FOREIGN CAPITAL FLOWS, FDI AND ECONOMIC GROWTH IN TURKEY IN THE POST CRISIS PERIOD

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Abstract

The impact of foreign direct investments (FDI), portfolio investments (PI) on economic growth has been a debate in the literature. On the other hand economic growth may be a factor that attracts the FDIs and PIs. Thus, the aim of this paper is to analyze the direction of the relationship by using Granger causality between economic growth, foreign direct investments and portfolio investments in Turkey following the 2001 crisis. The results show that PIs Granger causes economic growth whereas FDIs do not show a significance. Economic growth granger causes both FDIs and PIs meaning that economic growth leads the flow of direct and indirect investments. In addition, impulse response functions support the importance of economic growth on the three variables. The paper further calculates variance decompositions based on estimated VAR system and it is still evident that the economic growth is dominantly significant in explaining the forecast error variance in both FDIs, PIs and economic growth.

Key Words: Economic Growth, Foreign Direct Investment (FDI), Portfolio Investments, Granger Causality, Variance Decomposition, Impulse-Response
JEL Classification: G15, C32, C12

1. INTRODUCTION

During the last 25 years, equity markets started to liberalize. With the start of liberalization and the entrance of foreign direct investments, there have been huge arguments about the improving and deteriorating effects of these two. In the finance literature there are various concerns about the effects of hot money, especially in developing countries like Turkey. Liberalization is often assumed as a positive step for economies, but calls for capital controls also emerge. Like in most of the countries, the Turkish economy started to liberalize in 1980s. But the main characteristic of the liberalization efforts in Turkey was that the financial liberalization program was introduced before the achievement of macroeconomic stability. In early 1990s, the authorities lost control in financing fiscal deficit and the first major financial crisis occurred in January 1994. Following the efforts to stabilize the economy two major crisis occurred in 2000 and 2001. The attempts to a more sound economy and with financial restructuring program the Turkish economy is more in a steady state despite the global financial turmoil. Both the foreign direct investments (FDI, hereafter) and the portfolio investments (PI, hereafter) started to increase. Moving from this motive the paper aims to understand the direction of causation between economic growth, FDI and PI.

The impact of FDIs, PIs on economic growth has been widely investigated. Bakaert, Harvey and Lundblad (2005) found that equity market liberalizations increase subsequent average annual real economic growth by about 1 percent. Liberalization decreases the cost of equity capital, because it improves risk sharing (Bakaert, Harvey, 2000).

After equity market liberalizations more foreign capital becomes available. Foreign capital suppliers would demand better corporate governance practices and that will result with improved risk sharing. As a result of better corporate governance policies and availability of additional funds, cost of capital goes down. These all will, in turn, promote financial development and later on economic growth (LaPorta, Lopez, Shleifer, Vishny, 1997; King Levine, 1993).
At the end of 1990s severe financial crisis surrounded the world. The countries facing the financial turmoil had a common characteristic; large ratios of foreign debt to international reserves (Rodrik & Velasco, 1999). In East Asia, large short-term liabilities and scarce internationally liquid assets resulted with a confidence crisis and reversal of capital flows. Certainly, there are other factors that set off the crisis, but there is no doubt that the exposure to short-term debt was the main trigger for the East Asian crisis (Furman & Stiglitz, 1998; Radelet & Sachs, 1998, Corsetti, Pesenti, Roubini, 1998).

The main reason underlying the crisis was lack of liquidity and short-term debt was the main source of illiquidity. But the problem is, liquidity is costly to maintain.

It is suggested that loose international capital flows gives the economies opportunities for efficient resource allocation, risk diversification and promotes financial development. Improved risk-sharing is expected to decrease the cost of equity capital. These benefits gave governments pace for capital account liberalization over the last quarter century.

On the other hand, extension of international financial integration to developing countries is a dispute among the researchers. Some vote in favor of liberalization, but insist that it should be adopted slowly. Free capital mobility prompts higher returns on savings, borrowing at most favorable rates (Obstfeld, 1998). Some believe that international cash flows speed up the occurrence and spreading of currency crisis (Bhagwati, 1998).

Rodrik (1998) related capital account liberalization to three indicators of economic performance: per-capita GDP growth, investment as a percentage of GDP and inflation. He analyzed that the post-1975 period for about one hundred countries and there is no evidence that countries without capital controls have grown faster, invested more, or experienced lower inflation.

In order to participate in international capital flows, developing countries should make some steps for liberalization. Liberalization movements have six dimensions (Williamson and Mahar, 1998): Release of credit controls, Release of control on
interest rates, Free entrance to the banking sector, Full autonomy of banks, Enabling of private banking, Enabling of international capital flows.

1.1. Capital Flows

Eichengreen and Fishlow (1995) believe that portfolio equity flows carries a potential for high volatility and so they are harmful for a country. Additionally, Chuhan, Quiros and Popper (1996) argue that short-term investments are more reactive than direct investments with regard to instantaneous fluctuations in Mexico Crisis. On the contrary, Claessens, Dooley and Warner (1995) claimed that labels like short-term, long-term or portfolio flows do not say anything about the volatility. Yeldan (2002) draw attention to a significant point that, capital flows are not only show interest to popular countries which implement right macroeconomic policies, they also pay similar and decisive attention to countries which have extremely different economic policies.

Capital flows become “lifesaver” for emerging market economies in financial crises periods. A great number of emerging market economies indebted their stability and strength in crises periods to these life savers. However, capital flows can easily evolve into a dynamite under financial market and economy. Mohan and Kapur claimed that (alike), if unreciprocated capital flows handled properly, they can be caused with real exchange rate misalignment, credit and asset price booms.

1.2. Foreign Direct Investments

The role of FDI in the growth process has been a discussion point in the literature. Direct investment of multinational firms has grown faster than trade flows over the past two decades (Markusen and Venables, 1997).

Nowadays, the views towards FDIs have changed a lot. In 1970s, it was thought that the FDIs would exploit the host countries’ firms, but now FDIs as seen as triggers for development of an economy.

Neoclassical theories propose that FDI is likely to be an engine of host country’s economic growth. FDI may increase the level of employment, may bring-in
know-how and may result in transfers of technology and spillover effects (Markusen et. al., 1997).

Foreign direct investment may also be seen as having negative aspects. In the literature the altering effects Froot and Stein (1991) discovered that FDI is mainly caused by negative wealth shocks in a country, so they should not be seen as future growth prospects. In order to explain this occurrence, Froot et.al. (1991) focused on the wealth effects of devaluation. By lowering the relative wealth of domestic agents, a depreciation of the domestic currency can lead to foreign acquisitions of certain domestic assets.

There are various papers analyzing the effect of FDI on domestic firms’ total factor productivity and they find that FDIs increase the total factor productivity and increases exports (Aitken, Harrison, 1994). Similar results are also presented by Chung, Mitchell, Yeung’s (1994) case studies.

FDI may also change the structure in imperfectly competitive industries. FDI may create a more competitive structure in the industry and may affect supplies and demands in some of the related industries.

Growth rates in developing countries are partly explained by a catch-up process in the level of technology. FDI can also be seen as a medium to reach the advanced technologies for developing countries. This view is also supported in the literature by several papers. Findlay (1978) claims that FDI speeds up the rate of technical progress in the host country through a contagion effect from more advanced technology of foreign firms.

This hypothesis is encompassed in a neoclassical growth theory by Wang (1990) and was assumed that the increase in knowledge applied to production is determined as a function of FDI.

Borenzstein, Gregorio and Lee (1995) proposes that FDI is an important vehicle for the transfer of technology, contributing to growth in larger measure than domestic investment.
Corbo and Hernandez (1995) claimed that the capital flows that are restricted may be contributing to growth. We have to find out which capital flows – if any – contribute to economic growth.

Gruben and Mcleod (1998) stated that FDI tends to have obvious positive influence on economic growth where capital inflows have influential potential.

Alfaro, Chanda, Kalemli-Ozcan and Sayek (2010) share the same consideration about weak contribution for the definite effect of FDI on economic growth. They also agree with literature about the country’s local standards such as the level of development of financial markets, or educational level of the country are the key factors about capacity to take advantage of FDI. Findings in this literature indicate that a country’s capacity to take advantage of FDI externalities might be limited by local conditions, such as the development of local financial markets or the educational level of the country, i.e., absorptive capacities.

Villegas-Sanchez (2009), used firm level data from Mexico and indicate that, domestic firms only benefit productivity rises from FDI if they are based in economically and financially developed regions. using firm level data from Mexico, shows that domestic firms only enjoy productivity increases from FDI if they are located in financially developed regions.

Rachdi and Saidi (2011) investigated 69 developing and 31 developed countries between 1990-2010. They found that there is a momentous and positive relation between FDI and growth both developed and developing countries.

Vita and Kyaw (2009) also investigated 126 developing countries between 1985-2002. And their findings show that, upper middle-income countries are the most effected countries against FDI. %1 increase in FDI cause 0.004 increase in the per capita real GDP growth rate.
1.3. Economic Growth

In broad perspective, economic growth defined as the rise of country’s production of goods and services (Sever, 2009).

Some economic approaches ignored correlation between financial development level and economic growth, but latterly many economists accept the correlation (Erşan Seven, 2009). Gruben and Mcleod’s (1998) Granger causality test results argue that higher growth rate cause increase in capital inflows. Cardarelli, Elekdag and Kose (2010) indicate that, period of the huge amount of capital inflows are directly related with an increase in Gross Domestic Product growth. But Cardarelli et al. draw attention to another interesting point that, in some cases, growth can be decreased considerably after these huge capital inflow periods.

2. METHODOLOGY

This paper adopts the Granger causality model to understand the direction of causation between portfolio investments, foreign direct investment and economic growth. Granger causality models are in the form:

\[ \Delta \Delta GDP_t = \alpha_1 + \sum_{i=1}^{k} \beta_i \Delta GDP_{t-i} + \sum_{j=1}^{l} \lambda_j \Delta FPI_{t-j} \]

\[ \Delta \Delta FPI_t = \alpha_1 + \sum_{i=1}^{k} \beta_i \Delta GDP_{t-i} + \sum_{j=1}^{l} \lambda_j \Delta FPI_{t-j} \]

\[ \Delta \Delta FDI_t = \alpha_1 + \sum_{i=1}^{k} \beta_i \Delta GDP_{t-i} + \sum_{j=1}^{l} \lambda_j \Delta FPI_{t-j} \]

Where GDP, FPI and FDI are real gross domestic product, foreign portfolio investment inflow and foreign direct investments, respectively. \( \Delta \) represents the first-difference operator and \( k \) stands for the optimal lag length.
Moreover, we apply variance decompositions and impulse response functions for further inference. Both techniques serve as means for evaluating the dynamic relation between growth, FDI and FPI and show the strength of causal relations among variables in the system.

Variance decompositions consider the proportion of the movements in the dependent variables that are due to their own shocks, versus shocks to the other variables. It is evident that a shock to the \( i \)th variable will directly affect the \( i \)th variable of course, but it will also be transmitted to the other variables in the system through the dynamic structure of the VAR. Variance decompositions determine how much of the \( s \)-step-ahead forecast error variance of a given variable is explained by innovations to each explanatory variable for \( s = 1, 2, \ldots \).

Impulse responses trace out the responsiveness of the dependent variables in the VAR to shocks to each of the variables. So, for each variable from each equation separately, a unit shock is applied to the error, and the effects upon the VAR system over time are noted. Thus, if there are \( g \) variables in a system, a total of \( g^2 \) impulse responses could be generated. The way that this is achieved in practice is by expressing the VAR model as a VMA - that is, the vector autoregressive model is written as a vector moving average. Provided that the system is stable; the shock should gradually die away.

3. DATA AND EMPIRICAL RESULTS

3.1. Data

The data for this study is collected from the web site of Central Bank of Turkey and from OECD Statistics. The analysis covers the quarterly return data of foreign direct investment inflows (FDI), foreign portfolio investment inflows (PI) and gross national product (GNP) for the 2002Q1-2013Q2 period.

3.2. Empirical Results

All variables included in the VAR system should be stationary so the first step in the analysis is checking for unit roots in the variables. Table 1 presents the results for Augmented Dickey Fuller (ADF) and Phillips-Perron (P-P) tests. The results
point that the null hypothesis that the series are not stationary is rejected at level for the data. Alternatively, the return variables are stationary at the level I(0).

Table 1. Unit Root Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF Test Statistic</th>
<th>P-P Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>Level</td>
</tr>
<tr>
<td>R(GDP)</td>
<td>-5.6402***</td>
<td>-5.6388***</td>
</tr>
<tr>
<td>R(FDI)</td>
<td>-7.4783***</td>
<td>-7.4599***</td>
</tr>
<tr>
<td>R(PI)</td>
<td>-6.7910***</td>
<td>-6.8077***</td>
</tr>
</tbody>
</table>

*** represents statistical significance at 1%.

To form an unrestricted VAR, all of the variables used in the equations should have the same number of lags. In order to find the optimal lag length the VAR equations are estimated and Akaike’s Information Criterion (AIC) is used. The number of lags that minimize the value of AIC is found as 10.

Further Granger causality test is applied using the optimum lag length. Table 2 presents the results of the Granger test. The results reveal that portfolio inflows Granger causes economic growth at 5% statistical significance level, which is not commonly the case. On the other hand, foreign direct investments do not lead the economic growth since no statistical significance is found. The growth and portfolio investments are found to have no lead-lag relationship with foreign direct investments. Another striking result is that both economic growth and foreign direct investments lead portfolio investments at 10% and 1% statistical significance, respectively. This finding is evident since that hot money flights to quality and if the economy is growing and if there are direct investments of the foreigners in one country, portfolio investments are more likely to follow.
Table 2: Granger Causality Test Results

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>RFDI</td>
<td>11,7622</td>
<td>0.3013</td>
</tr>
<tr>
<td></td>
<td>RPI</td>
<td>20,4970</td>
<td>0.0249</td>
</tr>
</tbody>
</table>

| Dependent variable: RFDI        | GROWTH   | 7,9919           | 0.6296  |
|                                  | RPI      | 5,8615           | 0.8268  |

| Dependent variable: RPI         | GROWTH   | 16,6658          | 0.0821  |
|                                  | RFDI     | 163,8078         | 0.0000  |

For further inferences impulse response functions are calculated from the estimated VAR for the 3 years ahead. Figure 1 shows that economic growth is important to attract FDI and PI. As it is seen after 2 or 3 quarters following economic growth, direct investments and portfolio investments also follow and these inflows continue in the following quarters and the shock does not die away. FDI seems to be affected also from its past values. As the amount of FDI increase, more direct investments are expected. Portfolio investments appear to have an insignificant effect both on FDI, growth and on itself. Both three variables do not look as if they follow the shocks in portfolio investments.

Further Variance Decompositions (VDC) of the three variables are calculated. VDC determines how much of the forecast error variance for a variable in the system is explained by the innovations to each variable over a time period. The results that are presented in Table 2 shows that forecast variance of economic growth is attributable to approximately 11% variation in FDI in 12 quarters. Portfolio investments explain 5.5% of variation in GDP growth in 1 quarter but further decrease to 1.43%. For the FDI, economic growth series explains approximately 90% of the forecast variation in direct investment growth, which is very striking. Economic growth is also very dominant in explaining the portfolio investment growth. The variance of portfolio investments that is attributable to economic growth is about 80% in 12 quarters time. Likewise, FDI explains about 18% variation in PI.
Figure 1: Impulse Response Functions of Growth, FDI and PI.

Table 2: Variance Decomposition Results for GDP, FD and PI

<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>GROWTH</th>
<th>RFDI</th>
<th>RPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.8548</td>
<td>100.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>1.9368</td>
<td>92.8293</td>
<td>1.6623</td>
<td>5.5082</td>
</tr>
<tr>
<td>3</td>
<td>2.0326</td>
<td>92.4429</td>
<td>2.5324</td>
<td>5.0245</td>
</tr>
<tr>
<td>4</td>
<td>2.0490</td>
<td>92.5207</td>
<td>2.5336</td>
<td>4.9455</td>
</tr>
<tr>
<td>5</td>
<td>2.0974</td>
<td>92.1211</td>
<td>3.1565</td>
<td>4.7223</td>
</tr>
<tr>
<td>6</td>
<td>2.1093</td>
<td>91.0901</td>
<td>3.9505</td>
<td>4.9593</td>
</tr>
<tr>
<td>7</td>
<td>2.1127</td>
<td>90.7952</td>
<td>3.9498</td>
<td>5.2548</td>
</tr>
<tr>
<td>8</td>
<td>2.1741</td>
<td>90.1960</td>
<td>4.2777</td>
<td>5.5261</td>
</tr>
<tr>
<td>9</td>
<td>2.4247</td>
<td>91.7501</td>
<td>3.7690</td>
<td>4.4807</td>
</tr>
</tbody>
</table>
4. CONCLUSION

With the start of the liberalization process in 80s, the accumulated capital started to flow all around the world. Also, the companies decentralized and the production dispersed to geographical regions with cheaper labor force, more raw materials or better tax advantages. Following the increase in direct and indirect investments, the literature opened the discussion about the superiority or inferiority of these investments. Some researches cursed the capital flows and concluded that these investments are not stable so they worsen the economic condition of one country. Some favored FDIs and reckoned that it enhances
country’s economy. Moving from here, this paper tries to understand the lead-lag relationship between economic growth, foreign direct investments and portfolio investments.

The study analyzes The Turkish data in the aftermath of the 2001 crisis. Using the quarterly economic growth, foreign direct investment growth and portfolio investment growth data, a VAR system is formed in order to identify the dynamic relationship between these variables. Granger Causality test results exhibit that portfolio inflows Granger causes economic growth and economic growth Granger causes portfolio investments. The bidirectional flow shows that as the economy improves more investments flow to a country and the flow of portfolio investments also increase the economic growth. Additionally, FDIs also lead the portfolio inflows. So, portfolio investments both follow the economic growth and the direct investments of foreigners.

The paper further calculates the variance decomposition of the variables, which identifies the percentages of a variable’s forecast error variance attributable to its own innovations and to innovations in other variables in the system. Variance decompositions show that most of the forecast error variance of foreign direct investments and portfolio investments is attributable to increases in economic growth. The VDC results points to the crucial importance of GNP growth on the other variables.

Impulse response functions also visualize that economic growth is essential in leading FDI and PI. Innovations to FDIs and PIs do not appear to have a very significant effect on the three variables in the system.

The overall results show that FDIs do not provide the presents that it promises. They do not seem to lead the economic growth as noted by the literature. In contrast with the literature, portfolio investments to Turkey after the 2001 crisis is significant in leading the economic growth. But most importantly, economic growth leads PIs and FDIs, so in conclusion both the direct and indirect foreign investments prefer the countries with economic growth and FDIs do not always granger cause the growth. Thus, policy makers should be aware of that and instead of making policies to attract foreign investments, they should focus on the local producers. The local producers should be given the privileges and benefits rather than the foreigners.
REFERENCES


