

Chapter 2

THE COMPARATIVE ANALYSES OF TURKISH ISLAMIC AND CONVENTIONAL BANKS' RISK INDICATORS PERFORMANCES (2007-2019)

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1.INTRODUCTION

In 2001, Turkey had very deep banking crisis. Many banks especially private banks were in bankruptcy. Interest rates were very high. Turkish lira value diminished very fast against foreign currencies. Many depositors were not able to get their deposits back. There was no solid risk management system. After 2002, Turkish banking system learned from past mistakes; Turkish banks implemented better risk management strategies in order to protect from financial crisis. In Turkish banking system, conventional banks are dominant. Many people deposit their money to conventional state banks and conventional private banks. Turkish conventional banks' deposits have been increasing fast. Moreover, Islamic banks (participation banks) also have been increasing their deposits fast as well. In conventional banks, since there is certain return of interest revenue (excluding crisis scenarios), many Turkish people opened deposits in conventional banks. In addition, Islamic banks in Turkey endeavour to increase their deposits and also endeavour to increase services in terms of deposits, loans and investment products.

In the banking and finance literature, there are studies about the comparative performance of Turkish Islamic banks and conventional banks. Nevertheless, there is no study that just focus on the impact of EUR/TL, Pound/TL and Dolar/TL influence on Turkish Islamic and conventional banks risk indicators such as deposits and equities. Deposits are oxygen sources of banks and are very crucial for banks survival. Sudden deposits changes can cause banks to go into bankruptcy. Moreover, equities are significant to determine the business valuation of banks. Strong equity means strong business valuation. It is important to measure equities, because during crises bank's business value can diminish very fast. In order to not to lose bank business value, it is important to have sustainable equity

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management system.

In that research, the main objective is to have comparative analysis in terms of the impact of selected parities such as EUR/TL, Pound/TL, USD/TL on the selected risk indicators of Turkish Islamic banks and conventional banks. Risk indicators will be chosen as deposits and equities. In that research, there are two measurement periods. First measurement period will be between July 2007-November 2019 and second measurement period will be July 2016-November 2019.

2. LITERATURE REVIEW

Bader, Mohamad, Hassan(2008) made comparison of 37 conventional banks and 43 banks in 21 countries within the time period of 1990-2005. Cost, revenue and income efficiency was used in data envelopment analysis. The research which examines the size, seniority and region of banks unearthed that there is no important difference between the Islamic and conventional banks.

Samad(2004), made comparison for the performances of conventional banks and Islamic banks in Bahrain for the period between 1991-2001. It was found that there is no crucial difference between conventional banks and Islamic banks. By taking profitability and liquidity into account, Student t-test was implemented. No important difference was found between Islamic and conventional banks. Nevertheless, the research found that there is important difference between Islamic and conventional banks for credit performance.

Iqbal(2001) made comparative analysis between 12 Islamic and conventional banks for the period between 1990-1998. It was found that Islamic banks performed better than conventional banks.

For the time period between 1996-2008, Al-Tamimi(2010) conducted a research about the factors that influence Islamic and conventional banks in United Arab Emirates. By using a regression analysis, it was found that concentration and liquidity have important role for the performance of conventional banks. Moreover, it was also found that number of branches and cost are more significant determinants for Islamic banks' performance.

Fayed(2013) researched about 3 Islamic and 6 conventional banks in Egypt for the time between 2008-2010. In that research, financial ratios were used. Research results unearthed that conventional banks have better performance than Islamic banks for profitability, liquidity, solvency, credit risk.

Youssef and Samir(2015) made comparative analysis between 2 Islamic and 3 conventional banks in Egypt for the period between 2010-2013. It was unearthed that Islamic banks have better performance for asset quality and conventional

banks perform better for capital adequacy and management quality.

Rashid and Jaaben(2016) used CAMEL's ratios to observe the performance of Islamic and conventional banks. By implementing panel regression analysis, it was found that overheads, reserves and operating efficiency are important for the performance of conventional banks, and it was also found market concentrations, operating efficiency, deposits are crucial determinants for Islamic banks' performances within the period of 2006-2012.

Akkas(1996) made comparative analysis between conventional and participation banks. It was mentioned that participation banks had better performance compare to conventional banks.

Islam and Chowdhury(2009) indicated that liquidity performance of Islamic banks was better than the liquidity performance of conventional bank.

Bumin(2009) researched about the profitability of Turkish banks within the period between 2002-2008. By taking end of the data from 2008 into consideration, Bumin(2009) mentioned that investment and development banks profit margin was 53,51%, conventional banks' profits margin was 36,99 % and participation banks' profit margin was 29.21%.

Alkassim(2005) conducted comparative analysis between Islamic and conventional banks in GCC within the period of 1997-2004. It was unearthed that Islamic banks were more profitable than conventional banks and higher capital ratios are important for the profitability of Islamic banks.

Chaker and Salih(2010) made comparative analysis between Islamic banks and conventional banks in UAE. It was found that during the global financial crisis, Islamic banks had better performance than the performance of conventional banks in terms of EPS ratio, liquidity ratio and higher profitability ratio.

Siraj and Pillai(2012) researched about efficiencies of conventional banks and Islamic banks in GCC countries within the time period of 2005-2010. It was found that Islamic banks were more successful than conventional banks in terms of bank efficiencies.

3.THEORETICAL FRAMEWORK

Khalil, Siddiqui(2019) mentioned that Islamic banking system is an equity-based, rather than interest-based, system. In an equity-based system, shocks to asset positions are promptly can be adjusted in the nominal values of shares (deposits) that are owned by the general public in the bank. For that reason, they indicated that the real values of assets and liabilities would be equal at all points in time. Nevertheless, in the traditional banking system, since the nominal value

of deposits is certain, shocks can lead a gap between real assets and liabilities, and it is not transparent how this vulnerability would be adjustable and duration of objective of adjustments is also unknown.

In that research, one of the main objectives is to measure response of Islamic banks and conventional banks within the regime of arbitrary appreciation of USD/TL, EUR/TL and Pound/TL. In all impulse response analysis, AIC will be used for choosing optimal lag length. In that research, dependent variables were chosen as deposits of Islamic and conventional banks and equities of Islamic banks and conventional banks. ARMA Maximum Likelihood Regression test will also be implemented to analyze the impact of parities such as USD/TL, EUR/TL and Pound/TL on dependent variables.

By using Khalil, Siddiqui(2019)' theoretical approach, following hypothesis can be constructed.

H1: Turkish Islamic banks and conventional banks' equity changes are different when one standard deviation innovation shock is applied to USD/TL, EUR/TL, Pound/TL.

In addition to given theory, extra measurements will also be done.

H2: Turkish Islamic banks and conventional banks' deposits changes are different when one standard deviation innovation shock is applied to USD/TL, EUR/TL, Pound/TL.

H3: Parities have significant impact on Turkish Islamic banks and conventional banks' deposits.

H4: Parities have significant impact on Turkish Islamic banks and conventional banks' equities.

4. METHODOLOGY

In methodology section, variance decomposition analysis was implemented first.

4.1. Variance Decomposition Analysis

According to variance decomposition analysis, after 20 periods, USD/TL explains the %44.43746 variance of Turkish Islamic banks' aggregate deposit changes between 2007-2019.

Table 1. Variance Decomposition Analysis of Turkish Islamic Banks' Deposits					
Period	S.E.	D(KBF)	D(USD/TL)	D(POUND/TL)	D(EUR/TL)
1	2219356.	100.0000	0.000000	0.000000	0.000000
2	2319306.	91.89794	6.862278	0.134666	1.105117
3	2667575.	69.75912	27.48571	0.854951	1.900221
4	2762022.	65.99410	28.62060	3.572195	1.813109
5	2828807.	63.21490	30.81317	4.198929	1.773000
6	2890408.	60.66602	33.40162	4.118017	1.814343
7	2957070.	58.23409	35.90097	4.035273	1.829674
8	3002850.	56.47477	37.58581	4.119076	1.820342
9	3034233.	55.31711	38.69660	4.168963	1.817332
10	3067677.	54.12013	39.92891	4.127494	1.823467
11	3095044.	53.19347	40.87662	4.105375	1.824538
12	3117124.	52.45785	41.61988	4.100357	1.821912
13	3135038.	51.86375	42.22358	4.091797	1.820873
14	3150636.	51.36068	42.74150	4.076932	1.820888
15	3163970.	50.93669	43.17812	4.064783	1.820407
16	3174772.	50.59732	43.52567	4.057448	1.819555
17	3183874.	50.31287	43.81806	4.050043	1.819021
18	3191565.	50.07494	44.06336	4.043005	1.818697
19	3198038.	49.87654	44.26788	4.037259	1.818329
20	3203430.	49.71183	44.43746	4.032736	1.817972

Moreover, according to variance decomposition analysis of Turkish conventional banks' deposits (Table 2), after 20 periods, USD/TL only explains the %2.280830 variance of Turkish conventional banks' deposits between 2007-2019.

Table 2. Variance Decomposition Analysis of Turkish Conventional Banks' Deposits

Period	S.E.	D(MBF)	D(USD/TL)	D(POUND/TL)	D(EUR/TL)
1	27477196	100.0000	0.000000	0.000000	0.000000
2	28093085	96.36125	2.191482	0.335680	1.111590
3	28515265	96.11795	2.256945	0.507380	1.117725
4	28547739	96.06799	2.276229	0.509285	1.146497
5	28555898	96.05654	2.280466	0.510892	1.152100
6	28557426	96.05636	2.280580	0.510968	1.152095
7	28557560	96.05592	2.280832	0.511008	1.152241
8	28557624	96.05593	2.280822	0.511015	1.152237
9	28557627	96.05591	2.280830	0.511016	1.152243
10	28557629	96.05591	2.280830	0.511016	1.152243
11	28557629	96.05591	2.280830	0.511016	1.152243
12	28557629	96.05591	2.280830	0.511016	1.152243
13	28557629	96.05591	2.280830	0.511016	1.152243
14	28557629	96.05591	2.280830	0.511016	1.152243
15	28557629	96.05591	2.280830	0.511016	1.152243
16	28557629	96.05591	2.280830	0.511016	1.152243
17	28557629	96.05591	2.280830	0.511016	1.152243
18	28557629	96.05591	2.280830	0.511016	1.152243
19	28557629	96.05591	2.280830	0.511016	1.152243
20	28557629	96.05591	2.280830	0.511016	1.15224

It can be indicated that Turkish Islamic banks' deposits' variances are much more connected to USD/TL compare to Turkish conventional banks' deposits' variances connection.

4.2. ARMA Maximum Likelihood Method(2007-2019)

The first ARMA maximum likelihood analysis is about the parities impact on the equities of Turkish Islamic banks. It was found that Pound/TL had positive significant influence on Turkish Islamic banks' equities between the period of 2007-2019.

Table 3. ARMA Maximum Likelihood Method 1-Turkish Islamic Banks' Equities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	185693.8	5789321.	0.032075	0.9745
POUNDTL	383173.6	132420.1	2.893621	0.0044
@TREND	169352.1	28419.03	5.959109	0.0000
AR(1)	0.989449	0.023077	42.87614	0.0000
SIGMASQ	1.42E+11	4.99E+09	28.37931	0.0000
R-squared	0.996932	Mean dependent var		11989184
Adjusted R-squared	0.996847	S.D. dependent var		6820548.
S.E. of regression	382978.4	Akaike info criterion		28.60826
Sum squared resid	2.11E+13	Schwarz criterion		28.70906
Log likelihood	-2126.315	Hannan-Quinn criter.		28.64921
F-statistic	11699.23	Durbin-Watson stat		1.848212
Prob(F-statistic)	0.000000			

The second analysis (Table 4) is about the parities influence on Turkish Islamic banks' deposits. It was found that USD/TL had significant positive influence on Turkish Islamic banks' deposits between 2007-2019.

Table 4. ARMA Maximum Likelihood Method 2- Turkish Islamic Banks' Deposits

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8970527.	71781594	-0.124970	0.9007
USDTL	9892770.	654990.3	15.10369	0.0000
@TREND	989376.2	231813.3	4.267987	0.0000
AR(1)	0.994188	0.014148	70.27047	0.0000
SIGMASQ	5.80E+12	2.85E+11	20.33091	0.0000
R-squared	0.997069	Mean dependent var		64994087
Adjusted R-squared	0.996987	S.D. dependent var		44619737
S.E. of regression	2449075.	Akaike info criterion		32.32322
Sum squared resid	8.64E+14	Schwarz criterion		32.42402
Log likelihood	-2403.080	Hannan-Quinn criter.		32.36417
F-statistic	12245.51	Durbin-Watson stat		1.578002
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99			

Same analysis was applied for Turkish conventional banks for the period between 2007-2019. Table 5 shows that EUR/TL had significant positive and Dolar/TL had significant negative impact on Turkish conventional banks' equities.

Table 5. ARMA Maximum Likelihood Method 3-Turkish Conventional Banks' Equities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45151468	99852160	0.452183	0.6518
EURTL	6368503.	3112414.	2.046162	0.0426
USDTL	-8942917.	3672296.	-2.435238	0.0161
@TREND	2486773.	314615.3	7.904169	0.0000
AR(1)	1.192521	0.076849	15.51768	0.0000
AR(2)	-0.196365	0.075780	-2.591267	0.0106
SIGMASQ	5.77E+12	6.10E+11	9.447349	0.0000
R-squared	0.999434	Mean dependent var		1.89E+08
Adjusted R-squared	0.999410	S.D. dependent var		1.01E+08
S.E. of regression	2459663.	Akaike info criterion		32.34920
Sum squared resid	8.59E+14	Schwarz criterion		32.49033
Log likelihood	-2403.015	Hannan-Quinn criter.		32.40654
F-statistic	41805.22	Durbin-Watson stat		2.034897
Prob(F-statistic)	0.000000			
Inverted AR Roots	1.00	.20		

According to Table 6' results, it was found that USD/TL parity had significant positive impact on Turkish conventional banks' deposits.

Table 6. ARMA Maximum Likelihood Method 3-Turkish Conventional Banks' Deposits

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	71353965	2.40E+08	0.297903	0.7662
@TREND	9789539.	1387470.	7.055674	0.0000
USDTL	1.19E+08	6411799.	18.53705	0.0000
AR(1)	0.822225	0.060720	13.54115	0.0000
AR(2)	0.165693	0.059895	2.766402	0.0064
SIGMASQ	5.05E+14	2.62E+13	19.23679	0.0000
R-squared	0.998379	Mean dependent var		9.81E+08
Adjusted R-squared	0.998323	S.D. dependent var		5.60E+08
S.E. of regression	22929931	Akaike info criterion		36.79741
Sum squared resid	7.52E+16	Schwarz criterion		36.91838
Log likelihood	-2735.407	Hannan-Quinn criter.		36.84656
F-statistic	17619.90	Durbin-Watson stat		2.021345
Prob(F-statistic)	0.000000			
Inverted AR Roots	.99	-.17		

4.3 Impulse Response Analysis(2007-2019)

Impulse Response Analysis(Figure 1) was implemented for Turkish Islamic banks and conventional banks between the period of 2007-2019. Optimal lag length was chosen with AIC. When one standard deviation of positive shock is applied to parities, Turkish conventional banks deposits(MBF1) diminishes. Moreover, when one standard deviation of positive shock is applied to same parities, it was found that positive shock of USD/TL parity increases Turkish Islamic banks' deposits(KBF1) and positive shock of EUR/TL and Pound/TL diminishes Turkish Islamic banks' deposits. It can be indicated that except Pound/TL parity, Turkish Islamic banks have better deposit performance during parity shocks between 2007-2019.

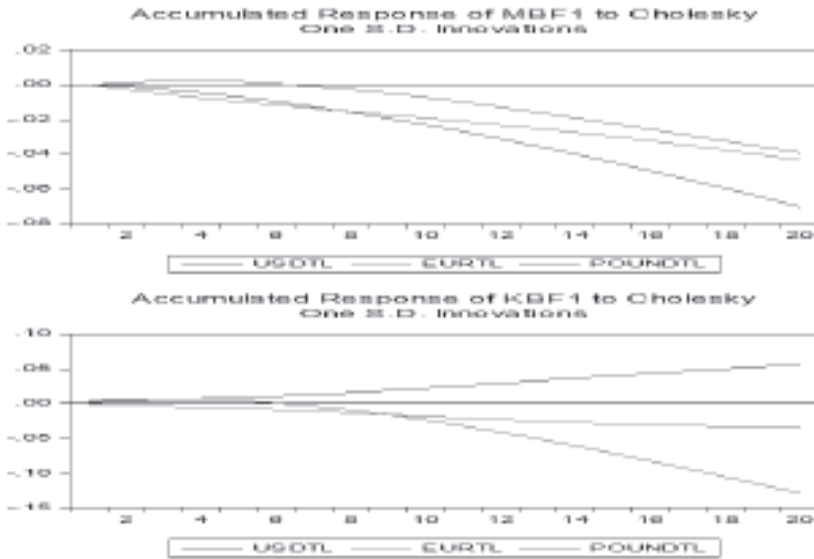


Figure 1. VAR-Impulse Response Analysis(2007-2019)

Moreover, impulse response analysis(Figure 2) was also implemented for Turkish Islamic and conventional banks' equities. When one standard deviation of positive shock is given to parities, Turkish Islamic banks' equities increases. Compare to other parities, USD/TL had the highest innovation impact on Turkish Islamic banks' equities. In addition, when same analysis is applied, it can be indicated that USD/TL had positive innovation impact and Pound/TL, EUR/TL had negative innovation impact on the equities of Turkish conventional banks. It can be indicated that during parity shocks Turkish Islamic banks had better equity performances between 2007-2019.

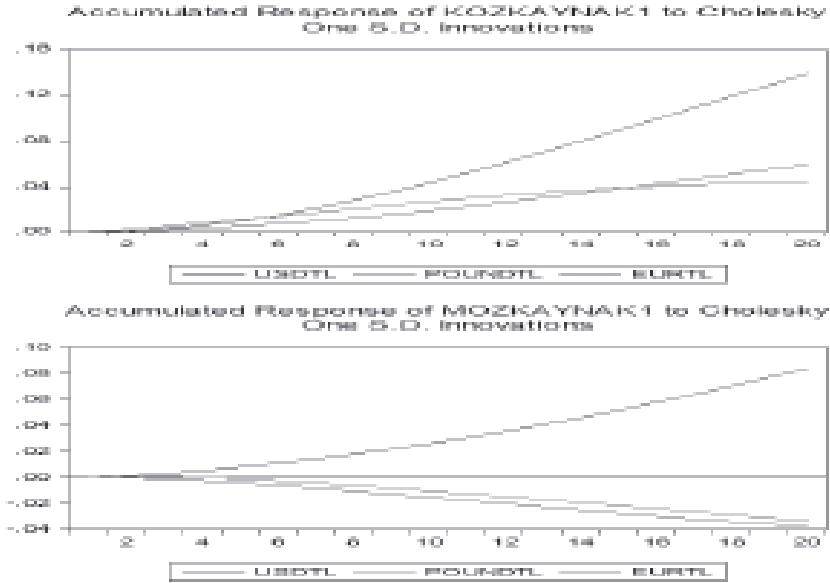


Figure 2. VAR-Impulse Response Analysis 2- (2007-2019)

4.4 ARMA Maximum Likelihood Method(2016-2019)

Between 2016-2018, Turkish economy was volatile. Because there was coup attempt and Priest Brunson events(2018) led Trump to take political actions against Turkey. Due to USA's political actions, Turkish lira value diminished fast. In that research, comparative analysis was also done between Turkish Islamic banks and conventional banks performance under the very volatile economy. Since the impact of those political events have still significant repercussion in 2019, 2016-2019 time period was chosen for volatile time period analysis. First, it was found that USD/TL had positive significant impact the deposits of Turkish Islamic banks July 2016-November 2019. Other parities, Eur/TL, Pound/TL did not have any significant influence on Turkish Islamic banks' deposits.

Table 6. ARMA Maximum Likelihood-Turkish Islamic Banks' Deposits(2016-2019)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	38215106	16327453	2.340543	0.0249
@TREND	2595974.	508156.7	5.108610	0.0000
USD/TL	9154722.	1796073.	5.097077	0.0000
AR(1)	0.939950	0.082381	11.40984	0.0000
SIGMASQ	1.55E+13	2.49E+12	6.237812	0.0000
R-squared	0.989064	Mean dependent var		1.23E+08
Adjusted R-squared	0.987849	S.D. dependent var		38147599
S.E. of regression	4205137.	Akaike info criterion		33.50780
Sum squared resid	6.37E+14	Schwarz criterion		33.71677
Log likelihood	-681.9099	Hannan-Quinn criter.		33.58389
F-statistic	813.9512	Durbin-Watson stat		1.887180
Prob(F-statistic)	0.000000			
Inverted AR Roots	.94			

ARMA Maximum Likelihood method was applied for Turkish conventional banks for the period between July 2016- November 2019. It was unearthed that USD/TL parity had significant positive impact on Turkish conventional banks' deposits between the time period of July 2016- November 2019. Moreover, other parities EUR/TL and Pound/TL did not have any significant impact on Turkish conventional banks' deposits. Moreover, parities did not have any significant influence on Turkish Islamic and conventional banks' equities.

Table 7. ARMA Maximum Likelihood Method- Turkish Conventional Banks' Deposits(2016-2019)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.48E+08	81090632	11.69445	0.0000
@TREND	18611448	1784186.	10.43134	0.0000
USD/TL	98501200	19771336	4.982020	0.0000
AR(1)	0.376729	0.157450	2.392685	0.0221
SIGMASQ	1.06E+15	1.95E+14	5.444893	0.0000
R-squared	0.989600	Mean dependent var		1.76E+09
Adjusted R-squared	0.988445	S.D. dependent var		3.24E+08
S.E. of regression	34812174	Akaike info criterion		37.68642
Sum squared resid	4.36E+16	Schwarz criterion		37.89539
Log likelihood	-767.5715	Hannan-Quinn criter.		37.76251
F-statistic	856.3931	Durbin-Watson stat		1.815633
Prob(F-statistic)	0.000000			
Inverted AR Roots	.38			

4.5 VAR Impulse Response Analysis(2016-2019)

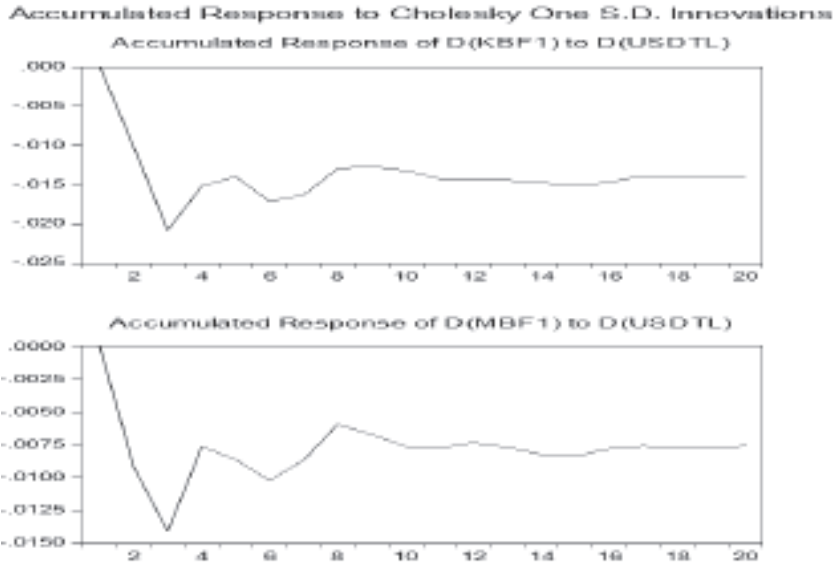


Figure 3. VAR-Impulse Response Analysis 3 (2016-2019)

Between 2016-2019, political conflicts between Turkey and USA were very intense. Thus, USD became more important currency for Turkish financial markets. For that reason, between 2016-2019, only USD/TL was chosen for analyzing the innovation impact. VAR Impulse response analysis(Figure 3) was applied for the period between July 2016- November 2019. It was found that USD/TL had negative innovation influence on Turkish Islamic banks'(KBF1) and Turkish conventional banks'(MBF 1) deposits. Between July 2016-November 2019, similar responses were found for Turkish Islamic and conventional banks. In terms of deposits performance, Turkish Islamic banks had slightly worse performance compare to Turkish conventional banks' performance. In addition, VAR impulse response analysis(Figure 4) was also applied for Turkish Islamic banks and conventional bank' equities. When one standard deviation positive shock is given USD/TL parity, Turkish commercial banks' equities diminishes. Moreover, when one standard deviation positive shock is given to USD/TL parity, Turkish Islamic banks equities increased for long time period; but eventually Turkish Islamic banks' equities diminishes.

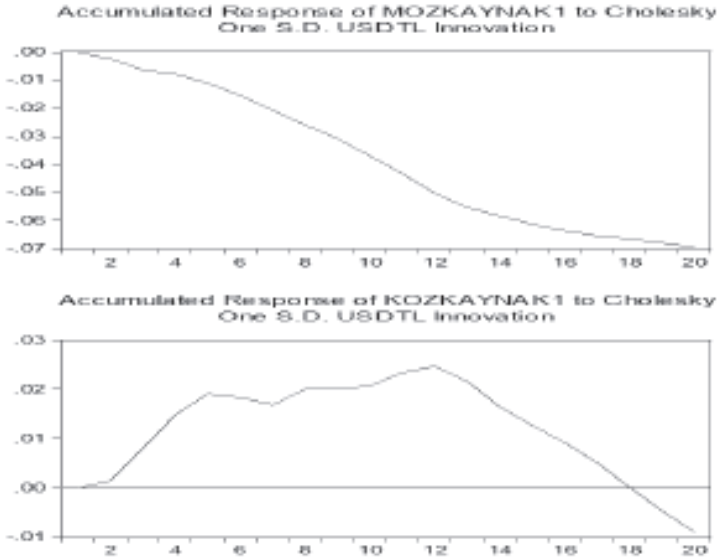


Figure 4. VAR- Impulse Response Analysis 4 (2016-2019)

5.CONCLUSION

In that research, two periods were chosen to unearth the comparative performances of Turkish Islamic and conventional banks between the time period of 2007-2019. In both two periods, dependent variables were chosen as Turkish conventional banks and Turkish Islamic banks' total deposits and total equities. Independent variables were chosen as American Dolar/TL, British Pound/TL and Euro/TL. In the first period, aggregate dataset were analysed. Variance decomposition analysis was implemented. It was found that compare to Turkish conventional banks, Turkish Islamic banks were more dependent on USA/TL parity for the variance of total deposits. ARMA Maximum Likelihood(OPG-BHHH) method was implemented. It was found that Pound/TL parity had significant positive impact on the equities of Turkish Islamic banks and USD/TL parity had positive significant influence on the deposits of Turkish Islamic banks between 2007-2019. Moreover, for the same time period, it was unearthed that USD/TL parity had significant positive influence on the deposits of Turkish conventional banks. In addition, it was also found that EUR/TL had significant positive impact and USD/TL had significant negative impact on the equities of Turkish conventional banks. Moreover, second period time interval were chosen between July 2016-November 2019. It was found that only USD/TL parity had significant positive impact on the Turkish Islamic and conventional banks' deposits.

In addition, impulse response analysis was also implemented for both two periods. Between 2007-2019, USD/TL-EUR/TL and Pound/TL had negative innovation impact on the change of Turkish conventional banks' deposits. In addition, EUR/TL and Pound/TL had negative innovation impact and USD/TL had positive innovation impact on the change of Turkish Islamic banks' deposits. For the change of equities, all the three parities had significant positive innovation impact on Turkish Islamic banks and USD/TL had positive innovation and EUR/TL and Pound/TL had negative innovation impact on the change of Turkish conventional banks' equities. In the second period(2016-2019), impulse response analysis was also implemented. It was unearthed that one standard deviation shock of USD/TL parity had similar effect on the change of deposits of Turkish Islamic and conventional banks deposits. Turkish conventional banks' deposits were slightly less adversely influenced with respect to Turkish Islamic banks' deposits. Last, when one standard deviation positive shock of USD/TL is applied, it was found that Turkish Islamic banks' equity performance is better than the performance of Turkish conventional banks. The research results for Turkish Islamic banks' equities and conventional banks' equities correspond with Khalil, Siddiqui(2019)'s theoretical approach. Thus, hypothesis 1 is accepted. Moreover, hypothesis 2, hypothesis 3 and hypothesis 4 is also accepted. It was found that parities changes had different influence on Turkish Islamic and conventional banks' selected risk indicators. Between 2007-2019, when foreign parities increase fast(except Pound/TL), Turkish Islamic banks deposit collection management in general is more successful than the Turkish conventional banks' deposit management. Although Turkish conventional banks' are dominant in Turkish banking sector, Turkish Islamic banks in general manage risks better in terms of risk indicators such as deposits and equities. In order to manage risk and compete better, Turkish conventional banks can establish new Turkish Islamic banks as a subsidiary. By implementing that strategy, Turkish conventional banks can have more customers. Turkish conventional banks can offer new services to different segments of customers. If Turkish conventional banks are badly influenced from financial crisis, Turkish conventional banks can also use surplus funds of Islamic banks to minimize the adverse impacts of financial crisis.

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