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**ÖZGÜN ARAŞTIRMA**

# Küreselleşme ve Finansal Gelişmişlik Arasındaki İlişki: Brics-T Ülkeleri Üzerine Ampirik Bir Çalışma

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***Özet***

*Bu çalışmanın amacı finansal gelişmişlik ile ekonomik küreselleşme, sosyal küreselleşme ve politik küreselleşme endeksi arasındaki ilişkiyi BRICS-T ülkeleri çerçevesinde 1990-2014 dönemi için araştırmaktır. Çalışmada iki farklı gelişim göstergesi – bankacılık gelişimi ve menkul kıymetler piyasası gelişimi– kullanılmıştır. Çalışmada Augmented Mean Group (AMG) ve Common Correlated Effects Mean Group (CCEMG) tahmincilerinden yararlanılmıştır. Bunun yanında Dumitrescu ve Hurlin (2012) tarafından geliştirilen nedensellik testinden de çalışmada yararlanılmıştır. Analiz sonuçlarına göre, küreselleşmenin BRICS-T ülkelerinin finansal gelişmişlik düzeyinde etkili olduğu sonucuna ulaşılmıştır. Bunun yanı sıra GDP'den finansal gelişmişlik göstergelerine doğru bir nedensellik ilişkisi belirlenmişken finansal göstergelerden GDP'ye doğru bir nedensellik ilişkisi tespit edilememiştir. Aynı zamanda politik küreselleşme ve finansal gelişmişlik göstergeleri arasında iki yönlü bir nedensellik belirlenmiştir. Ekonomik ve politik küreselleşmeden finansal gelişmişlik göstergelerine doğru ise tek yönlü bir nedensellik tespit edilmiştir. Araştırma sonuçları küreselleşmenin finansal piyasalar üzerindeki etkilerini incelemesi ve ülkelerin finansal gelişmişlik düzeylerinin küreselleşmeden ne yönde etkilendiğini açıklaması bakımından önemlidir. Bu kapsamda küreselleşme politikalarının oluşturulması bakımından siyasilere ve politika yapıcılara katkı sağlamaktadır.*

***Anahtar kelimeler:****Küreselleşme, KOF endeksi, finansal gelişme, bankacılık, borsa, BRICS-T*
***Jel Kodu:*** *G15, G30, O19*

## *Relationship Between Globalization and Financial Development: An Empirical Study on Brics-T Countries*

***Abstract***

*The aim of this research is to investigate the relationship between financial development and economic globalization, social globalization and politic globalization index in BRICS-T countries for the 1990-2014 period. In the research two different development indicators -banking development and stock market development- were used. Augmented Mean Group (AMG) and Common Correlated Effects Mean Group (CCEMG) were used as the estimators in the research. Also, causality test which was developed by Dumitrescu and Hurlin (2012) was used in the research. As a result of the analyses, it was determined that globalization had an impact on the financial development levels of BRICS-T countries. In addition, while causality relationship was determined from GDP to financial development indicators, causality relationship from financial indicators to GDP couldn't be determined. Also, two-way causality was determined between politic globalization and financial development indicators. One-way causality relationship was determined from economic globalization and politic globalization to financial development indicators. The results of the research are important in terms of examining the effects of globalization on financial markets and explaining how the financial development levels of countries are affected by globalization. In this context, it contributes to politicians and policy makers in terms of creating globalization policies.*

***Keywords:*** *Globalization, KOF index, financial development, banking, stock market, BRICS-T*
***Jel Codes:*** *G15, G30, 019*

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## 1. INTRODUCTION

One of the concepts frequently emphasized in the changing process of the world is globalization. Although the concept is of great interest and frequently discussed in academic circles, a generally accepted definition cannot be made.

Giddens (1991: 70-78) defined globalization as the connection of different cultures and geographies in such a way that events occurring on an international scale affect regional developments. State Planning Organization (SPO), on the other hand, defined globalization as the spread of some common values in the economic, political, social and cultural fields all around the world by crossing local and national borders (SPO, 2000: 3).

Because globalization does not have a single, generally accepted definition, it is a difficult concept to measure. Although there are many criteria of globalization, there is no standard measurement rule. In this context, many studies have been conducted to measure globalization and measurement methods have been divided into two as single index and synthetic index (Samimi, Lim and Buang 2011: 4). While the globalization criteria used within the scope of the Single Index are univariate globalization criteria such as trade openness, customs tariffs and foreign capital investments, the measurement indices developed within the scope of the Synthetic Index include A.T. Kearney Foreign Policy Globalization Index (KFP) developed in 2001, KOF Index of Globalization developed in 2002, CSGR Globalization Index developed in 2004, Maastricht Globalization Index developed in 2008 (MGI), New Globalization Index (NGI) and G-Index developed in 2010.

The foundation of the KOF Swiss Economic Research Institute, which forms the basis of the current study, dates back to 1938. It was first established with the name Economic Research Society and then its associated Economic Research Institute was established and later it was renamed as the KOF Swiss Economic Research Institute. The KOF Index of Globalization is one of the important indices calculated by the Swiss KOF Economic Research Institute and measuring the economic, social and political dimensions of globalization.

The KOF Index of Globalization was developed by Dreher in 2002 and is frequently used in the literature because it updates the index data every year and offers a long-term data set. The index currently makes calculations for 207 countries or geographical units.

In the current study, the relationship between financial development and economic, social and political globalization indices in BRICS-T countries for the period 1990-2014 was investigated. In the study, 2 different financial development indicators were used, namely banking and stock market development. The "Augmented Mean Group (AMG)" estimator and the "Common Correlated Effects Mean Group (CCEMG)" estimator were used in the study.

When the existing research on the subject was examined, no study investigating the relationship between financial development and economic, social and political indices for BRICS countries and Turkey was found. However, the use of 2nd generation econometric methods in the current study differs it from international research. Therefore, the current study is believed to make important contributions to both national and international literature.

## 2. KOF INDEX OF GLOBALIZATION

The KOF index of globalization is a mixed index with economic, political and social dimensions developed to measure the globalization level of each country. The index was originally developed by Dreher in 2002. Within the general globalization index, the weight of economic globalization is 36%, the weight of social globalization is 37% and the weight of political globalization is 27%. The index is updated every year and thus offers a new

perspective to the measurement of globalization.

**EG (Economic Globalization):** Economic globalization index, which is one of the sub-titles that constitute the general globalization index, is the index in which the globalization dimensions of the countries are economically evaluated. The variables in the content of the index, whose weight in the general globalization index is 36%, consist of two parts as shown in Table 1. The first part consists of foreign trade, foreign direct investment, portfolio investments, and income payments to foreigners under the Current Flows heading, which liberalizes international trade and financial movements; the second part consists of hidden import barriers, average customs tariffs, international trade taxes (% of current income) and capital account restrictions, which have restrictive effects on international trade and finance.

**Table 1:** Variables constituting economic globalization index

| **Components of the KOF Index of Globalization** | | **Weights (%)** |
|---|---|---|
| **A.** | **Economic globalization** | **36** |
| i | *Current Trends* | 50 |
| | Foreign Trade (Foreign Trade / GDP) | 22 |
| | Direct Foreign Investment (DFI / GDP) | 27 |
| | Portfolio Investment (PI / GDP) | 24 |
| | Income Payments to Foreigners (IPF / GDP) | 27 |
| ii | *Restrictions* | 50 |
| | Hidden Import Barriers | 23 |
| | Average Customs Tariffs | 28 |
| | International Trade Taxes (% of Current Income) | 26 |
| | Capital Account Restrictions | 23 |

**Source:** https://www.kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html (Date of Access: 11.07.2018)

**SG (Social Globalization):** Social globalization index, whose weight in the general globalization index is 37%, is formed from the variables that are accepted to show the social globalization of countries. The variables that make up social globalization index are gathered under three sub-headings: personal communication data, information flow data and cultural convergence data. The variables that make up social globalization index are generally formed within the scope of the communication and media tools used worldwide, and international cultural consumption materials that will allow common cultural evaluation. In addition, tourism and foreigners in the country are seen in Table 2 as the variables taken into consideration in the creation of this index.

**Table 2:** Variables constituting social globalization index

| **Components of the KOF Index of Globalization** | | **Weights (%)** |
|---|---|---|
| **B** | **Social Globalization** | **37** |
| **i** | ***Personal Communication Data*** | **33** |
| | Telephone Traffic | 26 |
| | Transfers | 2 |
| | International Tourism | 26 |
| | Foreign Population (Foreign Population / Population) | 21 |
| | International Letters (Per Person) | 25 |
| **ii** | ***Information Flow Data*** | **35** |
| | Internet Use (per 1000 persons) | 36 |
| | Television (per 1000 persons) | 38 |
| | Newspaper Sales (NS / GDP) | 26 |
| **iii** | ***Cultural Convergence Data*** | **32** |
| | The Number of McDonald Restaurants (Per Person) | 46 |
| | The Number of IKEA Shops (Per Person) | 46 |
| | Book Sales (BS / GDP) | 7 |

**Source:** https://www.kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html (Date of Access: 11.07.2018)

**PG (Political Globalization):** The last one of the titles that constitute general globalization is political globalization index. The index has a weight of 27% within the general globalization index and it shows the political globalization levels of countries. The elements that make up political globalization index are shown in Table 3. Political globalization index is constituted by the evaluation of different variables such as the

number of embassies in the country, which demonstrates establishment of a relationship at the political level, membership to international organizations that indicates the country's involvement in organizations, institutions, associations and organizations in the international arena, participation in decisions and meetings at the United Nations Security Council, bilateral or multilateral international treaties arising from the relationships established by the country with other countries.

**Table 3:** Variables constituting political globalization index

| **Components of the KOF Index of Globalization** | | **Weights (%)** |
|---|---|---|
| **C** | **Political Globalization** | **27** |
| | The Number of Embassies in the Country | 25 |
| | Membership to International Organizations | 27 |
| | Participation in the UN Security Council | 22 |
| | International Treaties | 26 |

Source: https://www.kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html (Date of Access: 11.07.2018)

In summary, as a whole the KOF index of globalization tries to reveal the commercial and financial mobility between countries, the cultural interaction of individuals and societies, the information and data flow, and the extent to which the interaction between countries is achieved, taking into account all the dimensions of globalization.

## 3. LITERATURE REVIEW

Although the relationship between globalization and economic growth has been widely investigated in the literature, research investigating the relationship between financial development and globalization is limited. When the variables addressed in studies are examined, it is seen that globalization index (KOF), as the globalization variable, has been used generically, socially, economically and politically and commercial openness and index of openness, financial development, import and export, direct foreign investment and economic freedom index are also used as indicators of globalization.

While research on the economic effects of globalization has been one of the issues discussed in the economic and financial literature for a long time, empirical testing of the relationships between the variables has just taken place recently. The indices developed after 2000s allowed longitudinal analysis of the relationship between globalization and economic growth. Research has revealed that the relationship between globalization and economic growth differs from country to country and that globalization is more effective on economic growth and development in developed and developing countries.

Dreher (2006), who developed the KOF Index of Globalization, analyzed data from 123 countries for the 1970-2000 period. According to the results of the study, globalization supports growth. In the study, economic, social and political dimensions of globalization were analyzed and it was determined that all dimensions affect economic growth positively. The result obtained is especially valid for countries where there are no barriers to capital flow and foreign trade.

Heinemann and Tanz (2008) examined the relationship between financial development and globalization within the framework of social trust and market regulatory trade policies. In the study, the entire globalization index was included as the control variable, and the data of 54 countries for the period of 1995-2005 were analyzed. According to the results of the study, globalization is positively correlated with market regulatory trade policies while negatively correlated with reforms directed to flexible credit market regulations.

Mishkin (2009) examined the relationship between globalization and financial development. According to Mishkin, globalization in developing countries is the key to the realization of structural reforms and thus to financial development and economic growth. He stated that developed countries can

contribute to this process by opening their markets to the goods and services from developing countries. He pointed out that if developing countries are encouraged to enter global markets, developed countries can create the necessary incentives for these countries to realize reforms that will bring economic growth. Mishkin (2009) stated that globalization strengthens institutions, and thus promotes economic growth by fuelling financial development.

Aggarwal and Goodell (2009) studied the issue of financial development in their work and investigated what determines the national preferences for financial intermediation. In the study, they used market capitalization as the dependent variable and the data of 30 countries for the period of 1996-2003 were analyzed. The KOF index of globalization was included in the study as an explanatory variable. According to the results of the study, there is a positive relationship between the dimension of social openness and the development of financial markets.

Klomp (2010) investigated the causes of bank crises within the context of financial development. In the study, it was assumed that high credit growth, negative GDP growth and high real interest rate have the highest relationship with bank crises. Economic globalization, which is the sub-dimension of the KOF index of globalization, was included in the study as the explanatory variable. According to the results of the study, there is a positive relationship between economic globalization and bank crises. The relationship between globalization and bank crises emerges more strongly in developing countries compared to OECD countries.

Sinn (2010) examined the impact of globalization on financial markets and especially on the regulations regarding the credit market and found that globalization increases the risk of financial crisis in countries with loose credit market regulations. Globalization leads to liberalization of market regulations and their equity structures are loosened if national banks compete with international lending institutions.

Falahaty and Law (2012) examined the impact of globalization on financial development in the MENA region. In the study, data of 9 MENA countries for the period of 1991-2007 were analyzed. According to the results of the study, although globalization does not play a role in the implementation of structural reforms, it has an impact on financial development and economic growth. In addition, governments play a crucial role in preparing appropriate economic conditions necessary to benefit from globalization.

Garcia (2012) researched the relationship between financial globalization and financial development. The study analyzed the data of 26 transit countries for the period of 1995-2008 (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan). According to the results of the study, although financial globalization has a statistically significant and positive relationship with the financial system, it is not related to financial development, that is, better functioning of financial processes.

In their study, Kandil, Shahbaz and Nasreen (2013) examined the relationship between globalization and financial development. In the study, data of 32 developed and developing countries for the 1989-2012 period were examined. According to the results of the study, it was determined that financial development positively affected economic growth and globalization. On the other hand, it was stated that while globalization supports economic growth, it does not support financial development as it facilitates access to foreign finance.

Leitao (2013) investigated the relationship between cultural globalization and economic growth for Portugal for the period 1995-2011.

According to panel data results, there is a negative correlation between GDP per capita and economic growth. However, according to the results of the study, international trade and cultural globalization increase economic growth. Furthermore, inflation was found to have a negative impact on economic growth.

Potrafke (2014), using the average of the KOF index of globalization, investigated whether globalization affects credit market regulations and revealed its relationship with financial development. In the study, the ownership structure of banks, private sector loans, interest rate controls / minus real interest rate were used as variables of financial market and credit market regulations. According to the results of the study, while globalization is positively correlated with credit market regulations, ownership structure of banks and interest rate controls, it is less related to private sector loans. However, the results show that globalization does not affect all credit market regulations and banks' ownership structure regulations.

Gurgul and Lach (2014) studied the relationship between globalization and economic growth in 10 central and eastern European countries. According to the results of the study, globalization has a significant and positive effect especially on economic growth in social and economic respects. On the other hand, when the political effects of globalization were analyzed, no statistically significant relationship was found with economic growth.

Samimi and Jenatabadi (2014) examined the impact of economic globalization on economic growth within the framework of Islamic Cooperation Organization countries. According to the results of the study, economic globalization has a statistically significant effect on economic growth within the framework of Islamic Cooperation Organization countries. They also found that the positive impact of globalization is stronger in countries with better educated employees and more developed financial system. In addition, the impact of economic globalization depends on the income levels of countries. Countries with high and middle income levels benefit more from globalization, while low income countries cannot benefit from globalization. Economic globalization not only supports growth, but also indirectly contributes to the implementation of reforms.

Ying, Chang and Lee (2014) investigated the effect of globalization on economic growth by using the KOF index. In the study, the 1970-2008 data of Southeast Asian Nations Union countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Thailand, Vietnam, Laos, Myanmar and Cambodia) were analyzed. According to the results of the study, while the economic dimension of globalization has a positive effect on economic growth, the effects of social and political globalization are negative. In this context, it was stated that economic globalization is more effective on economic growth than social and political globalization.

Hayaloğlu, Kalaycı and Artan (2015) investigated the effects of globalization on economic growth using the KOF index. In the study, in which the data for the period of 1995-2011 were analyzed, it was determined that the effects of globalization are different in high, upper-middle, low-middle and low income countries. When the sub-components of the globalization index were used, the result obtained did not change.

Sufian and Kamarudin (2016) investigated the impact of globalization on bank performance within the framework of financial development. In the study, the 1998-2012 data of the banks operating in South Africa were analyzed. While the independent variable of the study was the 2015 KOF globalization index, bank performance was measured by the rate of return on assets. According to the results of the study, while the KOF index of globalization has a positive effect on economic integration and commercial activities, social globalization, which is the sub-component of the KOF index, has a negative effect on bank profitability. According to the results of the study, countries that interact with countries with high levels of

economic globalization tend to perform better. On the other hand, banks operating in countries with high levels of social and political globalization tend to have low profitability.

Suffian, Kamarudin and Nassir (2017) examined the impact of economic globalization on the efficiency of the banking sector within the context of financial development. In the study, the 1999-2012 data of 33 commercial banks operating in Malaysia were analyzed. In the study, the intermediation approach was chosen, 3 inputs and 3 outputs were selected for analysis. The variables selected for the input are total deposits, capital and the number of employees, while the variables selected for the output are total loans, investments and non-interest income. The study used the KOF index as the criterion of globalization. According to the results of the study, personal information, information flow and cultural convergence are important factors for the efficiency of the banking sector. In addition, the liberalization of the financial services sector allows capital movements to be liberalized as well. Political globalization is important in increasing the efficiency of the Malaysian banking sector.

Kazar and Kazar (2016) investigated the relations between financial development, globalization and economic development by using the KOF index of globalization. The countries included in the study were classified according to their income levels and their data for the period 1980-2010 were analyzed. According to the results of the study, effective policy practices differ from country to country. In low-middle income countries, globalization makes countries more vulnerable to crises if financial development cannot be achieved and financial structure does not deepen. Globalization accelerates financial development in developed countries, which in turn fosters economic development. Economic, social and political differences between countries also differentiate the effects of globalization.

Kılıçarslan and Dumrul (2018) investigated the effect of globalization on economic growth using the KOF index of globalization for Turkey. In the study, the 1980-2015 data were analyzed within the framework of economic, social and political sub-dimensions of the KOF index of globalization. Within the framework of sub-dimensions, the analyses were repeated according to “de facto” and “de jure” situations. According to the KOF index of globalization, it was determined that economic growth increases economic and social globalization. When the KOF index is separated as "de facto" and "de jure", the effect of economic globalization on economic growth is statistically insignificant and negative. According to the KOF “de facto” globalization index, social globalization increases economic growth, while according to the KOF “de jure” index, social globalization decreases economic growth. According to all the KOF globalization indices used in the analysis, political globalization affects economic growth negatively.

Tekbaş (2019) examined the relationship between globalization and economic growth in BRICS-T countries, which are considered as emerging economies and are believed to have an important place in the world economy in 2030. In the study, the data for the period 1990-2014 were used and the effect of globalization on economic growth was analyzed with FMOLS estimator. It was concluded that globalization has a positive effect on the economic growth of countries. In addition, the causality relationship between variables was also analyzed by the Dumitrescu-Hurlin (2012) causality test, and it was found that there is a one-way causality relationship from globalization to economic growth.

When the studies using the KOF index of globalization are reviewed, it is seen that the studies generally focus on economic growth and the results are different. The country selection, the period investigated and the method used may have led to these differences. In this context, the current study will investigate the relationship between financial development and different dimensions of

globalization for BRICS-T countries, which are developing countries. In the investigation, the data of the 1990-2014 period and methods taking into consideration the 2nd generation horizontal cross-section dependency will be used.

## 4. METHODOLOGY

In the current study, the relationship between financial development and economic, social, and political globalization in BRICS-T countries between 1990 and 2014 was examined. To this end, data of some T-BRICS countries; Brazil, India, China, South Africa and Turkey, were utilized. Russia, one of the BRICS-T countries, was excluded from the analysis as the dependent and independent variables used in the current study were incomplete for Russia. The data used in the current study were obtained from the World Bank. In order to estimate the econometric model, 2 different financial development indicators are used, namely banking and stock market development. As the banking financial development indicators, private sector credit (PSC), domestic credit provided by the banking sector (DCBANK) and liquid liabilities (LiQ) were used as relative to GDP. The stock market development indicators used in the current study are stock market capitalization (SMC), stock market turnover ratio (SMT), total stock value traded (TSV). The financial development indicators used in the current study were also used by Kandil, Shahbaz and Nasreen (2013). The independent variables in the study are Gross Domestic Product (GDP) Per Capita, economic globalization index (EG), social globalization index (SG), and political globalization (PG) index. The models developed in this context are given below:

Model 1

$$lnPSC_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

Model 2

$$lnDCBANK_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

Model 3

$$ln\dot{L}Q_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

Model 4

$$lnSMC_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

Model 5

$$lnSMT_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

Model 6

$$lnTSV_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$$

In the current study, "Augmented Mean Group (AMG)" estimator and "Common Correlated Effects Mean Group (CCEMG)" estimator proposed by Bond and Eberhardt (2009) and Eberhardt and Teal (2010) were used. AMG estimator is a new approach to panel data estimation. AMG and CCEMG estimators are resistant to the existence of a correlation between horizontal sections. In addition, AMG and CCEMG estimators are also active estimators in non-stationary situations. In addition, the same slope coefficients are calculated for all horizontal sections in standard panel estimates (Eruygur and Özokçu, 2016).

Granger causality test developed by Dumitrescu and Hurlin (2012) was also used in the study. The main advantage of Dumitrescu and Hurlin's (2012) test compared to other tests is that the absence of homogeneous Granger causality relationship under the basic hypothesis is tested against the alternative hypothesis that accepts the existence of this relationship in at least one horizontal section. This test panel takes into account the cross-sectional dependency among the countries that make up the panel and is also insensitive to the size difference between the time dimension and the cross-section dimension (Bozoklu, Yılancı, 2013: 174– 175; cited in Kılıç, Bayar and Özekicioğlu, 2014).

## 5. FINDINGS

In this part of the study, findings related to the relationship between bank and stock market

financial development and economic, social and political globalization indices are presented.

**Table 4:** Horizontal cross-section dependency test results for each variable

| Variable | LM (Breusch, Pagan 1980) | | $CD_{LM}$ (Pesaran, 2004) | | CD (Pesaran, 2004) | | $LM_{adj}$ (PUY, 2008) | |
|---|---|---|---|---|---|---|---|---|
| | Model with Constant | | | | | | | |
| | Statistics | Prob. | Statistics | Prob. | Statistics | Prob. | Statistics | Prob. |
| LNPSC | 18.105 | 0.053 | 1.812 | 0.035 | -2.663 | 0.004 | 11.861 | 0.000 |
| LNDCBANK | 17.125 | 0.072 | 1.593 | 0.056 | -1.652 | 0.049 | 12.973 | 0.000 |
| LNLiQ | 27.233 | 0.002 | 3.853 | 0.000 | -2.720 | 0.003 | 1.572 | 0.058 |
| LNSMC | 45.979 | 0.000 | 8.045 | 0.000 | -2.701 | 0.003 | 1.899 | 0.029 |
| LNSMT | 70.389 | 0.000 | 13.503 | 0.000 | -3.144 | 0.001 | 7.487 | 0.000 |
| LNTSV | 34.178 | 0.000 | 5.406 | 0.000 | -2.087 | 0.018 | 0.835 | 0.202 |
| LNGDPPC | 38.196 | 0.000 | 6.305 | 0.000 | -2.150 | 0.016 | 4.396 | 0.000 |
| LNEG | 11.431 | 0.325 | 0.320 | 0.375 | -2.918 | 0.002 | 4.981 | 0.000 |
| LNSG | 26.326 | 0.003 | 3.650 | 0.000 | -3.136 | 0.001 | 2.529 | 0.006 |
| LNPG | 23.374 | 0.009 | 3.058 | 0.001 | -2.167 | 0.015 | 7.074 | 0.000 |
| Variable | LM (Breusch, Pagan 1980) | | $CD_{LM}$ (Pesaran, 2004) | | CD (Pesaran, 2004) | | $LM_{adj}$ (PUY, 2008) | |
| | Model with Constant and Trend | | | | | | | |
| | Statistics | Prob. | Statistics | Prob. | Statistics | Prob. | Statistics | Prob. |
| LNPSC | 22.252 | 0.014 | 2.740 | 0.003 | **-2.997** | **0.001** | 11.396 | 0.000 |
| LNDCBANK | 24.300 | 0.007 | 3.198 | 0.001 | **-2.913** | **0.002** | 12.617 | 0.000 |
| LNLiQ | 33.555 | 0.000 | 5.267 | 0.000 | **-2.370** | **0.009** | 1.456 | 0.073 |
| LNSMC | 54.805 | 0.000 | 10.019 | 0.000 | **-2.694** | **0.004** | 1.878 | 0.030 |
| LNSMT | 77.348 | 0.000 | 15.059 | 0.000 | **-3.164** | **0.001** | 7.143 | 0.000 |
| LNTSV | 35.407 | 0.000 | 5.681 | 0.000 | **-2.043** | **0.021** | 0.989 | 0.161 |
| LNGDPPC | 30.354 | 0.001 | 4.551 | 0.000 | **-2.174** | **0.015** | 4.195 | 0.000 |
| LNEG | 15.262 | 0.123 | 1.177 | 0.120 | **-3.253** | **0.001** | 4.525 | 0.000 |
| LNSG | 27.497 | 0.002 | 3.912 | 0.000 | **-3.293** | **0.000** | 2.253 | 0.012 |
| LNPG | 27.225 | 0.002 | 3.852 | 0.000 | **-2.323** | **0.010** | 6.441 | 0.000 |

In Table 4, since the horizontal section size (N) is smaller than the time dimension (T), the relationship of horizontal cross-section dependency was examined by taking into consideration the 2004 CD test results. As a result of the analysis, it is seen that the probability value of all variables is smaller than 0.10, which is the critical value. According to the findings obtained, $H_0$ "No horizontal cross-section dependency" hypothesis is rejected. There is a horizontal cross-section dependency among all the variables used in the study and it is deemed appropriate to apply second generation unit root tests to determine the stationarity of the variables. In the study, before the panel data analysis is done, the homogeneity tests will be applied.

**Table 5:** Pesaran and Yamagata (2008) homogeneity test results for each variable

| Variable | $\tilde{\Delta}$ | | $\tilde{\Delta}_{adj}$ | |
|---|---|---|---|---|
| | Test Statistics | Prob. | Test Statistics | Prob. |
| LNPSC | 6.724 | 0.000 | 7.168 | 0.000 |
| LNDCBANK | 5.307 | 0.000 | 5.657 | 0.000 |
| LNiQ | 9.976 | 0.000 | 10.634 | 0.000 |
| LNSMC | 12.101 | 0.000 | 12.900 | 0.000 |
| LNSMT | 9.494 | 0.000 | 10.121 | 0.000 |
| LNTSV | 7.864 | 0.000 | 8.383 | 0.000 |
| LNGDPPC | 6.219 | 0.000 | 6.629 | 0.000 |
| LNEG | 4.252 | 0.000 | 4.533 | 0.000 |
| LNSG | 9.019 | 0.000 | 9.614 | 0.000 |
| LNPG | 3.901 | 0.000 | 4.159 | 0.000 |

The results of the homogeneity test performed in the study are shown in Table 5. Since the probability values seen in Table 2 for the variables used in the models are smaller than 0.10, the Pesaran and Yamagata (2008) Homogenicity test $H_0$'There is homogeneity'

hypothesis is rejected. In summary, it was concluded that all the variables used in the study were heterogeneous.

**Table 6:** CIPS unit root test

| Variable | CIPS Test (Level) | CIPS Test (First Difference) |
|---|---|---|
| LNPSC | -2.950*** | -3.010*** |
| LNDCBANK | -3.497*** | -3.275*** |
| LNLiQ | -1.490 | -3.166*** |
| LNSMC | -2.747*** | -2.519** |
| LNSMT | -2.619*** | -2.940*** |
| LNTSV | -2.331* | -2.250* |
| LNGDPPC | -1.456 | -2.439** |
| LNEG | -3.385*** | -2.754*** |
| LNSG | -1.438 | -2.522** |
| LNPG | -2.675*** | -3.368*** |

**Table 7.** CCE group estimator results (Model 1)

| **Model 1 (Group)** | **CCE-MG** | | **AMG** | |
|---|---|---|---|---|
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.069 | 0.908 | -0.220 | 0.741 |
| EG | 0.659** | 0.027 | 0.253 | 0.223 |
| SG | 0.010 | 0.972 | 0.042 | 0.716 |
| PG | -0.947 | 0.131 | 0.150 | 0.706 |
| **Brazil** | | | | |
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -2.315 | 0.196 | -2.552*** | 0.000 |
| EG | 0.583 | 0.367 | 0.306 | 0.399 |
| SG | -1.084 | 0.363 | 0.068 | 0.884 |
| PG | 0.978 | 0.445 | 0.074 | 0.374 |
| **China** | | | | |
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 1.195** | 0.049 | 0.205 | 0.141 |
| EG | -0.100 | 0.884 | 0.224 | 0.532 |
| SG | 0.353** | 0.018 | 0.033** | 0.010 |
| PG | -2.658* | 0.097 | -0.764 | 0.259 |
| **South Africa** | | | | |
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.539 | 0.402 | 0.693 | 0.180 |
| EG | 0.302 | 0.521 | -0.140 | 0.785 |
| SG | 0.320 | 0.353 | 0.258 | 0.316 |
| PG | -0.579 | 0.116 | 0.420 | 0.114 |
| **India** | | | | |
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.090 | 0.941 | 0.655*** | 0.000 |
| EG | 0.829 | 0.112 | 0.927*** | 0.000 |
| SG | -0.221 | 0.470 | -0.191* | 0.055 |
| PG | -1.921 | 0.113 | -1.391** | 0.028 |
| **Turkey** | | | | |
| Dependent Variable PSC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.326 | 0.599 | 1.285** | 0.017 |
| EG | 1.681*** | 0.000 | 0.396 | 0.526 |
| SG | 0.987* | 0.092 | -0.257 | 0.666 |
| PG | 0.556 | 0.611 | 0.235 | 0.851 |

According to the results of the CIPS test applied to test the stationarity of the variables in Table 6, the variables LNLiQ, LNGDPPC and LNSG are fixed term and unit rooted at the level and the other variables are stationary. When the difference process was applied for the variables, it was concluded that all variables are stationary at the first difference.

As a result of both estimators, there is a positive and statistically significant relationship between private sector credit and social globalization index for China. According to CCE-MG estimator, there is a positive and statistically significant relationship between private sector credit and social and economic globalization for Turkey. According to AMG coefficient estimator, there is a positive and significant relationship between PSC and economic globalization and there is a negative and significant correlation between social globalization and political globalization for India.

As can be seen in Table 8, the relationship between domestic credit provided by the banking sector (DCBANK), which is one of the indicators of financial development, and globalization was investigated with CCE-MG and AMG group estimators. In the AMG and CCE-MG estimator panel results, it is seen that the relationship between DCBANK and economic globalization is positive according to each coefficient estimator. Moreover, in the results of both estimators, a positive and significant relationship has been determined between the credit provided to domestic market by banking sector and economic globalization index in all countries except South Africa and China. In terms of China, South Africa and India, it is seen that there is a negative relationship between the credit provided to domestic market by banking sector and political globalization index.

**Table 8.** CCE group estimator results (Model 2)

| Model 2 (Group) | CCE-MG | | AMG | |
|---|---|---|---|---|
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.217 | 0.739 | 0.002 | 0.997 |
| EG | 0.772** | 0.035 | 0.652*** | 0.007 |
| SG | 0.730 | 0.147 | 0.323* | 0.070 |
| PG | -1.322* | 0.095 | -0.183 | 0.734 |
| **Brazil** | | | | |
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -1.783 | 0.248 | -2.470*** | 0.000 |
| EG | 1.250** | 0.029 | 1.253*** | 0.001 |
| SG | 2.672** | 0.023 | 0.936** | 0.032 |
| PG | 1.252 | 0.247 | 1.793** | 0.019 |
| **China** | | | | |
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.882 | 0.155 | 0.128 | 0.349 |
| EG | -0.508 | 0.481 | -0.184 | 0.614 |
| SG | 0.409*** | 0.005 | 0.411*** | 0.007 |
| PG | -3.425** | 0.032 | -0.540 | 0.422 |
| **South Africa** | | | | |
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 2.170*** | 0.000 | 0.028 | 0.497 |
| EG | 0.684 | 0.111 | 0.544 | 0.253 |
| SG | 0.295 | 0.369 | 0.282 | 0.233 |
| PG | -0.786** | 0.028 | -0.096 | 0.701 |
| **India** | | | | |
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.272 | 0.802 | 0.562*** | 0.002 |
| EG | 0.759* | 0.092 | 0.095*** | 0.000 |
| SG | -0.250 | 0.398 | -0.132 | 0.250 |
| PG | -2.431* | 0.080 | -1.456** | 0.034 |
| **Turkey** | | | | |
| Dependent Variable DCBANK | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.009 | 0.897 | 1.503*** | 0.001 |
| EG | 1.675*** | 0.001 | 0.695 | 0.183 |
| SG | 0.527 | 0.265 | 0.119 | 0.810 |
| PG | -1.222 | 0.309 | -0.619 | 0.561 |

**Table 9.** CCE group estimator results (Model 3)

| Model 3 (Group) | CCE-MG | | AMG | |
|---|---|---|---|---|
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.200 | 0.616 | -0.008 | 0.968 |
| EG | 0.459** | 0.016 | 0.048 | 0.121 |
| SG | 0.434* | 0.073 | 0.039** | 0.017 |
| PG | -1.221*** | 0.000 | -0.051* | 0.078 |
| **Brazil** | | | | |
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.811 | 0.558 | 0.710 | 0.232 |
| EG | 0.419 | 0.446 | 0.439 | 0.231 |
| SG | 1.331 | 0.226 | 0.820** | 0.037 |
| PG | -1.332 | 0.234 | -1.249* | 0.075 |
| **China** | | | | |
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 1.097*** | 0.003 | 0.072 | 0.528 |
| EG | 0.127 | 0.729 | 0.086 | 0.728 |
| SG | 0.230** | 0.014 | 0.269*** | 0.005 |
| PG | -1.457* | 0.061 | 0.331 | 0.435 |
| **South Africa** | | | | |
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.057 | 0.316 | -0.099 | 0.780 |
| EG | 1.155** | 0.015 | 1.571*** | 0.000 |
| SG | 0.031 | 0.272 | 0.564*** | 0.005 |
| PG | -0.089*** | 0.004 | -0.778*** | 0.000 |
| **India** | | | | |
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.048 | 0.312 | -0.254** | 0.011 |
| EG | 0.049*** | 0.007 | 0.588*** | 0.000 |
| SG | -0.012 | 0.310 | -0.017*** | 0.000 |
| PG | -1.128*** | 0.007 | -0.843*** | 0.002 |
| **Turkey** | | | | |
| Dependent Variable LiQ | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.099* | 0.076 | -0.468** | 0.046 |
| EG | 0.010 | 0.779 | -0.276 | 0.186 |
| SG | 0.041 | 0.133 | 0.499* | 0.072 |
| PG | -1.293 | 0.113 | -0.016 | 0.978 |

In Table 9, the relationship between liquid liabilities (LiQ), which is an indicator of financial development, and the globalization index is examined. According to the AMG and CCE-MG estimator panel results, the relationship between LiQ and social globalization was positive according to both estimators. Moreover, a negative and significant relationship was found between political globalization index and liquid liabilities in all the countries except Turkey. There is a positive relationship between social globalization index and liquid liabilities for Turkey, China, South Africa and Brazil.

In Table 10, the relationship between stock market capitalization (SMC), which is an indicator of financial development, and globalization indexes is examined. As a result of the panel of AMG and CCE-MG estimators, it is seen that there is no statistically significant relationship between the variables. When the results are evaluated in relation to the countries, it is seen that there is a negative and statistically significant relationship between stock market capitalization and economic globalization for China and Turkey. According to the AMG estimator, there is a positive and statistically significant relationship between

stock market capitalization and social and economic globalization index for Brazil and China.

**Table 10.** CCE group estimator results (Model 4)

| **Model 4 (Group)** | **CCE-MG** | | **AMG** | |
|---|---|---|---|---|
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 2.333* | 0.066 | 0.923*** | 0.002 |
| EG | -0.184 | 0.790 | -0.040 | 0.566 |
| SG | -0.140 | 0.846 | 0.530 | 0.267 |
| PG | -0.651 | 0.729 | -0.370 | 0.717 |
| **Brazil** | | | | |
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 6.578** | 0.014 | 0.719 | 0.152 |
| EG | 0.146 | 0.887 | 0.786 | 0.247 |
| SG | -2.957 | 0.117 | 1.708*** | 0.005 |
| PG | 2.572 | 0.113 | 1.187 | 0.430 |
| **China** | | | | |
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.647* | 0.093 | 0.851** | 0.019 |
| EG | -1.802 | 0.429 | -2.556** | 0.045 |
| SG | 1.046* | 0.054 | 1.505*** | 0.000 |
| PG | -7.509 | 0.130 | -4.206 | 0.177 |
| **South Africa** | | | | |
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.379 | 0.691 | 2.046*** | 0.000 |
| EG | -0.058 | 0.336 | -0.619 | 0.307 |
| SG | 0.656 | 0.108 | 0.420 | 0.164 |
| PG | -0.009 | 0.986 | -0.418 | 0.174 |
| **India** | | | | |
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.052 | 0.810 | 0.193 | 0.626 |
| EG | 2.291** | 0.010 | 1.401** | 0.014 |
| SG | 0.422 | 0.481 | -0.744*** | 0.000 |
| PG | 2.924 | 0.197 | 1.516 | 0.497 |
| **Turkey** | | | | |
| Dependent Variable LNSMC | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 1.590 | 0.221 | 0.804 | 0.163 |
| EG | -0.971 | 0.346 | -1.012* | 0.081 |
| SG | 0.013 | 0.886 | -0.236 | 0.751 |
| PG | -1.234 | 0.592 | 0.072 | 0.956 |

In Table 11, the relationship between the stock market turnover ratio, which is an indicator of financial development, and globalization indexes is examined. According to the AMG and CCE-MG estimators, there is a positive and significant relationship between stock market turnover ratio and economic globalization index. In addition, it is seen that the relationship between stock market turnover ratio and political globalization index is positive for China and Brazil, and the relationship between political globalization index and stock market turnover ratio for India is negative.

**Table 11.** CCE group estimator results (Model 5)

| **Model 5 (Group)** | **CCE-MG** | | **AMG** | |
|---|---|---|---|---|
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 0.246 | 0.879 | 0.426 | 0.177 |
| EG | 1.519** | 0.028 | 1.373** | 0.013 |
| SG | 0.186 | 0.773 | -0.299 | 0.769 |
| PG | 1.007 | 0.857 | 0.062 | 0.863 |
| **Brazil** | | | | |
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -4.319 | 0.142 | 1.354** | 0.048 |
| EG | 1.105 | 0.377 | 0.828 | 0.444 |
| SG | 2.236 | 0.303 | -2.773*** | 0.000 |
| PG | 8.146*** | 0.000 | 8.137*** | 0.000 |
| **China** | | | | |
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.150** | 0.049 | 0.401* | 0.094 |
| EG | 2.001 | 0.232 | -0.289 | 0.795 |
| SG | -0.607 | 0.118 | -1.554*** | 0.000 |
| PG | 12.680*** | 0.000 | 5.367*** | 0.005 |
| **South Africa** | | | | |
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.538*** | 0.009 | 0.566 | 0.268 |
| EG | 2.087** | 0.044 | 2.903** | 0.014 |
| SG | 0.421 | 0.557 | 1.362** | 0.010 |
| PG | 0.316 | 0.702 | 0.966 | 0.128 |
| **India** | | | | |
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 1.759 | 0.680 | -0.629 | 0.348 |
| EG | -0.878 | 0.620 | 1.238 | 0.321 |
| SG | 0.530 | 0.657 | 2.763*** | 0.000 |
| PG | -19.730*** | 0.000 | -12.969*** | 0.000 |
| **Turkey** | | | | |
| Dependent Variable LNSMT | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -2.894* | 0.066 | 0.438 | 0.568 |
| EG | 3.283*** | 0.009 | 2.187*** | 0.003 |
| SG | -1.649* | 0.085 | -1.295 | 0.166 |
| PG | 3.624 | 0.192 | 1.640 | 0.411 |

In Table 12, the relationship between total stock value traded (TSV), which is an indicator of financial development, and globalization indexes is examined. In the results of the AMG and CCE-MG estimators, it was determined that there is no significant relationship between total stock value traded and economic, social and political globalization index for Chinese data. According to AMG estimator, there is a

positive and statistically significant relationship between total stock value traded and economic globalization index for Turkey, South Africa and India. Moreover, it is seen that the relationship between total stock value traded and political globalization index is positive for Turkey, South Africa and Brazil, while it is negative for India.

**Table 12.** CCE group estimator results (Model 6)

| **Model 6 (Group)** | **CCE-MG** | | **AMG** | |
|---|---|---|---|---|
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.736*** | 0.001 | -0.517 | 0.499 |
| EG | 2.914 | 0.158 | 2.866 | 0.175 |
| SG | 1.829 | 0.184 | 1.191 | 0.353 |
| PG | -1.759 | 0.678 | -0.055 | 0.881 |
| **Brazil** | | | | |
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 6.324 | 0.256 | -2.495*** | 0.003 |
| EG | -3.610* | 0.056 | -3.036*** | 0.005 |
| SG | 6.279 | 0.130 | 5.803*** | 0.000 |
| PG | 7.134** | 0.028 | 9.122*** | 0.000 |
| **China** | | | | |
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.884 | 0.273 | 0.253 | 0.614 |
| EG | 4.364 | 0.248 | 0.588 | 0.798 |
| SG | -0.601 | 0.514 | 0.470 | 0.504 |
| PG | 0.535 | 0.946 | -1.061 | 0.825 |
| **South Africa** | | | | |
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 3.464 | 0.173 | 1.456** | 0.010 |
| EG | 4.346*** | 0.000 | 5.137*** | 0.000 |
| SG | 0.206 | 0.817 | 1.460*** | 0.008 |
| PG | -1.668 | 0.175 | -0.622 | 0.218 |
| **India** | | | | |
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | 5.221 | 0.618 | -2.124 | 0.119 |
| EG | 8.734* | 0.071 | 9.471*** | 0.000 |
| SG | 3.805 | 0.204 | -1.963*** | 0.004 |
| PG | -17.691 | 0.125 | -13.540* | 0.091 |
| **Turkey** | | | | |
| Dependent Variable TSV | Coefficient | Probability | Coefficient | Probability |
| GDPPC | -0.021 | 0.882 | 0.324 | 0.657 |
| EG | 0.735 | 0.471 | 2.171*** | 0.001 |
| SG | -0.539 | 0.549 | 0.184 | 0.856 |
| PG | 2.892 | 0.214 | 3.309* | 0.070 |

In Table 13, causality relationship between variables is examined with Dumitrescu Hurlin test. While the causality relationship was determined from GDP to private sector credit, no causality relationship was determined from private sector credit to GDP. In addition, when the test results are examined, it is seen that there is bi-directional causality between political globalization and private sector credit. In addition, there is one-way causality from economic and social globalization to private sector credit.

**Table 13.** Dumitrescu-Hurlin Granger causality results (Model 1)

**Model 1:** $lnPSC_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| **Null Hypothesis** | **Wald Statistics** | **Z-bar Statistics** | **Probability** |
|---|---|---|---|
| $lnPSC \nrightarrow lnGDP$ | 2.893 | 0.564 | 0.572 |
| $lnGDP \nrightarrow lnPSC$ | 7.382*** | 4.498 | 0.000 |
| $lnPSC \nrightarrow lnEG$ | 3.571 | 1.157 | 0.269 |
| $lnEG \nrightarrow lnPSC$ | 6.130*** | 3.401 | 0.000 |
| $lnPSC \nrightarrow lnSG$ | 1.711 | -0.471 | 0.637 |
| $lnSG \nrightarrow lnPSC$ | 4.547** | 2.013 | 0.044 |
| $lnPSC \nrightarrow lnPG$ | 6.491*** | 3.717 | 0.000 |
| $lnPG \nrightarrow lnPSC$ | 4.488** | 1.961 | 0.049 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

**Table 14.** Dumitrescu-Hurlin Granger causality results (Model 2)

**Model 2:** $lnDCBANK_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| **Null Hypothesis** | **Wald Statistics** | **Z-bar Statistics** | **Probability** |
|---|---|---|---|
| $lnDCBANK \nrightarrow lnGDP$ | 1.374 | -0.767 | 0.443 |
| $lnGDP \nrightarrow lnDCBANK$ | 7.237*** | 4.371 | 0.000 |
| $lnDCBANK \nrightarrow lnEG$ | 3.559 | 1.176 | 0.239 |
| $lnEG \nrightarrow lnDCBANK$ | 6.821*** | 4.006 | 0.000 |
| $lnDCBANK \nrightarrow lnSG$ | 7.079*** | 4.232 | 0.000 |
| $lnSG \nrightarrow lnDCBANK$ | 3.448 | 1.050 | 0.293 |
| $lnDCBANK \nrightarrow lnPG$ | 5.807*** | 3.118 | 0.001 |
| $lnPG \nrightarrow lnDCBANK$ | 4.624** | 2.081 | 0.037 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

In Table 14, while the causality relationship was determined from GDP to domestic credit provided by the banking sector (DCBANK), no causality relation was determined from DCBANK to the GDP. In addition, when the test results are analyzed, it is seen that there is bidirectional causality between political globalization and domestic credit provided by the banking sector. Moreover, there is one-way causality from economic globalization to domestic credit provided by the banking sector.

**Table 15.** Dumitrescu-Hurlin Granger causality results (Model 3)

**Model 3:** $lnL\dot{I}Q_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| Null Hypothesis | Wald Statistics | Z-bar Statistics | Probability |
|---|---|---|---|
| $lnL\dot{I}Q \nrightarrow lnGDP$ | 3.574 | 1.160 | 0.245 |
| $lnGDP \nrightarrow lnL\dot{I}Q$ | 5.684*** | 3.010 | 0.002 |
| $lnL\dot{I}Q \nrightarrow lnEG$ | 3.214 | 0.845 | 0.397 |
| $lnEG \nrightarrow lnL\dot{I}Q$ | 6.141*** | 3.410 | 0.000 |
| $lnL\dot{I}Q \nrightarrow lnSG$ | 2.940 | 0.605 | 0.544 |
| $lnSG \nrightarrow lnL\dot{I}Q$ | 4.905** | 2.327 | 0.019 |
| $lnL\dot{I}Q \nrightarrow lnPG$ | 4.457** | 1.934 | 0.053 |
| $lnPG \nrightarrow lnL\dot{I}Q$ | 4.336** | 1.828 | 0.067 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

As can be seen in Table 15, while there is a causality relationship from GDP to liquid liabilities, there is no causality relationship from liquid liabilities to GDP. Moreover, when the test results are analyzed, it is seen that there is bidirectional causality between political globalization and liquid liabilities. In addition, there is one-way causality from economic globalization to liquid liabilities.

**Tablo 16.** Dumitrescu-Hurlin Granger causality results (Model 4)

**Model 4:** $lnSMC_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| Null Hypothesis | Wald Statistics | Z-bar Statistics | Probability |
|---|---|---|---|
| $lnSMC \nrightarrow lnGDP$ | 2.977 | 0.637 | 0.523 |
| $lnGDP \nrightarrow lnSMC$ | 2.684 | 0.380 | 0.703 |
| $lnSMC \nrightarrow lnEG$ | 2.159 | -0.079 | 0.936 |
| $lnEG \nrightarrow lnSMC$ | 5.297*** | 2.670 | 0.007 |
| $lnSMC \nrightarrow lnSG$ | 2.864 | 0.538 | 0.590 |
| $lnSG \nrightarrow lnSMC$ | 2.701 | 0.395 | 0.692 |
| $lnSMC \nrightarrow lnPG$ | 2.425 | 0.153 | 0.877 |
| $lnPG \nrightarrow lnSMC$ | 3.838 | 1.392 | 0.163 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

As a result of the analysis in Table 16, a one-way causality relation from economic globalization to stock market capitalization was determined. However, there is no statistically significant causality relationship between stock market capitalization and social and political globalization.

As can be seen in Table 17, while there is a causality relationship from stock market turnover ratio to economic globalization, there is no causality relationship from stock market turnover ratio to economic globalization. In addition, when the test results are analyzed, it is seen that there is bidirectional causality between political globalization and stock market turnover ratio. In addition, there is one-way causality from social globalization to stock market turnover ratio.

**Table 17.** Dumitrescu-Hurlin Granger causality results (Model 5)

**Model 5:** $lnSMT_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| Null Hypothesis | Wald Statistics | Z-bar Statistics | Probability |
|---|---|---|---|
| $lnSMT \nrightarrow lnGDP$ | 1.942 | -0.269 | 0.787 |
| $lnGDP \nrightarrow lnSMT$ | 1.725 | -0.459 | 0.646 |
| $lnSMT \nrightarrow lnEG$ | 4.505** | 1.976 | 0.048 |
| $lnEG \nrightarrow lnSMT$ | 2.154 | -0.083 | 0.933 |
| $lnSMT \nrightarrow lnSG$ | 1.772 | -0.418 | 0.675 |
| $lnSG \nrightarrow lnSMT$ | 8.373*** | 5.366 | 0.000 |
| $lnSMT \nrightarrow lnPG$ | 5.581*** | 2.920 | 0.003 |
| $lnPG \nrightarrow lnSMT$ | 7.016*** | 4.177 | 0.000 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

**Tablo 18.** Dumitrescu-Hurlin Granger Causality Results (Model 6)

**Model 6:** $lnTSV_{it} = \beta_0 + \beta_1 lnGDPPC_{it} + \beta_2 lnEG_{it} + \beta_3 lnSG_{it} + \beta_4 lnPG_{it} + \vartheta_t$

| Null Hypothesis | Wald Statistics | Z-bar Statistics | Probability |
|---|---|---|---|
| $lnTSV \nrightarrow lnGDP$ | 3.592 | 1.176 | 0.239 |
| $lnGDP \nrightarrow lnTSV$ | 1.938 | -0.272 | 0.784 |
| $lnTSV \nrightarrow lnEG$ | 3.112 | 0.755 | 0.449 |
| $lnEG \nrightarrow lnTSV$ | 3.672 | 1.246 | 0.212 |
| $lnTSV \nrightarrow lnSG$ | 3.578 | 1.164 | 0.244 |
| $lnSG \nrightarrow lnTSV$ | 4.759** | 2.199 | 0.027 |
| $lnTSV \nrightarrow lnPG$ | 3.056 | 0.706 | 0.479 |
| $lnPG \nrightarrow lnTSV$ | 5.187** | 2.574 | 0.010 |

Maximum delay length is taken as 2. (***), (**), (*) show 1%, 5% and 10% significance level, respectively.

As can be seen in Table 18, there is a one-way causality relationship from social and political globalization to total stock value traded. On the other hand, there is no statistically significant causality relationship between total stock value traded and economic globalization.

## 6. CONCLUSIONS

With the increasing level of globalization, countries that have gained advantage from globalization have started to grow and develop faster. Countries that do not have sufficient production technology and resources, but also have high financial requirements, have become more foreign-dependent in this process. With the globalization, a new period has started in the economic growth and financial development of countries. The extent to which great success of developed countries from the globalization process since 1970 affects

developing countries today has been investigated.

In the current study, the relationship between financial development and economic, social and political globalization in BRICS-T countries for the period 1990-2014 was examined. To this end, data of some T-BRICS countries; Brazil, India, China, South Africa and Turkey, were utilized. In the study, two different financial development indicators, which are banking and stock market development, were used.

When the results were analyzed in terms of Brazil, it was concluded that the relationship between credit provided to domestic market by the banking sector, stock market capitalization, total stock value traded and political globalization index is positive. However, there is no statistically significant relationship between financial development indicators and economic and social globalization indices. A stable economic structure, a transparent and reassuring management should be established in order to expand the law amendments put into effect especially in recent years, and for foreign direct capital to prefer the country. In the 2018 Economic Freedom Report, it is stated that if the country, which ranks 153 out of 189 countries and is in the low class of freedom, makes regulations on tariffs, quotas and restrictions, and liberalization in the foreign exchange regime, it will contribute to economic globalization.

When the results are analyzed in terms of China and India, significant relationships were found between financial development and political, social and economic globalization index in some models developed. When the results were analyzed in terms of South Africa, no significant relationship was found between a significant portion of financial development indicators and globalization index dimensions. Although the country is more developed relative the other countries in the African continent, it is still struggling with problems such as poverty and unemployment. Natural resources and manufacturing industry are dominant in the exports of South Africa and the share of agricultural products is low. The country aims to expand its area of influence and increase its foreign trade by establishing international and regional unions. The change in the exchange rate regime in the country's globalization process has fallen behind the liberal policies implemented economically, and the legislation on foreign exchange inflows and outflows has not been fully liberalized in the country.

When the causality test results were analyzed, causality relationship was determined from GDP to financial development indicators in general, while no causality relationship was determined from financial development indicators to GDP. Moreover, when the test results were analyzed, it was seen that there is bidirectional causality between political globalization and financial development indicators. In addition, there is one-way causality from economic globalization and political globalization to financial development indicators.

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