PORTFOLIO IN TURKISH ECONOMY, AND A LONG TERMED RELATION BETWEEN FOREIGN DIRECT INVESTMENTS AND THE GROWTH, AND THE STRUCTURAL BREAKAGE ANALYSIS (1980-2012)

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Abstract

This article remarks that the activities of the international capital flows and the foreign direct investment increase, influence the growth process of countries. The economies attach more importance to these two factors in each passing day. On the other hand, the exposure degrees of host countries increase through the fluctuations. Especially, markets can fluctuate on a short notice because of the high speed of the capital movements. Therefore, countries mostly prefer to host the foreign direct investments. Thus, it is thought that countries can gain stability in a long term. However, this time, the damaging natural environment becomes a current issue with the labor force and natural sources that may be adapted to the technology transferred by direct foreign capital. This study empirically researched the actions of the foreign direct investments and portfolio investments on the growth that is theoretically presented for the finance of growth. The long term relation is researched by using the annual data of 1980-2012 in the Turkish economy. Especially, the structural breakage analysis is applied to put forward the effects of the crisis in 1994, 2001 and 2008. The most distinct finding according to the structural breakage tests cannot be confirmed in relation between the foreign investments and growth in the Turkish economy. In addition, it has been concluded that there is a long term relation between growth and foreign capital investments (the direct and portfolio).

Keywords: Foreign direct investment, Portfolio investment, economic growth.
JEL classification: F21, F43, F44, O11, O40.

1. INTRODUCTION

There are two main problems in developing countries. First of all, is to bring foreign capital to those countries. It is supposed that foreign financing is directed with growth in a long term through financial system, not least through the exchanges (Madsen, et al., 2013; Anwar & Cooray, 2012). The second one is desired to increase productivity by providing stability and continuity in the growth process (Singh & Mora, 2012). These two expectations are variables that include

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interlocking and mutual causality. However, these countries are also a quite sensitive to financial and real fluctuations in international markets because when the both financial and real sides of the growth process depends on international markets, not least the activities of multinational companies increase (Jordaan, 2005), it makes easier the transferring of these fluctuations to countries and take effects in the growth process. The contingent fluctuation in an economy can be observed through the growth data. In developing economies, it will be thought that the foreign capital and growth act in concert because of the need of the growth process for foreign capital. When the growth process fluctuate in any crisis period, the foreign capital act in accord with growth data. However, it will be expected that national economy should take measures that will decrease sensibility for foreign capital in crisis periods. So, with the crisis, when the measures were taken that will decrease the need of foreign capital, it will be expected that there is a breakage in regression relation from the long term. If such a policy isn't applied, any structural breakage won't be expected.

The Turkish economy has been opened to the capital inflow when the foreign expansion process was started after 1980. Also, the stock Exchange has been opened and processes started in 1985, and portfolio investments have started to enter the country. Therefore, the self-enclosed economy of Turkey that doesn't have enough capital stock before 1980 has entered into the process of out-ward growth after 1980. It has started to apply the policies for acceleration by financing the growth process with capital inflows.

The purpose of this study is to try to account for the effects of foreign capital inflows (portfolio and direct investments) on the growth process and the capital inflows of crisis, and how it affected the growth in the Turkish economy. Tested hypothesis shows that foreign capital inflows are in a long term relation with the growth in developing national economies. Moreover, it will be expected that developing countries should apply for the structural change in the crisis periods to decrease sensibility for the foreign capital inflows and to aim at shareholder's equity. If there is no question about a structural breakage in a long termed relation, it means that the developing national economy continues in the sensibility to foreign capital inflows. These main hypotheses are tested for the Turkish economy.

2. LITERATURE

It is often emphasized in theory that foreign direct investments and portfolio investments are important factors for economic growth. Since, A. Smith argue that foreign trade will gain mutual favour to other countries, it has been commonly argued that free movement of all production factors will also reveal the same result except mobility of goods and services. Also, with 1980s, "globalization" term is on this basis. With 1980s, liberal economy policies that began in the USA and United Kingdom, have also been spread world-wide. Therefore, there is a question about a wide empirical study literature for foreign

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direct investment and portfolio investment's contribution to the economic growth. This wide literature tests the hypothesis about "foreign direct investments and portfolio investments are in the long termed relation with economic growth, and there is need of these two foreign investments for economic growth" through different econometric methods and country samples. Research show that when the development level of the national economy increase, the contribution of foreign investments for the growth increases also.

The most important determinant factor is communication/transport costs in order that foreign direct investment can come to a host country. It is seen that this effect slowly increase on the studies for OECD countries (Jeon, Tang & Zhu, 2012). It means that it is close to transport, material and market. The emerging economies that include the invested firms, confirm several different criterions. It is seen that foreign direct investments of emerging economies outwards for other countries increase the total factor productivity (Herzer, 2012). Mathur and Singh (2013) emphasize that political freedom is also an important and essential as far as economic freedom to can bring foreign investments is concerned. They state that foreign direct capital's in country period is in linear by linear association with democratization. Gharana (2011) gives empirical evidence that the relation becomes strong between FDI and growth in economic liberalization periods, and emphasize that it includes Granger causality with the long termed relation. It is seen that the most efficient factor is country to be invested in cyclical terms on investments of American investors to other countries (Cavallari and D'Addona, 2013). On the other hand, it is seen that economic fluctuations synchronize that investor and investee countries had (Jansen and Stokman, 2004).

The most common criticism about the provided easiness and policies to bring to foreign direct Investment (Suyanto, 2013). The answer to this criticism is about increasing employment feature of foreign capital investments and the increase of technology transfer channels (Li, Fu & Fu, 2011). However, even if it is a hesitating subject that the technology that comes to investee country is absorbed and can be interiorized by host national economy. It is seen that the depth and width of labor force and of financial market are necessary for internalization of technology (Farkas, 2012; Khordagui & Saleh, 2013). For example, Nkechi and Okezie (2013) for Nigeria state that even if FDIs are effective on the growth, labor force cause the long term for this effect. Of course, the criticism slowly increase about according to quality and technological level of foreign investment, it makes the host country into a "Pollution heaven" (Santis, 2012). In the same time, it's seen that foreign direct investment is also sensitive as well as the growth is sensitive to the crisis (Albu, 2013).

While Oladipo (2012) cannot confirm granger cause for the countries except developing countries in the Caribbean such as Dominica, Trinidad-Tobago and Jamaica, has confirmed the bidirectional causality relation for Latin American countries such as Argentina, Brazil, Mexico, Peru and Venezuela. Moreover, economic size indicates that Granger causality doesn't show the expected effect in

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a short term, and the expected effect occurred in the long term (Campbell, 2012; Pilgrim and Iyare, 2008; Khalil & Hussain, 2013).

7 Eastern European countries, Caraman & Stancu (2012) have attained the result that FDI supports the growth. According to data of 131 countries, it has concluded that the rises on FDI stock increase the export (Tadess & Shukralla, 2013). It shows that out oil export has been positively affected by FDI, and growth hypothesis based export has been proved (Olayiwola & Okodua, 2013). For 36 developing economies (Konstantinos & Skandalis, 2012), a similar result proves that FDI has a stabilizer role for trade deficit in the long term. Buckley, Cross & Horn (2012) suggest that beside FDIs from Japan to India, has a positive effect to the Indian economy.

Naguin (2012) concludes that in company with corporatization in Argentina, foreign capital that enters to the country, is in long term relation with growth. For Pakistan, Shahbaz & Rahman (2012) have revealed the result that foreign direct investments are cointegrated in the long term, and positively affected growth. However, Meerza (2012)' study for Bangladesh has indicated that growth and direct investment aren't cointegrated but this unconnection is explained with the unqualified overpopulation in other study (Rahman, 2011) for Bangladesh. For the cities of China Ouyang & Fu's (2012) studies prove that regional/urban economic growth is more distinct as more important than growth for the total economy.

The results of some selected studies for Turkey corresponds to the world literature and conclude that FDIs has a distinct effect on growth. As an example of these studies: Arisoy (2012); Elveren, Ornek & Akel (2012); Bilgili (2012); Ozyigit & Eminer (2011); Saglam & Yalta (2011); Temiz & Gokmen (2011); Apaydin (2009). These studies have analyzed the relation between foreign investment and growth in the Turkish economy, and have come to the similar conclusions.

3. DATA AND METHOD

Analysis includes two progressive methods: Structural Breakage Analysis and Long Termed Cointegration Analysis. In first process, Structural Breakage Analysis for annual data in selected 1980-2012 period. Two different tests have been used in this analysis. First of all, CUSUM-SQ Test has been used for being detected structural breakage period. The second test is Chow (1960). In this test, it is based on regression equation coefficients to create for all periods with pre-structural breakage and for later two different regression coefficients. "A structural alteration may mean that two constant terms are different or two slopes are different, or else both terms and slopes are different, or any available composition of universe coefficients" (Gujarati, 2001, p. 263).

Johensen- Juselius (1990) and Engle-Granger (1987) cointegration tests are applied to determine the long term relation. A precondition for this test is "series

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should be constant at the same level". ADF (Dickey & Fuller, 1979) unit root test has been applied to understand this condition. In the same time, PP (Phillips & Perron, 1988) test has been applied for unit root apply to error terms.

All data in analysis have been organized by CBRT-EDDS, OECD and World Bank data references. GDP variables are growth rates by a previous year in analysis. Foreign Direct Investment (FDI) and foreign portfolio investment in Turkey consist of two components. Total of Public and Publicly Guaranteed (PPG) papers and Private Nonguaranteed (PNG) papers consist of portfolio investment net flows (NFL). NFL variable has been taken in terms of US dollar. Theoretically, these two variables positively affect GDP variable for outward economies. So, foreign assets that may come to the country as fixed investment or portfolio, support the growth process of that national economy.

4. FINDINGS

The analysis has been realized in two stages. First of all, CUSUM and Chow have been tested for structural breakage analysis. Principally, CUSUM and structural breakage assets should be determined, and then, CUSUM- SQ is tested to can be determined breakage period. The following numbered (1) regression model has been presumed to make these tests:

$$Y_t = \beta_0 + \beta_1 FDI + \beta_2 NFL + u_t \quad (1)$$

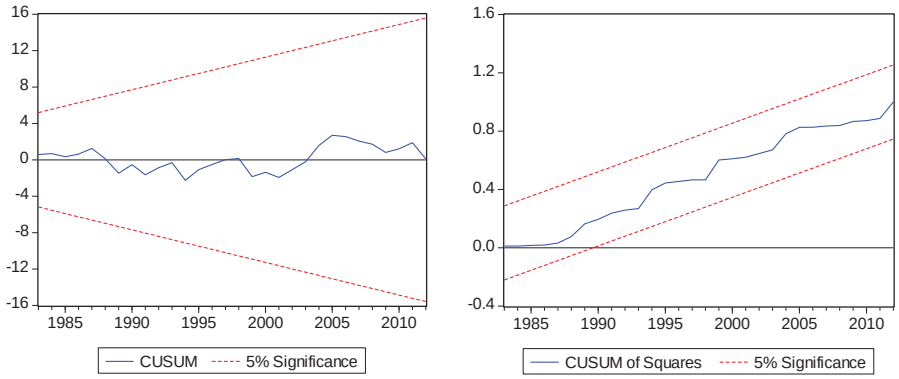
The acquired coefficients from the model and introducer statistics have been shown in Table-1. (1) numbered equation is a regression model that includes the analyzed for all period and all variables.

Table 1. *General Regression*

Variable	Coefficient	Std. Error	t-Statistic
Bo	3,786474	0,972714	3,892692
FDI	-3,66	0,000137	-0,266785
NFL	3,57	3,44	1,036730

CUSUM graph (left) and CUSUM-SQ graph (right) are shown as Graph-1 for General Regression.

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Graph 1. *CUSUM and CUSUM-SQ Tests.*

CUSUM Test doesn't inform time of breakage even if it shows structural breakage asset. With CUSUM Test, it is possible to say that there is no structural breakage with 5% meaning level. It is observed that there is no structural breakage on the acquired graph for CUSUM-SQ Test can determine the time of breakage.

The second applied test is Chow to research the asset of structural breakage. Chow test is made for three different crisis period: 1994, 2001 and 2008.

Table 2. *Chow Tests.*

	1994	**2001**	**2008**
Chow Breakpoint	0,245459	0,043412	0,242938
	(0,863821)	(0,987699)	(0,865597)
Chow Forecast	1,574754	0,957343	0,990179
	(0,221943)	(0,518241)	(0,443562)

In analysis of time series that becomes second process of the analysis, unit root has primarily been reached for series. ADF test has been applied for this analysis. The acquired results are shown in Table-3.

Table 3*. ADF Unit Root Tests.*

Variable	**ADF**	**ADF Δ**	**Integre**
	-3,397549	-6,815886	
GDP	(-1,951687)	(-1,952473)	I(0)
	-6,223009	-3,962460	
FDI	(-1,953858)	(-1,955020)	I(0)
	3,862636	0,224004	
NFL	(-1,954414)	(-1,955681)	I(0)

Note: *The variable in brackets are the critical variables for 5% meaning level.*

According to the results of ADF test, all variables are constant as of the level values. They can be used together in analysis of time series because they are constant in the same level.

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Principally, Engle-Granger two-stage cointegration test has been made for long-term relation. The acquired results for the test have been shown in Table-4. Because the series are constant in the same level, the following regressions have separately been presumed. The acquired error terms from each regression should be constant according to their level values.

Table 4. *Engle-Granger Co-Integration Test*

(a) Regressions	**coefficient**	**Std. Deviation**	**t-Stat.**
GDP=f(FDI)	4,02	0,000116	0,347460
GDP=f(NFL)	3,07	2,85	1,076751
FDI=f(GDP)	96,53451	277,8293	0,347460
FDI=f(NFL)	0,001354	0,000379	3,570328
NFL=f(GDP)	117291,4	108930,8	1,076751
NFL=f(FDI)	215,1466	60,25963	3,570328

(b) Results of unit root test for error correction	**ADF**	**PP**	**Integre**
GDP=f(FDI) →u	-6,787520 (-1,951687)	-8,162033 (-1,951687)	I(0)
GDP=f(NFL) →u	-6,532762 (1,951687)	-6,601929 (-1,951687)	I(0)
FDI=f(GDP) →u	-1,279460 (1,951687)	-1,251003 (1,951687)	I(1)
FDI=f(NFL) →u	-2,680013 (-1,951687)	-2,728351 (-1,951687)	I(0)
NFL=f(GDP) →u	0,066783 (-1,955020)	-1,323193 (-1,951687)	I(1)
NFL=f(FDI) →u	-3,610903 (-1,951687)	-3,610903 (-1,951687)	I(0)

Note: *Values in brackets are the critical values for 5% meaning level.*

In the panel (a) of Table-4 belonging to EG test, coefficient, Standard error and t statistics are shown belonging to regression models that are composed of two variables. Unit room test results are included in panel (b) of Table-4 for error terms of each regression. ADF and PP tests have separately been made for unit root test. According to level values, there is a condition for constancy of error terms which can be decided that there is a long termed relation between two variables. Accordingly, the only error terms of FDI= f(GDP) and FDI = f (NFL) models are not constant according to the level values. In the present case, it will only be said that there is no long termed relation for these two regressions.

JJ test has been applied to test the long termed relation of more than two variables, and the acquired results have been given in Table-5.

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Table 5: *The Results of Johansen-Juselius (JJ) Cointegration Test*

H_0	H_1	**Eigenvalue**	**Trace Stat.**	**0,05**	**Max-Eigen Stat.**	**0,05**
r = 0	r ≥ 1	0,623903	55,85066	35,01090	30,31517	24,25202
r = 1	r ≥ 2	0,491242	25,53549	18,39771	20,94926	17,14769
r = 2	r ≥ 3	0,137520	4,586230	3,841466	4,586230	3,841466

According to Akaike (AIC= 58, 85176) and Schwarz (SC= 57,41224) information criterion, model has been created for 1 lag. The acquired model is linear and constant, and includes a trend. If Table-5 is examined, H_0 hypothesis is shaped like "there is no cointegrated vector". As long as Eigenvalue < critical value (0,05), H_0 is gotten rejected, and H_1 hypothesis will be accepted, and H_1 hypothesis is like " there is the most r item cointegrated vector". Accordingly, there are the most 3 cointegrated vectors ($r \geq 3$) for model because Eigenvalue (0,137520) < critical value (3,841466) for $r \geq 3$, it has been concluded that there are the most three cointegrated vectors for 5% meaning level. It is concluded the same result with comparison of Max-Eigen statistics and critical values. There are the most three cointegrated vectors ($r \geq 3$) for Max-Eigen < criticial value (0,05) because Max-Eigen (4, 586230) statistics is less than critical value (3, 841466) for $r > 3$).

According to levels of series, due to the fact they are constant, there is no question about data loss between long termed relation and short termed relation. Therefore, error correction model is not necessary.

5. CONCLUSION

Turkish economy showed a growth performance of about 4% after the process of foreign expansion in 1980. However, it has brought that domestic savings and undercapitalization are continued with foreign capital investment of growth process and portfolio investment. Analyses have concluded that portfolio investment and foreign direct investment are cointegrated in the long term. Therefore, it corresponds to several studies in literature (sample Kinda, 2012), and has shown that growth process of developing economies are supported with foreign investment and portfolio investment, this result is also effective for the Turkish economy.

In spite of the long termed relation, there is no structural breakage in crisis periods. It means that there is continuity of economical growth process and growth process that base on foreign capital inflow. So it is proved that the Turkish economy that adopted outward growth model after 1980, couldn't still reach enough capital stock that may finance itself.

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