

The impact of development in banking sector and foreign direct investments on economic growth: Sample of Turkey



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ABSTRACT

The fact that the banking sector with a significant place in the financial system is a dynamic sector and economic growth is important for all countries, have made banks indispensable for modern economies. Banks are the driving force behind economic growth by channeling savings to productive investments. Therefore, it is important to examine the impact of the development of the banking sector on economic growth. In this study, the long-term relationship and causality between the development in the banking sector in Turkey and foreign direct investment and economic growth in the 1960-2017 period were analyzed. In the study, in order to detect the stability of the variables, Zivot-Andrews unit root test allowing only one break, and then the cointegration test based on the ARDL approach were conducted. Finally, the causality test was conducted using Toda-Yamamoto causality test method. According to ARDL test results, it was identified that both the banking sector and FDI inflows had a positive effect on the growth in long-term. According to Toda Yamamoto test results, it was identified that there was a one-way causality from the development of the banking sector to economic growth and from economic growth to FDI inflows.

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1. Introduction

For economies the importance of the banks, one of the most significant actors of financial sector, continues to increase day by day. Banks equilibrate the fund demand and supply by bringing the fund surplus and funding needs together. Banks has an important role in maintaining sound and stable economy (Genç and Sasmaz, 2016).

As of 1980's the restrictions on goods, services and capital flows between countries has begun to be removed. As the integration in world economy increases, the access to new technologies and markets has led to a considerable increase in transnational capital flows. As a result, foreign direct investments and foreign portfolio investments have increased and total value of global financial assets has reached upto 225 trillion dollars (Lund et al., 2013). However, global financial crisis and Eurozone have narrowed after the debt crisis. On the other hand, FDI in the world reached from 10,172 billion

dollars in 1970 to 3,099 trillion dollars in 2007, and later Eurozone narrowed due to the debt crisis and the FDI were 2,398 trillion dollars in 2016 (World Bank, 2018a). Especially in developing countries and rising market economies, banking sector is the driving force of the finance sector. Banks can affect savings and investment decisions, therefore affects economic growth, by mobilizing savings, diversifying risk, allocating savings to the most productive investments, and monitoring the allocation of funds by the administrators (Petkovski and Kjosevski, 2014). Beginning from the 24th January decisions Turkey has given up import based growth model and begun to export based growth model and it has begun to remove the restrictions on goods, services and capital. In parallel, banking sector has developed and the ratio of loans granted to the private sector by banks to the GDP has increased from 17.65% in 1960 to 65.73% in 2016 (World Bank, 2018b). Macroeconomic effects of the significant increase in the loans given by the banking sector are inevitable. It can be said that the loans by banks would affect the growth by creating an impact on production and consumption activities. From this point of view, in this study it is aimed to determine the effect of the development in the banking sector on economic growth by using econometric methods. First of all

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previous studies in related field has been included in the study. Then, empirical analysis has been included. Finally, the study ended with conclusion part.

2. Literature

Numerous empirical studies can be seen in the literature on the relationship between the development level of banking sector and the economic growth. It can be seen that the first study on this issue in the literature was carried out by Bagehot (1873) and Schumpeter (1912). When we look the results of these studies, relatively many studies indicate a positive relationship between the development in banking sector and the economic growth (Jayaratne and Strahan, 1996; Levine, 1997; Kar and Pentecost, 2000; Sahin, 2017). On the other hand, relatively a few studies were determined that there was no relationship between the banking sector and the economic growth (Lucas, 1998). The studies on the development in banking sector and the economic growth have been outlined as the following.

Jayaratne and Strahan (1996) analyzed whether there was a relationship between the economic growth and the financial development or not in 50 states of the USA in 1972-1992 period through panel data analysis. As a result of the study, it was found out that financial development accelerated the economic growth. Also it was identified that the increase in the quality of loans by banks accelerated the economic growth.

Levine (1997) aimed to identify the effect of economic development on financial growth in selected countries in 1960-1989 period by using horizontal analysis method. As a result of the study it was found out that financial development was important during the economic growth period.

Levine and Zervos (1998) aimed to identify the effect of economic development on financial growth in 47 countries in 1967-1993 period by using cross-section method. As a result of the study, they found out that financial development was important during the economic growth period and there was a positive correlation between them.

Kar and Pentecost (2000) aimed to identify the effect of economic development on financial growth in Turkey in 1963-1995 period by using cointegration and error correction methods. As a result of the study they found out that financial development was important during the economic growth period. They identified that financial development led the growth.

Christopoulos and Tsionas (2004) analyzed the effect financial development in economic growth period in selected countries in 1970-2000 period by using panel cointegration method. As a result of the study, they found out that financial development was important in economic growth period.

Rachdi (2011) analyzed the effect financial development in economic growth period in 10 OECD and 6 MENA countries in 1990-2006 period by using panel data and panel cointegration analysis method.

As a result of the study, they found out that there was a two-way causality relationship in OECD countries, but a one-way relationship in MENA countries.

Bozoklu and Yilanci (2013) aimed to identify the effect of economic development on financial growth in selected countries in 1988-2011 period by using causality method. As a result of the study they found out that the financial development affected the economic growth positively.

Sahin (2017) aimed to identify the effect of economic development on financial growth in selected countries in 2005-2015 period by using panel data analysis method. As a result of the study, it was found out that financial development accelerated the economic growth.

On the other hand, various studies were carried out in order to detect the relationship between the FDI, called as the control variable in the study, and the economic growth. It will be useful to talk about the studies on the relationship between economic growth and FDI, since it is a control variable in the study. Some studies were outlined as the following.

Ozcan and Ari (2017) analyzed the effects of FDI determiners on economic growth in 1994-2006 period through panel data analysis and GMM estimation method. As a result of the study it was found out that the relationship between FDI and economic growth was positive.

Uğurlu and Bayar (2014) analyzed the relationship between FDI and foreign trade for Turkey in 2001-2011 period through PCSE and FGLS models using time-series cross section data. As a result of the study, they found out that there was a causality supplement relationship between FDI outflows and foreign trade; however, there was no causality relationship between FDI inflows and foreign trade.

Bal et al. (2017) analyzed the short and long relationships between FDI and economic development for Turkey in 1980-2002 period through time-series analysis and cointegration method. As a result of the study, they found out that FDI inflows affected the economic growth positively in long term.

Felek et al. (2018) analyzed the effect of financial development and economic growth on EU (European Union) foreign direct investments to Turkey in 2005-2015 period through ARDL bound test. As a result of the study they found out that financial development and economic growth did not affect EU foreign direct investments alone but financial development and economic growth affected them together. Also they identified that there was an interaction between the financial development and the economic growth for Turkish economy. For that reason, it can said that supply leading hypothesis, i.e. Schumpeter (1912) approach, was supported in Turkey.

3. Data

The relationship between the development in banking sector and FDI inflows and economic

growth in Turkey in 1960-2017 period was analyzed in this study. The theoretical and empirical literature which was the objective of the study was regarded in the selection of the data. The variables in the study were presented in Table 1. The related data were obtained from the World Bank. GRW representing the growth per cepita, BANK representing the development in banking sector and finally FDI representing foreign direct investment net inflows were used as abbreviations in the study. The real GDP per cepita was used as explained variable and foreign direct net capital inflows were used as explanatory variable.

4. Empirical analysis

In order to identify the stability of variables, first of all, Zivot and Andrews (1992) unit root test allowing one-break, and then cointegration test based on ARDL approach were carried out in the study. Finally, causality test was conducted using Toda and Yamamoto (1995) causality test. Analyses results were commented as tables. The model is presented with the following equation:

$$Model = GRW = BANK + FDI + u$$

4.1. Zivot-Andrews unit root test

Zivot and Andrews (1992) opposed to Perron (1989) view of external break point and found out a unit root test which did not only allow structural break, but also the structural break was identified internally. According to this test, as indicated in the Eq. 1 to Eq. 3, Model A includes the structural changes at level, Model B includes the structural

changes in slope and Model C includes the structural changes in both slope and at level (Zivot and Andrews, 1992):

$$Model A: y_t = \mu + \beta t + \alpha y_{t-1} + \theta_1 DU(\varphi) + \sum_{i=1}^k c_i \Delta y_{t-i} + e_t \tag{1}$$

$$Model B: y_t = \mu + \beta t + \alpha y_{t-1} + \theta_2 DT(\varphi) \sum_{i=1}^k c_i \Delta y_{t-i} + e_t \tag{2}$$

$$Model C: y_t = \mu + \beta t + \alpha y_{t-1} + \theta_2 DT(\varphi) + \theta_1 DU(\varphi) + \sum_{i=1}^k c_i \Delta y_{t-i} + e_t \tag{3}$$

Cointegration levels of variables in the study developed by Zivot and Andrews (1992) were analyzed through unit root test and the test results were presented in Table 2. Test results indicate that GRW and FDI variables become stable at level; however, BANK variable becomes stable when the first difference is taken. On the other hand, break years were identified as 1998 and 2005. The fact that the effects of Asian Crisis in 1997 started to be experienced in Turkey since 1998 and the Russian Crisis in 1998 can be thought to be the reason for 1998, one of the break years. However, the reason for the break in 2005 can be a positive period in the world conjuncture, the increase in international credibility of Turkish economy, full membership negotiations with EU, one-party government, meeting the EU economic criteria in public finance field. In addition, we can say that the entry of significant amount of foreign direct investments into the country as a result of the implementation of Foreign Capital Promotion Law in foreign capital may also be effective. On the other hand, this may derive from bank mergers in accordance with the investments of foreign investors in banking sector.

Table 1: Definition of variables

Variables	Definition of variables	Data source
GRW	Real GDP growth rate per capita (%)	World Bank (2018c)
BANK	Domestic loans provided by banks in the private sector (% of GDP)	World Bank (2018d)
FDI	Net foreign direct capital inflows (% of GDP)	World Bank (2018e)

Table 2: Zivot and Andrews (1992) unit root test results

Variables	Model A			Model C		
	Test Statistic	Delay Length	Date of Refraction	Test Statistic	Delay Length	Date of Refraction
GRW	-5.680***	3	1998	-5.583***	3	1998
BANK	-1.5797	0	2009	-4.3739	0	1998
d(BANK)	-6.134***	0	2004	-6.2663	0	1998
FDI	-5.2959**	1	2005	-7.383***	1	2005
Critical values	-5.34 (%1), -4.80 (%5)			-5.57(%1), -4.08 (%5)		

** : significance at %5; ***: significance at %1

4.2. Cointegration test based on ARDL approach

First of all, the cointegration relationship between Eq. 4 and the given variables is analyzed in cointegration test based on ARDL (Autoregressive Distributed Lag) bound test. Then, short and long term parameters from this equation are foreseen.

$$\Delta RGRW_t = \beta_0 + \sum_{i=1}^m \beta_{1i} \Delta RBANK_{t-i} + \sum_{i=0}^m \beta_{2i} \Delta RFDI_{t-i} + \theta_1 RBANK_{t-1} + \theta_2 RFDI_{t-1} + u_t \tag{4}$$

The long term relationship results between variables are presented in Table 3. When we look at the results in Table 3, it has been determined that there is a long term relationship between the series since the calculated F statistics value exceeds Peseran top critical value. For that reason, ARDL model can be established in order to identify the relationship between long and short term relationship between series.

Null hypothesis is tested depending on the Eq. 4 and it indicates no valid cointegration level relationship. By using the variables in Eq. 4 the null

hypothesis is tested as $H_0: \theta_1 = \theta_2 = 0$. Since the critical values of ARDL test are not correlated with F distribution, the critical values are taken from (Pesaran et al., 2001).

In identifying the lag length at optimum level in ARDL model AIC (Akaike Information Criterion) and SC (Schwarz Criterion) criteria were used. However, the lag length in maximum level was regarded as 4. As a result of the expectation of the lag length that there was no autocorrelation problem, ARDL (1, 4, 2) model which is given in Table 4 was taken in terms of the common results of two criteria.

The coefficients in the long term ARDL (1,4,2) model are presented Table 5. According to the obtained results, a long term relationship between

the variables was identified at 5% significant level. Both banking sector and FDI inflows have a positive effect on economic growth in long term. It was identified that a development in banking sector and an increase in foreign direct investments enhanced the growth.

Table 3: Consequences of cointegration test

Critical Boundary Values		
Significance level	Lower Limit	Upper limit
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Test Statistic: F-statistic; Value: 18.94904; K: 2

Table 4: ARDL (1,4,2) estimation of model

Variable	Coefficient	Std. Error	t-Statistic	P. Value
GRW(-1)	-0.180770	0.170866	-1.057965	0.2988
BANK	0.787007	0.212170	3.709321	0.0009
BANK(-1)	-0.023909	0.344743	-0.069353	0.9452
BANK(-2)	-0.771054	0.323346	-2.384608	0.0239
BANK(-3)	0.506715	0.334032	1.516965	0.1401
BANK(-4)	-0.645927	0.256823	-2.515071	0.0177
FDI	0.343263	1.266178	0.271101	0.7882
FDI(-1)	-0.465518	1.572547	-0.296028	0.7693
FDI(-2)	-2.843224	1.161625	-2.447626	0.0207
C	6.361216	1.792368	3.549057	0.0013
R-squared	0.546008	Mean dependent var		2.575626
Adjusted R-squared	0.405113	S.D. dependent var		4.335765
S.E. of regression	3.344128	Akaike info criterion		5.468844
Sum squared resid	324.3125	Schwarz criterion		5.895398
Log likelihood	-96.64245	Hannan-Quinn criter.		5.621888
F-statistic	3.875302	Durbin-Watson stat		1.946571
Prob(F-statistic)	0.002554			

Table 5: ARDL (1,4,2) long term coefficients obtained from model

Variables	Coefficient	Std. Error	t-Statistic	P. Value
BANK	0.124638	0.065401	-1.905759	0.0666
FDI	2.511478	0.937619	-2.678569	0.0121
C	5.387345	1.528062	3.525605	0.0014

Error correction model based on ARDL approach was used in order to identify whether there was a short term relationship between variables or not. The analysis results depending on ARDL (1,4,2) were presented in Table 6. The fact that error correction coefficient appearing as a negative sign was statistically significant meant that there was a movement in the direction of re-equilibrium in case of equilibrium deviation. In other words, it means the mechanism for the error correction works (Bozkurt, 2007).

The coefficient of the concordance (error correction coefficient) belonging to the models for error correction is at the top. The related coefficient must be significant so that the error correction mechanism occurs. The resulting coefficient value higher than 1 is appreciated as the disequilibrium in system; however, the value between 0 and -1 is appreciated as a movement in the direction of re-equilibrium in case of disequilibrium. In other words, it indicates that a disequilibrium in short term is tended in a movement towards equilibrium. At the same time we can say that approximately 118,07 % was corrected between the long term

equilibrium and the real value of dependent variable (GRW). However, the correction rate towards the long term equilibrium is 118,7 % annually. Therefore, this correction rate is out of balance.

Table 6: ARDL(1,4,2) approach based error correction model results

Variables	Coefficient	Std. Error	t-Statistic	P. Value
D(BANK)	0.787007	0.212170	3.709321	0.0009
D(BANK(-1))	0.771054	0.323346	2.384608	0.0239
D(BANK(-2))	-0.506715	0.334032	-1.516965	0.1401
D(BANK(-3))	0.645927	0.256823	2.515071	0.0177
D(FDI)	0.343263	1.266178	0.271101	0.7882
D(FDI(-1))	2.843224	1.161625	2.447626	0.0207
CointEq(-1)	-1.180770	0.170866	-6.910505	0.0000

4.3. Toda-Yamamoto causality test

The series must be stable so that Granger causality test is conducted. There is no precondition for Toda and Yamamoto (1995) causality test. According to this causality test, the lag length of VAR model is expressed as (k). The highest stability level among the studied series is identified as (d_{max}). Then, VAR model is established through the following number (5) and (6) equations is case of $k + d_{max}$. And then, the causality test is carried out (Toda and Yamamoto, 1995).

$$Y_t = \gamma_0 + \sum_{i=1}^{k+d_{max}} \alpha_{1i} y_{t-1} + \sum_{i=1}^{k+d_{max}} \beta_{1i} x_{t-1} + e_{1t} \quad (5)$$

$$X_t = \gamma_0 + \sum_{i=1}^{k+d_{max}} \alpha_{2i} y_{t-1} + \sum_{i=1}^{k+d_{max}} \beta_{2i} x_{t-1} + e_{2t} \quad (6)$$

The null hypothesis is established in Eq. 5 as x variable is not the Granger cause of y variable ($H_0: \beta_{1i} = 0$) and in Eq. 6 as y variable is not the Granger cause of x variable and Wald test is tested (Toda and Yamamoto, 1995).

The causality relationship between the development in banking sector, foreign direct investment inflows and economic growth was analyzed with Toda and Yamamoto (1995) causality test and the results were presented in Table 7. According to the test results, a one-way causality was identified from the development in banking sector to the economic growth and from the economic growth to the foreign direct investment inflows. In other words, it can be said that a possible change in the development in banking sector may cause a change on the growth. On the other hand, it can be said that a change in the growth may cause a change in foreign direct investments.

Table 7: Toda ve Yamamoto (1995) causality test results

Zero hypothesis	Chi-sq	P. Value
BANK is not the cause of GRW.	10.52255	0.0012
GRW is not the cause of BANK.	1.372227	0.2414
FDI is not the cause of GRW.	0.011646	0.9141
GRW is not the cause of FDI.	3.566947	0.0589
FDI is not the cause of the BANK.	0.201793	0.6533
BANK is not the cause of FDI.	0.767117	0.3811

5. Conclusion

Financial liberation has begun to be experienced along with the transition to free market economy and outward-oriented economy in the world and Turkey since 1980's. After the liberalization process, Turkey has now become a country that is in competition with world markets. One of the sectors experiencing this process highly is the banking sector. The banking sector is a sector associated with all sectors of the economy that are efficient and productive. The banking sector has the technology and expert staff that update themselves immediately against the changes in all sectors and institutions in the country. With this aspect banking sector is a dynamic sector. Banks are the driving force behind economic growth by channeling savings to productive investments. This indicates the effect of the banks on economic growth. The fact that banks are a dynamic sector and that economic growth is important for all countries has made banks an indispensable part of modern economies.

On the other hand, banking sector can attract the foreign direct capital to the developed countries faster. The development of banking sector is important especially for developing countries and the development of emerging market economies. The development of banking sector which has significant for financial markets can be effective in the growth of country's economy and in attracting the foreign direct investments to the country. In this context, the relationship between the development in banking sector and FDI inflows and economic growth in Turkey in 1960-2017 period was analyzed in this study in order to determine whether the

development in banking sector and foreign direct investment inflows were effective on economic growth or not. As a result of the study, it was identified that the development of banking sector and FDI inflows affected the economic growth positively. The obtained findings as a result of the study supports the supply leading hypothesis. In this study, the development of the banking sector in Turkey and the impact of foreign direct investment on economic growth in a long-term period (1960-2017) examination and it is expected to contribute to the literature because of the use of superior econometric tests.

From this point of conducted study results, it can be said that several regulations by countries about banking sector to provide economic growth would be useful in economic growth process. We can list these regulations as the following:

- Banks can collect short-term small amount of funds which are idle in the economy and turn them into long-term large funds. From this aspect it can be said that tax promotions can be implemented by making legislative regulations to collect savings easily and therefore, this will contribute to economic growth.
- Banks may finance the productive investments by transferring the collected savings into the right persons, companies and project at the right time and therefore, affect the economic growth positively. Legislative regulations can be made about the activity areas of the banks in order to transfer the scarce resources into the efficient projects and investments. Related investments and close monitoring and provisions for follow-ups can be checked up in order to follow especially the credit returns well.
- The banking sector may have an important impact on the establishment and development of small and medium-sized enterprises (SMEs), which are important for countries. Meeting the financial needs of SME's, which considerably support the economic growth process of countries, by the banking sector under appropriate conditions (such as long term, with lower interest rates) may have positive contributions on economic growth.
- Banking sector can solve the asymmetrical information problem through the experted personnel and advanced technology systems. For that reason, banks can provide efficiency in the allocation of resources and capital stock by preventing market failures. Banks can contribute to economic growth by financing the productive investment projects as result of the increase in experting through technological innovations.
- The monetary policy implemented by the Central Bank and the coordinated fiscal policy implemented by the state without harming the objectives of each other can support the economic growth and the development of the banking sector.

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