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Impact of Economic Growth and Capital on Financial Development: Analysis of the Role of Financial Globalization in the Case of Turkey with ARDL Bounds Test Approach

Ekonomik Büyüme ve Sermayenin Finansal Gelişme Üzerindeki Etkisi: Türkiye Örneğinde Finansal Küreselleşmenin Rolünün ARDL Sınır Testi Yaklaşımı İle Analizi

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ABSTRACT

The aim of this study is to examine the impact of economic growth, capital and financial globalization on financial development for the period 1990-2018 in the case of Turkey. In the analysis, credits to the private sector were used as an indicator of financial development. The measure of globalization is based on the KOF financial globalization index. The long-run relationship between the series was revealed with the ARDL Bounds Test approach and a long-run prediction was made. As a result of the analysis, the effect of all variables on financial development was found to be positive and statistically significant. Long-run estimating was also made with FMOLS, DOLS and CCR models to demonstrate the reliability of the ARDL model. In all models, it was found that the estimation results were consistent with each other. In the latest Toda Yamamoto causality analysis, the bidirectional causality relationship between financial development and GDP and capital was identified. A unidirectional causality relationship from financial globalization to financial development has been found. Therefore, it has been concluded that financial globalization is an important factor in the growth and development process of the financial system in Turkey.

Anahtar Kelimeler:

Finansal Küreselleşme,

Finansal Gelişme,

ARDL Sınır Testi Yaklaşımı

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ÖZET

Bu çalışmanın amacı, Türkiye örneğinde 1990-2018 dönemi için ekonomik büyüme, sermaye ve finansal küreselleşmenin finansal gelişme üzerindeki etkisinin incelenmesidir. Analizde, finansal gelişmenin göstergesi olarak özel sektöre verilen krediler kullanılmıştır. Küreselleşmenin ölçütü olarak ise KOF finansal küreselleşme indeksi esas alınmıştır. Seriler arasındaki uzun dönemli ilişki ARDL Sınır Testi yaklaşımı ile ortaya konularak uzun dönem tahmini yapılmıştır. Analiz sonucunda tüm değişkenlerin finansal gelişme üzerindeki etkisi pozitif ve istatistiksel olarak anlamlı bulunmuştur. ARDL modelinin güvenirliliğini ortaya koymak için ayrıca FMOLS, DOLS ve CCR modelleri ile uzun dönem tahmini yapılmıştır. Tüm modellerde tahmin sonuçlarının birbirleri ile tutarlı olduğu bulgusuna ulaşılmıştır. Son aşamada yapılan Toda Yamamoto nedensellik analizinde finansal gelişme ile GDP ve sermaye arasında çift yönlü bir nedensellik ilişkisi tespit edilmiştir. Finansal küreselleşmeden finansal gelişmeye doğru tek yönlü nedensellik ilişkisi bulgusuna ulaşılmıştır. Dolayısıyla finansal küreselleşmenin Türkiye'deki finansal sistemin büyüme ve gelişim sürecinde önemli bir faktör olduğu sonucuna ulaşılmıştır.

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1. INTRODUCTION

Today, as the process of globalization accelerates, the interaction between people, societies and countries has increased and accelerated considerably. The process, which began to take shape about two centuries ago, has offered great improvements in communication, transportation and finance in recent years due to the rapidly developing technology. The network of economic globalization covering financial transactions is called financial globalization. Since the 1970s, the collapse of the Bretton Woods system has paved the way for financial globalization. Changing the system and switching to a free exchange rate system led to the formation of the international foreign exchange market in a very short time. The effective functioning of the foreign exchange market with the developing technology has opened other capital markets to global transactions (Ganiev, 2014: 119).

The positive relationship between the financial system and the entire economy is the most important determinant of performance in a stable and well-functioning economy. The financial system fulfills efficient evaluation of savings between households, businesses, the public and foreigners, allocation of funds to appropriate investment areas, ensuring price formation mechanism in doing so, increasing liquidity and reducing information costs. Financial development can affect economic growth as the economy becomes increasingly financialized and the size, importance and functions of factors such as intermediaries, instruments, fund supply and claimants, regulation, supervision, surveillance systems and mechanisms within the financial system increase (Durusu Ciftci, et al. 2017: 291).

An advanced financial system can trigger economic growth, as well as globalization trends can positively affect economic growth and financial development. The generally accepted approach to this process is that the process of globalization has given an impetus to economic growth by increasing participation in international economic activities. This view, supported by the IMF and the World Bank, also known as the Washington Consensus, is generally supported by the 2016 Washington Consensus. it is argued that globalization increases national and employment by increasing free trade, technological development, capital flows and savings mobility reduces transaction and capital costs, and therefore reduces the poverty level (Helhel, 2017: 159).

Regarding the positive impact of globalization on financial development, Baldwin and Forslid (1996) argue that as a result of competition between foreign banks and local banks entering the market with globalization, domestic interest rates are positively affected in favor of investors, thus facilitating access to credit. However, it is also stated that globalization has a negative effect on financial development. Prasad et al. (2005) argue that globalization is the cause of currency-based financial crises, especially in developing countries. He argues that some developing countries can easily find foreign debt due to financial globalization, but these debts have reached an unsustainable level and economic crises are frequently experienced in these countries due to external shocks.

Financial development promotes economic growth and development, as it has an impact on savings decisions and investments in a country (Levine, 2005; Ang, 2008). As a result, it is important to determine what determines financial development. There are numerous studies in the literature that explore the relationship between financial development and economic growth. However, the number of studies investigating the impact of globalization on financial development is few. In this respect, it is thought that determining the impact of financial globalization on financial development by using 1990-2018 data for the Turkish economy can contribute to the literature. The study consists of five parts. Following the introduction, the second part included a literature review. In the third part, the model, data and methodology are emphasized. In the fourth part, the results of the analysis were evaluated. The study was completed with the conclusion and discussion section.

2. LITERATURE REVIEW

In this part of the study, the literature is examined in two parts. The first part includes studies exploring the relationship between financial development and economic growth. In the second part, studies examining the link between financial globalization and financial development are summarized.

2.1. The Link Between Financial Development and Economic Growth

The first study on the relationship between financial development and economic growth was carried out by Schumpeter (1911). Schumpeter (1911) states in his study that the banking system is a very important factor for economic growth due to its role in the allocation of savings, promoting innovation and financing productive of investments. In addition, it states that a financial system with a well-functioning lending process will accelerate economic growth by supporting R&D and innovation activities. In the following years, the view that financial

development positively affected economic growth was supported by the study Goldsmith (1959), McKinnon (1973), Bencivenga and Smith (1991), King and Levine (1993). Murinde and Eng (1994) examined the relationship between financial development and economic growth in Singapore in their work covering the period 1979-1990. To explain this relationship, they used three groups of financial variables: monetary sizes, monetary rates and monetary variables. The results of the analysis showed that monetary variables positively affected real economic growth. In contrast, it was determined that national income had no effect on financial variables. Demetriades and Hussein (1996) found a bidirectional causality relationship between financial development and economic growth.

Arestis and Demetriades (1997) examined the impact of financial development on economic growth in the case of the United States and Germany. The results of the analysis showed that the stock market capitalization used as an indicator of financial development in Germany has an indirect effect on economic growth and has a direct and positive effect in the United States. Shan, Morris and Sun (2001) and Al-Yousif (2002) included international comparisons in their study investigating the relationship between economic growth and financial development and concluded that the relationship between financial development and economic growth is the bidirectional causality relationship.

Calderon and Liu (2003) examined the causality relationship between financial development and economic growth for 109 developing countries and the period 1960-1994. In this study using the Geweke decomposition test, they found that financial development in all countries leads to economic growth. In addition, in some countries, the bidirectional causality relationship has been established between financial development and economic growth. In their studies, Muslimov and Aras (2002) tested the relationship between capital market development and economic growth in OECD countries in the period 1982-2000. GDP per capita was used as a measure of economic growth. As a measure of financial development, the ratio of capital market capitalization to GDP and the ratio of capital market liquidity to GDP were used. According to the results of the study using panel data analysis; the development of the capital market has been identified as the reason for economic growth.

Shan and Morris (2002) examined the relationship between financial development and economic growth in 19 OECD countries, China and South Korea for the period 1985-1998. The real national income growth rate has been used to represent economic growth. In addition, two criteria for financial development were used. The first is the ratio of loans to national income, and the second is the difference between borrowing and lending interest rates. The study yielded different results. In a small number of countries, financial development was found to lead to economic growth; in some countries, it has been found that mutual interaction or economic growth supports financial development. But the overall result is that financial development and economic growth occur at the same time and do not cause each other.

Rincon (2007) examined the relationship between financial globalization and economic growth in 43 countries with data covering the years 1984-2003; for Bolivia, Colombia, Costa Rica, Ecuador, Peru and Venezuela, it has been concluded that financial globalization promotes economic growth. In their study, Schularick and Steger (2010) compare today's financial globalization with the financial globalization of 1880-1914 and state that it has an impact on economic growth as opposed to the previous one and the present. As a reason for this, they state that international flows between 1880 and 1914 consisted of net capital movements towards investments at a high rate.

Egbetunde and Akinlo (2015) concluded that there is a long-run relationship between financial globalization and economic growth as a result of panel cointegration and Multivariate ECM tests for sub-Saharan African countries between 1980 and 2005. A long-run relationship was found for all countries in the analysis. In addition, a unidirectional causality relationship was found from financial development to economic growth for Central African Rep., Congo Rep., Gabon and Nigeria, vice versa causality for Zambia, and bidirectional causality for Kenya, Chad, South Africa, Sierra Leone and Swaziland. Turkoglu (2016) found a bidirectional causality relationship between financial development and economic growth in Turkey for the period 1960-2013. Ofori Abebrese et al. (2017), with data covering the period 1970-2013, found a unidirectional causality relationship from domestic credit to the private sector to growth according to Granger causality test results in Ghana's case.

Bhanumurth and Kumawat (2018) conducted panel VAR and panel causality tests on South Asian countries; for India, Pakistan, Maldives and Nepal, they have identified a relationship from economic growth to financial globalization, while for Sri Lanka and Bhutan they have concluded that there is a meaningful relationship from financial globalization to economic growth. For Bangladesh, they found that foreign capital inflows cause indirect economic growth due to their impact on the domestic market. Pata and Agca (2018) investigated the relations between financial development and economic growth for Turkey in the period 1982-2016. According to the ARDL model results, it has been determined that the increase in financial development positively affects

economic growth both in the short and long run. It has been found that there is unidirectional causality from financial development to economic growth.

2.2. The Link Between Financial Development and Financial Globalization

Law and Demetriades (2006) investigated the impact of free foreign trade and foreign capital inflows on financial development in 43 developing countries using data from the period 1980-2001. Free foreign trade has been found to contribute more to financial development, especially in middle-income developing countries where institutionalization is relatively good. Baltagi et al. (2009), according to the results of dynamic panel data analysis using data from developed and developing countries, found that trade and financial openness positively and statistically significantly affected the development of the banking sector.

Falahaty and Law (2012) examined the relationship between globalization and financial development in MENA countries for the period 1991-2007. As a result of the analysis, it was determined that globalization has an impact on corporate quality, which triggers financial development and economic growth. Garcia (2012) investigated the impact of financial globalization on financial development in 26 transition economies for the period 1995-2008. In general, it has been found that financial globalization has positively affected financial development. Yüce Akinci et al. (2013), the relationship between economic globalization and financial freedoms was analyzed in 1995-2012 using panel data analysis for developed, developing and underdeveloped countries. The results of the analysis revealed that economic globalization will increase financial freedoms and the phenomenon of increasing globalization will also increase financial freedoms.

For the period 1989-2012, Kandil et al. (2015) analyzed the impact of globalization on financial development and economic growth in 32 developed and developing countries. As a result of the analysis, it was determined that globalization has a positive effect on financial development and growth. Nasreen and Pervez (2017) explored the relationship between financial development and financial liberalization in middle-income economies. They found a bidirectional causality relationship between financial development and financial liberalization.

Helhel (2017) examined the relationship between globalization and financial development in the case of BRICS countries and Turkey for the period 2002-2015. As a result of the analysis, it has been revealed that globalization has a positive and statistically significant effect on domestic credit to the private sector, the return rate of shares and transaction value. Muye and Muye (2017) examined the relationship between globalization, institutionalization and financial development for BRICS and MINT countries in 1984-2013. According to Granger causality test results, it was determined that there is unidirectional causality from globalization to institutionalization in BRICS and MINT countries, and unidirectional causality from institutionalization to banking-based financial development. In addition, it has been concluded that there is a causality relationship from globalization to capital market-based financial development.

Balcilar et al. (2019) investigated in 36 developing countries whether globalization affects financial development by creating opportunities for institutional reforms. The results showed that all globalization initiatives greatly improve financial development. Rathore and Prajapati (2019) analyzed the impact of financial globalization on the Indian financial market. The results showed that financial globalization has positively affected India's financial markets.

3. MODEL, DATA AND METHODOLOGY

In this study, the impact of economic growth, capital and financial globalization on financial development in Turkey during the period 1990-2018 was investigated. The data and data definitions are shown in Table 1.

Table 1. Definition of Variables

Variables	Source	Symbol
Domestic credit to private sector by banks (% of GDP)	World Bank-WDI-2021	FD
GDP (constant 2015 US$)	World Bank-WDI-2021	GDP
Gross fixed capital formation (% of GDP)		GFC
Financial globalization index	KOF Swiss Economic Institute-2021	FG

The model estimated by taking the natural logarithm of all variables is presented below:

$$lnFD_{it} = \alpha + b_1 lnGDP_{it} + b_2 lnGFC_{it} + b_3 lnFG_{it} + \varepsilon_{it} \quad (1)$$

ADF and PP unit root tests, which are traditional unit root tests, were used stationarity of the series in the study to determine. In addition, the stationarity of the series was detected with the Vogelsang-Perron unit root test, which allowed a single structural break. Later, the cointegration relationship was examined with the ARDL bounds test approach. Long-run coefficients of variables were estimated with ARDL, FMOLS, DOLS and CCR Models. In the final stage of the study, the causality relationship between the variables was investigated with the Toda-Yamomoto approach.

The ADF test, developed by Dickey and Fuller (1981), includes regression of its own delayed value and differences of the series whose stationarity is to be investigated, and regression is shown in equation 2:

$$\Delta Y_t = \alpha + \beta_t + \delta Y_{(t-1)} + \vartheta \sum \Delta Y_{(t-1)} + \varepsilon_t \quad (2)$$

In equation 2, Δ, shows the difference processor, ε_t, error term. In the unit root test, the lag length for each series. The acceptance of the null hypothesis in the ADF test indicates that the series contained unit roots at the level value. If the δ coefficient is statistically significant, the null hypothesis is rejected and the series is considered stationary (Kızılgol, 2006: 57; Sumerli Sarigul and Altay Topcu, 2021: 49).

PP test developed by Phillips and Peron (1988) addresses deficiencies in the ADF test. This test eliminates the problem of serial correlation and varying variance that occurs in errors in the ADF test. PP test can be expressed as in equation 3.

$$\Delta Y_t = \alpha Y_{t-1} + x_t' \delta + \varepsilon_t \quad (3)$$

In equation 3, $\alpha = \rho - 1$, x_t means "constant" or "constant" and "trend". In PP test, the null hypothesis indicates that there is a unit root (Caglayan and Sacaklı, 2006: 124).

Traditional unit root tests are inadequate because they do not take into account the political and economic developments in the countries and the periods of structural break that may arise. Unit root test statistics developed by Perron and Vogelsang (1992) and Vogelsang and Perron (1998), which eliminate this deficiency and allow for a single structural break, can be obtained with the help of two different models: Total Outlier Value (AO) and Innovation Outlier Value (IO). The AO model allows for a change in the slope of the trend function. In this model, structural changes are assumed to occur suddenly. The IO Model, on the other hand, allows only constant change in the trend function. In this model, it is assumed that the change occurs gradually (Cetin and Saygın, 2019: 323). In the study, the AO model was preferred to determine the stationary characteristics of the variables. In this context, the unit root test is carried out in a two-step method:

$$y_t = \mu + \beta_t + yDT_t^* + \tilde{y}_t \quad (4)$$

In the first stage, the series is de-trended. Equation 4, $\tilde{y}_t$ trend-free series. To test the change in the slope coefficient, equation 5 is used in the second stage:

$$\tilde{y}_t = \alpha \tilde{y}_{t-1} + \sum_{i=1}^{K} ci \Delta y_{t-1} + e_t \quad (5)$$

If the t-statistics are greater than the critical value as an absolute value, the null hypothesis that accepts the existence of the unit root is rejected.

Cointegration tests developed by Engle and Granger (1987), Johansen (1988), Johansen and Juselius (1990) are commonly applied to determine the cointegration relationship between the series. Some limitations in these tests led to the development of the bounds test method based on the ARDL model (Kocak, 2014, 63). In this method, both a long-run relationship and a short-run relationship between variables can be tested, regardless of whether the variables are I(0) or I(1) (Pesaran et al., 2001). According to Narayan and Narayan (2006) and Shahbaz et al., (2012), results based on the ARDL method are more effective than the test results of classical cointegration methods and work better in small samples.

The working-adapted form of the ARDL model is as shown in equation 6:

$$InFD_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta InFD_{t-i} + \sum_{i=0}^{q} \alpha_{2i} \Delta lnGDP_{t-i} + \sum_{i=0}^{q} \alpha_{3i} \Delta lnGFC_{t-i} + \sum_{i=0}^{q} \alpha_{4i} \Delta lnFG_{t-i} + \beta_1 InFD_{t-1} + \beta_2 lnGDP_{t-1} + \beta_3 lnGFC_{t-1} + \beta_4 lnFG_{t-1} + u_t \quad (6)$$

Here, α_0 is the constant term, Δ is the first difference operator of the variables, u_t is the error term. In determining the lag length, information criteria such as Akaike (AIC) and Schwarz-Bayesian (SBC) are taken into account and the lag length that provides the smallest critical value is selected. The null hypothesis of cointegration, $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ against, the alternative hypothesis is $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$. Pesaran et al.

(2001) recommend F-test to test the cointegration relationship between series after determining the lag length. F-statistics calculated when making the decision to cointegration are compared with the upper and lower critical limit values. If the F-statistics exceed the upper bound value, a conclusion is reached that there is cointegration between the variables. If the F-statistics fall below the lower limit value, the null hypothesis of cointegration is rejected and it is decided that there is no cointegration between the variables. If F-statistics are located between these two bound values, this means that there is no judgment on the existence of cointegration. In addition, diagnostic tests are performed to check the robustness and suitability of the ARDL model. These are tests that the normality of error terms, autocoration and varying variance tests. If the cointegration relationship between the variables is determined according to the bounds test result, ARDL is estimated to determine the long and short-run relationships of the variables.

Toda and Yamamoto's (1995) causality analysis investigates causality relationships between variables using the level values of series, regardless of the level of stationary of the series. Toda and Yamamoto's (1995) causality test preferred in our study is an improved form of Granger causality testing for non-stationary but cointegrated series. In this method, in the first stage, the most appropriate VAR lag length determined for the series, the max. The new VAR model, which is created by adding delays as much as the degrees of cointegration, is estimated. In our study, the most appropriate lag length was determined as 4, and since all series had a degree of cointegration of I(1), the VAR(5) model was estimated in this method. In the second stage of the method, the Wald statistics were calculated.

4. ANALYSIS RESULTS

Table 2 provides ADF and PP unit root test results for the constant model.

Table 2. ADF and PP Unit Root Test Results

Tests	Variables			
	lnFD	lnGDP	lnGFC	lnFG
ADF	0.005	0.560	-1.704	-2.555
	(0.951)	(0.985)	(0.418)	(0.114)
	ΔlnFD	ΔlnGDP	ΔlnGFC	ΔlnFG
ADF	-3.935*	-5.399*	-5.614*	-4.754*
	(0.005)	(0.000)	(0.000)	(0.000)
PP	-0.131	1.863	-1.704	-2.625***
	(0.936)	(0.999)	(0.418)	(0.100)
	ΔlnFD	ΔlnGDP	ΔlnGFC	ΔlnFG
PP	-3.867*	-5.399*	-5.614*	-4.752*
	(0.006)	(0.000)	(0.000)	(0.000)

Note: Δ the mark indicates the first differences of the series.
* and *** show the significance level of 1% and 10%, respectively.

As seen in Table 2, according to all test results, while the FD, GDP and GFC variables contain unit root at the level value, they become stationary in the first difference. While the FG variable is stationary at the first difference according to the ADF test result, it is stationary at both the level value and the first difference according to the PP test result.

The Vogelsang-Perron single structural break unit root test results for the constant model are presented in Table 3. According to the results of Table 3, all variables became stationary at the first difference. These findings are similar to the ADF and PP test results.

Table 3. Vogelsang-Perron Test Results

Model	Additive Outlier	
Variables	t-statistics	Break Time
lnFD	-2.469	2004
	(0.910)	
lnGDP	-1.530	2000
	(> 0.99)	
lnGFC	-3.120	2003
	(0.614)	
lnFG	-3.488	2000
	(0.393)	
Variables		
ΔlnFD	-4.676**	2003
	(0.026)	
ΔlnGDP	-6.502	2009
	(< 0.01)*	
ΔlnGFC	-6.548	1999
	(< 0.01)*	
ΔlnFG	-5.384*	2017
	(< 0.01)	

Note: Δ the mark indicates the first differences of the series.
* and ** show the significance level of 1% and 5%, respectively

After the unit root analysis, it was started to determine the appropriate lag length with the help of the VAR model. As can be seen from Table 4, the lag length is determined as 4 according to LR, FPE, AIC and HQ criteria. The appropriate lag length obtained was used in the cointegration relationship and long-run estimation.

Table 4. VAR Model Determination of Appropriate Lag Length

Lag Length	LR	FPE	AIC	SIC	HQ
0	NA	2.47e-07	-3.860	-3.665	-3.806
1	153.545	4.21e-10	-10.258	-9.283*	-9.987
2	16.877	5.91e-10	-10.032	-8.277	-9.546
3	9.011	1.38e-09	-9.503	-6.968	-8.800
4	26.455*	3.81e-10*	-11.530*	-8.215	-10.611*

Note: * indicates optimal lag length.

ARDL (3, 4, 4, 4) model results showing the cointegration relationship between variables are shown in Table 5. The fact that the ECT_{t-1} the coefficient is negative and meaningful at the 1% significance level the indicating that there is a short-run relationship between the variables. In addition, the F-statistic value (8.725) is statistically meaningful at the 1% significance level. Since this value is higher than the upper critical value at the 1% significance level, it has been found that there is a long-run relationship between the variables.

Table 5. ARDL Cointegration Results

Bounds F-test		
Model	F(lnFD/lnGDP, lnGFC, lnFG)	
Optimal lag structure	[3, 4, 4, 4]	
ECT_{t-1}	-1.999*	
F-statistic	8.725*	
Pesaran et al. (2001) critical values		
Significance level	Lower bounds-I(0)	Upper bounds-I(1)
1%	3.65	4.66
5%	2.79	3.67
10%	2.37	3.20

Note: The optimal lag length is determined by the AIC criterion.
* indicates 1% significance level.

After the cointegration analysis was carried out, the long-run coefficients of the variables were determined. The long-run coefficients estimated in the context of the ARDL (3, 4, 4, 4) model are given in Table 6. When diagnostic tests are evaluated primarily, it is seen that there are no autocoresion and varying variance problems in the model and the series exhibit a normal distribution. Therefore, the ARDL long-run estimation indicates a suitable model.

According to these results; The effect of GDP on FD is positive and statistically meaningful at 1% significance level. A 1% increase in GDP leads to a 0.854% increase in FD. Another result from the analysis is that GFC positively affects FD at the 1% significance level. The 1% increase in the GFC increases FD by 1.221%. The FG variable positively affects FD at the 1% significance level and has the most impact on FD. In fact, the 1% increase in FG leads to a 3.032% increase in FD.

Table 6. ARDL Long-Run Estimation Results

Variables	Coefficient
C	-35.590*
	(0.000)
lnGDP	0.854*
	(0.000)
lnGFC	1.221*
	(0.000)
lnFG	3.032*
	(0.000)
Diagnostic Tests	
R^2	0.953
Adj. R^2	0.888
Breusch-Godfrey LM test[a]	0.371
	(0.951)
ARCH LM test[b]	0.001
	(0.973)
J-B normality test[c]	1.778
	(0.410)

Note: [a] Autocregation, [b] varying variance and [c] normality show test results and
* 1% significance level.

To test the consistency of the ARDL model estimation, FMOLS, DOLS, and CCR estimators were consulted in addition to this model. Table 7 provides FMOLS, DOLS and CCR model results.

Table 7. FMOLS, DOLS ve CCR Estimation Results

	FMOLS	DOLS	CCR
Variables	Coefficient	Coefficient	Coefficient
lnGDP	0.825*	0.799*	0.816*
	(0.000)	(0.000)	(0.000)
lnGFC	1.518*	1.236*	1.503*
	(0.000)	(0.002)	(0.001)
lnFG	1.797*	2.780*	1.823*
	(0.000)	(0.000)	(0.000)
C	-30.900*	-33.304	-30.702*
	(0.000)	(0.000)	(0.000)
R^2	0.921	0.983	0.920

Note: * indicates 1% significance level.

As shown in Table 7, in all estimation results, the effect of independent variables on the dependent variable is similar to that of the ARDL model. The coefficients of all independent variables are statistically meaningful at the 1% significance level, and all variables have a positive effect on FD. According to FMOLS, DOLS and CCR model results, the 1% increase in GDP leads to an increase of 0.825%, 0.799% and 0.816% on FD, respectively. Another conclusion from the study relates to the effect of GFC on FD. In model order, it was found that the 1% increase in GFC caused an increase of 1.518%, 1.236% and 1.503% on FD. The study also shows that the FG variable has a positive effect on the FD variable. The 1% increase in FG leads to an increase of 1.797%, 2.780% and 1,823% in model order on FD. It is the volatile financial globalization that has the greatest impact on financial development. Therefore, it can be said that financial globalization plays an important role in increasing financial development.

After estimating long-run coefficients, causality analysis of variables was performed with the Toda-Yamamoto causality approach. The results of the analysis are given in Table 8. As a result of the Wald test applied to models analyzed by SUR (Seemingly Unrelated Regression) methods developed by Zelner (1962), the bidirectional causality relationship between GDP and FD was determined. It has been found that there is a causality relationship of at 10% significance level from GDP to FD and 1% significance level from FD to GDP. Table 9 shows that there is a bidirectional causality relationship between GFC and FD. Another finding is the existence of a 10% significance level a unidirectional causality relationship from FG to FD. From FD to FG, the causality relationship has not been detected.

Table 8. Toda-Yamamoto Causality Results

Aspect of Causality	Chi-square	Prob	Decision
GDP→FD	7.076***	0.069	There's causality.
FD→GDP	17.213*	0.000	There's causality.
GFC→FD	6.908***	0.074	There's causality.
FD→GFC	22.205*	0.000	There's causality.
FG→FD	7.534	0.056***	There's causality.
FD→FG	1.963	0.579	There's no causality.

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

5. CONCLUSION AND DISCUSSION

In this study, the impact of economic growth, capital and financial globalization on financial development in the Turkish economy for the period 1990-2018 was determined. For this purpose, ADF, PP and Vogelsang-Perron unit root tests were applied to test the stationarity properties of the variables. The cointegration relationship between variables has been examined with the ARDL Bounds Test Approach. Long-run elasticity coefficients are estimated with ARDL, FMOLS, DOLS and CCR models.

According to long-run estimated results; economic growth, capital and financial globalization have a positive and meaningful impact on financial development. Toda Yamamoto's causality analysis found a bidirectional causality between financial development and GDP and capital. It has been determined that there is a unidirectional causality relationship between financial globalization and financial development. The finding in the study, which occurred in the context of the causality relationship between economic growth and financial development, is consistent with the finding of the bidirectional causality relationship between these variables in the studies of Demetriades and Hussein (1996) and Turkoglu (2016). The finding of the study that economic growth promotes financial development coincides with the study of Shan and Morris (2002), Pata and Agca (2018). The finding that financial globalization and globalization in general promote financial development is consistent with the study of Rincon (2007), Helhel (2017), and Balcilar et al. (2019).

Obstfeld (2008) argues that in the long-run, an open financial system at the international level causes countries to be a competitive and efficient allocation of resources on a global scale due to free capital mobility. The finding that financial globalization, which is the focus of the study, encourages financial development, may contribute to the development of some recommendations for policymakers and practitioners for the Turkish economy. In addition to the increase in growth and capital accumulation for the Turkish economy, financial globalization can contribute significantly to the lending process, which is considered the most important function of financial markets, and to the development of lending institutions. Therefore, financial liberalization can provide more easy access to the financial resources needed by the private sector. Directing credit to the private sector due to financial globalization to production and productive areas will make important contributions to Turkey's economic growth and development process. The public's incentives and practices in this direction are also important in ensuring sustainable growth.

This study has some limitations that may lead to new studies. In this study, the example of Turkey is based on time series analysis since it is investigated. In future studies, panel data studies can be carried out according to income level or based on any economic integration example. Or the effect can be investigated in the case of a different country other than Turkey. In this study, limited variables such as economic growth, capital and financial globalization are analyzed. In future studies, other determinants of financial development can be analyzed by including them in the financial sector development model. In addition, other indicators other than credits to the private sector can be analyzed as an indicator of financial development used as a dependent variable in this study. Therefore, this study offers new ideas for future studies and provides important contributions to the literature.

AUTHORS' DECLARATION
This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

AUTHORS' CONTRIBUTIONS

Conceptualization, writing-original draft – SSS; methodology, data collection, formal analysis, editing – BAT; Final Approval and Accountability – BAT

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