

## The Relationship Between the Financial Development and Economic Growth: An Empirical Application for Turkey

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### Abstract

The relationship between financial development and economic growth has been extensively analysed. It is generally hold that financial development is crucial for economic growth. The growth of financial development enables the capital to be used more efficiently, increases the investment and production in parallel with the credit provided to the market, and fosters the economic growth. In this study, the relationship between financial development and economic growth was investigated with the quarterly data for the period of 1985-2016. Toda-Yamamoto causality tests were employed to determine the existence and the direction of causality among the variables. The main empirical finding in this paper is that the financial growth has a positive effect on economic growth. This result was also confirmed by the results of analysis related to "supply-leading" hypothesis put forward by Patrick (1966).

**Keywords:** Financial Development, Economic Growth, Toda-Yamamoto Causality Tests.

### Finansal Kalkınma Ekonomik Büyüme İlişkisi: Türkiye İçin Ampirik Bir Uygulama

#### Öz

Finansal kalkınma ve iktisadi büyüme arasındaki ilişki, yoğun biçimde analize tabi tutulmuştur. Genel anlamda, finansal kalkınmanın iktisadi büyüme için hayati öneme sahip olduğu kabul edilmektedir. Finansal kalkınmanın gerçekleştirilmesi sermayenin etkin kullanılmasına, piyasaya sunulan kredi miktarına paralel olarak yatırım ve çıktının artmasına, ekonomik büyümede iyileşmelerin yaşanmasına neden olmaktadır. Bu çalışmada finansal kalkınmayla ekonomik büyüme arasındaki ilişki 1985-2016 yılları için çeyrek dönemlik veriler kullanılarak incelenmiştir. Değişkenler arasındaki nedenselliğin varlığını ve yönünü saptayabilmek için Toda-Yamamoto Nedensellik testleri yapılmıştır. Bu analiz neticesinde finansal gelişmenin ekonomik büyüme üzerinde olumlu bir etki oluşturduğu sonucuna ulaşılmıştır. Ayrıca bu sonuç, Patrick (1966) tarafından ortaya koyulan "arz önderliği" hipotezine ilişkin analiz sonuçlarıyla da desteklenmiştir.

**Anahtar Kelimeler:** Finansal Kalkınma, İktisadi Büyüme, Toda-Yamamoto Nedensellik Testleri.

#### 1. Introduction

The growth and development of the finance markets take place through the expansion of using of tools and methods used in the finance market or through the increase of its

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effectiveness in the markets (Erim, 2005: 23). Five basic criteria are used to determine the development. These criteria can be classified as structural measures, financial prices, quantity measures, transaction costs and product diversity. Financial prices concerned with goods and services and product diversity reflect the structural measures. The quantity of the credits in the economy and values related to financial assets indicate the quantity measures (Lynch, 1996: 12).

It is observed that the funds in the markets where the development level of financial sector is high tend toward real sectors. Endogenous growth model and theories explain this trend. The role that the financial markets undertake shows itself most during capital allocation (Ang and McKibbin, 2007: 215).

In the Brundtland Report, which describes the definition of sustainable development, the objectives of sustainable development have been expressed. According to this, sustainable development aims to revive growth, to increase the quality of growth, to meet the basic requirements in employment-food-energy-water-health issues, to establish sustainable population level, to preserve and enrich the resource base, to reorganize the technology, to unify environment and economy in decision process (Nemli, 2004: 7-8).

There are four different views on the existence and direction of the relationship between financial development and economic growth. The first view is the supply leading hypothesis put forward by Patrick in 1966. This approach advocates that progress in financial development will increase the demand for financial instruments. As this demand increases, financial institutions will be able to renew and develop themselves and develop (Patrick, 1966: 175-176).

According to the demand-following hypothesis, which means the opposite of the supply leading hypothesis, the increase in demand for financial instruments depends on increase in the level of real output. Increase in real income level increases the demand for financial institutions and mediators in order to obtain the capital that both lenders and investors need. Financial institutions help increase financial development to be able to meet increasing demand (Patrick, 1966: 175).

The third approach, which assumes that there is a mutual relationship between financial development and economic growth, is a view that combines the assumptions of supply and demand-side hypotheses. According to this approach, while the growth in an

economy encourages financial development by increasing the demand for financial services, at the same time financial development encourages economic growth by acting as an intermediary in providing the resources needed by the real sector (Türedi and Berber, 2010: 302-303).

Lastly, Lucas (1988) developed an approach in this context. According to him, there is no relationship between financial development and economic growth. Lucas holds that the increase in human capital accumulation has a positive impact on economic growth, and states that the development in the financial sector or on other markets would not have an impact on economic growth (Lucas, 1988: 6).

The remainder of the article is organized as follows: Section two presents a brief review of the literature on relation between sustainable development and financial development. Third section explains the data and the methodology of the study, and presents and discusses the econometric results. Main findings are summarized in final section.

## **2. A Brief Review of the Literature**

Gurley and Shaw (1967) in a pioneering work assessed the relationship between financial structure and economic development, and explored the importance of financial development in economic growth. They suggested that financial development would affect savers positively. They argued that savers would increase their investment in accordance with financial development. This, in turn, would lead to economic growth.

Bencivenga and Smith (1991) stressed that there is a need for a proper strategic structure in which financial growth can affect economic growth. This study suggests that a stable structure and a process which are not affected by the crises will develop the economic structure through financial improvement.

Atje and Jovanovic (1993) conducted an econometric study based on panel data analysis. In a study of 94 countries, they reached a conclusion that the increase in the loans and the development in the stock market will promote the economic growth in parallel with the increase of investments.

Jayarathne and Strahan (1996) carried out a study covering 50 states in the United States for the period of 1972-1992. They found that an increase in the quality of loans would enable the growth to increase more rapidly.

According to Beck, Levine and Loayza (2000), financial mediators have a positive effect on total factor productivity. In this study conducted in 2000 using econometric analysis of cross section and panel data, they hold that financial markets have a positive effect on GDP.

Kang and Sawada (2000) incorporated domestic growth into their study. They reached a conclusion that commercial liberalization would increase economic growth by increasing the marginal utility of investment.

Müslümov and Aras (2002) examined the financial structure of OECD countries. They found that the developments experienced in the capital market have an impact on the economic indicators. It was pointed out that there is a one-way causality between the variables.

Atamtürk et al. (2004) conducted a study for Turkey and found the results which are compatible with "supply-leading" hypothesis. When they employ Granger Causality test, they found that there is a causality from financial development to economic growth.

Christopoulos and Tsionas (2004) employed a causal research so as to clarify the finance-growth nexus by using data from 10 emerging countries in the period of 1970 and 2000. In conclusion, they asserted that there is a causal relationship from financial development to economic progress.

Caporale et al. (2005) used a VAR analysis to investigate the relationship between stock market development and economic growth for four Asian countries. As a result of the evidence from their analysis, they considered investment productivity as a channel through which the development of stock market can promote economic growth in the long run.

Ang and McKibbin (2007) pointed out a "demand-following" effect in their work for Malaysia. They found that an increase in economic growth leads to an increase in financial development. They supported this hypothesis by the analysis of Granger Causality.

Altunç (2008), who employed a causality analysis in his study, argued that different variables used as the indicators of financial development lead to different results. Therefore, he pointed out that the direction of causality may also differentiate.

Enisan and Olufisayo (2009) in a study involving seven sub-Saharan African countries investigated a causal relationship in the long run between stock market development and economic growth. With an autoregressive distributed lag (ARDL) analysis framework, they argued that stock market might assist to increase growth in Africa. They also pointed out that African stock markets should be promoted via appropriate regulatory and macro economic policies.

Nazlıoğlu et al. (2009) examined the causality between investment and financial development in Turkey both in the short and long-run using quarterly data in the period of 1987-2007. They argued that they found a strong positive relationship between investment and financial development in the long run. Their short-run causality analysis showed a bidirectional causality between private investment and gross investment with financial development.

Özcan and Arı (2011) examined the relationship between financial development and economic growth in Turkey for 1998-2009 using a VAR analysis, and found that there is only one-way causality between financial development and economic growth in Turkey. The direction of this relationship runs from economic growth to financial development.

As a result of empirical studies conducted, the effect of financial development on economic growth was examined in terms of different econometric methods and for different countries. It is generally determined that there is a positive relationship between the two variables. However, it should be noted that interaction between the two may change depending on the variables used and the periods.

### **3. Methodology and Data**

In this study, we investigate that how financial development affects economic growth. It is examined that whether the growth is the cause of financial development, and financial growth increases the growth and what direction of the causality is. Relations between variables were set by 128 observations used from the sample in 1985-2016. In the analysis, data were separately analyzed as 3-month periods. Per capita national income (PCNI) variable was used as a dependent variable as an indicator of financial development. For expressing the development of financial sector, the ratio of money supply to gross domestic product, the ratio of private sector credit sum to gross domestic product and the ratio of total financial assets' stock to gross domestic product were chosen as independent variables. Data used on

independent variables were obtained from Economic and Social Indicators statistics of the Ministry of Development. Per capita national income data was obtained from World Bank. While the financial development series, which were calculated as ratio, were analyzed by their natural values, the national income per capita representing economic growth was analyzed by their logarithmic values. The study was conducted using the time series method. In this respect, to what extent the series were stationary was firstly tested. Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) unit root tests were used for stationarity analysis. As a result of the stationarity test, it was seen that the variables were integrated at the same level. Bai-Perron was conducted in order to see the effects of the crises experienced in the analyzed periods for the variables. Bai-Perron was conducted in order to see the effects of the crises experienced in the analyzed periods for the variables. Finally, Toda-Yamamoto causality tests were carried out to examine the existence of causality among variables and to determine the direction of causality.

**Figure1:** Movements of the Variables in 1985-2016 Period



Figure 1 shows the evolution of the variables for the period of 1985-2016. Per capita national income followed a course increasing over the years. Despite there happened a decline due to the crises of 1995 and 2001, it continued to increase in the following years. The ratio of money supply to GDP represents the degree of monetization of the economy. Money supply

also refers to what extent the households use banking services and facilities. This ratio showed a stable structure until 2005, but after 2005 there happened an increment since the banking transactions advanced and some regulations were carried. Total financial assets were also affected by radical changes in the financial sector after the 2001 crisis. As a result of legislative adjustments to increase the reliability and functionality of the financial sector, there happened an increase in financial assets. There appeared a serious increase in private sector loans with financial liberalization. Especially after 2004, as a result of the tight fiscal policies of the government, the need of borrowing of public sector decreased and the funds accumulated in the banks were transferred to the private sector. Thus, a liquidity surplus was experienced in global meaning.

### 3.1. Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) Unit Root Tests

In the time series, the Augmented Dickey Fuller and Phillips-Perron test are the tests trying to analyze whether the variables have unit roots or not. In 1974, Granger and Newbold found that there could have been a spurious regression problem if the variables hadn't been stable (Sevüktekin and Nargeleckenler, 2007: 321-323). The Augmented Dickey Fuller test accepts that the error terms contain constant variance. Delayed values were added to the equation and error term was made free from auto-correlation problem. The Phillips-Perron unit root test does not let the error term in the series demonstrate a homogeneous structure. Thus, there is no problem of autocorrelation in the series (Enders, 2004: 229).

ADF unit root test regression equation;

$$\Delta Y_t = (\rho - 1)Y_{t-1} + Ut = \delta Y_{t-1} + Ut \quad (1)$$

is shown as.

In the equation  $\Delta$  denotes the first difference value of the variable. The model is estimated as a result of the analysis and then the hypothesis  $H_0: \delta = 0$  is applied to the variables. Since the variables in the series are connected to a random variable, the  $H_0$  hypothesis can be interpreted that the unit root exists, that is, the variables are non-stationary. As the residual values are used in the ADF unit root test, t statistic with a special table is used instead of the standard t statistic value.

In the Phillips-Perron test, the proposals used for error terms in the Dickey Fuller unit root test have been explained with a wider assumption. No restrictive assumptions about the Phillips-Perron test error terms are used. In addition, delayed values of the variables required

to achieve auto-correlation in this test are not included in the model. The Newey-West estimate value is used to determine the delayed value. The fact that the critical value is smaller than the test statistic value indicates that the variables in the series are stationary. (Altunç, 2008: 119). Unit root tests were conducted for variables such as per capita national income, money supply, total financial assets and private sector loans. The results of the variables are given in table 1:

**Table1:** Augmented Dickey Fuller (ADF) and Phillips-Perron(PP) Unit Root Test Results

LEVEL VALUE I(0)	Variables	Intercept		Intercept+Trend		FIRST DIFFERENCE I(1)	Intercept		Intercept+Trend	
		ADF Value	Prob	ADF Value	Prob		ADF Value	Prob	ADF Value	Prob
	LPCNI	-1.214	0.655	-2.373	0.384		-5.927	0.00***	-5.917	0.00***
	M2	0.560	0.986	-2.013	0.571		-4.688	0.00***	-4.931	0.00***
	TFA	-1.279	0.626	-2.056	0.548		-7.488	0.00***	-7.448	0.00***
	PSL	-1.692	0.425	-1.664	0.742		-5.755	0.00***	-5.656	0.00***

  

LEVEL VALUE I(0)	Variables	Intercept		Intercept+ Trend		FIRST DIFFERENCE I(1)	Intercept		Intercept+ Trend	
		PP Value	Prob	PP Value	Prob		PP Value	Prob	PP Value	Prob
	LPCNI	-1.216	0.654	-2.373	0.384		-5.926	0.00***	-5.918	0.00***
	M2	0.300	0.974	-2.021	0.567		-4.727	0.00***	-4.940	0.00***
	TFA	-1.213	0.655	-2.038	0.558		-7.488	0.00***	-7.416	0.00***
	PSL	-1.958	0.302	-1.935	0.612		-5.753	0.00***	-5.663	0.00***

NOTE: The figure which is \*\*\* show %1 level.

When the results of the tests are examined, all the variables used in the analysis are not stationary at the level value, namely I(0). The hypothesis of Ho assuming that there is unit root in the series has been accepted. The first difference of all variables has been taken in order to make stationary the series analyzed by ADF and PP tests. Unit root tests have been reapplied and the variables became stationary. The H<sub>1</sub> hypothesis assumes that there is no unit root for the variables which have been stationary, which has been accepted. After the stationarity analysis, it has been determined with VAR model that the delay length of the variables are 2 and there is no auto-correlation.

### 3.2. Bai-Perron Structural Break Test

Changes in country policies, economic crises and uncertainties in political arena cause structural changes to take place in time series within a certain period of time. Ignoring the structural breaks on the variables leads to the formation of pseudo-effects and long-lasting memory changes happen on the variables (Yavuz, 2010: 82). The most important feature of the Bai-Perron method is that it allows a consistent determination of each fracture by following a strategy from the specific to the general when the refraction time is not known.



**Table 2:** Bai-Perron Structural Break Test Hypotheses

Applied Tests	Ho Hypothesis	H1 Alternative Hypothesis
Sequential	Ho: No Structural Break	H1: There is Breaking as much as k
Repartition	Ho: Structural Break	H1: Unknown Number of Breaks

The Bai-Perron test gives reliable and accurate results if correlation problems are not experienced between variables. Otherwise, the values which the variables obtain in the analysis results are bigger than the existing condition. In the study, it is seen that structural breaks are experienced in the periods of crisis in global scale in Turkey and in the world. The maximum number of breaks is taken as five and it has been determined that there are three break periods as a result of the analysis.

**Table 3:** Bai-Perron Structural Break Test Results

Break Dates	1995/ 2002/ 2008	
Break Tests	F- statistic	Critical Values
0 vs 1*	28.882	16.19
1 vs 2*	10.299	18.11
2 vs 3*	6.163	18.93
3 vs 4	1.846	19.64

NOTE: Results display the rejection of the Ho hypothesis at 95% and 99% confidence interval.

As it can be seen in table 3, the Ho hypothesis of the the Bai-Perron Structural Break Test indicates that there is not break has been rejected at the 99% confidence interval against the H1 alternative hypothesis which is up to a maximum of five breaks. In other words, the hypothesis that there is no structural break having the null hypothesis was rejected at the 99% confidence interval against the alternative hypothesis, which expresses the existence of breaks which are at most k. Bai-Perron test results show that there are 3 structural break periods for the variables of per capita national income, money supply, total financial assets and private sector loans.

**Table 4:** Number of Breaks According to the Criteria of Information

Variables	Number of Breaks according to Criteria of Information	
	Sequential	BIC
	BIC	LWZ
	Sequential	BIC
LPCNI	3	3
M2	3	3
TFA	3	3
PSL	3	3
	Break Dates	
	Sequential	BIC
	1995	1995
	2002	2001
	2008	2008

In the Bai-Perron structural fracture test, there are three information criterions for determining the number of refractions. The first one of these information criteria is the Bayesian Information Criterion (BIC) developed by Yao (1988), the second is the LWZ criterion, which is a modified version of the Schwarz criterion, developed by Liu, Wu and Zidek (1994) and the last one is the sequential ( $\sup F_T(l+1/l)$ ) information criterion developed by Bai-Perron. When the results of the analysis are viewed, the structural break periods for the sequential test are 1995, 2002 and 2008; and structural break periods for the BIC test are 1995, 2001 and 2008. When the results are examined; the speculative attacks which was experienced in Turkey's crisis, which emerged in 1993 and became clear with its effects in 1994, led to a decline in confidence in the financial markets. As a result of the negative situation in the markets, stocks and bond markets were affected. Moving to cash in the markets led to deepening of the crisis and weakening of the stock market transactions. As a result of the 1997 Asian crisis and the crisis of Russia which was an important trading partner of Turkey in 1998, there formed contractions in foreign trade and there was experienced hot money outflow in the country. Negativities in economic indicators were experienced due to the foreign exchange trouble as a result of banking crisis in 2001, foreign debts and economic insecurity. Overnight interest rates in the money markets increased up to 7,500 per cent. Finally, with the 2008 Mortgage crisis, the uncertainty surrounding the globe caused the financial conditions to narrow. Only the financial sector wasn't affected by the crisis. Saving tendency increased with the decrease of investment and consumption expenditures and as a result there happened a severe contraction in domestic demand.

### 3.3. Toda-Yamamoto Causality Analysis

Wald test is used for The Toda-Yamamoto causality analysis, which was formed in 1995. The VAR model is formed at the level values of the variables. Thus, problems a rising when determining the cointegration ratios of the series are eliminated. The distribution of the Wald test is determined by the number of delays (k) in the VAR model and according to the degree of stationarity (dmax) of the series. Toda-Yamamoto causality test is applied at the level of (k + dmax) with two values determined (Toda and Yamamoto, 1995: 225). Equationally;

$$\ln X_t = \sum_{i=1}^{k+d} \beta_{1i} \ln X_{ti} + \sum_{i=1}^{k+d} \alpha_{1i} \ln Y_{ti} + \mu_{1t} \quad (2)$$

$$\ln Y_t = \sum_{i=1}^{k+d} \beta_{2i} \ln Y_{ti} + \sum_{i=1}^{k+d} \alpha_{2i} \ln X_{ti} + \mu_{2t} \quad (3)$$

is displayed in this way.

The null hypothesis for the  $i \leq k$  condition in the equation is accepted as  $\alpha_{1i} = 0$ . On the other hand, on the condition that the alternative hypothesis is accepted, it is assumed that there is no causality relation from  $Y_t$  to  $X_t$ . However, if the null hypothesis is tested as  $\alpha_{2i} = 0$  for the  $i \leq k$  condition, then the alternative hypothesis is accepted and it is determined that there is the causality relation from  $X_t$  to  $Y_t$  (Toda and Yamamoto, 1995: 237). Wald test VAR equations for variables;

$$\Delta PCNI = \beta_0 + \sum_{i=1}^p \beta_{2i} \Delta M2_{t-i} + \sum_{i=1}^p \alpha_{2i} \Delta TFA_{t-i} + \sum_{i=1}^p \Delta_{2i} \Delta PSL_{t-i} + \sum_{i=1}^p \lambda_{2i} \Delta PCNI_{t-i} + \psi_2 + \mu_{2t} \quad (4)$$

$$\Delta M2 = \beta_0 + \sum_{i=1}^p \beta_{2i} \Delta PCNI_{t-i} + \sum_{i=1}^p \alpha_{2i} \Delta TFA_{t-i} + \sum_{i=1}^p \Delta_{2i} \Delta PSL_{t-i} + \sum_{i=1}^p \lambda_{2i} \Delta PCNI_{t-i} + \psi_2 + \mu_{2t} \quad (5)$$

$$\Delta TFA = \beta_0 + \sum_{i=1}^p \beta_{2i} \Delta PCNI_{t-i} + \sum_{i=1}^p \alpha_{2i} \Delta TFA_{t-i} + \sum_{i=1}^p \Delta_{2i} \Delta PSL_{t-i} + \sum_{i=1}^p \lambda_{2i} \Delta PCNI_{t-i} + \psi_2 + \mu_{2t} \quad (6)$$

$$\Delta PSL = \beta_0 + \sum_{i=1}^p \beta_{4i} \Delta PCNI_{t-i} + \sum_{i=1}^p \alpha_{4i} \Delta TFA_{t-i} + \sum_{i=1}^p \Delta_{4i} \Delta PSL_{t-i} + \sum_{i=1}^p \lambda_{4i} \Delta PCNI_{t-i} + \psi_4 + \mu_{4t} \quad (7)$$

are shown in this way.

**Table 5 :**Toda-Yamamoto Causality Test Results

Hypotheses	Optimal Delay Length (k+ d <sub>max</sub> )	Wald ( $\chi^2$ )	Probability
<b>M2<math>\neq</math>&gt;LPCNI</b>	<b>2</b>	<b>3.268</b>	<b>0.058*</b>
LPCNI $\neq$ >M2	2	3.899	0.785
<b>PSL<math>\neq</math>&gt;LPCNI</b>	<b>2</b>	<b>2.985</b>	<b>0.001***</b>
LPCNI $\neq$ >PSL	2	1.848	0.480
<b>TMV<math>\neq</math>&gt;LKBMG</b>	<b>2</b>	<b>3.658</b>	<b>0.078*</b>
LKBMG $\neq$ >TMV	2	1.589	0.125

Note: \*, \*\*\* indicate significance level of 10% and 1% respectively.

As a result of the Toda-Yamamoto causality analysis, it was determined that there existed at 10% significance level causality from money supply to the national income per capita and from the total financial assets to the national income per capita. It is seen that there is a causality at the level of 1% significance from the private sector loans to per capita national income. The increase in private sector loans and total financial assets has a positive impact on national income by increasing investments and expenditures.

### 3.4. Hatemi J and Hacker Bootstrap Based Toda-Yamamoto Linear Granger Causality Test

A more sophisticated causality analysis was created by Hacker and Hatemi using the Bootstrap process, which predicted that the lowness of observation numbers in the Yamamoto

test would cause problems when the dispersion tests were performed. The equation for the VAR model of causality analysis is expressed as:

$$y_t = v + B_1 y_{t-1} + B_2 y_{t-2} + \dots + B_p y_{t-p} + \varepsilon_t$$

In the equation,  $y_t$  denotes the number of variables and  $v$  denotes the constant vector in the model.

Equation for Var ( $p + d_{max}$ ) if there is cointegration between variables;

$$y_t = v + B_1 y_{t-1} + B_2 y_{t-2} + \dots + B_p y_{t-p} + d_{max} y_{t-p-d_{max}} + \varepsilon_t$$

happens in this way (Hacker and Hatemi-J, 2006: 1490).

The causality test developed by Hacker and Hatemi is implemented with the help of the Gauss program. There are separate results for confidence intervals of 1%, 5% and 10% over the data for the variables. The obtained results are compared with the Toda-Yamamoto results and it is assumed that there is causality between the variables if the Yamamoto Wald values are greater than the Bootstrap critical values.

**Table 6:** Asymptotic and Bootstrap Toda-Yamamoto Granger Causality Test Results

Variables	MWALD	Bootstrap Critic Values		
	(Asymptotic Probability Values)	1%	5%	10%
<b>Causality</b>	<b>Statistics</b>	<b>1%</b>	<b>5%</b>	<b>10%</b>
LPCNI $\neq$ M2	3.899(0.785)	5.456	4.599	4.890
LPCNI $\neq$ PSL	1.848(0.480)	2.857	5.958	3.895
LPCNI $\neq$ TFA	1.589(0.125)	4.888	2.885	3.897
<b>M2 <math>\neq</math> LPCNI</b>	<b>3.268(0.058)*</b>	<b>2.745***</b>	<b>2.884**</b>	3.345
<b>PSL <math>\neq</math> LPCNI</b>	<b>2.985(0.001)***</b>	3.781	4.124	3.457
<b>TFA <math>\neq</math> LPCNI</b>	<b>3.658(0.078)*</b>	3.872	4.102	5.001

Note: Values in parentheses indicate probability values asymptotically. \*\*\*, \*\* and \* values respectively display the causality relation between the variables at the significance level of 1%, 5% and 10%. The number of bootstrap is 1000.

There is no asymptotic and bootstrap causality from the per capita national income to money supply, and to private sector loans, and to the total financial assets. There is asymptotic causality when causality is taken into consideration in view from money supply to per capita national income, from private sector loans to per capita national income, from total financial assets to per capita national income. Also, as it is seen in the table, there is 1% and 5% level of causality in terms from money supply to per capita national income with bootstrap. An increase in the money supply will cause a rise at overall level of prices. Spending will be reduced due to the restrictive policies implemented owing to inflationary

pressures, and increased interest rates will lead to decrease in investments. This will cause decrease in the per capita national income.

#### 4. Conclusion

The studies on the relationship between financial development and economic growth dates back to the beginning of twentieth century. It is generally hold that financial development is vitally important for economic growth. The growth of financial development enables the capital to be used more efficiently, increases the investment and production in parallel with the credit provided to the market, and fosters the economic growth.

This paper employs Toda-Yamamoto causality tests with the quarterly data for Turkey from 1985 to 2016 in order to examine the relationship between financial development and economic growth. The main empirical finding in this paper is that the financial growth has a positive effect on economic growth. In addition, with the Bootstrap causality test, it is observed that there is a one-way causality from financial development to economic growth, which means that financial development is the cause of economic growth. The validity of "supply leading" hypothesis put forward by Patrick (1966) that financial growth and development affect the economic growth was also supported by the analysis conducted.

As a result, it would be wise to consider that improvements in the instruments and intermediaries of a financial structure will cause economic growth positively. Therefore, it is of paramount importance to work for a better financial development. Accordingly, the implementation of a strong and sustainable financial sector will contribute significantly to the development of Turkey.

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