB system. Ibrahim and Sukmana (2011) reached a conclusion that there is a relation between the volume of the Islamic finance and various macroeconomic variables such as Industrial Production Index (IPI), quarterly treasury interest rate, and level of real production while Kasri and Kassim (2009) concluded in their study that the IB depositors are not sensitive to interest. On the other hand, Ibrahim and Sufian (2014) showed that Islamic finance has positive reactions against changes in real output and are instantly and negatively affected by the shocks in the interest rates. Sakti et al. (2018) observed that macro-prudential policies and GDP have a positive impact on the credit growth within IB and CB systems; however, interest rate, inflation and capital buffer have a negative impact on the same.

Zahid and Basit (2017) concluded that the rate of return in the IB system is negatively correlated with the interest rate as well as the inflation rate while it has a highly significant and positive relationship with the Muslim population, money supply and the workers' remittances. Nursyamsiah (2018) observed that inflation and interest rates positively and significantly affect the profitability of the IB system and also concluded that the exchange rate has a positive but an insignificant impact. Akhtar, Akhter and Shahbaz (2017) reached the conclusion that the depo-

sitors in the IB system are sensitive to dividend/interest pay-outs and there exists a significant relationship between the preferred macroeconomic variables (base lending rate, consumer prices, GDPs, money supply (M3), Karachi stock exchange composite index, KIBOR) and the total deposits of both CBs and IBs in Pakistan in the long-run. Mohd Yusof et al. (2018) examined the relationship between the housing finance provided by the IB and CB systems and macroeconomic shocks and the vulnerability of the banks. They observed that the macro variables such as GDP, Kuala Lumpur Shariah Index, Kuala Composite Index and the house price index are statistically significant when compared to the prices offered by the banks.

Saraç and Zeren (2014) examined the long-run correlation between CBs deposit interest rates and IBs profit share and concluded that in the long-run there are significant co-integrations for 3 participation banks, while Kuveyt Turk has no significant co-integration. Ata, Buğan and Çiğdem (2016) assessed 2004-2014 deposit interest and profit share ratios by means of employing a Hacker and Hatemi Causality Test (Hacker & Hatemi, 2006). The test results revealed that there is one-way causality from interest rates on deposits to profit sharing rates for the terms of 1 month, 3 months and 6 months and two-way causality relation for 12 months.

Ergeç and Aslan (2013) analysed the response of the deposits and loans based on CBs and IBs to interest rates. They showed that any change in interest rates affects the deposits and loans of CBs and IBs, however IBs are more resilient compared to the CBs. Korkut and Ozgur (2017) analysed the period from 2006 to 2015 in their study examining the factors affecting the profit share ratio in the IB system and the deposit interest rate in the CB system. They concluded that government bonds and exchange premium have a significant effect on the dividend ratios of IBs as per the econometric analysis for the aforesaid period.

Based on the monthly data from 1997 to 2010, Çevik and Charap (2015) made an empirical evaluation for Malaysia and Turkey in terms of the behaviour of the deposit in the CB system and the profit share ratio of the investment accounts in the IB system. The study revealed that the profit share rates of IB system and its profit-loss income change accordingly in the long-run. Besides, it was observed that the volatility of CB deposit rates and PLS returns is correlated and significant in both countries. Finally, the pairwise and multivariate causality tests revealed one-way causality relation, that changes in CB deposit rates result with the changes in PLS return.

Research Methodology

In recent studies Kassim, Abd Majid and Mohd Yusof (2009) examined the effect of monetary policy shocks on IB and CB systems (IB finance, IB deposits, CB liabilities and CB deposits) in Malaysia employing a VAR analysis, whereas Ibrahim and Sufian (2014) attempted to outline the relationship between IB and the key economic and financial variables (real output, general price level, interest rate and stock exchange quotation) in Malaysia through an SVAR analysis, taking most frequently used variables as the core. The level of significance is assessed via a VAR analysis after which a SVAR analysis was employed based on constraints conformable with the economic theory.

Data, Model and Technique

Weekly time series date from 10/07/2015 to 05/11/2018 are used in this study. Owing to the problems in collecting reliable past data, the study was started from 2015. The total amount of deposits of participation banks, weighted average interest rates, Borsa Istanbul gold prices, quarterly deposit interest rates of conventional banks, M2 based money supply and total foreign exchange reserves of Central Bank of the Turkish Republic (CBRT) and USD exchange rates are used as secondary data. The weighted average cost of the CBRT funding (WACF) is included since it is widely used by the CBRT in the recent years as the policy rate of interest (the rate charged by the CBRT for the loan in weekly repo auctions) while Borsa Istanbul gold prices are considered as the core indicator of commodity prices. The reason for the inclusion of the quarterly deposit interest rate of non-participation banks is its use as the market policy rate of interest as well as the indicative interest rate of rival banks. The M2, defined as money supply (m2), is the most commonly referred definition of money supply and affects the number of funds by nature, thus it is also considered. Total foreign exchange reserve of the CBTR (reserve) represents trust in the banking sector and is the final payment authority, therefore it, also, takes place in the calculations. Finally, the USD/TRY exchange rate was used as it is an indicator of the stability in the money market. The seasonality problems in secondary used variables were eliminated using the Tramo/Seat Method (Hood, Ashley & Findley, 2000, pp. 171-172). Statistics taken from the Electronic Data Distribution System (EVDS) of the CBRT were used in compiling the data. Besides, Eviews 9.0 econometric analysis module was utilised in the analyses.

Table 1.

Summary of variables

Variable	Description	Source
Deposit	The total amount of deposits of participation banks	EVDS
Gold	Borsa Istanbul gold prices	EVDS
Interest	Quarterly deposit interest rate of conventional banks	EVDS
M2	Money supply M2	EVDS
Reserve	Total foreign exchange reserve of CBRT	EVDS
USD	USD/TRY exchange rate	EVDS
WACF	Weighted average cost of the CBRT funding	EVDS

SVAR analysis, an improved version of the classical VAR analysis, was run in order to determine the macroeconomic variables affecting the total deposits of the participation banks. VAR models in economics were made popular by Sims (1980). The definitive technical reference for VAR models is Lütkepohl (1991), and updated surveys of VAR techniques are given in Watson (1994) and Lütkepohl (1999). In the classical method, external variables are disregarded, and no certain constraints based on variables within the scope of the economic theory are defined. In lag operator notation VAR (SVAR) is given by:

$$\Gamma(L)y_t = \varepsilon_t \qquad \text{Eq. (1)}$$

where $\Gamma(L) = \Gamma_0 - \Gamma_1 L^1 - \Gamma_2 L^2 - \ldots - \Gamma_p L^p$ and $\varepsilon_t \sim W(0, \Sigma)$ white noise vector process (serially uncorrelated or independent) with time invariant covariance matrix.

However, in the SVAR analysis, it is possible to define short- and long-term constraints which are based on the economic theory, before including them into the system. This enables the analyser to determine whether macroeconomic shocks are temporary or permanent (Lütkepohl, 2005).

Before starting the analyses with the SVAR, stationary tests were run for all the variables and their level of integrity (whether they include unit root or not) was assessed. For this purpose, Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests were used (Dickey & Fuller, 1981, pp. 1057-1072; Kwiatkowski et al., 1992, pp. 159-178). The ADF regression equation is for intercept and trend model as can be seen below (Dickey & Fuller, 1981, p. 1057):

$$Y_t=\beta_0+\beta_1 Y_{(t-1)}+\beta_2 t+\varepsilon_i \qquad \text{Eq. (2)}$$

where is white noise. The additional lagged terms are included to ensure that the errors are uncorrelated. The KPSS regression equation is given for intercept and trend model in equation 2 (Kwiatkowski et al., 1992, p. 163).

$$LM = \sum_{i=1}^{T} \frac{S_t^2}{\sigma_k^2} \qquad , s_t = \sum_{i=1}^{t} e_i, \quad t=1,\dots T \qquad \text{Eq. (3)}$$

where is the regression coefficient of the series on intercept and time t, is the variance of the series in long period, k is the number of lagged periods, and T is the number of the sample.

Empirical Findings

We construct SVAR model for the investigation period, 10/07/2015 to 05/11/2018, using weekly observations. In this study, firstly the ADF and KPSS tests were applied. The null hypothesis of the ADF test is the presence of a unit root (ρ=1) against alternative stationary hypothesis. However, The KPSS tests are designed to test the null hypothesis of stationarity against the unit root alternative. The results of the unit root tests are given in table 2.

Table 2.

ADF and KPSS Unit Root Test Results

	ADF		KPSS	
Variables	**Intercept**	**Intercept and Trend**	**Intercept**	**Intercept and Trend**
Level Form				
Deposit	0.169128	-2.499705	1.430085	0.251713
Gold	-2.049945	-2.775976	0.859413	0.137025**
WACF	-0.148951	-1.364887	1.134597	0.227449
Interest	-0.449196	-1.192618	0.906828	0.256091
M2	0.340118	-2.755717	1.466767	0.215643***
Reserve	-1.778031	-2.788644	0.921835	0.105563*
USD	-0.519256	-2.082577	1.334629	0.103033*
First Difference Form				

Δdeposit	-11.56709*	-11.57282*	0.106542*	0.031956*
Δgold	-8.928516*	-8.896463*	0.046098*	0.046235*
ΔWACF	-9.352494*	-9.360648*	0.265904*	0.130278**
Δinterest	-16.46498*	-16.43227*	0.113121	0.086099*
ΔM2	-14.32529*	-14.30997*	0.072383*	0.041703*
Δreserve	-14.13369*	-14.08881*	0.048852*	0.043693*
Δusd	-9.186658*	-9.160293*	0.076491*	0.063925*
Critical Values				
1%	-3.447770	-4.022135	0.739000	0.216000
5%	-2.869113	-3.440894	0.463000	0.146000
10%	-2.570871	-3.144955	0.347000	0.119000

The lag times for the variables are determined to be minimum lag times with no autocorrelation as per the Akaike Information Criterion (AIC). Lag length is assumed 12 during calculations. *, **,*** stand for the 1% , 5% and 10% level of significance whereas "Δ" stands for the difference.

We first perform unit root tests in order to determine the univariate properties of the data employed in the analysis. According to table 2; the calculated ADF statistics are less than their critical values in all cases, suggesting that the variables are not level stationary. All the variables involved in the study become stationary at the first difference I[(1)] at 1% level of significance as a result of the ADF unit root test.

Similarly, based on the KPSS test, the null hypothesis of stationarity cannot be rejected in all intercept model. It is seen that the Deposit, WACF and Interest variable have a unit root at intercept and trend models. The KPSS test reveals that while some of the variables are not stationary at their level; they are stationary at the first difference I[(1)] at 1% level of significance for all the series. The first differences of the series are used in the study to avoid any spurious estimations. Because of a spurious relation between time series processes, a strong but fake relation between variables appears in estimation.

Following the unit root tests, the model including all the variables was estimated with lag times and an autocorrelation problem was encountered. In this respect, a proper lag length was determined based on the Akaike's Information Criterion

(AIC), Hannan-Quinn Criterion (HQ) and Schwarz Criterion (SC). The maximum lag length was assumed to be 8 while the optimal lag length was considered as 2, except for SC. The autocorrelation problem was resolved due to two lagged model estimations. Within this context, the inverse roots were examined in order to test the stationary condition and a Lagrange Multiplier (LM) test was run in order to assess whether there is autocorrelation in the error terms of the model. Just to test the effectiveness of the model, the presence of heteroscedasticity was also examined. Since the number of observations is not much, a White Test where cross products are not used was used and it was assessed that there is no heteroscedasticity at 1% of the level of significance.

The advantage of using Colesky decomposition is precisely that we can solve the identification problem. At the same time, there is an underlying economic assumption in the timing of the responses to the variables' shocks. We used Variance decomposition to indicate the contribution of different disturbances to macroeconomic variable's fluctuations.

Variance decomposition results obtained through the Unrestricted VAR Model are given in table 3 below:

Table 3.

Cholesky Variance Decomposition

Period	Cholesky Variance Decomposition							
	Std Error	Deposit	Reserve	WACF	Interest	M2	Gold	USD
1	0.012	100	0.00	0.00	0.00	0.00	0.00	0.00
2	0.017	95.79	1.35	0.07	0.35	1.59	0.17	0.64
3	0.020	86.62	2.83	0.41	1.97	3.36	1.46	3.32
4	0.021	84.29	2.69	0.73	3.30	3.38	2.09	3.49
5	0.022	82.93	2.43	1.24	4.48	3.63	1.89	3.36
6	0.025	73.31	2.34	3.10	7.66	5.68	1.82	6.06
7	0.026	65.71	2.48	4.66	10.60	6.92	2.01	7.59
8	0.028	59.90	2.42	5.66	13.19	8.07	3.15	7.57
9	0.029	56.39	2.30	6.64	14.62	9.04	3.72	7.25
10	0.030	52.91	2.17	7.18	15.88	10.80	4.10	6.92
11	0.031	49.69	2.36	7.81	17.20	11.94	4.44	6.52
12	0.031	47.37	2.51	8.04	18.40	12.62	4.82	6.22

According to the results of variance decomposition, 47.37% of the change through the variance of the deposit at the end of the 12th term originates from itself while 2.5% is attributed to the reserve, 8.04% to WACF, 18.4% to the interest, 12.62% to M2, 4.82% to gold and 6.22% is attributed to USD. It is revealed that the variable deposit is affected mostly by the variables m2 and the interest in comparison to the other variables by the end of the 12th term.

Considering the results derived from variance decomposition, a 3-variable long-run restricted model (target matrix) is developed for the SVAR analysis. This model is given below:

$$\begin{bmatrix} \Delta m2 \\ \Delta interest \\ \Delta deposit \end{bmatrix} = C(L) \begin{bmatrix} \varepsilon_{\Delta m2} \\ \varepsilon_{\Delta interest} \\ \varepsilon_{\Delta deposit} \end{bmatrix} \qquad \text{Eq. (4)}$$

m2, interest rate, and deposit ratios with Δ represent the first-degree differential operator. Δm2 is given in the first line of the model while Δinterest and Δdeposit are given in the second and the third lines respectively. Accordingly, the variable in the first line (Δm2) is not affected by the other variables in the model and on the contrary, it does affect the other variables. The variable in the second line (Δinterest) is affected by its own shock and the variable m2. On the other hand, the variable (Δdeposit) in the third line is affected by all the variables in the model. Based on the explanations above, Equation (3) can be re-written more clearly as follows:

$$\begin{bmatrix} \Delta m2 \\ \Delta interest \\ \Delta deposit \end{bmatrix} = \begin{bmatrix} C1 & 0 & 0 \\ C2 & C4 & 0 \\ C3 & C5 & C6 \end{bmatrix} * \begin{bmatrix} \varepsilon_{\Delta m2} \\ \varepsilon_{\Delta interest} \\ \varepsilon_{\Delta deposit} \end{bmatrix} \qquad \text{Eq. (5)}$$

It is hard to interpret the estimated coefficients in the SVAR models, as is in the VAR models. Thus, for the reactions of the variables against the shocks given to the system action-reaction functions are utilised and a variance decomposition is employed in order to determine the variable that is most effective on another (Lütkepohl, 2005, pp. 7, 12).

In order to determine the reactions of the variables in the model against shocks, effect multipliers are derived through the long-run multiplier matrix in light of the econometric and statistical analyses in Equation (3).

The Long-run Multiplier Matrix derived through the estimated SVAR Model is given in table 4 below:

Table 4.

Long-run Multiplier Matrix

	Δm2	Δinterest	Δdeposit
Δm2	3.21	0	0
	(0.0000)		
Δinterest	-2.66	2.19	
	(0.0000)	(0.0000)	
Δdeposit	2.43	-1.82	1.65
	(0.0000)	(0.0000)	(0.0000)

Considering the significance and signs of the long-run multiplier matrix; the negativity or positivity gives information about the effect of the shocks. Accordingly, all the coefficients in table 4 are statistically significant and a negative relation between m2 and interest is observed in addition to the one between interest and deposit.

In order to determine which variable possibly affects the rest; a variance decomposition via Structural Variance Decomposition, insensitive to model-involvement order of variables, was applied.

Table 5.

Structural Variance Decomposition of the Deposit Variable

Period	**Shock 1**	**Shock 2**	**Shock 3**
1	0.024727	63.93586	36.03941
2	5.762182	57.91078	36.32704
3	8.078249	54.17669	37.74506
4	10.22772	51.12665	38.64564
5	11.86850	48.75750	39.37400
6	13.23721	46.81670	39.94609
7	14.38411	45.20388	40.41201
8	15.36850	43.83532	40.79618
9	16.22463	42.65746	41.11790
10	16.97910	41.63051	41.39038
11	17.65092	40.72556	41.62352
12	18.25459	39.92071	41.82469

Structural Variance Decomposition shows how the deposits react against shocks in m2 and interest. The results of structural variance decomposition in table 5 gives information about how the shocks in the system have an effect on the deposit variable and the continuity period of these effects. Structural shock 1 represents the money supply, structural shock 2 represents the money supply and interest rate, and the 3rd structural shock represents; money supply, interest rate and deposit rates.

Conclusion

Within the framework of modern macroeconomic policies, the credit and the interest channels have a special position among the ways that economic decision makers use to affect the economy. The balance between the two channels directly affects the deposits. The money supply policy of the central banks is carried out in conjunction with the interest rate policy and as a result, depositors' savings are shaped in line with it. In this context, the policy tools that central banks use, depending on the macroeconomic policies, affect the deposit formation. The aforementioned deposit formation will affect both IBs and CBs.

In an economic estimation model, the issue of how macroeconomic variables (total deposits, interest rate, inflation rate etc.) affect and/or are affected with other macroeconomic variables has been an important topic and discussed frequently in the literature in the 70s. Econometric method that developed after the 80s related to this situation have achieved a significant success in revealing the effects of macroeconomic variables. For policy makers in particular, having preliminary knowledge of the mutual relations between variables is important for the success of their decision.

The purpose of this study was to examine the relation between participation funds and macroeconomic variables of Turkey, such as the total amount of the deposits of participation banks, weighted average interest rates, Borsa Istanbul gold prices, deposit interest rates of conventional banks, M2 based money supply and total foreign exchange reserves of Central Bank of the Turkish Republic and USD exchange rate. The sum of total deposits of participation banks is mainly affected by money supply and the quarterly interest rates of conventional banks by means of results of VAR analysis. The SVAR analysis, on the basis of these variables, reveals that there is a positive correlation between money supply and participation funds while the relation is negative with the quarterly deposit interest rates of conventional banks and the participation funds in the long run. According to the-

se analyses, participation funds benefit from the expansionary monetary policy, however the interest policy of conventional banks negatively affects the funds inflow of the Islamic banks.

Two important points stand out from the results of the study. First, the money supply in line with Turkish central bank policies has a significant impact on IB and CB residential deposits in Turkey. Second, although interest rates are an important fundamental factor that affect CB deposits, they are also a key factor affecting the IB's deposits. In this context, even though the savings in the IB system depend on different motives, IB decision makers are required to take into account the interest rate and money supply during the deposit collection phase.

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