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The Relationship Between Economic Development, Banking Sector Performance and Financial Globalization: Evidence from OECD Countries*

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Abstract

The aim of this study is to examine the relationship between the economic development of the 11 OECD countries selected in the period 1990-2018, banking sector performance and financial globalization by integrating investments and trade openness as explanatory variables. The cointegration between variables is investigated by Pedroni, Kao and Westerlund tests and the long-term coefficients are determined by Driscoll-Kraay standard errors forecasters. Finally, the causality relationship between variables is tested in the Dumitrescu-Hurlin panel bootstrap approach. Empirical findings indicate the existence of cointegration between variables. The banking sector performance, financial globalization and investments have a statistically significant positive effect on economic development, while the trade openness has a meaninglessly positive effect. They also indicate a two-way causality between the economic development and banking sector performance and investments, and a one-way causality running from trade openness to economic development. Therefore, the findings make political recommendations for both policymakers and future studies.

Keywords: Banking Sector Performance, Economic Development, Financial Globalization, Panel Data, Driscoll-Kraay

JEL Codes: G21, O47

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Ekonomik Gelişme, Bankacılık Sektör Performansı ve Finansal Küreselleşme Arasındaki İlişki: OECD Ülkeleri Örneği

Öz

Bu çalışmanın amacı, 1990-2018 döneminde seçilen 11 OECD ülkenin ekonomik gelişmesi, bankacılık sektör performansı ve finansal küreselleşme arasındaki ilişkiyi açıklayıcı değişken olarak yatırımları ve ticari açıklığı da entegre ederek incelemektir. Çalışmada değişkenler arasında eşbütünleşme varlığı Pedroni, Kao and Westerlund testleriyle incelenmekte ve uzun dönem katsayıları Driscoll-Kraay standard errors tahmincileriyle saptanmaktadır. Son olarak, değişkenler arasındaki nedensellik Dumitrescu-Hurlin panel bootstrap nedensellik testi sınanmaktadır. Ampirik bulgular, değişkenler arasında eşbütünleşme varlığını göstermektedir. Bankacılık sektörünün performansı, finansal küreselleşme ve yatırımların ekonomik gelişmeyi istatistiksel olarak anlamlı bir şekilde pozitif yönde etkilerken ticari açıklığın da anlamsız bir şekilde pozitif yönde etkilemektedir. Bulgular, ekonomik gelişme ile hem bankacılık sektörünün performansı ve yatırımlar arasında çift yönlü nedensellik ilişkisi olduğunu ve ticari açıklıktan ekonomik gelişmeye doğru uzanan tek yönlü nedensellik ilişkisi olduğunu göstermektedir. Dolayısıyla çalışma bulguları hem politika yapıcılar hem de gelecekteki çalışmalar için politik önerilerde bulunmaktadır.

Anahtar Kelimeler: Bankacılık Sektör Gelişimi, Ekonomik Gelişme, Finansal Küreselleşme, Panel Veri, Driscoll-Kraay

JEL Kodları: G21, O47

1. Introduction

The financial sector and economic development are interrelated. In the absence of a well-functioning and well-organized financial sector, no economy can thrive and improve the living standards of its population (Shahid et al., 2015). It is seen that the banking sector is among the decisive elements of economic and financial development. Financial markets are so important to the country's economies that the main difference between developed and undeveloped countries is financial markets. The majority of the financial sector of the countries is based on the banking sector, and rapid technological developments in the modern world make access to these markets almost limitless, causing the banking sector to be in constant development (Turgut &ertay, 2016). At the same time, the banking sector, which is extremely important in ensuring economic development, performs the functions of commercial banks and financial intermediaries and affects the stability and efficiency of the growth of the economy and the improvement of people's lives (Kazarenkova &Kolmykova, 2017).

The banking sector collects the funds and savings necessary for economic development and transfers them to projects and enables them to be implemented. It also includes individuals and institutions outside the banking sector in the countries, increasing the amount of savings and thus supporting capital accumulation and creating economic development and employment through credit (Turgut & Ertay, 2016). In addition, countries with larger banks and more active stock markets are growing faster after controlling many other underlying factors of economic growth. In countries with well-developed banks and securities markets, sectors and firms based on foreign financing also grow disproportionately faster than countries with weak financial sectors

(Levine, 1997). Therefore, the interaction between the effectiveness and stability of the banking sector is influential in the long-term growth of the economy (Amable et al., 2002). According to studies in the literature, the relationship of the banking sector in developed and developing countries with economic development is generally positive (Abusharbeh, 2017; Mensi et al., 2020; Shahid et al., 2015; Zeqiraj et al., 2020).

On the other hand, by the end of the Second World War, the financial assets in the financial markets of many countries were closed to cross-border trade. Later, many countries have reduced such obstacles. Thus, the liberalization of trade in financial assets or the flow of financial assets across borders is also called "financial globalization". Financial globalization allows investors around the world to better share risks, allows capital to flow to the highest point of productivity, and offers countries the opportunity to take advantage of comparative advantages (Stulz, 2005; Yeyati & Williams, 2014). At the same time, the latest wave of financial globalization since the mid-1980s is notable for an increase in capital flows between industrialized countries and, more importantly, among industrialized and developing countries (Egbetunde & Akinlo, 2015).

In this context, financial globalization, which creates financial flows across borders, provides high economic development through direct and indirect methods. Direct methods; increasing domestic savings, lower capital costs thanks to better risk allocation, technology transfer and the development of the financial sector. Indirect methods are to encourage expertise, to promote better policies and to increase capital inflows by signaling better policies (Prasad et al., 2003). Therefore, by expanding cross-border financial transactions and brokerage, the effects of financial globalization on economic development and world prosperity are seen to be positive (Nissanke & Stein, 2003). Many researchers in the literature find that the economic development of developing and developed countries worldwide is encouraged by financial globalization (Carp, 2014; Usman et al. (2022).

Banking sector development-economic development by focusing on the above assessments (Buy meat, 2018; Mensi et al., 2020; Pradhan et al., 2014a; Shahid et al., 2015) and globalization-economic development (gbetunde & Akinlo, 2015; Schularick & Steger, 2010; EUsman et al., 2022) is examined separately by researchers in the literature. Therefore, in this study, it is aimed to examine the impact of both banking sector performance and financial globalization on economic development. For this purpose, the 1990-2018 period of selected OECD countries is analyzed and trade openness and investments are integrated into the economic development model as explanatory variables. In addition, the model is obtained by focusing the study models created by Pradhan (2017) for G-20 countries and Sahoo & Sethi (2020) for 5 South Asian countries. In the study, the stationary characteristics of the variables are tested primarily by Cross-Sectionally Augmented Dickey-Fuller (CADF) test, which is the second generation unit root test. In the second stage, the presence of cointegration between variables in the model is examined with the Pedroni, Kao and Westerlund approaches. And in the thirth stage, the estimate of long-term coefficients is made by Driscoll-Kraay standard errors, fully modified ordinary least square (FMOLS) and dynamic ordinary least squares (DOLS) methods. In the final stage, the causality relationship between the variables is investigated by applying the Dumitrescu-Hurlin panel bootstrap causality test. The empirical findings from the study offer recommendations for both policymakers in OECD countries and future studies.

This study has two contributions to the literature. The first is that the study examines the long-term and causal relationship between the banking sector performance of OECD countries, financial globalization and economic development, and provides some advice to policymakers to improve the performance of the banking sector of OECD countries. The second is that the banking sector is found to be an important element in

the development efforts of countries. The last is that this study applies the Driscoll Kraay forecasting method, which is a basic forecaster for assessing the relationship between the performance of the banking sector of different countries, financial globalization and economic development.

The rest of the work is designed as follows. Chapter 2 mentions the studies in the literature. Chapter 3 describes the model and data set, while chapter 4 describes the methodology of the study. Chapter 5 interprets the findings of the analysis and discusses the study findings in the literature. In the last chapter, it is explained the results of the study and political practices.

2. Literature Reviews

The banking sector is a fundamental part of the economy. Developments in the banking sector play an important role in determining the course of economic development and increase economic development. In many countries, strong economic developments are increasing demand for better quality services in the banking sector. Therefore, there are many studies in the literature that have found that the performance of the banking sector increases economic development (Buy meat, 2018; Mensi et al., 2020; Pradhan et al., 2014a; Shahid et al., 2015;). At the same time, according to many researchers, the economic development of developing and developed countries is found to be increasing by financial globalization (Bhanumurthy and Kumawat, 2020; Egbetunde & Akinlo, 2015; Sahoo and Sethi, 2020; Schularick and Steger, 2010).

Liang and Reichert (2006) focuse on the period 1960-2000 and use the multi-regression model to determine the result that banking sector development and investment increased the economic development of developed and developing countries. Pradhan et al. (2014a) analyzes the relationship between economic growth, banking sector development, stock market development and other macroeconomic variables in ASEAN countries. According to Granger causality test findings, banking sector development, stock market development, foreign direct investments, trade openness, inflation rate and government consumption expenditures are the reasons of economic growth in the long-term, while economic growth, stock market development, foreign direct investments, trade openness, inflation rate and government consumption expenditures are also the reasons for banking sector development in the long-term. Similarly, Pranhan et al. (2014c), which examine 25 ARF countries, reveals that the long-term causality relationship between banking sector development and economic growth in 1960-2012 is two-way in some countries and one-way in others. Pradhan et al. (2014b) achieves similar results across 34 OECD countries. On the other hand, Pradhan et al. (2017), which focuse on G-20 countries, examines the link between banking and insurance sector in 1980-2014 on economic growth. Findings using the Vector auto-regression model, FMOLS, DOLS forecasters and granger causality test show that banking and insurance sectors are important factors in the economic growth of OECD countries in the long term, but more complex factors in the short term. It has also emerged that there is a causality relationship between the banking and insurance sector and economic growth. Similarly, Balcılar et al. (2018) obtain that the insurance and banking sectors of 10 African countries positively affects economic development by analyzing the 1995-2016 period data with the GMM forecasting method.

Shahid et al. (2015) analyzes the impact of financial and economic development indicators considering banking sector development in Pakistan economy. The least squares estimation results financial development according to banking sector development increases economic growth and trade openness positively affects growth but government spending negatively affects. Granger causality results also prove that

there is a causality relationship between the financial system and economic development. At the same time, Tongurai and Vithessonthi (2018), which investigated the impact of banking sector development on economic structure and growth by focusing on a panel example of countries in the period 1960-2016, found in their study that banking sector development does not affect the industrial sector, which it negatively affects the agricultural sector. In the study, it is also obtained that the banking sector development is hindered by the agricultural sector and the industrial sector increases.

In the mensi et al. (2020) study, they examine the nonlinear relationship between Islamic banking development, key macroeconomic variables and economic growth in 16 Islamic countries in 1994-2014 using the Panel smooth transition method. According to the results of the analysis, Islamic banking development increases economic growth. Foreign direct investment, oil production and inflation also positively affect economic growth in the normal financial development process, while government consumption, trade and financial development negatively affect economic growth. Zeqiraj et al. (2020) examines the dynamic impact of the performance of the banking sector on economic growth by using GMM method in the 2000-2015 period data of 13 Southeast European countries. The researchers find that banking sector performance is a key effective determinant of economic growth, and that investment, human capital and trade openness variables also have a positive effect on the dependent variable. These findings are supported by the study results of Haralayya & Aithal (2021) for India.

Contrary to these findings, Hakeem I. (2010) uses the fixed effects, random effects and maximum availability prediction techniques to obtain that banking development have a weak impact on the economic growth of Sub-Saharan African countries during the period 1970-2000. It is also determined that human capital also increases the economic growth of these countries. At the same time, Petkovskia and Kjosevski (2014) for 16 transition economy countries in Central and Southeast Europe over the period of 1991-2011 data and Cave et al. (2020) for 101 countries from 1990 to 2014 conclude that the performance of the banking sector negatively affects economic development.

In the literature, many researchers analyse the role of globalization as one of the powerful tools for increasing economic development among countries (Nasreen et al., 2020) and when we mention these studies; for example, Schularick and Steger (2010) are investigating whether international financial integration has increased the growth of the economy of 56 countries. The results of the GMM regression method show that financial globalization, human capital, investment and trade openness increase the country's economic growth and the growth of inflation rate and population also prevent. Using the same method, Neto and Veiga (2013) study concludes that financial globalization increases the economic growth of 139 countries through the spread of technology and innovation in the period 1970-2009. In addition, in the study of Egbetunde and Akinlo (2015) is examined the long-term relationship between financial globalization and economic growth in Sub-Saharan Africa. Using the panel data analysis methods, it is obtained evidence of both a long-term relationship and a causality relationship between variables. Similarly, Gaies et al. (2019) proves that financial globalization is an encouraging factor for the economic development of 72 developing countries in the period 1972-2011.

Using the panel VAR method, in the study of Bhanumurthy and Kumawat (2020), it is obtained a weak causality relationship from financial globalization of South Asian countries to growth and a strong causality relationship from growth to financial globalization in the period 1990-2015. Sahoo and Sethi (2020) use pairwise Granger causality test with FMOLS and DOLS methods to examine the relationship among financial globalization, trade openness and economic growth in South Asian countries between 1990 and 2017. The results of the analysis show that the impact of financial globalization,

foreign direct investments and trade openness on economic growth is positive and that there is a causal relationship from economic growth to financial globalization. Similarly, the Usman et al. (2022) study concludes that the economic growth of 8 Artict countries is increasing with globalization, while also being encouraged by variables such as financial development, natural resources, renewable and non-renewable energy.

As a result, this study aims to examine the relationship between the economic development of 11 OECD countries, banking sector performance and financial globalization in the period 1990-2018 with the panel data model.

3. Model and Data

The panel data model is used to examine the relationship between the economic development of 11 OECD countries, banking sector performance and financial globalization in the period 1990-2018. Investment and trade openness are added as explanatory variables to the model. Using the models created by Pradhan et al. (2017) for G-20 countries and by Sahoo & Sethi (2020) for 5 South Asian countries, the following model is obtained for the purpose of the study.

$$lnGDP_{it} = \gamma_0 + \gamma_1 lnBSD + \gamma_2 lnFGL_{it} + \gamma_3 lnTO_{it} + \gamma_4 lnGFCF_{it} + \varepsilon_{it} \qquad (1)$$

t is time, i is countries and ε the error term. γ_0 is the fixed coefficient and γ_1, γ_2, γ_3 and γ_4 show the coefficient of banking sector performance, financial globalization, commercial openness and investment, respectively. This study uses the period of 1990-2018 data. All variables are converted to logarithmic form. Economic development is measured by total GDP (2010 constant US$) (Kanu & Ozurumba (2014). Domestic credit to private sector by banks (% of GDP) represents the indicator of banking sector performance (Obiora et al., 2022; Pradhan et al., 2014b). Financial globalization is indicated by the financial globalization index (Nasreen et al. 2020; Sahoo &sethi, 2020). Trade openness is demonstrated by Trade (% of GDP) (Ghosh, 2017; Obiora et al., 2022). Investment is measured by Gross fixed capital formation (% of GDP) (Stewart & Chowdhury, 2021; Zeqiraj et al., 2020).

Data on economic development, banking sector performance, trade openness and investment variables are collected from the World Development Indicators-WDI (2022) and the financial globalization variable is gathered from the KOF Swiss Economic Institute (2022). In addition, due to the lack of data of some countries, data of 11 OECD countries are used and data of these countries are used for the period 1990-2018. OECD countries based on this study; United States, United Kingdom, Sweeden, Japan, Turkey, Mexico, Chile, Costa Rica, Denmark, New Zeland and Norway.

Variables	Symbol	Measure	Source	Expected sign
Economic growth	GDP	Total GDP (2010 constant US $)	WDI	
Banking sector development	BSD	Domestic credit to private sector by banks (% of GDP)	WDI	+ (Balcilar et al., 2018; Liang and Reichert, 2006)
Financial globalization	FGL	Financial globalization index	KOF	+ (Sethi et al., 2020; Usman et al., 2022)
Trade Openness	TO	Trade (% of GDP)	WDI	+ (Cave et al., 2020; Stewart & Chowdhury, 2021)
Investment	GFCF	Gross fixed capital formation (% of GDP)	WDI	+ (Ghosh, 2017; Zeqiraj et al., 2020)

Table 1. Variable descriptions

4. Methodology

A panel data method is utilized to examine the link between economic development, banking sector performance and financial globalization among OECD countries. In the first stage of the study methodology, first of all, there is a possibility of cross sectional dependence problem between cross sectional units in long-term panel data (Sun et al., 2020). The test recommended by Pesaran (2004) is applied to test whether cross-sectional units are dependence, and the null hypothesis states that there is no cross sectional dependent and the alternative hypothesis is cross sectional dependence. The findings of this test are also more reliable and effective.

In addition, in the first stage of methodology, the test recommended by Pesaran and Yamagata (2008) is carried out to test the presence of slope homogeneity between cross sectional units, but this test does not provide reliable findings in the presence of serial correlation and heteroskedasticity problems. Therefore, in order to overcome these problems, the Δ test of (the heteroskedasticity and autocorrelation consistent-HAC) form consistent with the heteroskedasticity and autocorrelation proposed by Blomquist and Westerlund (2013) is carried out in this study. The null hypothesis indicates that the slope coefficient of cross sectional units is heterogeneous, and the alternative hypothesis indicates that the slope coefficient is homogeneous.

After testing the the dependence and homogeneity characteristics of slope coefficient of cross section units, Cross-sectionally Augmented Dickey Fuller (CADF) test, a second-generation unit root test, is used to examine whether the variables contain stationary properties or unit root. This test is developed by Pesaran (2007) and takes into account cross section dependency. The equation for the CADF unit root test is as follows;

$$\Delta y_{it} = \alpha_i + \beta_i y_{it-1} + \gamma_i \hat{y}_{t-1} + \theta_i \Delta \hat{y}_t + \varepsilon_{it} \quad (2)$$

The null hypothesis of the unit root test is that the variables are not stationary and the alternative hypothesis is that the variables are stationary.

In the third phase of methodology, tests recommended by Westerlund (2007), Kao (1999) and Pedroni (2004) are applied to detect the existence of cointegration between variables. Westerlund (2007) test consists of four test statistics. In this test, *Ga* and *Gt* demoonstrate group average statistics and *Pa* and *Pt* show panel test statistics. The null hypothesis of group average statistics and panel test statistics indicates that there is no cointegration, and the alternative hypothesis specfies that there is a long-term relationship.

In the next stage of methodology, long-term coefficients are estimated. The method proposed by Driscoll and Kraay (1998) and DOLS and FMOLS methods developed by Pedroni (2000; 2001) are estimated in the study. The Driscoll and Kraay (1998) method is the prediction method proposed for panel regression models involving cross sectional dependence. This method contains fixed effects with standard errors and controls the average differences between observable and un observable predictors (Obiora et al., 2022). In addition, this forecasting method is suitable for balanced and unbalanced panel data (Sarkodie & Adams, 2020) and produces solutions to heteroskedasticity and autocorrelation problems (Hoechle, 2007).

In the final stage, the Dumitrescu-Hurlin panel boostrap causality test developed by Dumitrescu and Hurlin (2012) is utilized to determine causality relationships between the relevant variables. The first of the advantages of this test is that it is used in panel data where there is cross sectional dependency. The second is the application of both T > N and T < N samples. Finally, it is suitable in unstable panels and solves homogeneity problems (Dogan & Seker, 2016).

5. Findings and Discussion

Firstly, in the study is evaluated the descriptive statistics of panel variables for the economy of 11 OECD countries in the period 1990-2018 and these results are summarized in Table 2. This table shows the number of observations, the average of variables, the standard deviation, the minimum and maximum values. According to the findings, the average value of total GDP in OECD countries is 27.097 and the standard deviation is 1.684. This means that there is a high disparity in total GDP across OECD countries. The minimum and maximum values of total GDP are 23.440 and 30.516. In addition, the average value of banking sector performance shown by domestic credit to private sector by banks (% of GDP) is 4.126. The banking sector performance is 0.755 standard deviations, indicating high inequality in the domestic credit to private sector by banks among OECD countries. The minimum and maximum values of banking sector performance are 2.372 and 5.304. Finally, the average value and standard deviation of the financial globalization index is 4.245 and 0.200, which means that there is high inequality in financial globalization among OECD countries. The minimum and maximum values of the OECD countries' financial globalization index are 3.703 and 4.519, respectively.

On the other hand, Table 3 reports the correlation matrix values of the panel variables in the study. According to the findings, it is determined that there is a positive correlation between economic development and banking sector performance, fixed capital formation and financial globalization, while there is a negative correlation between economic development and trade openness.

	lnGDP	**lnBSD**	**lnFGL**	**lnTO**	**lnGFCF**
Mean	27.097	4.126	4.245	3.973	3.077
Median	26.820	4.164	4.313	4.062	3.069
Std. dev.	1.684	0.755	0.200	0.437	0.138
Min.	23.440	2.372	3.703	2.773	2.735
Max.	30.516	5.304	4.519	4.670	3.530
Skewness	0.165	-0.483	-0.651	-0.957	0.362
Kurtosis	2.558	2.250	2.359	3.149	3.484
Obs.	319	319	319	319	319

Table 2. Summary statistics

Variables	**lnGDP**	**lnBSD**	**lnFGL**	**lnTO**	**lnGFCF**
lnGDP	1.000				
lnBSD	0.205	1.000			
lnFGL	0.092	0.619	1.000		
lnTO	-0.729	0.021	0.380	1.000	
lnGFCF	0.101	0.081	-0.374	-0.272	1.000

Table 3. Correlation matrix

First of all, the cross-sectional dependence of panel data is controlled because the cross-sectional dependency (CSD) overlooks the problems of slope heterogeneity, which can create biased estimates and ambiguous information and produce inconsistent predictions (Usman et al., 2020). Table 4 shows the results of CSD tests covering Breush-Pagan LM, Pesaran scaled LM, bias-corrected scaled LM and Pesaran CSD tests. Empirical results demonstrate that the null hypothesis of CSD is rejected at 1% significant level for all variables in the model and it is determined that all variables are the cross-sectional dependence. This means that shocks in one of the OECD countries will spread to other

countries. Therefore, in the study of Usman et al. (2020) is noted that if there exists the CSD in variables, second-generation techniques will produce reliable, robust, efficient and consistent results.

	CD-test (Pesaran, 2004)							
Variables	**Breush-Pagan LM Statistic**	***p*-value**	**Pesaran scaled LM Statistic**	***p*-value**	**Bias-corrected scaled LM**	***p*-value**	**Pesaran CD**	***p*-value**
lnGDP	1534.322***	0.000	139.999***	0.000	139.802***	0.000	39.167***	0.000
lnBSD	859.515***	0.000	75.658***	0.000	75.462***	0.000	15.161***	0.000
lnFGL	865.984***	0.000	76.275***	0.000	76.079***	0.000	26.942***	0.000
lnTO	536.110***	0.000	44.823***	0.000	44.626***	0.000	14.230***	0.000
lnGFCF	166.730***	0.000	9.604***	0.000	9.407***	0.000	2.495***	0.000

*Note: *** denotes significance at %1 level.*

Table 4. CSD tests

Table 5 contains the findings of the slope homogeneity test recommended by Blomquist and Westerlund (2013). Empirical findings indicate that the null hypothesis of slope homogeneity is not rejected, which means that the model has a homogeneous slope confirmed by delta and adjusted delta value, and the slope between OECD countries has not changed.

Test statistics	**t-statistics**	**P-value**
$\tilde{\Delta}$	1.640	0.101
$\tilde{\Delta}_{adjusted}$	1.980	0.056

Table 5. Slope homogeneity test results

After testing the cross-sectional dependence and slope homogeneity of the panel data in the study, CADF unit root test, which is the second generation unit root test, is applied in this study to determine the stationary characteristics of the variables. The results of this test are reported in Table 6. The results of the CADF unit root test show that lnGDP, lnBSD, lnFGL, lnTO and lnGFCF are not stable at $I(0)$. However, after the first differences of all series are taken, it becomes stable at the level of 1% significant in $I(1)$. Therefore, the test results confirm that all series are $I(1)$ in the first difference level and it is appropriate to test the long-term balance between the series.

CADF test statistic		**Level**		**First difference**	
	Variables	**Constant**	**Constant & trend**	**Constant**	**Constant & trend**
	lnGDP	-1.254	-1.072	-3.087***	-4.549***
Level	lnBSD	-0.450	2.217	-5.022***	-3.679***
	lnFGL	-0.503	-0.656	-5.716***	-4.869***
	lnTO	-0.705	-0.915	-4.343***	-2.359***
	lnGFCF	-0.960	-0.425	-6.716***	-5.152***

*Note: ***, ** and * denote significance at %1, %5 and %10 level, respectively.*

Table 6. Unit root test

After determining the integration of variables, Westerlund (2007), Pedroni (2004) and Kao (1999) cointegration approaches are applied to state the long-term relationship between them. The results of the cointegration tests are summarized in Table 7. When the

empirical results of the 4 tests of the Westerlund (2007) cointegration approach are evaluated, it indicates that the null hypothesis of Pt statistics can be rejected at the level of 5% significant, which this means that there exists the presence of cointegration between economic development and independent variables. The findings of the Pedroni and Kao cointegration tests are similar to those of the Westerlund (2007) test. In other words, there is a cointegration between the variables in the model in the study. Therefore, in the period 1990-2018, the existence of a long-term relationship between the banking sector performance, financial globalization, trade openness and investment and investment and economic development are determined in the 11 OECD country economies.

Westerlund cointegration (2007)			
Statistics	Value	Z-value	*p*-value
Gt	-1.667	2.703	0.524
Ga	-0.032	5.595	0.322
Pt	-3.505**	3.342	0.012
Pa	-0.231	3.970	0.124
Pedroni cointegration		Statistic	*p*-value
Modified Phillips-Perron t		1.356*	0.087
Phillips-Perron t		-2.611***	0.004
Augmented Dickey-Fuller t		-1.603*	0.054
Kao cointegration			
Modified Dickey-Fuller t		1.603*	0.054
Dickey-Fuller t		1.869**	0.030
Augmented Dickey-Fuller t		1.636*	0.050
Unadjusted modified Dickey-Fuller t		1.795**	0.036
Unadjusted Dickey-Fuller t		2.119**	0.017

*Note: ***, ** and * denote significance at %1, %5 and %10 level, respectively. The Pedroni, Kao and Westerlund cointegration tests mitigate the effect of cross-sectional dependent structure.*

Table 7. Cointegration tests results.

In the study, the long-term coefficients of independent variables predicted by applying the Driscoll-Kraay standard errors method, which is the main predictive, are shown in Table 8. According to the findings, the coefficient of banking sector performance has a positive and statistically significant effect on economic development in OECD countries. A 1% increase in the performance of the banking sector increases economic development by 0.296%. This tells us that the performance of the banking sector has positively affected the economic development of OECD countries. Thus, the increase in the effectiveness and stability performance of the banking sector is effective in the long-term development of the economy (Amable et al., 2002). It is also stated in the Usman et al. (2022) study that the banking sector provides loans to entrepreneurs and investors to install modern technologies, accelerating economic development. This result of the study is similar to the study finding obtained by Arestis et al. (2001) in developed countries such as Germany, usa, Japan, UK and France. The results of the studies examined by Kang and Sawada (2000), Ofori-Abebrese et al. (2017), Tabash (2019), Zeqiraj et al. (2020), Hodelin (2022) and Nguyen (2022) confirm the findings of this study. Contrary to these findings, Petkovskia and Kjosevski (2014) and Cave et al. (2020) conclude that banking sector performance hinders economic development by using the GMM regression method.

The findings indicate that the coefficient of financial globalization is positive 1.129% and at the level of 1% significance. A 1% increase in financial globalization

encourages the economic development of countries by 1.129. This expresses that the higher the degree of financial globalization of OECD countries, the more it positively affects economic development. Therefore, by expanding cross-border financial transactions and intermediation, it is seen that financial globalization plays an encouraging role in economic development and world welfare (Nissanke & Stein, 2003). At the same time, the globalization of countries and the fact that the direct foreign investments of multinational companies are greater than the growth rate in world trade, making processes more efficient and accelerating technological development of countries increase economic development (Usman et al., 2022). This finding of the study matches the findings obtained Schularick and Steger (2010) for 56 countries, Neto and Veiga (2013) for 139 countries, Kurniawati (2020) for OECD countries, Xu et al. (2021) for 45 Asian countries and Oliveira and Moutinho (2022) for BRICS countries in the literature.

In addition, according to the empirical findings in Table 8, the coefficient of trade openness is 0.102 and statistically insignificant. A 1% increase in trade openness increases economic development by 0.102, which means that the trade openness of OECD countries positively affects their economic development. Our finding is confirmed by Adebayo (2022) for Japan. At same time, this finding of the study is in line with the results obtained by Ghosh (2017) for 138 countries over the period of 1995-2013 and Stewart & Chowdhury (2021) for 140 countries during the period 1995-2017, which mean that the economic development of countries achieved by trade openness has been significantly increased.

Long-term forecast results indicate that the coefficient of investment is positive 0.141% and at 1 % significance level. A 1% increase in investment encourages economic development by 0.141%. This means that investments have a positive impact on the economic development of OECD countries. This result of the study is supported by the study findings of Hwang et al. (2010) for 20 highly foreign-indebted countries selected from Asia and Europe during the period 1982-2004. At the same time, Hye et al. (2011)'s findings for India, Zeqiraj et al. (2020) for Southeast European countries and Stewart & Chowdhury (2021) for 140 countries confirm the results of the study.

Thus, in the period 1990-2018, the banking sector performance, financial globalization and investments affect in a positive away and at statistically significance level the economic development of OECD countries, while trade openness affects in insignificantly and positive way.

Dependent variable: lnFDI			
	Coefficient	**Standard error**	***p*-value**
lnBSD	0.296***	0.050	0.000
lnFGL	1.129***	0.220	0.000
lnTO	0.102	0.095	0.294
lnGFCF	0.141***	0.043	0.003
Constant	20.237***	0.891	0.000
F-statistic	30.10		
P-value	0.000***		
R^2	0.691		
Observation	319		
Number of countries	11		

*Note: *** denote significance at %1 level.*

Table 8. The Driscoll-Kraay standard errors estimates

FMOLS and DOLS prediction methods are applied to check the robustness and reliability of the results reported in Table 7. FMOLS and DOLS forecast results are included in Table 8. These results are in line with the Driscoll-Kraay forecast results reported in Table 7. Thus, the banking sector performance, financial globalization and investments increase the economic development of OECD countries in the period 1990-2018.

Dependent variable: lnFDI	**FMOLS**		**DOLS**	
	Coefficient	***p*-value**	**Coefficient**	***p*-value**
lnBSD	0.298***	0.000	0.264***	0.000
lnFGL	1.019***	0.000	1.336***	0.000
lnTO	0.151***	0.000	-0.092	0.442
lnGFCF	0.189***	0.001	0.149*	0.000
R^2	0.993		0.992	
Adj. R^2	0.992		0.992	
Observation	319		319	
Number of countries	11		11	

*Note: *** and ** denote significance at %1 and %5 level, respectively.*

Table 9. Robustness check

Finally, the findings of panel boostrap causality test developed by Dumitrescu and Hurlin (2012) are included in Table 9. According to the findings, there is a two-way causality relationship between the banking sector performance and economic development at the statistically significance level. This situation tells us that both the banking sector performance of OECD countries is important for economic development and economic development is important for the banking sector performance. This result of the study is similar to the findings obtained Altunç (2008) study for Turkey in 1970-2006 and Pradhan et al. (2014a) for ASEAN countries over the period of 1961-2012. However, it does not match the study findings of Akpansung and Babalola (2011), Awdeh (2012), Ofori-Abebrese et al. (2017), Mhadhbi et al. (2020) and Samour et al. (2022), which found a one-way causality relationship from economic development to bank credit.

According to Table 9, causality results indicate that there is no statistically significant causality relationship between financial globalization and economic development. These findings are not similar to the results of Egbetunde & Akinlo (2015), Bhanumurthy and Kumawat (2020) and Kihombo et al (2022), which found causality between financial globalization and economic growth.

Furthermore, empirical findings detect a one-way causality relationship from trade openness to economic development. The study result of Keho (2017), which examined the relationship between economic growth and trade openness for Ivory Coast in 1965-2014, is similar to the results of our study. Contrary to these findings, the Pradhan et al. (2019) find that there was a two-way causality relationship between the economic growth and trade openness of 25 ASEAN countries in the period 1961-2012 by utilizing the Granger causality test.

Finally, it is determined that there is a two-way causality relationship between the investments and economic development of OECD countries. These findings of the study are supported by the Uneze (2013) study findings, which analyzed the relationship between capital formation and economic development of 13 Sub-Saharan African countries during the period 1985-2007. However, Kanu &Ozurumba (2014) concludes

that economic growth is the cause of investments for Nigeria, and Keho (2017) study concludes that investments are the cause of economic growth for Ivory Coast.

Null Hypothesis	W-Stat.	Zbar-Stat.	Bootstrapped p-value	Results
lnBSD → lnGDP	4.273	7.678***	0.002	lnBSD causes lnGDP
lnGDP → lnBSD	5.832	11.333**	0.042	lnGDP causes lnBSD
lnFGL → lnGDP	1.830	1.946	0.212	lnFGL not cause lnGDP
lnGDP → lnFGL	1.503	1.181	0.750	lnGDP not cause lnFGL
lnTO → lnGDP	2.684	3.950*	0.058	lnTO causes lnGDP
lnGDP → lnTO	3.576	6.043	0.134	lnGDP not cause lnTO
lnGFCF → lnGDP	5.068	9.541***	0.000	lnGFCF cause lnGDP
lnGDP → lnGFCF	3.448	5.733*	0.056	lnGDP cause lnGFCF

*Note: ***, ** and * show rejection of null hypothesis at 1%, 5% and 10% significance level, respectively.*

Table 10. Dumitrescu-Hurlin panel causality test results.

6. Conclusion and Policy Implications

In the study, it is aimed to examine the impact of both banking sector performance and financial globalization on the economic development by integrating trade openness and investments as explanatory variables in OECD countries over the period 1990-2018. Thus, in the first stage, the stationary characteristics of the variables are investigated with CADF test, which is the second generation unit root test, while in the second stage, the presence of cointegration between variables is stated with Westerlund, Pedroni, and Kao approaches. In the fourth stage, long-term coefficients are estimated by Driscoll-Kraay standard errors, FMOLS and DOLS methods. In the final stage, the causality relationship between the variables is analyzed by the Dumitrescu-Hurlin panel bootstrap test.

Empirical findings suggest that the variables are integrated at $I(1)$ level and that there is a cointegration between economic development and the banking sector performance, financial globalization, trade openness and investments. According to the Driscoll-Kraay standard errors forecaster results, the banking sector performance, financial globalization and investments have statistically significantly positive impact on the economic development and trade openness has increased statistically insignificantly. Recent empirical findings show a two-way causality relationship both between economic development and banking sector performance and between economic development and investments, while they demonstrate that there is a one-way causality relationship from trade openness to economic development. Therefore, the findings of the study indicate that a strong and well-functioning banking sector will enable OECD countries to increase their savings rates, use their resources efficiently, manage the risks associated with natural disasters and global economic uncertainties. This will lead countries to experience a sustainable economic development.

The findings of this study provide some political advice. First, the banking sector of countries should expand credit opportunities to all economic sectors. Second, banks of countries should be encouraged to finance small and medium-sized enterprises. Third, banking awareness among customers should be increased in order to increase the volume of bank deposits. Fourth, as Petkovski and Kjosevski (2014) noted in their study, banks should implement policies that will provide institutional improvements, encourage competition and contribute to improving productivity, especially in risk management and product development. Finally, as stated in Petkovski and Kjosevski (2014) study, banks' efforts should be assisted through institutional reforms. Thus, with these recommendations, the banking sector will have the potential to contribute more to economic development.

Finally, there are some limitations of this study and these limitations advise for future studies. First, this study focuses only on OECD countries, but future studies can examine other groups of countries (such as G-20, BRICS, E-7) and make political proposals. Secondly, trade openness and investments are handled as explanatory variables in this study, but other macroeconomic variables (such as human capital, information technologies) can be analyzed in future studies. Finally, in this study, the long-term coefficients of variables are estimated by Driscoll-Kraay standard errors, FMOLS and DOLS methods, but both long-term coefficients and short-term coefficients can be predicted by using different forecasters in future studies.

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Özet

Bankacılık sektörü, ekonominin temel bir parçasıdır. Bankacılık sektöründeki gelişmeler ve sınır ötesi finansal varlık akışları ekonomik gelişmenin gidişatını belirlemede önemli rol oynamaktadır. Dolayısıyla bu çalışmanın amacı, ekonomik gelişme, bankacılık sektör performansı ve finansal küreselleşme arasındaki ilişkiyi açıklayıcı değişken olarak yatırımları ve ticari açıklığı da entegre ederek incelemektir ve çalışmada OECD ülkelerinden seçilen 11 ülkenin 1990-2018 dönemi temel alınmaktadır.

Bu amaç doğrultusunda öncelikle, değişkenler arasındaki eşbütünleşme varlığı Pedroni, Kao and Westerlund testleri ile sınanmaktadır. Sonrasında bağımsız değişkenlerin uzun dönem katsayıları Driscoll-Kraay standard errors tahmincisi, FMOLS ve DOLS yöntemleri ile saptanmaktadır. Son aşamada ise Dumitrescu-Hurlin panel bootstrap nedensellik testi ile değişkenler arasındaki nedensellik ilişkisi incelenmektedir.

Analizler sonucunda elde edilen ampirik bulgular, değişkenler arasında eşbütünleşme varlığını işaret etmektedir. Ayrıca OECD ülkelerin bankacılık sektör performansı, finansal küreselleşmesi ve yatırımları ekonomik gelişmeyi istatistiksel olarak anlamlı bir şekilde pozitif yönde etkilerken ticari açıklığı da anlamsız bir şekilde olumlu yönde etkilemektedir. Nedensellik testi bulgular, OECD ülkelerin hem ekonomik gelişmesi ile bankacılık sektör performansı hem de ekonomik gelişmesi ile yatırımlar arasında çift yönlü nedensellik ilişkisi olduğunu ve ticari açıklıktan ekonomik gelişmeye doğru uzanan da tek yönlü nedensellik ilişkisi olduğunu göstermektedir.

Dolayısıyla çalışma bulguları OECD ülkelerin bankacılık sektörü tüm ekonomik sektörlere kredi imkanlarını genişletmesi ve küçük ve orta ölçekli işletmeleri finanse etmek için teşvik etmesi gerektiğini işaret etmektedir. Ayrıca bankacılık sektörü banka mevduatlarının hacmini artırmak için müşteriler arasında bankacılık bilinci artırılmalıdır.