THE LONG-RUN IMPACT OF GLOBALIZATION ON PORTFOLIO INVESTMENTS: PANEL EVIDENCE

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Abstract

Globalization may play an important role in attracting portfolio investment in both short-run and long-run. In order to test the validity of this relation, this study empirically examines the long-run relationship between globalization and portfolio investments by using a balanced panel data of 66 countries covering the period of 2004-2014. The results gathered from panel cointegration tests reveal that there exists a positive statistically significant association between globalization and porfolio investments in both short-run and long-run. According to the findings, if globalization index value goes up by 1% then portfolio investments increase by 5.8% in the long-run whereas this rise is just by 3.9% in the short-run. Besides, panel causality test results show that there is a two-way causality between globalization and portfolio investments.

Keywords: *Globalization, Porfolio Investment, PMG Method, Panel Causality Test, Panel Cointegration.*
Jel Codes: *C33, F15, F65.*

KÜRESELLEŞMENİN PORTFÖY YATIRIMLARI ÜZERİNDEKİ UZUN DÖNEMLİ ETKİSİ: PANEL ANALİZ

Öz

Küreselleşme kısa ve uzun dönemde portföy yatırımları girişinde önemli bir role sahip olabilmektedir. Çalışmada, sözkonusu ilişkinin geçerliliğini test etmek üzere 66 ülkenin 2004-2014 dönemindeki dengeli panel veri seti kullanılarak; küreselleşme portföy yatırımları arasındaki uzun dönemli ilişki ampirik olarak incelenmektedir. Panel eşbütünleşme testlerinden elde edilen sonuçlar küreselleşme ve portföy yatırımları arasında istatistiksel olarak anlamlı pozitif bir ilişkinin, kısa ve uzun dönemli varlığını ortaya koymaktadır. Bulgulara göre, küreselleşme indeksindeki %1'lik artış, portföy yatırımlarında uzun dönemde %5.8 artış yaratırken; kısa dönemde meydana getirdiği artış ise %3.9'da kalmaktadır. Ayrıca, panel nedensellik testi sonuçları, küreselleşme ve portföy yatırımları arasında çift yönlü nedenselliğin varlığına işaret etmektedir.

Anahtar Kelimeler: *Küreselleşme, Portföy Yatırımı, PMG Metodu, Panel Nedensellik Testi, Panel Eşbütünleşme.*
Jel Kodları: *C33, F15, F65*

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Introduction

Over the past half century, globalization has eminently become a popular topic for various reasons. From economics to politics, it has been subject to debates. While some interpret it as a positive evolvement that all benefits, some others severely criticise it being responsible for almost everything that yields harmful effects. Globalization is one broad term. With respect to economics-related point of view, it covers such terms as financial integration and increased international trade. It is the process of a country's complete integration to the rest of the world at almost all institutional levels. Despite its substantial benefits, globalization has been blamed for many shortcomings in the modern economy and society. It has certainly faced more severe criticism than even technological innovation and other secular trends that have presumably had more thorough outcomes.

In today's global world, economic activities have been shaped by an enormous increase in international aspects of business scheme. Accelerated expansion in international trade gave the globalization a rise of financial activity. This, in turn, resulted in diversified investment opportunities that are no longer restrained to local markets; hence, money is now able to pursue opportunities abroad with comparative convenience. In addition to potential higher yields for given level of risk, investing internationally facilitates improved stability of a portfolio. Consequently, this implies that investors are better off if they diversify their portfolio internationally since it will provide them with increased stability of their financial profile besides higher return for given level of risk.

International competition for capital has emerged an intense growth in international flows of equitites along with fixed-income and monetary instruments. International portfolio is defined as an aggregate of investment assets that targets securities from foreign markets rather than local ones. Therefore, an international portfolio is assumed to provide investors with advantages of diversification and growth in emerging and international markets. International portfolio investments include wide range of investing activities such as direct portfolio investing (e.g. trading stocks and bonds) or indirect portfolio investing (e.g. investing in vehicles of exchange traded funds-ETFs, mutual funds and American Depository Receipts-ADRs). Consequently, international portfolio investment serves as a vehicle facilitating diversification through spreading risk among foreign markets and companies.

Portfolio investments are considered to be under passive investment strategy in which the investor's intention is neither managing securities actively nor taking control of the issuer. The investor does not involve the management of a company. Therefore, achieving financial gain in a target period of time is the main purpose. The investment time span may vary yet it is not assumed to be long-lasting. This portfolio type usually bears high level of risk because of instability existing especially in emerging markets. However, it may also generate stability increase through developed and stable markets. As a result of integration among global markets, numerous companies have operations in many countries. This may be acknowledged as some sort of global balancing process. Since the main goal is to maximize financial gain at given level of risk, the constraction of a diversified portfolio is the eminent target. Presumably, the investor is generally quite risk-averse; hence the liquidity of securities in the portfolio constitutes high priority. As a result of its all these features, the portfolio investments may easily shift their direction thus are regarded as one risky investment type. This, in turn, causes countries to follow precautionary policies and even restrictions towards portfolio invesments.

In this study, the long-term effect of globalization on portfolio investments is examined. For the purpose, a balanced panel data set of 66 countries for the period of 2004-2014 is analyzed. It is aimed to materialize the impact of globalization on portfolio investments for the highest possible number of countries. Therefore, one of the targets is to measure the effect created on portfolio

investments by the change in globalization index. Moreover, panel causality test is applied to reveal the way(s) of causality. The next section covers the review of related literature. Then, the study continues with data and methodology section. After providing empirical findings, the study completes with the conclusion section.

1. Related Literature

The surge in globalization since the beginning of the 1980s has certainly shaped the world in many aspects. The economy is probably the most debated one of these aspects. Benefits and harms created by globalization have been continuously subject to intense disputes. For example, openness to trade has facilitated competition and spread technology, leading productivity gains and aggregate efficiency. On the other hand, globalization also creates challenges. For instance, the mentioned benefits are not equally distributed. As a driving force of globalization, technology has been playing a critical role in increased income inequality. Yet, it is not intended to suggest that back steps should be taken from technology. The association of globalization with various socio-economic factors (e.g., economic growth, corruption and female labor force participation) has been extensively examined in the literature (e.g., Chang et al., 2011; Dreher, 2006; Koyuncu & Unver, 2017; Cooray et al., 2012; Kucera, 2001; Oksak & Koyuncu, 2017).

Probably, the most challenging threat presented by globalization is that financial openness increases economies' exposure to potential destabilizing external shocks. Because international trade and finance are highly interwined, realization of the gains from international trade is almost impossible with ignoring its financial leg. This does not imply that the remedy is to cut back from financial liberalization; yet to manage associated risks delicately. Strong policies supported by institutional frameworks assist to reach a sound financial system. This, in turn, is expected to provide realizing the most of benefits offered by financial openness.

As a result of financial liberalization, countries can benefit from openness to capital flows. Moreover, individuals have the opportunity to constitute more diversified portfolios. The most beneficial gain is that globalization lets capital move from developed countries to developing ones due to differences in potential returns. Despite these common believes; however, the literature also presents reverse evidences. For example, Friedmann and Goldstein (2004) argue that the currency crises of the late 1990s effecting South Korea, Russia and Brazil raised questions as to the cost incolved in opening up markets to capital movements. Capital outflows from emerging markets as a result of the crises caused real harm to these economies. A major of inference of these crises was that they occurred only in short period of time in economies among which no associations were apperant. Consequently, this brought about the fears that such crises could be contagious. This, in turn, was blamed on the globalization. Friedmann & Goldstein's (2004) study examines a number of brief models that demonstrate potential disadvantages in the process of globalization of capital movements. Their study reveals the existence of disadvantages as a direct result of the globalization of capital movements. Similar arguments are also presented by Hagen and Zhang (2014). Even more strikingly, they claim that capital flows make the poor countries and the world poorer. Their policy implication states that the world would be better off without international capital flows between rich and poor economies.

Boyd and Smith (1997) and, Matsuyama (2004 and 2008) show that financial liberalization may reduce investment and growth in capital-scarce economies. This view is also supported by the findings of Schularick (2006). According to Schularick's work, total of international capital flows reached 90% of total global income as of 2001 compared to the ratio of 30% in 1913. This figure reflects the level of globalization and financial integration. However, developing economies received only 12.5% of total international capital flow with respect to 48% in 1913. These studies can be considered to explain the reason behind the flow of capital into wealthy economies. On the other hand, the same fact may also be attributed to the development level of financial markets.

Even though the composition of the capital flow is important (e.g., Calvo et al., 1993; Dooley et al., 1997; Calderón and Kubota, 2013), overall the more developed an economy, including especially financial markets, the more it attracts capital. In a growing literature, a number of studies examine this side of the subject. For example, Montiel and Reinhart (2001) regard capital inflow to a developing country as exogenous financial shock. In case this shock is short-term (portfolio investment) for a country with high indebtedness and/or in need of large capital inflow, this inflow is likely to create only a temporal recovery thus referred as risky.

Classical international macroeconomics suggests that capital moves from capital-rich economies to capital-poor ones. On the other hand, according to Lane and Milesi-Ferretti (2007a,b) the observed experiences of the last three decades' capital movements prove just the opposite. Prasad et al. (2006, 2007) also show that net capital inflows have been from poor to rich countries. In addition, both studies by Hagen and Zhang (2014) and Ju and Wei (2010) assert that many developing countries (e.g. China, Malaysia, and South Africa) are net net FDI importers and net portfolio capital exporters whereas developed countries (e.g. the US, the UK, and France) show exact opposite pattern.

Recent literature suggests a couple of explanations for these empirical findings. Focusing on the cross-country risk sharing Tille and van Wincoop (2010) and Deveroux and Sutherland (2009) present that investors may benefit from globally diversified portfolios. Investing internationally is determined by cross-correlation figures of total shocks at country-level. These models provide no remark since they do not discriminate between FDI and equity portfolio investment.

The other part of researches focuses on local financial market imperfections. For example, Matsuyama (2004) presents that, in the existence of credit market imperfections, the globalization of financial markets is expected to result in a steady-state equilibrium. This provides fundamentally identical countries ending up with different levels of per capita output. So, Matsuyama (2004) names it ''symmetry breaking''. In a static model, Ju and Wei (2010) demonstrate that the presence of severe credit market imperfections causes departure of all financial capital when both FDI and portfolio investments are permitted. As a result, capital mobility grants investors with the ability of a complete avoidance of a less developed financial system. Overall, the more developed an economy, including especially financial markets, the more it attracts capital. Furthermore, the literature asserts that it is system of feedback in which financial development and capital inflow support each other.

An important aspect of the empirical literature is whether pull (country-specific) or push (global) factors are the driving force behind international capital movements. One of the major push factors is stated as the low interest rates of the US such of the early 1990s and over the recent financial crisis. Moreover, lower return prospects of stock markets in developed economies due to lower rate of economic growth and the increasing desire of diversification by the US institutional investors may be named as other well-known push factors. With respect to pull factors, they have been numerous and range from economic to legal and institutional to political environments of developing economies. The literature also covers other sides of the issue. For example, Cavallaro and Cutrini (2018) examines the relationship between capital flow and institutional quality. They reports that, before the last crisis, gobal volatility amplifies demand for institutional quality, implying that Emerging Markets with weak institutional settings are exposed to sharp capital drawback. Kim and Wu (2008) investigate the effect of credit ratings on financial sector development and capital flows to Emerging Markets. Employing a panel data estimation framework, they provide strong empirical evidence that credit rating measures possess impact on both the development of financial intermediary sector and capital flows.

2. Data and Methodology

This study examines the plausiable long-term relationship between globalization and portfolio invesments. The speed of the globalization has been increased particularly after the collapse of the Soviet Socialist block. Therefore, our sample covers the years falling into after the 1990's. Our data are balanced data and consist of 66 countries for the period of 2004-2014. The limitation of our sample comes from availability of balanced data for just 66 countries for the relevant period.

The data of globalization are overall globalization index of KOF globalization index and collected from Zurich Technology Institute. These overall globalization index values are composite index values and computed from the other three main globalization indices, namely economic globalization, social globalization, and political globalization. Globalization index values range from 0 to 100. As the proxy of total portfolio investments in a country, we utilize the reported portfolio investment assets measured in terms of millions US Dollars and they are gathered from CPIS Cross-Economy Data Reports of IMF Data. The natural logarithmic values of both series are used in the analyses and abbreviated as lnASSETS for portfolio investments and lnINDEX for globalization index.

Countries globalized at higher degree are anticipated to attract more portfolio investment due to the fact that they provide more reliable investment environment as a result of globalization since globalization requires adopting universal rules, being a part of international treaties and member of universally accepted organizations and associations in economic, social, and political fields. Thus, it is hypothesized that countries with higher degree of globalization experience more portfolio investments in long-run.

In our empirical analyses, firstly Breusch-Pagan LM test and Pesaran CD test are conducted to check the presence of cross-sectional dependence across the countries in our sample. Secondly, upon the detection of cross-sectional dependence, appropriate unit root tests taking the cross-sectional dependence into consideration (i.e., Pesaran's CIPS and CADF tests) are carried out to assess the stationarity properties of the series. Thirdly, once we see that our series are I(1) then Westerlund's various panel cointegration tests (i.e., Westerlund (2005) and Westerlund (2007) tests) are implemented. After finding cointegration association among series, PMG estimation method is employed to get the short-run and long-run coefficients. Lastly, Dumitrescu and Hurlin (2012) Granger causality test are employed to reveal the direction of causality between the series.

3. Emprical Findings

Coming across with cross-sectional dependence in panel analyses is a potential problem because of the existing common global shocks affecting each country at varying magnitudes such as global oil or mortgage crises. Since the period coverage of our sample includes at least one global shock (i.e., mortgage crisis), it is crucial in our analysis to test the cross-sectional dependence across panels. For that reason we perform two cross-sectional dependence tests (i.e., Breusch-Pagan LM and Pesaran CD tests) and test results are shown in Table 1. Both tests test the "No cross-section dependence (correlation)" H_0 hypothesis. Test findings in Table 1 strongly support the presence of cross-sectional dependence in our panel data for both series.

Table 1: *Cross-Sectional Dependence Tests*

Variable	lnASSETS	P-value	lnINDEX	P-value
Breusch-Pagan LM	11227.97	0.0000	6695.062	0.0000
Pesaran scaled LM	138.6753	0.0000	69.46862	0.0000
Bias-corrected scaled LM	135.3753	0.0000	66.16862	0.0000
Pesaran CD	89.21757	0.0000	27.70956	0.0000

Table 2 below exhibits panel unit root test results of Pesaran's CIPS and CADF tests. H_0 hypothesis of both tests alleges the non-stationarity of the series. Pesaran's CIPS test results in Panel A of Table 2 denote that lnASSETS and lnINDEX variables are not stationary at levels but it is stationaty at first differences. Thus, according to Pesaran's CIPS test, lnASSETS and lnINDEX variables are integrated of order one (i.e., they are I(1)). Pesaran's CADF test results in Panel B of Table 2 hint that lnASSETS variable is not stationary at levels but it is stationaty at first differences (i.e., it is I(1)). On the other hand, lnINDEX variables is stationary at levels (i.e., it is I(0)). As a result of Pesaran's CIPS and CADF tests, we may conclude that the both series are I(1). Therefore cointegration analysis can be conducted for two series in the next step.

Table 2: *Panel Unit Root Tests*

Panel A: Pesaran's (2007) CIPS Test

Variable	lnASSETS	ΔlnASSETS	lnINDEX	ΔlnINDEX
Test-statistic	-1.687	-2.575***	-1.883	-2.981***
Critical-value(10%)	-2.15	-2.21	-2.15	-2.21
Critical-value(5%)	-2.25	-2.33	-2.25	-2.33
Critical-value(1%)	-2.43	-2.54	-2.43	-2.54

Panel B: Pesaran's (2003) CADF Test

Test-statistic	-1.958	-2.896**	-3.374***	-
Critical-value(10%)	-2.540	-2.680	-2.540	-
Critical-value(5%)	-2.620	-2.820	-2.620	-
Critical-value(1%)	-2.770	-3.100	-2.770	-

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

We carried out three cointegration tests and their results are disclosed in Panel A, B, and C of Table 3. After going through the findings in all panels, we see that two series are cointegrated at least at 10% significance level based on three tests' results. This finding suggests that series of globalization and portfolio are move together in the long-run.

Table 3: *Cointegration Tests*

Panel A: Westerlund (2005) Test
(H_0: No cointegration; H_A: All panels are cointegrated)

Test-statistic: 1.3866 (P-value: 0.0828)

Panel B: Westerlund (2005) Test
(H_0: No cointegration; H_A: Some panels are cointegrated)

Test-statistic: 2.7645 (P-value: 0.0029)

Panel C: Westerlund (2007) Test (H_0: No cointegration)

	Test-statistic	P-value
Gt	-6.395	0.000
Ga	-27.181	0.000
Pt	-19.220	0.008
Pa	-16.463	0.000

Discovering the presence of the cointegrating relationship between two series lets us to investigate short-run and long-run interactions of the series as well. For that purpose we employ PMG method to get short-run and long-run coefficients. Based on BIC model selection criterion and given that maximum allowed lag length is 3, we identify that the most suitable model is ARDL(1,1) out of 9 possible models as in Table 4.

Table 4: Model Selection

Model	LogL	AIC	BIC*	HQ	Specification
1	151.1286	-0.0687	1.0067	0.3523	**ARDL(1, 1)**
2	243.1798	-0.1673	1.4416	0.4625	ARDL(1, 2)
4	200.9257	-0.0073	1.6017	0.6226	ARDL(2, 1)
3	315.3158	-0.1906	1.9520	0.6482	ARDL(1, 3)
5	308.8758	-0.1662	1.9764	0.6726	ARDL(2, 2)
7	271.5821	-0.0249	2.1177	0.8139	ARDL(3, 1)
6	408.0186	-0.2917	2.3845	0.7560	ARDL(2, 3)
8	379.1412	-0.1824	2.4939	0.8654	ARDL(3, 2)
9	537.8357	-0.5335	2.6764	0.7231	ARDL(3, 3)

PMG estimation results in Table 5 imply that there is a statistically significant positive association between globalization and portfolio investments in the long-run. If globalization index value goes up by 1% then portfolio investments increase by 5.8%. We get the same statistically significant results when we use the PDOLS and FMOLS estimation methods but we do not report them here to save space. Results in Table 5 also show that globalization affects portfolio investments in the short-run as well. According to the findings, a one percent increase in globalization index value raises portfolio investments by 3.9% in the short-run. Once we compare short and long-run coefficients then we can say that the impact of globalization on portfolio investments is higher in the long-run. Error correction term (ECT) of the model takes the expected negative sign and statistically significant. However its quite small value implies that it will take quite long time to go back to long-run equilibrium path.

Table 5: *PMG Estimation Results*

	Long-run		Short-run	
	Coefficient	P-value	Coefficient	P-value
lnINDEX	5.808891	0.0000	-	-
ECT	-	-	-0.080708	0.0000
ΔlnINDEX	-	-	3.908628	0.0017

Finally we examine the causality relationship among the series by using Dumitrescu and Hurlin (2012) Granger causality test. Table 6 below reports the results. Causality test results imply a two-way causality between series running from lnINDEX to lnASSETS and from lnASSETS to lnINDEX.

Table 6: Causality Test

Panel A (H_0: lnINDEX does not Granger-cause lnASSETS)

Test-statistic	P-value
2.5086	0.0121

Panel B (H_0: lnASSETS does not Granger-cause lnINDEX)

Test-statistic	P-value
3.3208	0.0009

4. Conclusion

Since the late 1970s, globalization has certainly become a popular topic from a number of aspects. Despite its substantial benefits, globalization has been blamed for many shortcomings in modern world. In today's global world, economic activities have been shaped by an enormous increase in international aspects of business scheme. Accelerated expansion in international trade gave the globalization a rise of financial activity thus resulting in diversified investment opportunities that are no longer limited to domestic markets. So, money is now able to pursue opportunities abroad with comparative convenience.

In this study, an empirical investigation of the long-run association between globalization and portfolio investments is carried out by using a balanced panel data of 66 countries covering the period of 2004-2014. The intuition suggests that countries become able to attract more portfolio investment as a result of globalization, owing to the fact that globalization requires adopting universal rules, being a part of international treaties and member of universally accepted organizations, and hence creates more secure investment environment for investors.

As a result of empirical analyses, a statistically significant long-run relationship between globalization and portfolio investments is identified. The findings disclose that globalization has higher positive effect on portfolio investments in the long-run than in the short-run. In addition to that, a two-way causality between globalization and portfolio investments is detected. For the policy implication, it can be stated that countries desiring to attract more portfolio investment should follow policies increasing their integration to the world and in turn globalization.

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