Analysis of the Effects of Foreign Direct Investment on the Financing of Current Account Deficits in Turkey

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Abstract

The high rate of deficit in current accounts in Turkey shows a marked increase compared to the period before 2003. On the other hand, outsourcing in forms of foreign investments and external borrowing in order to finance the current deficits has shown a similar increase. This parallelism makes apparent the effects of capital movement, specifically of foreign direct investments on current accounts. With the aim of proving foreign direct investments different from portfolio investments and external debts in the financing of current account deficits, this study analyzes short-term and long-terms relationships. It identifies foreign direct investments as the primary active variable in the financing of current deficit.

Keywords: Financing the Current Account Deficit, Foreign Direct Investments, Cointegration Analysis, VECM, Granger Causality Test

1. Introduction

Current account deficit has had an impact on Turkey's economic turmoil for the past 50 years. The inverse relationship between current account deficit and economic growth in Turkey, as in many other developing countries, results mainly from the importing of intermediate goods and investment goods. Current deficits resulting from imported investment goods can be covered by creating means for investors to pay their debts. In Turkey, intermediate and consumption goods import is high and mandatory, which leads to deficits and dangerous consequences for the country's economy. Turkey's economy had a surplus in current accounts only in periods of crisis or of very low level of growth. Current account deficit has a direct multi-faceted relationship with growth rate and increase in investment.

Economic growth process has become dependent upon the relationship between capital flow and current deficit since 1990s due to financial liberalization policies. When faced with high rates of real interest and overvalued national currency policies, an economy which is open to short-term speculative capital movements cannot protect its domestic producers from foreign competition, and has to tackle current deficit problems which arise from trend of available funds towards consumption and import instead of investment. The deficits in the Turkish economy in the 1990s did not exceed %1 of national income and therefore remained at sustainable levels compared to the 2000s. The current deficits started to increase after 2000. Turkish economy experienced high current account deficits in the period after 2002 due to overvalued national currency, high dependency on intermediate goods imports, rapid increase in imports in periods of growth, short-term high interest rates, and increases in world's oil, energy, commodity and basic goods prices. The ever-increasing current account deficits were covered with foreign direct investments, hot money inflows, privatization and external borrowing.

The aim of this study is to prove that foreign direct investments were more effective than other financial account tools in the Turkish economy during the 1992.Q1-2011.Q3 period. Short and long-term relationships were examined and the Granger causality was tested to determine their direction.

2. Financing the Current Account Deficit

Current account can be defined in different ways. It is the addition of net factor payments and net transfers from abroad to the balance of trade of total goods and services. In other words, it can be defined as the subtraction of consumption expenditure from gross spendable income. From another point of view, current account is the level of domestic savings to meet investments. Finally, in analyzing savings investments one should take into consideration not only the assets acquired by a country's residents through external lending and borrowing but also the international flow of financial assets. Accordingly, current account is also acknowledged as the change in new foreign assets compared to other countries (Yücel and Yanar, 2005:483-492).

The financing of a country's accounts, which is the balance between foreign income and expenses in production factors, and merchandise trade in the real sector of the economy, is the most important indicator of foreign exchange gap/surplus. Accounts are financed with foreign direct investment, portfolio investments and external financing through external borrowing. There is a strong inverse relationship between account deficits and foreign capital flows. The financial capital income within such capital flows (excluding foreign direct investments) naturally increases debt. In this respect, a problem that is as important as the size of a country's account deficits is the type of financing used with deficits. External borrowing from international organizations, foreign banks and governments lead to an increase in the country's outstanding external debt. Official reserves which is the second way to offset current deficits is excluded from this study.

Instead of hot money flow which increases short-term debts and external debts, financing current account deficits with foreign direct investment and long-term foreign currency inflows may seem relatively less problematic (Yeldan, 2006:162). As we know, a large volume of hot money which wants to take advantage of high interest rates and therefore moves towards speculative areas reduces the profitability of exports due to overvalued domestic currency and increased deficits. When the hot money is out of the system after disturbing the balance between interest and exchange rates, it drags a country's economy to larger dilemmas. The country therefore becomes more dependent on imports and steers away from being a production economy to a consumption economy. Furthermore, a large increase in current account deficits is another factor which lets hot money escape from a country.

Under such economic growth lies production increase of cheap import input, capital inflow and a rise in real exchange rates. Increased investment rates and high growth rates provided by foreign investment resources lead to current account deficits.

3. Current Account Deficits and External Financing in Turkey

In financing its external balance before 1980, Turkey mainly made use of external financing resources from international organizations. After 1980 the share of private capital in external borrowing increased and short-term capital flows became a decisive resource in ensuring the external balance. In the 2000s, increasing direct investments and long-term loans played an important role in the financing of the current account deficits.

In Table 1, financing of the current account deficits and the external balance deficits are divided into four periods of time. Account deficit in 1989-1994 was mainly covered with non-debt financing, and especially net portfolio investments experienced a marked increase. An inflow of approximately 4 billion USD in foreign direct investments made it possible to finance current deficits without borrowing, and lead to a 4.4 billion USD increase in reserve assets.

In 1995-2001 current account deficit rose to 12.4 billion USD and net errors and omissions decreased by 1.2 billion USD compared to the previous period, which negatively affected the balance. In this period when non-debt financing was 1.2 billion USD and total external borrowing requirement was 12.4 billion USD, it is clear that external borrowing affected the financing of the current deficits. In 2002-2010, with more capital flow, the cumulative sum for current deficits increased to 204.1 billion USD. Net errors and omissions had a surplus of 21.9 billion USD and therefore lead to a lower external balance deficit than current deficit. Non-debt financing was 118.9 billion USD, 78.9 billion of which resulted from foreign direct investments.

In this period total external borrowing was 125.1 billion USD and private sector borrowing was 130.9 billion USD. Reserve assets increased by 61.9 billion USD.

During the 1992.Q1-2011.Q3 period under review in this study, a cumulative sum of -221.3 billion USD in current accounts along with 19.2 billion USD net errors and omissions caused a 202 billion USD deficit in the external balance. A positive figure in net errors and omissions, which shows the balance of informal exchange inflow and outflow, is often interpreted as hot money input. In this period, total external borrowing was 138.7 billion USD and non-debt financing was 129.6 billion USD.

3.1. Course of Foreign Direct Investment in Turkey

As current account deficit also means that a country with savings deficit is to import savings from abroad, the relationship between current account balance and foreign capital investments can be explained by the relationship between savings and investment. In this case, the rise in domestic interest rates encourages capital inflow, and the balance of financial accounts payments will have a surplus (Eğilmez and Kumcu, 2007: 253).

As for the host country, the first effects of foreign capital investment on foreign trade rates and balance of payments are widely considered positive. The effects of foreign capital investments are very important in remedying the lack of capital, closing the domestic savings gap and increasing foreign exchange revenue in Turkey and in other developing countries with similar economic structure.

In addition, foreign direct investment has positive effects as it raises production and employment, transfers technology, brings dynamism to domestic economy, increases domestic competition, provides knowledge on foreign markets and management, and adds to the tax revenue for local governments. On the other hand, an increased foreign control on the economy has negative effects as it forms binary structures, makes it difficult to follow an independent industrial policy, distorts competition for national companies, and even pushes local firms out of the market. Furthermore, the host country cannot implement its foreign trade policies. Foreign exchange costs increase as foreign firms transfer profits to their own countries. In some cases, firms become dependent upon technology imports when Research and Development (R&D) operations are run in company headquarters. As foreign-dependency increases, transfer pricing problems may occur. (Aktan and İstiklal, 2004: 274). In an environment of global awareness especially in recent years, pollutant production techniques, sustainability of ecological balance, and waste become problems.

Foreign direct investments in Turkey gained momentum with the transition to a export-oriented industrialization policy after the 1980s. However, in the 1990s foreign direct investments slowed down and became static. Due to high inflation and a very unstable environment, the Turkish foreign capital policy disregarded technology transfer, technical training, R&D, foreign market links, and local hinterland and metropolitan industries. Instead it favored short-term profit expectations, geographical proximity and low labor costs. Renovation investments as well as expansion and capital investments predominated the period after the 1994 crisis, when the Turkish Lira was overvalued due to very high real interest rates (Kaya 2010: 74).

Actual capital inflow was in the form of FDI in 1990-1999, when the lowest inflow was 817 million USD whereas the highest was 1.242 billion USD. The most important reason why authorized capital is different from actual inflow is that foreign companies with an authorization to invest brought only a small amount of the capital when they founded the company and let the rest of the amount spread over time (Öcal, 2004: 268-269).

By the 2000s, mergers and acquisitions started to build an overall view for foreign direct investments. The share of service sector in particular was very high compared to the manufacturing industry in this period. Another characteristic of the investments was that they internationalized R&D expenditures. Another important structural change in the flow of FDI was a result of the acquisitions made by financial institutions, such as private equity companies and some hedge funds (Aslanoğlu, 2008: 85-86). The fluctuation of foreign investment in Turkey in the 2000s reveals itself especially in the hard drop experienced in the 2001 crisis. Following the crisis, monetary policies supported by fiscal discipline and diminution in economic and political uncertainties, policies aimed at improving the investment environment and the positive impact of the global markets accelerated capital inflow. The legal regulations in 2003 concerning foreign capital (Foreign Investment Law No. 4875) and the reduction of bureaucratic procedures in founding a company increased the number of newly established companies.

From a sectorial point of view, the share of service sector in foreign direct investments was outstandingly large. The large share of the service sector is not a situation unique to Turkey. Service sector still has a large share globally. In the 2000s, the decline in foreign direct investment which also resulted from the economic conjuncture had a sectorial effect and lead to a downward trend.

In recent years Turkey has focused on privatization in order to accelerate foreign capital inflow. For example, privatizations yielded approximately 8 billion USD in 2005 and 2006. In 2007 the figure dropped to about 4.2 billion USD and rose to 6.3 billion in 2008. These institutions were acquired mostly by local investors. Foreign investors accounted for 1.5 billion USD in 2005 and 1.768 billion USD in 2006 (''Foreign Direct Investment in Turkey 2008 Report'', 2009: 16).

3.2 Foreign Direct Investments in the Financing of Current Account Deficits

The amount of direct foreign capital flow into Turkey had significant changes, and did not experience an apparent decline even in crises of 1994 and 2001. The main reason is that it was difficult for foreign investments to be liquidized in case of short-term problems because these investments had long-term expectations (Seyidoğlu, 2006: 157). As shown in Table 2, 80% of the current account deficit in 1992 and 10% in 1993 was covered by foreign direct investment. In 1994, 1998 and 2001 current accounts balance had a surplus, but showed a fluctuating course in other years. Based on FDI inflows, 45% of the 221 billion USD current deficits in 1992-2010 were financed directly by direct investments. In net values, a cumulative of 86 billion USD FDI inflow financed %39 of the current deficit in the same period. When portfolio investments and other investments excluding FDI improved, the current account deficit increased, and when they lessened, the current account deficit decreased. As mentioned above, periods of crisis, when the economy contracted, were periods when the current account balance had a surplus.

Even though Turkey received a serious amount of foreign capital inflow after 2000, a content analysis shows that these inflows did not contribute as much to economic growth as to balance of payments. An important part of foreign capital investments after 2005 were in the form of mergers and privatizations. These activities brought to Turkey a substantial amount of foreign exchange. In 2007 the 20 billion USD foreign direct capital threshold was exceeded. The reason why there were many FDIs (worth 15 billion USD) in Turkey in 2008 despite the crisis is that almost all investments were mergers and acquisitions. For example, the total of 9.681 million USD foreign direct investments was made up of acquisitions: 3.970 million USD in finance sector and 3.350 million USD in communications-telecommunications sector. 1.841 million USD was from acquisitions in the field of real estate and 1.5 billion USD were from privatizations (Yıldız, 2008, s.12).

In 2007, as a result of a high amount of capital inflow in the form of direct portfolio investment and other investments, financial accounts had a surplus of 36.6 billion USD. This positive trend in the financial account of balance of payments took a reverse direction in September 2008 due to recurrent global uncertainties, and this downward trend gained impetus in 2009. The global recession which began in 2008 became more apparent in 2009 with sharp declines in financial accounts. The changes in the financial accounts indicate that capital flow into Turkey changed in favor of direct investments and long-term capital instead of short-term capital inflow. Structural reforms after 2007 in particular, economic stability, large foreign exchange reserves of the Central Bank of the Republic of Turkey (CBT), the floating exchange rate regime and the strengthening of the banking system are among the factors that limited the effects of a possible capital outflow on the financing of the current account deficit (''Ministry of Finance Report 2007'', 2007:104). The accession negotiations with the European Union increased the reliability of the Turkish economy in international markets, accelerated direct capital inflow and improved national investments.

3.3. Portfolio Investment and Debt in the Financing of Current Account Deficits

The course of portfolio investments in the financing of current account deficits in Turkey can be said to be quite undulating. Portfolio investments were almost up to twice the current account deficits in 1992 and 1999 while such investments had a negative value in 2008, which explains this unstable pattern. As shown in Table 4, the relationship between current account balance and portfolio investments is low compared to other capital flows. In 1992-2010 a cumulative sum of 68 billion USD portfolio investments had a net value of 43 billion USD, and financed %19 of net account deficits and %31 of portfolio investment inflow. In Table 4, Portfolio Investments are given as liabilities (PIL), net portfolio investments (PIN) and current account balance (CAB).

Short-term capital left Turkey due to the global crisis of 2008-2009 and turned international capital flows into "net outflow". The two most important forms of outflow were net external debt principal payments and flight of hot money. In 2008 Turkey experienced a new capital outflow in the form of portfolio investment worth 5 billion USD. The inflow recorded in 2009 was only 196 million USD.

Table 5 shows Public Sector Liabilities (PL), Public Sector Net Borrowing (PNB), Private Sector Liabilities (PSL) and Private Sector Net Borrowing (PBNB). The importance of private sector debt in the financing of current account deficits stems from the fact that private sector debt could cover %84 of the deficits. In this period, the cumulative sum of private sector debt was 186 billion USD, and 154 billion USD in net values. The figure is in a position to finance %69 of current account deficits.

The effects of debt creating capital inflow in the financing of current account deficit stem less from portfolio investments of securities and FDIs than debentures, other capital inflow and IMF loans until 2003. After 2003, long-term loans started to gain importance (Kepenek and Yentürk: 339-342).

4. Empirical Analysis

4.1. Methodology

Many macroeconomic time series contain unit roots dominated by stochastic trends as developed by Nelson and Plosser (1982). Unit roots are important in examining the stationarity of a time series, because a non-stationary regressor invalidates many empirical results. The presence of a stochastic trend is determined by testing the presence of unit roots in time series data. There are many approaches to test stationarity in time series. In this study unit roots is tested with Augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) unit root tests.

If time series variables are non-stationary in their levels, they are integrated (of order one) and their first differences are stationary. These variables may also be co-integrated if there exists one or more linear combinations among them that are stationary. If these variables are co-integrated, then there is a stable long-run or equilibrium linear relationship among them (Johansen, 1991: 26). If the hypothesis of a unit root is not rejected, then a test for co-integration is performed. The hypothesis being tested with Johansen's maximum likelihood method is the null of non-co-integration against the alternative of co-integration.

An important empirical analysis to find out the direction of the relationship among the variables is Granger causality test. Granger (1969) developed an approach to determine the causality relationship by decomposing feedback mechanism among the variables. The relationships among the I(1) variables which are both Granger causality in the short term and the co-integration in the long run can be carried out by Vector Error Correction Models (VECMs). Enders (2004) stated that an ECM for I(1) variables necessarily implies co-integration. Granger representation theorem states that for any set of I(1) variables ECM and the co-integration are equivalent representations. Lütkepohl (2006) stated that the long-run relations are now often separated from the short-run dynamics.

4.2. Data and Model

This study aims to examine the relationship between current account deficits in Turkey, foreign capital flows and borrowing. It also aims to identify the foreign direct investments as the primary tool in financing the current account deficits rather than portfolio investments and other borrowings. Therefore, the study deals with long-and short-term relationships and tests the Granger causality among the variables. The analysis period is 1992:Q1-2011:Q3 and quarterly data are used. Data were gathered from the CBT data base.

The liabilities parts of foreign direct investments and portfolio investments from the balance of payments are used as variables. Private sector debt is analyzed under the headings of other investment liabilities of banks and other sectors, whereas public debt is analyzed under the headings of central bank and general government institutions. The descriptive statistics for current account deficits (CAD), foreign direct investment (FDI), portfolio investment (PI), public sector debt (PD), private sector debt (PSD) variables are provided in Table 6. All variables distributed non-normally according to the JB normality test at 1% significant level.

Table 7 shows the correlation matrix among variables. An analysis of the relationships between the variables shows that the highest correlation is found between PSD and PD (83%). Other variables have a relationship value less than 0.70.

4.3. Empirical Results

Econometric results of the study are given ADF and PP unit test results in Table 8 which shows that at the 1% confidence level, the hypothesis of no unit root for the variables is rejected in levels but accepted in first difference, indicating that all variables are integrated of order one. They are I (1) series. As seen in Table 8, all variables were stationary in first difference (I). As the variables are stationary on the same level, all variables will be included in the co-integration analysis.

Table 9 shows Johansen co-integration test results, Trace test and Max-eigenvalue test and indicates that there is a long run co-integration relationship between the variables. As can be seen in Table 9, one cointegre vector was obtained that determines the long term relationship. The length of the delay was identified with Schwarz Information Criterion and Hannan-Quinn Information Criterion and taken as 3.In this equation, the direction of the relationship and the coefficient values are given in Table 10.

According to Table 10, current account deficits have a long-term reverse relationship with FDI, PI, PD, and PSD. In other words, an increase in these variables will cause a decrease in the CAD. According to the coefficients of the equation, FDI variable with 0.76 br. is the most effective factor in the financing of the current account deficit. PI, PSD and PD are effective in order of coefficient value. The high current account deficits in the Turkish economy are financed with high capital inflow. That FDI remains high as a financing tool is important for the sustainability of current account deficits. FDI is followed by short-term portfolio investment and private sector borrowing. An increase in public liabilities has only a low effect in offsetting the current deficits.

Table 11 shows the vector error correction model (VECM) and incorporates both the short run and long run effects among the co-integrated variables. The ECM satisfied the specification tests; Breusch-Godfrey LM Test for Serial Correlation, Breusch-Pagan-Godfrey for Heteroskedasticity, Ramsey RESET for Specification Error, Cusum path for structural break, JB for normality. Lag lengths are based on Schwarz Information Criterion. The adjustment coefficient of ECM (ECM_residual(-1)) which are statistically significant shows that error correction mechanism runs. Adjustment speed depends on the value of coefficient and it is possible to reach the equilibrium level ultimately. As a result, there is co-integration relationship between the variables in the long run.

Error correction parameter balances the model dynamic and forces the variables for a long-run equilibrium. A statistically significant coefficient of the error correction parameter indicates a variation. The size of the coefficient shows the moving rate of long-run equilibrium value. In practice, the error correction parameter is expected to be negative and statistically significant. This expresses that variables will move to long-term equilibrium value. Short-run variations from equilibrium will be corrected according to the size of the error correction parameter coefficient (Enders, 2004: 367).

In this study, as the error correction term is negative and statistically significant, the error correction mechanism works. Non-equilibrium in a certain period can be corrected in subsequent periods. Hence, the long-run relationship in the model is consistent for the relevant period. In the analysis, vector error correction term is negative, which means that a variation will re-equilibrate in the long run.

Co-integration results indicate the direction of causality. However, information about the direction of long-run relationships among variables is very important for policy makers (Sarı and Soytaş, 2006: 187). Various causality tests (Granger (1969), Sims (1972), Pierce and Haugh (1977) Geweke, Meese and Dent (1982)) can be used to identify the direction of causality between two variables. The Granger-causality test is preferable to other tests thanks to its practicality and the inferences it presents at the end. Granger causality can also be interpreted as a predictability and exogeneity test.

Granger (1969) describes causality as "If Y can be better predicted with past X values, then X is the Granger cause of Y". After testing the accuracy of this definition, the relationship is shown in the form of $X \rightarrow Y$. In Table 12, the PI variable is the Granger cause of the CAD, and at the same time the CAD variable is a Granger cause of the PI. In other words, there is a bi-directional relationship (CAD $\leftrightarrow$ PI). While the PSD variable is a Granger cause for the CAD, the CAD variable is not a Granger cause for the PSD. There is a one-way causal relationship (PSD $\rightarrow$ CAD). While the PD variable is the Granger cause of the CAD, the CAD variable is also the Granger cause of the PD. There is bi-directional causality (CAD $\leftrightarrow$ PD). The FDI variable is the Granger cause of the CAD while the CAD variable is also the Granger cause of the FDI. There is bi-directional causality (FDI $\leftrightarrow$ CAD).

5. Conclusion

The current account deficit is a major macroeconomic problem not only in Turkey but also in many developed and developing countries. Especially after the recent financial crisis, developed countries too, had to face the problem of current account deficit. The Turkish economy has experienced both very high current deficits and high capital inflow since 2003. The study is based on the principle that deficits in current accounts should be externally financed. There are discussions about the financing of current account deficits with borrowing or foreign investments.

In order to identify which tools (among foreign direct investment, portfolio investment, private debts and public debts) are more effective in financing the current account deficits, this study used co-integration and VECM methods for short- and long-run relationships for the 1992.Q1-2011.Q3 period. The direction of the relationships was determined with the Granger causality test. Both long- and short-run relationships were found among the variables. The most effective financing tool in a long-run relationship was found to be foreign direct investment followed by portfolio investment. The causality analysis showed that the CAD and FDI variables together with the PI and PD variables have bidirectional causality, while the PSD variable showed a one-way causality towards the CAD. Thus, the FDI and the PI are remarkably significant in both long and short-run financing of current account deficit.

The most important characteristic of foreign direct investments is that they are less exposed to the country's economic condition and have an extremely low liquidity for they are physical investments. Therefore, the only way of making sustainable a high current account deficit is to attract investments into the country. In other words, it is not possible to sustain a high current account deficit with short-term speculative foreign exchange inflow and external debts.

One of the determining factors in the sustainability of current account deficits is the composition of foreign liabilities; since, financing the deficits with foreign direct investment instead of long-term and short-term capital inflows is an indication of a sustainable foreign exchange inflow.

In the 1992.Q1-2011.Q3 period with liability items and a current account deficit worth 221 billion USD, the economy experienced a 100 billion USD foreign direct investment inflow, a 68 billion USD portfolio investment inflow and a 186 billion USD private sector debt. There was a 15 billion USD decline in public sector debt. Central bank reserve assets increased by 66 billion dollars in the same period. When the variables are analyzed in terms of net values, foreign direct inflow is 86 billion USD, portfolio investment is 43 billion USD, private sector debt is 154 billion USD and public debt is -16 billion USD. Despite its numerical size, the private sector debt has a lower impact on the financing of current account deficits, which can be explained by the increase in reserve assets as a result of private sector borrowing.

One of the fundamental structural problems in Turkey's current account concerns the structure of production. In periods of rapid economic growth, current account deficit increases due to increased imports. In this sense, the real solution to the problem is to take measures in order to improve the competitiveness of export sectors. In a country like Turkey, which cannot increase the amount and profile of its exports and its foreign exchange income in the short-run, it is only possible to avoid a foreign exchange bottleneck by financing the current deficits with long-term FDI inflow. In this study, because the main macroeconomic variable that affects the sustainability of current account deficits is foreign direct investment, economic growth in Turkey can be achieved with continued foreign capital inflow. As long as the Turkish economy aims at a high growth rate and cannot finance imports with exports, it has to face current account deficit and increase foreign capital inflow.

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Table 1. Financing of Current Account Deficit (Billion USD) between 1989-2010

	1989-1994	**1995-2001**	**2002-2010**	**1992-2011.Q3**
Current Account Balance	**-6213**	**-12499**	**-204109**	**-221384**
Net Errors and Omissions	-87	-1228	21984	19321
External Balance	**-6300**	**-13727**	**-182125**	**-202063**
Foreign Direct Investment	4106	5616	78901	86477
Portfolio Investment	10042	-4334	40033	43185
Non-debt Financing	**14148**	**1282**	**118934**	**129662**
Total Borrowing Requirement	-7848	12445	63191	72401
Public Debt	-7300	-6159	-5763	-16095
Private Sector Debt	3866	20910	130943	154874
Total External Debt	**-3434**	**14751**	**125180**	**138779**
Reserves (- increase)	-4414	-2306	-61989	-66378

Source: http://evds.tcmb.gov.tr/cbt.html.

Table 2. Financing the Current Account Deficit with Foreign Direct Investments (Million Dollars)

Years	CAB	FDIi	FDIn	FDIi/ CAB(%)	FDIN/ CAB (%)
1992	-974	844	779	87	80
1993	-6433	636	622	10	10
1994	2631	608	559	-	-
1995	-2339	885	772	38	33
1996	-2437	722	612	30	25
1997	-2638	805	554	31	21
1998	2000	940	573	-	-
1999	-925	783	138	85	15
2000	-9920	982	112	10	1
2001	3760	3352	2855	-	-
2002	-626	1082	939	173	150
2003	-7515	1751	1252	23	17
2004	-14431	2785	2005	19	14
2005	-22198	10031	8967	45	40
2006	-32193	20185	19261	63	60
2007	-38311	22047	19941	58	52
2008	-41946	18269	15720	44	37
2009	-14410	8403	6850	58	48
2010	-32479	5202	3966	16	12

Source: http://evds.tcmb.gov.tr/cbt.html
Notes: FDIi: Foreign direct investment inward, FDIn: Foreign direct investment net. CAB: Current account balance

Table 3. Foreign Direct Investment Actual Inflow (Million Dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
International Direct Investment	**3.352**	**1.137**	**1.752**	**2.786**	**10.026**	**19.912**	**21.957**	**18.269**	**7.886**
International Direct Capital	**3.352**	**1.137**	**754**	**1.443**	**8.195**	**16.990**	**19.005**	**15.332**	**6.066**
Capital	**3.352**	**617**	**737**	**1.092**	**8.134**	**16.982**	**18.504**	**14.698**	**5.919**
Inflow	3.374	622	745	1.190	8.535	17.639	19.247	14.733	6.001
Outflow	-22	-5	-8	-98	-401	-657	-743	-35	-82
Other Capital	**--**	**520**	**17**	**351**	**51**	**8**	**501**	**634**	**147**
Real Estate	**--**	**--**	**998**	**1.343**	**1.841**	**2.922**	**2.952**	**2.937**	**1.820**

Source: http://evds.tcmb.gov.tr/cbt.html .

Table 4. Financing the Current Account Deficit with Portfolio Investments (Million Dollars)

Years	CAB	PIL	PIN	PIL/ CAB(%)	PIN/ CAB (%)
1992	-974	3165	2411	325	248
1993	-6433	4480	3917	70	61
1994	2631	1123	1158	-	-
1995	-2339	703	237	30	10
1996	-2437	1950	570	80	23
1997	-2638	2344	1634	89	62
1998	2000	-5089	-6711	-	-
1999	-925	4188	3429	453	371
2000	-9920	1615	1022	16	10
2001	3760	-3727	-4515	-	-
2002	-626	1503	-593	240	-
2003	-7515	3851	2465	51	33
2004	-14431	9411	8023	65	56
2005	-22198	14670	13437	66	61
2006	-32193	11402	7373	35	23
2007	-38311	2780	717	7	2
2008	-41946	-3770	-5046	-	-
2009	-14410	2938	196	20	1
2010	-32479	15445	13461	48	41

Source: http://evds.tcmb.gov.tr/cbt.html

Table 5. External Debt in Financing the Current Account Deficit (Million Dollars)

Years	CAB	PL	PSL	PNB	PSNB	PSL/ CAB (%)	PSNB/ CAB (%)
1992	-974	-1390	4286	-1354	1812	440	186
1993	-6433	-1141	8796	-1201	5565	137	87
1994	2631	-1600	-6797	-1618	-4356	-	-
1995	-2339	-575	4514	-677	4233	193	181
1996	-2437	-853	4823	-970	5271	198	216
1997	-2638	-430	6961	-528	5309	264	201
1998	2000	-1084	7846	-1179	6477	-	-
1999	-925	-2163	5729	-2261	3523	619	381
2000	-9920	736	9653	737	7713	97	78
2001	3760	-1242	-11054	-1281	-11616	-	-
2002	-626	667	936	637	189	150	30
2003	-7515	-1697	6158	-1725	5200	82	69
2004	-14431	-1372	16029	-1396	9070	111	63
2005	-22198	-2952	23786	-2968	23224	107	105
2006	-32193	-1980	31472	-1980	18035	98	56
2007	-38311	-1368	34270	-1366	29415	89	77
2008	-41946	-49	33857	-47	22920	81	55
2009	-14410	702	-7705	704	2781	-	-
2010	-32479	2376	12609	2378	20109	39	62

Source: http://evds.tcmb.gov.tr/cbt.html

Table 6. Descriptive Statistics for the Variables

	CAD	FDI	PD	PSD	PI
Mean	-3733.177	1478.329	56711.80	26681.09	1093.380
Median	-1577.000	402.0000	47621.00	19438.00	1023.000
Maximum	2092.000	9510.000	89524.00	80132.00	8587.000
Minimum	-23142.00	-365.0000	33643.00	7972.000	-6478.000
Std. Dev.	5372.354	2088.854	16936.39	16721.94	2659.642
Skewness	-1.597981	1.844857	0.268992	1.433044	-0.003014
Kurtosis	5.404632	5.918921	1.539584	4.546374	4.358499
Jarque-Bera	52.65490	72.85807	7.973218	34.91054	6.074958
Probability	0.000000	0.000000	0.018563	0.000000	0.047956

Table 7. Correlation Matrix for the Variables

	CAD	FDI	PD	PSD	PI
CAD	1.000000	-0.688669	-0.364644	-0.582095	-0.413388
FDI	-0.688669	1.000000	0.624059	0.646555	0.154371
PD	-0.364644	0.624059	1.000000	0.830960	0.373421
PSD	-0.582095	0.646555	0.830960	1.000000	0.335481
PI	-0.413388	0.154371	0.373421	0.335481	1.000000

Table 8. Unit Root Test Results

	ADF Unit Root Test Results		Phillips-Perron Unit Root Test Results	
	Level	**First Difference**	**Level**	**First Difference**
	Trend and Constant	**Constant**	**Trend and Constant**	**Constant**
CAD	-1.437	0.0001*	11.322	0.0001*
PI	-1.463	0.0000*	13.009	0.0000*
PD	-1.634	0.0000*	9.567	0.0000*
PSD	-1.384	0.0001*	14.870	0.0000*
FDI	-1.573	0.0000*	8.684	0.0000*

* Significant at the 0.01 level, Lags for ADF Test are selected automatically by based on Schwarz information criterion, Bandwith for Phillips-Perron Test are selected automatically by based on Newey-West Bandwith

Table 9. Johansen Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		**Trace**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.438933	86.33187	69.81889	0.0014
At most 1	0.279726	42.41037	47.85613	0.1476
At most 2	0.175791	17.47296	29.79707	0.6051
At most 3	0.035775	2.779790	15.49471	0.9760
At most 4	0.000146	0.011076	3.841466	0.9159
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haug-Michelis (1999) p-values**				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.438933	43.92150	33.87687	0.0023
At most 1	0.279726	24.93741	27.58434	0.1052
At most 2	0.175791	14.69317	21.13162	0.3110
At most 3	0.035775	2.768714	14.26460	0.9609
At most 4	0.000146	0.011076	3.841466	0.9159
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
*** denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haug-Michelis (1999) p-values**				

Table 10. Cointegration Equation Results (Dependent Variable is the Current Account Balance)

1 Cointegrating Equation(s):	**Log likelihood**	**-3353.224**	
Normalized cointegrating coefficients (standard error in parentheses)			
CAD	**FDI**	**PD**	**PSD**	**PI**
1.000000	- 0.769931	- 0.014359	-0.142429	- 0.307301
	(0.14687)	(0.02099)	(0.02512)	(0.12652)

Table 11. Vector Error Correction Model Results

Error Correction:	**D(CAD)**	**D(FDI)**	**D(PD)**	**D(PSD)**	**D(PI)**
CointEq1	-1.236127	-0.482096	-0.730921	-0.581326	-0.409384
	(0.19743)	(0.12508)	(0.13573)	(0.16874)	(0.15809)
	[-6.26105]	[-3.85436]	[-5.38497]	[-3.44518]	[-2.58949]
Diagnostic Statistics: R^2 =0.47, *Adj.* R^2 =038, *F-Statistic*=5.343, *F-Statistic (Prob)*=0.0023*****,					
Breusch-Godfrey Serial Correlation LM Test: Prob. Chi-Square(2)= 0.1883*****					
Heteroskedasticity Test: Breusch-Pagan-Godfrey: Prob. Chi-Square(3)=0.4561*****					
Ramsey RESET Test: F-statistic=0.0103, (1 , 77), *F-statistic (Prob)*= 0.4780*****					
Wald test: *Prob. Chi-Square(2)*= 0.0231*****					
Cusum path lies within the confidence interval bounds at %5 ; JB probability =0.3293*****					

Table 12. VEC Granger Causality/Block Exogeneity Wald Tests results

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause CAD	77	5.31952	0.0275
CAD does not Granger Cause FDI		3.50768	0.0352
PD does not Granger Cause CAD	77	4.96624	0.0095
CAD does not Granger Cause PD		6.05926	0.0021
PSD does not Granger Cause CAD	77	6.72889	0.0021
CAD does not Granger Cause PSD		2.42304	0.2358
PI does not Granger Cause CAD	77	5.20777	0.0077
CAD does not Granger Cause PI		3.58814	0.0327