An Examination of Portfolio Investments to Turkey

By

Engin Kucukkaya

Middle East Technical University

Department of Business Administration

Ankara, Turkey

enginkk@metu.edu.tr

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Abstract:

Different factors have been claimed to influence the foreign flows to a country. According to the push view, it is the international interest rates and the condition of the global economy that determines the capital flows to a country. On the other hand, the pull view states that domestic economic indicators such as domestic interest rates, real exchange rate, capital account balance, budget balance, real exchange rate and stock price index are the main determinants of the capital flows. A third view on the matter argues that both push and pull factors are influential on the capital flows. This study examines those factors for Foreign Portfolio Investments to Turkey by employing VAR Methodology. Findings show that the domestic interest rate, US interest rate, ISE price index, exchange rate, and capital account balance have influence on the portfolio investments to Turkey.

Introduction

Higher capital mobility and international financial integration have contributed to the higher level of capital flows to the developing countries in the recent years. Those capital flows have important influences on the economies of recipient countries.

As positive impacts, increasing aggregate domestic demand and increasing the level of investment can be listed. Those inflows can also help the government to finance its budget deficit. On the other hand, inflationary pressures due to higher domestic demand, larger current account deficit and increasing level of vulnerability to external shocks can be listed as the negative impacts. More importantly, in the absence of a solid financial system, a sudden reversal of inflows can cause considerable macroeconomic instability. Mexican Crisis in 1994, East Asian Crisis in 1997, Argentinian and Turkish crises in 2001 are examples of such situations.

There can be various reasons for high level of capital flows to the developing countries. Declining level of interest rates globally, the surplus generated by the growing economies of the advanced countries, the increasing level of capital mobility with the aid of improvements in information technology, as well as spreading financial liberalization among the developing countries are a few of those reasons. Even though the recipient countries face the same international economic conditions that may make them more attractive for foreign investment, the amount of capital flow to each country differs. The differences are due to the domestic economic conditions of recipient countries, like growth rate of GDP, interest rates offered, macroeconomic stability as well as political issues.

The importance of the foreign capital flows for the developing countries and the impacts of them on those markets have caused researchers to elaborate the determinants of those flows. Among them Calvo et al. (1993), Fernandez-Arias (1996), Kim (2000), Ying and Kim (2001) claim that external factors such as international interest rates and global economic condition are the main determinants of the capital flows to the developing countries. The external factors are the factors that emerge outside the mentioned country. This first group is stating that the external factors are the primary determinants of the level of capital flow in a country (push view). In that sense, they argue that the most important external factors are the international interest rates as well as prevalent economic and financial climate in the world. The widespread conclusion is that; the level of capital inflow to a particular country is likely to decrease when the international interest rate level is relatively higher than the interest rate that is offered by this country. Moreover, some of the authors also conclude that the capital inflows to the countries tend to increase when the liquidity in the international financial markets increases and decrease when the liquidity in the international financial markets decreases.

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On the other hand, according to the authors such as Dasgupta and Ratha (2000), Mody et al. (2001) and Hernandez (2001) who are in favor of the dominance of the internal factors, the situation of the domestic economy of the recipient countries is the main driving force of the incoming capital flows (pull view). The internal factors that play role in the determination of the capital inflows to a country are related with the domestic economic and financial situation of the country, and can be listed as: current account balance, domestic real interest rate, real effective exchange rate, inflation rate and annual GDP level. Moreover, some authors also emphasize on the monetary and fiscal policies applied by the countries while elaborating the effect of internal factors on the level of capital inflows to a country. In that regard, when a country is experiencing economic downturn, the capital inflows to this country tends to decrease since the confidence of the investors towards this country deteriorates. Moreover, they also argue that considerable level of current account deficits, decreasing exchange rates and relatively lower domestic interest rates than international interest rates are some of the important internal factors that cause the level of incoming capital to a country to decrease. On the contrary, these authors also claim that when the economy of a country improves, the capital inflow to the country also increases due to the fact that the expectations of the foreign investors about this country become more positive. In addition, it is also stated that higher level of domestic interest rates relative to the international interest rates, current account surpluses or low level of current account deficits and decreasing exchange rates are several important internal factors that result increased in the capital inflows to a country.

A third argument on the matter is that, it is not possible to explain the capital flows just by looking at the external or internal factors. In their studies, Chuhan et al. (1993), Taylor and Sarno (1997), Milesi-Ferreti and Razin (1998) state that both push and pull factors are effective in the determination of the capital flows to the developing countries. The supporters of this argument claim that external factors such as international interest rate and current global economic climate are effective in the determination of the capital inflows, but still, the role of the internal factors such as domestic economic indicators and fiscal and monetary policies pursued by the countries cannot be neglected. Those authors conclude that before the liberalization of the most of the economies in 1990s, the internal factors were dominant determinants of the capital movements to a particular country. However, with the acceleration of the economic liberalization movements in the developing countries and increasing level of internationalization of the financial markets in 1990s, the role of external factors has increased. In that regard, the supporters of this idea claim that although both external and internal factors are effective in the determination of capital inflows, the influence of external factors in that process has intensified compared to internal factors in the last decade.

As a developing country herself, Turkey has liberalized her financial accounts in 1989 with the declaration of Decree 32. With this decree, the capital inflows and outflows to Turkey were fully liberalized for the aim of obtaining foreign capital. After that, Turkey received high amount of capital inflows in the early 1990s just like other developing countries which liberalized their financial accounts in the late 1980s. The graph below hints a positive relationship between the capital flows to developing countries and the capital flows to Turkey.

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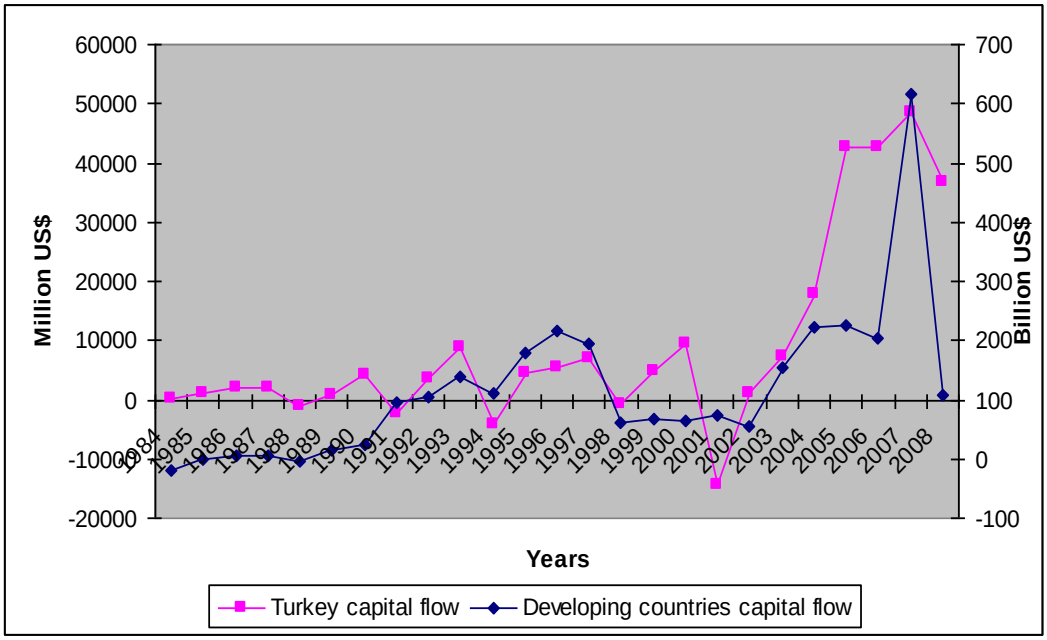


Figure 1: Capital Flows to Turkey (Left Panel) and Capital Flows to Developing Countries (Right Panel)

Determinants of capital flows to Turkey were also studied by a few researchers. Studies by Balkan, Biçer and Yeldan (2002) and Çulha (2006) investigated the factors that determine the capital flows to Turkey, where the former limited them to short-term capital flows. A later study by Kara (2007) examined the direct investment component of the capital flows to Turkey. In this study we investigate the factors that influence portfolio investments to Turkey in the period of 1989 to 2008, and provide information on the missing portfolio flow component of the capital flows. Balkan et all (2002) investigate the determinants of the short-term capital flows to Turkey after the capital account liberalization in 1989. For this purpose, they used a multiple regression model in which short-term foreign financial capital is the dependent variable whereas index of the ISE National-100, the real exchange rate, the real interest rate, ratio of the public sector borrowing requirement to GNP, industrial production index, the degree of trade- openness and the ratio of short-term debt to Central Bank's foreign reserves are the explanatory variables. The results reveal that stock price index, the degree of the trade openness, the ratio of short-term debt to Central Bank's foreign reserves and real exchange rates affect the short-term capital movements to Turkey positively. Plus, even though they fail to be significant explanatory variables, higher Turkish real effective interest rate and the ratio of the public sector requirement to GDP are founded to be increasing the level of short-term capital movements to Turkey. On the other hand, the industrial production index is concluded to be negatively related with the dependent variable meaning that a decrease in this index results in an increase in the short-term capital inflow. In the end, the paper concludes that the level of short-term capital flows to Turkey is highly dependent on various macroeconomic indicators. Çulha (2006) examines the determinants of the capital flow to Turkey within the push and pull factors perspective. The dependent variable of the model is capital inflows to Turkey which was calculated as the sum of portfolio and short-term capital inflows. Interest rate on 3-month US Treasury Bill and the US industrial production index are the independent variables that represent the push factors whereas real interest rate on Turkish Treasury bills, Istanbul Stock Exchange price index, budget balance and current account balance are employed as the variables that represent the pull factors. The results of the impulse-response analysis show that shocks to US interest rates increases while shocks to domestic real interest rates decreases the capital flows to Turkey in the whole sample period. The author explains this inconsistent result with the unstable nature of the Turkish economy which is characterized by high level of inflation and interest rates especially during the late 1990s. The impulse-response analysis also suggests that shocks to US industrial production has a positive relationship with the capital inflows to Turkey meaning that an increase in the US economic

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activity raises the financial funds that are available to Turkey. The analysis also shows that a shock to ISE causes an increase in the capital inflows to Turkey in general. On the other hand, the empirical findings suggest that there is a negative relationship between the shocks to budget and capital account balances and capital flows. At that point, it is argued that since these balances are perceived as indicators of fiscal and external fragility by foreign investors, deterioration in those balances results in capital outflows from the country. According to the variance decomposition analysis, shocks to US interest rates is the most influential factor in determining the fluctuations in capital inflows, followed by shocks to domestic interest rate and budget balance respectively. Overall, pull factors are more effective than the push factors. According to the author, this suggests that capital flows are quite dependent on the external conditions and a sudden reversal may result in an exchange rate crisis in countries that finance their capital account deficits via foreign capital. Therefore, it is stated that the development and implementation of sound fiscal and monetary policies that would assure sustainable budget and current account balances are very crucial. In sum, the paper claims that the push factors are more dominant in the determination of the capital inflows in the case of Turkey. However, solid economic and fiscal policies are necessary in order to avoid the problems that may arise as a result of the dependence on the foreign capital flows.

Data and Preliminary Tests

The study uses monthly data for the period 1989:04 – 2008:12 and the variables of the model are: Portfolio investments to Turkey (PI), Budget balance (BB), Current account balance (CA), Istanbul Stock Exchange National 100 price index (ISE), nominal exchange rate between TL and USD (LNER), inflation rate (LNINF), short-term interest rate in Turkey (LNIRTR), short-term interest rate in the US (LNIRUS).

US data are obtained from IMF database (International Financial Statistics[1]). All the other data are taken from the database of Central Bank of the Republic of Turkey. LNIRTR series are Turkish money market rate and LNIRUS series are the US 3-month Treasury bill rate.

To test for the existence of unit roots in the series, ADF, KPSS and PP tests are applied. Results of the tests[2] for the variables BB and CA and conclude that they are I(1). However, the variables PI and LNIRTR are I(1) according to ADF and KPSS tests whereas PP test concludes that those variables are I(0). Another inconsistency is, ADF and KPSS tests show the variables ISE, LNER and LNINF as I(1) while KPSS test conclude that they are I(2). ADF and PP test show LNIRUS as having more than two unit roots, whereas PP test concludes that it has two unit roots but KPSS test shows that this variable is I(0). By taking into account the majority of results for each variable, the first differences of BB, CA, ISE, LNER, LNINF, LNIRTR, PI and second difference of LNIRUS are used in the VAR model.

Model Estimation

According to the discussions on the matter, the capital flows to a country may increase with higher domestic interest rates (LNIRTR), more favorable budget balance (BB), more favorable current account balance (CA), lower international interest rates (LNIRUS), more valuable domestic currency (LNER), lower inflation rate (LNINF), and higher ISE price index (ISE). The relationship between those variables and portfolio investment to Turkey (PI) are tested by using the Vector Autoregression method.

Initially, the model is run[3] for the whole period 1989:04 – 2008:12. In addition, the data series are divided into two sub-periods of 1989:04 – 2001:12 and 2002:01 – 2008:12 and a model is run for each group. There are several reasons why the series are divided from the beginning of 2002.

[1] Accessed through DataStream database.

[2] All test results are available from the author upon request. Individual tables are not included to save space.

[3] Lag lengths for the variables and their differenced versions are selected by using sequential modified LR test statistic, Final prediction error, Akaike information criterion, Schwarz Bayesian Criterion, and Hannan-Quinn information criterion. The choice is made by majority vote.

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First of all, floating exchange regime was adopted in 2001. The second purpose is to understand the effect of the 2001 financial crisis on the variables used in the model.

The optimum lag orders used for the sub-periods 1989:04 – 2003:12 and 2002:01 – 2008:12 are 1 whereas it is 2 for the period 1989:04 – 2008:12. The tests show that VAR models are stable.[4]

After these preparatory steps, we follow with the results of the model., presented in Table 1 below.

According to the results for the sub-period 1989:04 – 2003:12, d(PI) is significant at 1% level in both lags. d(ISE) is significant at 1% level in the first lag. d(CA) is significant at 10% level in both lags. d(LNER) is significant at 10% level in the second lag. d(LNIRUS,2) is significant at 1% level in the first lag. d(LNIRUS,2) is significant at 10% level in the first lag. On the other hand, d(BB) and d(LNINF) show no significance.

[4] Stability tests results are available from the author upon request.

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Table 1 Results of the VAR Model for the period 1989:04 – 2008:12

Variables	Coefficients	Standard errors	t-statistics
d(PI)(-1)	-0.55449	-0.066	[-8.40162]***
d(PI)(-2)	-0.45882	-0.06517	[-7.04092]***
d(BB)(-1)	2.35E-08	-1.70E-05	[0.00140]
d(BB)(-2)	-1.54E-05	-1.60E-05	[-0.94910]
d(CA)(-1)	-0.22198	-0.12383	[-1.79259]*
d(CA)(-2)	-0.24681	-0.12698	[-1.94369]*
d(ISE)(-1)	-0.13571	-0.04072	[-3.33303]***
d(ISE)(-2)	-0.04583	-0.04328	[-1.05872]
d(LNER)(-1)	-278.648	-2017.16	[-0.13814]
d(LNER)(-2)	4057.702	-2141.44	[1.89485]*
d(LNINF)(-1)	16.22154	-21.6886	[0.74793]
d(LNINF)(-2)	-9.17189	-22.3934	[-0.40958]
d(LNIRTR)(-1)	530.8814	-311.647	[1.70347]*
d(LNIRTR)(-2)	-86.1472	-314.72	[-0.27373]
d(LNIRUS,2)(-1)	1448.157	-753.03	[1.92311]*
d(LNIRUS,2)(-2)	280.1186	-860.97	[0.32535]
C	-69.8838	-96.2774	[-0.72586]
DUM1994	-1727.15	-1033.01	[-1.67195]*
DUM2001	-205.87	-850.6	[-0.24203]

Notes: "***" indicates significance at 1% level, "**" indicates significance at 5% level, "*" indicates significance at 10% level. 1% critical t value is 2.57, 5% critical t value is 1.96, 10% critical t-value is 1.64. The F-statistic of the model is 8.82.

Table 2 Results of the VAR Model for the Sub-Period 1989:04 – 2001:12

Variables	Coefficients	Standard errors	t-statistics
d(PI)(-1)	-0.20073	-0.07881	[-2.54696]**
d(BB)(-1)	-4.57E-05	-5.30E-05	[-0.86884]
d(CA)(-1)	0.172207	-0.14394	[1.19639]
d(ISE)(-1)	-0.205	-0.06563	[-3.12339]***
d(LNER)(-1)	230.3351	-1542.35	[0.14934]
d(LNINF)(-1)	11.27255	-15.4507	[0.72958]
d(LNIRTR)(-1)	930.528	-221.644	[4.19830]***
d(LNIRUS,2)(-1)	-1965.04	-1261.66	[-1.55751]
C	21.52515	-93.497	[0.23022]
DUM1994	-721.822	-570.483	[-1.26528]
DUM2001	-1365.26	-687.276	[-1.98648]**

Notes: "***" indicates significance at 1% level, "**" indicates significance at 5% level, "*" indicates significance at 10% level. 1% critical t value is 2.57, 5% critical t value is 1.96, 10% critical t-value is 1.64. The F-statistic of the model is 8.08.

According to those resultsof Table 2, d(PI) variable is significant at 5% level. d(ISE) and d(LNIRTR) are significant at 1% level. However, d(BB), d(CA), d(LNER), d(LNINF) and d(LNIRUS,2) variables don't have any significance.

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Table 3 Results of the VAR Model for the Sub-Period 2002:01 – 2008:12

Variables	Coefficients	Standard errors	t-statistics
d(PI)(-1)	-0.33021	-0.10431	[-3.16574]***
d(BB)(-1)	-2.42E-05	-2.60E-05	[-0.92864]
d(CA)(-1)	-0.14661	-0.23949	[-0.61220]
d(ISE)(-1)	-0.08635	-0.07288	[-1.18490]
d(LNER)(-1)	14293.04	-5502.57	[2.59752]***
d(LNINF)(-1)	101.2968	-101.851	[0.99456]
d(LNIRTR)(-1)	-2712.03	-5730.69	[-0.47325]
d(LNIRUS,2)(-1)	2398.72	-1303.11	[1.84076]*
C	79.22359	-214.104	[0.37002]

Notes: "***" indicates significance at 1% level, "**" indicates significance at 5% level, "*" indicates significance at 10% level. 1% critical t value is 2.57, 5% critical t value is 1.96, 10% critical t-value is 1.64. The F-statistic of the model is 3.90.

According to the results in Table 3, d(PI) and d(LNER) are significant at 1% level. d(LNIRUS,2) is significant at 10% level. However, d(BB), d(CA), d(ISE), d(LNINF) and d(LNIRTR) have no significance.

Interpreting the Results

For the period from 1989:04 to 2008:12, ISE price index variable is significant with a negative coefficient meaning that a lower ISE price index increases the net portfolio investments to Turkey. It might be explained with the fact that the investors tend to buy stocks when their prices are low with the expectation that it will raise in the future. When the sub-periods are examined, ISE Index has a negative relationship with the portfolio investments in the sub-period 1989:04 – 2001:12 but it loses its significance in the post-2001 period.

Current account balance is significant with positive coefficients in both lags for the period 1989:04 – 2008:12. Çulha (2006) found a negative relationship between capital flows and current account balance in Turkey and explains this situation by stating that current account balance affects capital flows in two ways. First of all, deepening current account deficit requires financing mostly in terms of portfolio investments and direct investments. In this situation, an increase in the capital account balance points out an increase in the capital flows as well. However, in the second way, the capital account deficit is perceived as a negative sign about the country's external fragility and thus, their confidence may decrease. In this scenario, there is a negative relationship between the current account balance and capital flows. As a result, in Turkish case, the second channel is more dominant and since the presence of a current account deficit is seen as an indicator of external fragility, an increase in the current account deficit results in a decrease in the capital inflows.

The exchange rate variable is significant in the second lag with a positive coefficient for the period 1989:04 – 2008:12. It indicates that a depreciated TL against US dollar results in higher net portfolio investment to Turkey, showing foreign investor decision to enter the Turkish market when the value of TL is low. On the other hand, exchange rate variable is not significant in the sub-period 1989:04 – 2001:12 whereas it is significant in the sub-period 2002:01 – 2008:12. The reason of this change might be the shift from fixed exchange rate regime to floating exchange rate regime after the February 2001 economic crisis.

The Turkish interest rate variable is statistically significant with a positive coefficient in the first lag. This indicates that the higher domestic interest rates results in higher levels of portfolio investments to Turkey. This result is in line with the findings of Balkan et al. (2002) in their studies about Turkey. Moreover, Mody et al. (2001) have also has reached the same outcome in their study on the developing countries. In that regard, it is safe to assume that domestic interest rate is an explanatory variable of the portfolio flows to a country and there is a positive relationship between

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them. An increase in the domestic interest rate results in increasing level of capital inflows. However, in order for this to happen, the international interest rates should not be increasing consequently.

Another outcome of this model is that, Turkish interest rate is positively related with the portfolio investments before 2002 but after that period, is does not have a significant impact on the portfolio investment. The structural changes that Turkey went through after 2001 crisis as well as the accelerating globalization process which caused global factors to become more effective in determination of the capital flows might have caused the impact of domestic interest rates on the portfolio investments to decrease during the post-2001 period.

An interesting outcome of this investigation is that, the US interest rates' explanatory power on the portfolio investment is significant with a positive coefficient meaning that portfolio investments in Turkey tends to increase as the US interest rate rises. This contradicts with some of the previous studies on the matter. Balkan et al. (2002) and Çulha (2006) found a significant negative relationship between the US interest rates and capital flows. Moreover, Calvo et al. (1993), Fernandez-Arias (1994), Kim (2000) and Ying and Kim (2001) have also discovered that international interest rates are one of the major factors that affect the capital flows to the developing countries. The positive relationship between the US interest rate and in this study might be the outcome of the drastic decrease of the US Treasury bill rates at the end of 2008.

Conclusion

The amount of the capital flows to developing countries has increased considerably starting from the early 1990s. Improving technology, financial liberalization of the previously closed economies and the economic growth experienced in developed countries, as well as the presence of low returns in the developed countries have resulted in an increase in the capital flows towards developing countries. Different factors have been claimed to influence the foreign flows to a country. According to the push view, it is the international interest rates and the condition of the global economy that determines the capital flows to a country. On the other hand, the pull view states that domestic economic indicators such as domestic interest rates, real exchange rate, capital account balance, budget balance, real exchange rate and stock price index are the main determinants of the capital flows. A third view on the matter argues that both push and pull factors are influential on the capital flows.

As a developing country herself, Turkey has also experienced an increase in her capital inflows after the financial liberalization in 1989. In this study, we investigate the determinants of the portfolio investments to Turkey, hoping that knowing the influences may lead to better policy formation and to avoidance of further crisis.

The findings of this study show that net portfolio investment (inflows minus outflows) increases as a result of an increase in the domestic interest rates. It can be said that higher interest rates makes investing in Turkey more attractive for foreign investors. This outcome is in line with the previous studies on Turkey and on other developing countries.

On the other hand, the results imply that the US interest rate affects the amount of portfolio investments in Turkey positively. This means, as the level of US interest rate increases, Turkey receives higher amount of portfolio investments. This somewhat contradictory result might be due to the fact that this study examines the portfolio flows whereas most of the other studies in the literature investigate both direct investments and portfolio investments. In this study, we do not offer a good story for this influence, but present it as a finding that requires further investigation.

It is also founded that a decrease in the ISE price index increases the portfolio investments in Turkey. This can be explained with the tendency of the investors to buy stocks when their prices are low with the expectation that they will increase in the future. Just like the domestic interest rate factor, ISE price index loses its power in determining portfolio investments in the sub-period 2002:01 – 2008:12.

Exchange rate is found to have a positive relationship with portfolio investments in the post-2001 period, meaning that as the Turkish Lira loses value against USD, Turkey receives more portfolio investments. This might be indicating that the investors prefer to invest on a Turkish Lira with a lower

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value against US dollar. However, it should be noted that exchange rate does not have a significant influence on the portfolio investments before 2002 according to the results. This change might be the result of moving to flexible exchange rate regime after the February 2001 crisis. These results combined, indicate that the interest rate and the stock market index that were influential on determining the portfolio flows to Turkey until 2002 were replaced by the exchange rate factor after the implementation of the floating exchange rates.

Capital account balance is implied to have a negative relationship with the portfolio investments to Turkey. It means, a decrease in the capital account deficit will cause the level of portfolio investments to increase. This result points out that capital account balance and is perceived as an indicator of economic and fiscal stability by the foreign investors and influence their confidence towards Turkish economy.

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