The effects of globalization on firm's stock in the selected Asian countries

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Abstract

This study aims to survey the effects of economic globalization on the firm's stock that is measured by the index of the stock market by using panel data in selected countries in Asia (Iran, Saudi Arabia, India, China, Singapore, Malaysia, Indonesia, South Korea, Russia, Pakistan, Philippines, Sri Lanka) during 1997- 2013. Unit root tests indicate that the variables are stationary on the level. The results of F-test, Breusch-Pagan and Hausman tests show that the unilateral fixed effects must be applied. The results show that the economic globalization significantly improves stock market index. Moreover the positive and significant effect on the firm's stock depend on political globalization and dummy variable, however the negative and significant effect is related to the growth rate of government expenditure, the exchange rate and the interaction effects of economy.

Resumen

Este estudio tiene como objetivo estudiar los efectos de la globalización económica sobre las acciones de la empresa que se mide por el índice del mercado de valores mediante el uso de datos de panel en países seleccionados de Asia (Irán, Arabia Saudita , India, China , Singapur , Malasia , Indonesia, Sur Corea, Rusia , Pakistán , Filipinas , Sri Lanka) durante 1997- pruebas de raíz 2013. Unidad indican que las variables son estacionarias en el nivel. Los resultados de la prueba F , pruebas Breusch - Pagan y Hausman muestran que los efectos fijos unilaterales deben aplicarse . Los resultados muestran que la globalización económica mejora significativamente el índice del mercado de valores . Por otra parte el efecto positivo y significativo sobre las acciones de la empresa depende de la globalización política y variable ficticia , sin embargo el efecto negativo y significativo está relacionado con la tasa de crecimiento del gasto público , el tipo de cambio y los efectos de la interacción de la economía .

1.- Introduction

Liberalization of trade and vast financial integration along with political, cultural, social, military dependency growth and technological progress has caused the term of globalization to be one of the hottest topic of our era. The globalization is a complex concept to describe a wide range of forces. These processes affect the environment, culture, political systems, institutions, economic development and human health throughout the world. As a result, there is no a unique definition of globalization. In fact, the definition depends on the purpose and scope of the discussion. Accordingly, the effects of globalization are discussed in a wide range. For example, some authors focus on economic factors (such as trade, foreign direct investment, etc) while the others stress on the political issues (such as embassies, number of members of international organizations, number of contracts signed by other countries, etc.), or promoting social concepts (Karadagli, 2012).

Since the 80s decade the global economy has changed to an interconnected economy, on one hand decreasing in the transportation costs and the diffusion of information and communication technologies, have decreased the distance concept, on the other hand, gross trade, foreign direct investment, capital flows and technology transfer have significantly increased. Hence in most countries there is a direct relationship between economic globalization and firm's stock. FDI is considered as an index for the economic globalization. For example, FDI in China has increased from 124 billion dollars in 2006 to 156 billion dollars in 2007. The stock market index has reached from 2675.47 to 5261.56 during this period. And the mentioned index in Korea in the years 2011 and 2012, has been 4836 and 4999 million dollars respectively. Its stock market index has been 1825.74 and 1997.05 in the same years. Also in Russia during the years 2005, 2006, 2007 , 2009 and 2010, FDI levels were 15 , 37 , 55 , 36 , 43 billion dollars and the stock market index value , are 1125.6 , 1921.92 , 2290.51 , 1444.61 , 1770.28 respectively. FDI in Saudi Arabia decreased from 24 in 2007 to 12 billion dollars in 2012. The stock market index value has declined from 6801.22 to 11175.96 (According to data from the WDI).

One of the meanings of economic globalization is more integration of national economies to the global economy. Integration considerably influences the domestic production structure of firms, including foreign direct investment, consumers' choices and other aspects of the production and consumption significantly. One of economic globalization characteristics is the deep changes in the firm's performance. Thus all countries have been more or less affected by this trend, and have been on the route of globalization. Hence the main purpose of this study is to investigate the impact of economic globalization on the firm's stock among the selected Asian countries. The main question is whether economic globalization has a positive effect on the stock of firms?

It is obvious that there are a wide range of literature about every aspect of globalization at the macro-level and their effect on the economic, social, political and cultural aspects of the nations. But it seems that the micro-level aspects of this issue have been neglected. Karadagli (2012) has investigated the effect of globalization on firms performance in seven countries namely China, Brazil, Indonesia, Turkey, Russia, Mexico, India during years 1998 to 2009. In this study, by using panel data concluded that a country's level of globalization has positive effects on firm performance. Peltonen et al (2008) have analyzed the effect of import penetration on the profitability of companies in 15 manufacturing industries for ten countries with Euro currency during 1955 to 2004. Their results show that import competition in emerging countries generally have the inverse effect on the profitability of manufacturing firms in these areas. However, unlike the findings of Peltonen et al (2008), Georgiou (2009) has reported the Positive effects of globalization (as measured by the net return of equity) in the European countries. Pangarkar and Wu (2012) examined the extent to which globalization has affected the performance of industrial firms in China (an emerging market) during the period 2001-1996. The results showed that high levels of industry globalization have a positive effect on the firm performance in China. Mehravar (2009) has investigated the effects of economic globalization on the private car industry in Iran during 1971-2006. The results show that economic globalization has an inverse effect on supply of private car exports and also a direct effect on its import demand both in the long- and in the short-term.

2.- Theoretical basis

There are many theories related to international trade such as absolute advantage theory by Adam Smith, comparative advantage by Ricardo, and the theory of Heckscher-Ohlin. But the recent theories have emerged in the field of trade and its relationship with firm performance. You can see those theories as the following:

2.1.- Krugman's model

Krugman's theory evaluates the effect of the economies scales in the World trade and it is called new trade theory. This theory was presented for the first time by Krugman in the Journal of International Economics in 1979 among similar countries. Krugman assumes that consumers obtain utility via goods diversity, through the production process, there are the economies of scale and the market structure is the monopolistic competition. Therefore, there are two reasons that the countries do trade to each other: First, trade will create more variety for consumers to choose their favorite items and it causes utility increasingly. The second reason is economy to scale. This means that when the countries do not trade with each other, the markets are small and limited. As a result the producers cannot achieve the advantage from the economies of scale and the production average

cost is high but when the trade is done between two countries, the effect of this trade is like as the effect of increasing population and any good is produced in the wider scale. Some of the firms that aren't efficient and have high prices are removed from the market and production of efficient firms increases and causes the economies of scale (Krugman 1979).

2.2.- Porter's theory in competitive advantage

In the late 1980's, a new wave of international trade theories enters in the economic literature in order to fill the shortages of conventional viewpoints. Investigation for each of these views requires a sufficient time. One of the most debatable problems in this area is the international trade. This issue is called competitive advantage. "Porter" issued the book of "The Competitive Advantage of Nations" in 1990 as the founder of this theory has had the most important scientific influence. Although the first purpose of the book is to present an explanation for the success of countries in global competition, but in Porter's analysis, these firms are the major players of competition and trade (Porter 1998). The influence of one country on the international competitiveness performance of a firm is through an environment that leads to its competitive achievement. Thus, the primary role of a country is to provide a host for the firms. This hosting environment creates a key role to make the firm identification, top managers' merits, the approach to manufacturing strategy and organization and the availability and quality of required resources.

This view shows that globalization causes a set of variables that affect competitive performance of firms and industries. National welfare is largely depending on improving the country's competitive advantage. For sustainable competitive advantage, the firms' competitive advantage must promote itself through innovation and investment in production advanced factors. This processes lead to the increase of labor productivity on the national level and increases the real per capita income. As a result gradual promotion in the firms could change the situation of economy and national industry (Khanduzi 2005).

3.- Methodology and Data

3.1.- Data definition

We used the stock market index for each country to evaluate the firm performance because this is the objective of a firm to maximize itself and its shareholder value. This value is determined by the stock market index of a firm, which it is in turn the feedback of the investment, finance and stock return of the firm. Therefore, this index is a good criterion for evaluating performance of a firm (Van Horne 1974), (Karadagli 2012). This index has been extracted from the stock market of each

mentioned country. In this study, those Asian countries that had same levels of stock market index (dependent variable) are selected and other Asian countries, including Japan, Thailand, and so on that have different values, are removed. This index does not have any magnitude and the index value in all of the selected countries is 4-digits in the some years and 5-digits during the some other years. As a result, the mentioned countries are homogeneous.

KOF index has provided by Germany research institute due to evaluating the economic and political globalization. This index is measured for each of these dimensions and its data are available. The index abbreviation of the German word "Konjunkturforschungsstelle" and it means the research institute of the business cycle. Dreher has developed it and then he updates it with Dreher, Gaston and Martens (2008). Moreover the technology Institute of Swiss Federal Zurich has provided it.

Economic globalization index is determined through the long-term flow of goods, capital and services as well as information and perceptions that are associated with market interchanges. It includes both the real flows and the limitations. The trade, foreign direct investment, portfolio asset and income payments to foreign nation's form the real flows that are expressed as a percent of GDP. Import hidden barriers, tariff average rates and taxes on international trade make up restrictions that are expressed as a percentage of current income and capital account.

Political Globalization index explains government policy, which includes variables such as the number of embassies, the number of members of international organization, the number of contracts signed with other countries and so on.

The advantages of the Globalization criterion, has been used by Derher (2006) for the first time are as follows: First, it is a very comprehensive criterion because it considers social and political aspects, which the other indices are not like this. Second, the combination of some economic indices, such as business and trade restrictions and investment (for example, import hidden obstacles, tariff average rates, taxes on international trade and capital account restrictions). Third, in order to obtain a general criterion for globalization, the major components have been used rather than the arbitrary weights. Finally, this index is updated annually. The data of this index are easily downloadable and its background goes back to 1970. It also covers 207 countries. The ranges of this index is from one to hundred. Top values of this index show that the country is more globalized (Rao and Vadlamannati 2010).

Inflation rate, exchange rate, liquidity growth rate are variables that affect firm performance (stock market index) (Emad zadeh et al 2010). Exchange rate is calculated as the real values and it is obtained by multiplying the proportion of China consumer price index to the consumer price index of the mentioned countries as the nominal exchange rate. GDP is other variable that affect firm performance (stock market index) (Pira'i, Shahsavar 2008). Government expenditure is another affective variable on the performance of a firm (Vaez Barzani et al 2009). All of the mentioned variables are obtained from the WDI website. There is necessary a dummy variable, due to the

economic crisis in the East Asian during 1997 to 1998 and also because of the financial crisis during 2007 to 2012. Dummy variable is considered one during the crisis and zero otherwise.

3.2.- Methodology

The purpose of this study is to survey the effect of economic globalization on the firm performance for 12 selected countries in Asia (Iran , Saudi Arabia , India , China , Singapore , Malaysia , Indonesia , South Korea, Russia , Pakistan, Philippines , Sri Lanka). This study is done by using annual data for the period of 1997 to 2013. Because of the lack of sufficient data, unbalanced panel method has been used.

In this study, some statistical tests include redundant variable test, unit root, fixed effects, Breusch-Pagan, Hausman, test of violation of the classical assumptions have carried out. In order to model specification, redundant variable test is done.

Non stationarity issue could have a spurious effect on the behavior of a time series. A shock in the stationary time series could product a high oscillation. Use of non stationarity data can lead to spurious regressions. F-ANOVA test was applied to determine the effects resulted from panel data that they are of both cross-section and time series data. This test will judge whether the panel data model is one-side or two-sides? If it is one-sided, is it kind of cross section or time series data? Breusch-Pagan used Lagrange multipliers (LM) to test integrated data against two-sides random effects that is obtained by estimation method of maximum likelihood. The null hypothesis in this test shows that it is better to use the model of integrated data. The rejection of the null hypothesis leads to a random effect in the model. F, Breush-Pagan and Hausman tests show that we should apply the fixed effects model. The assumptions of this test are as the following: H0: estimator of fixed effects and random effects are consistent and H1: the existence of fixed effect model and the rejection of random effect model (Valipoor, Khorram, 2011). At the end of this procedure we should do variance ratio test, autocorrelation test and Normality test.

Following Karadagli (2012) the model of this study is as follows:

$$log(stock_{it}) = \beta_1 + \beta_2 \, log$$

$$(kofe_{it}) + \beta_3 \log(kofp_{it}) + \beta_4 \log(exchang_{it}) + \beta_5 m2mr_{it} + \beta_6 expegr_{it} + \beta_7 d + \beta_8 \left(\log[(kofe]_{it}) * \log(kofp_{it}) \right)_{+u_{it}}$$

i: indicates the number of countries, t: represents the period, $log(stock)$ representing the logarithm of the stock market index, $log(kofe)$: logarithm of economic globalization index, $log(kofp)$:

logarithm of political globalization index, $\log(exchang)$: the logarithm of exchange rate, $m2mr$: liquidity growth rate, $expegr$: growth rate of government spending, d: dummy variable, and $(\log(kofe) * \log(kofp))$: multiplying two variables of economic and political globalization.

At first we survey the stationarity of the variables. The most common method is Levin Line method. All variables are stationarity, according to this method. The results are listed in the following table.

Table 1

Panel unit root test

	Stock	kofe	Kofp	expengr	M2mr	Inflationcr	gdpm	Exchang
Levin, line & chu	-2.319 (0.010)	-2.301 (0.010)	-13.249 (0.000)	-12.401 (0.000)	-9.965 (0.000)	-14.491 (0.000)	-105.086 (0.000)	-6.992 (0.000)

Numbers in bracket show level of probability.

Source: finding of this research

According to the redundant variable test, variables of inflation rate (Inflationcr) and absolute value of gross domestic production (gdpm) are removed from the model. F-ANOVA test is applied to survey the existence of individual (location) one–side effects. x^2 statistic and probability level of this test are 0.000 and 256.941, respectively. Due to the occurrence of zero probability, the null hypothesis of this test, implying the using of combined data pattern, will be rejected and H1 implying the existence of the panel data model of the individual (Location) one-side will be accepted. x^2 statistic and probability level of Breusch-Pagan test (location one-side) are 0.000 and 80.95, respectively. Based on the results of the Breusch-Pagan test, the assumption implying the lack of location's random effect will be rejected. As a result, there is the random effect of location. Finally, we carried out the Hausman test of one-side location to judge that fixed or random effects exist or not. The statistic amount of x^2 and probability level of this test is 0.000 and 48.83, respectively. Thus we conclude that the model of location fixed effects should be applied.

Hausman test results confirmed the fixed effects of location is exists. Therefore, according to the F -test and Breusch-Pagan and Hausman test, fixed effects model will be applied in this study. Then the model of this research will be estimated. The GLS method is used because of the existence of autocorrelation issue. Moreover, the AR(1) is applied.

Table 2

Estimation of model

variables	1.1	1.2	1.3	1.4	1.5	1.6	1.7
$\hat{\beta}_1$	8.026*	8.363*	4.268	10.131**	-18.694	-19.89	-13.69
	(6.566)	(4.474)	(1.147)	(2.349)	(-1.034)	(-1.281)	(-1.055)
Log(Kofe)	0.14	0.147	2.186*	1.559*	8.302***	8.861**	7.417**
	(0.491)	(0.519)	(3.386)	(2.9)	(1.726)	(2.153)	(2.198)
Log(Kofp)		-0.079	0.785	0.701	7.231***	7.657**	6.088***
		(-0.275)	(1.064)	(0.965)	(1.821)	(2.243)	(2.122)
Log(exchang)			-0000000000 1.791*	-2.425*	-2.45*	-2.609*	-2.318*
			(-6.204)	(-6.08)	(-6.838)	(-8.795)	(-6.666)
M2mr				0.516	0.605	0.648	0.619
				(1.324)	(1.497)	(1.645)	(1.55)
Log(kofe)*log(kofp)					-1.52	-1.635***	-1.351***
					(-1.458)	(-1.844)	(-1.876)
expengr						-0.439**	-0.41**
						(-2.189)	(-1.992)
D1							0.155*
							(3.531)
AR(1)	0.883*	0.884*	0.451*	0.435*	0.369*	0.354**	0.387*
	(21.422)	(21.428)	(3.469)	(3.279)	(2.621)	(2.39)	(2.64)
D.W	2.37	2.38	1.94	2.08	2.02	2.09	2.05

R^2	0.88	0.88	0.88	0.9	0.9	0.9	0.9
N*T	166	166	155	144	144	141	141

The numbers in bracket are t-statistics.

* Significant at the 0.01 level ** significant at the 0.05 level *** significant at the 0.1 level Source: finding of this research

The variance ratio test has a probability level equal of 0.007, so the null hypothesis based on the variance ratio is rejected. According to autocorrelation test results, autocorrelation does not exist. Normality test have been carried out. Based on the results of this test, probability level is equal to 0.111, so the null hypothesis implying the normality of the residual series isn't rejected.

4.- Report

The results in overall show that economic globalization index has a significant and positive effect on stock index, because this variable has the same effect on firm's stock in all the seven columns of the reported table. For example, in the column of 1.7, if this variable increases for one percent, stock index increases. Political globalization index has a significant and positive effect on stock index in these countries.

For example, in the column of 1.7, if this variable increases one percent, stock index increases for 6.088 percent. Exchange rate has a significant and negative impact on stock index. For example, in the column 1.6, if this variable increases one percent, stock index decreases for 2.609 percent. According to two columns of 1.6 and 1.7, the interaction effects of economic and political globalization, has a significant and negative effect on stock index.

Moreover according to two columns of 1.6 and 1.7, the growth rate of government spending has a significant and negative effect on stock index. For example, if in column of 1.7 this variable increases one percent, the stock index decreases up to 0.41 percent. Liquidity growth rate has not a significant effect on stock index.

5.- Concluding remarks

This study surveys the effect of economic globalization on firm performance by using panel data for Asian selected countries (Iran, Saudi Arabia, India, China, Singapore, Malaysia, Indonesia, South Korea, Russia, Pakistan, Philippines, Sri Lanka) during the period of 1997-2013. Unit root test shows that the variables are stationary on the levels. The results of F-test, Breusch-Pagan and

Hausman test show that the one-side fixed effects must be applied. Estimated model shows that the economic globalization level significantly improves the stock index. The results of this research suggest that the positive and significant effect on the stock index depend on economic globalization, political globalization and dummy variable, however the negative and significant effect is related to the growth rate of government expenditure, the exchange rate and the interaction effects of economic.

In this paper, globalization, lead to improvement of firm's stock. According to the estimated model, assuming stability of the other conditions, if economic globalization increases stock index in these countries arise. In conformity with theory of Krugman, trade increases the production of the efficient firms and the economy to scale. Moreover according to the theory of Porter, trade lead to competitive advantage and the improvement of firm performance. These theories support these results. Pangarkar and Wu (2012) survey the effects of industrial globalization on firm performance in China (an emerging market) during of 1996-2001. The results of panel data showed that the high level of industries globalization has a positive effect on China firm performance. But the few authors like Peltonen et al (2008) have reached the opposite result.

They analyzed the effect of import influence on the profitability of companies in 15 manufacturing industry for ten countries with euro currency during 1955-2004. Their results show that import competition in emerging countries have a significant and negative effect on the profitability of manufacturing firms in these areas. If the index of political globalization increases up to one percent, stock index will increase up to 6.088 percent. Some other people like Karadagli (2012) have investigated the effect of three dimensions (economic, social, political) of globalization on stock index in seven emerging countries of China, Brazil, Indonesia, Turkey, Russia and Mexico during 1998-2009. They concluded that the political and social globalization of a country has a positive effect on firm's stock. Increase in the exchange rate associated with national currency devaluation lead to increasing the cost of intermediate goods and as a result be more expensive of import intermediate commodities and it causes production costs and the prices increase.

Therefore, one-percent increase in the exchange rate will lead to a negative effect up to 2.318 percent on stock index. An increase in government spending lead to budget deficit and it is possible that lead to increasing inflation and decreasing economic growth due to the budget deficit usually finances by foreign borrowing and increasing of liability. As a result, it will have a slight and negative effect up to 0.41 percent on the stock index. Economic crisis has unexpectedly improved the stock index in the mentioned countries. Although the financial crisis of 2007 until 2012 years, has negatively affected the economy of most of countries, but some Asian countries, particularly India, China and South Korea, have helped to the growth of their gross domestic production through stimulating domestic demand and adopting policies of contrary to business cycles, including using of financial incentives and credit expansionary policies (Safdari 2013). As a result, GDP growth and domestic demand have been able to overcome the impact of the crisis on the stock index.

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