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AN ECONOMETRIC ANALYSIS OF THE CURRENT ACCOUNT DEFICIT in TURKISH ECONOMY

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Özet

Dünya ekonomisi, 2006 yılında yüksek büyüme oranını korumuştur. Çin, dünya ekonomisinin güçlü büyüme eğilimi devam ettiren en önemli belirleyicisi olurken, Avrupa Birliği ve Japonya ekonomilerdeki istikrarlı büyüme, dünya ekonomisinde büyümeye katkı sağlamıştır. Petrol fiyatları ve uluslararası likidite koşullarındaki belirsizlikler ve cari açıklar gibi küresel istikarsızlıklar, dünya ekonomisinin büyümesi için önde gelen risklerdir. Cari işlemler dengesindeki açıklar, gelişmiş ve gelişmekte olan ülkelerde gözlenmektedir. IMF, cari açıkların Amerika ve bazı gelişmekte olan ülkelerde devam edeceğini tahmin etmektedir. Türkiye'de de, cari açık, 2006 yılında GSMH'nın yüzde sekizini aşmıştır.Bu çalışmanın temel amacı, cari işlemler dengesi üzerine genel bir çerçeve sunarak, Türkiye'deki cari açığın dinamiklerini, zaman serisi ekonometrisi teknikleri kullanarak incelemektir.

***Anahtar Kelimeler** : Cari Açık, Türk Ekonomisi, Granger Nedensellik*

Abstract

The world economy maintained its high rated growth in 2006. While China continued to become the main determinant of the ongoing strong growth tendency of the world economy, stable growth in the economies of the European Union and Japan contributed to the growth in the world economy. Uncertainties about oil prices and international liquidity conditions and global instabilities, such as current account deficits are the leading risks for growth of the world economy. Current account deficits have been seen developed and developing countries. IMF estimates that current account deficits will continue in U.S and in some emerging countries. In Turkey, current account deficit exceeded 8 percent of GDP in 2006, as well. The main goal of this paper is to provide general framework about current account balance and analyze the dynamics of current account deficit in Turkey by using time series econometric techniques.

***Keywords**: Current Account Deficit, Turkish Economy, Granger Causality.*

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1. Introduction

In recent years, current account deficits have increased both in developed and developing countries. The probability of experiencing a major current account reversal is positively affected by larger current account deficits, a deterioration in terms of trade and expansive monetary policy. On the other hand, this probability has been lower more advanced countries and countries with flexible exchange rates. Overall, some of the recent developments in the US economy have increased the probability of the country experiencing a current account reversal. Edwards (2006) estimated that the predicted probability of a current account reversal in the U.S. has increased from 1% in 1999 and, to 14.9% in 2006. Although the absolute value of this probability continues to be on the low side, its rate of increase has been significant and fast. In addition, the US case is unique, for several reasons. First, there are no historical precedents of a very large industrial country running persistent and a very large deficit. Second, the US plays a fundemental role as the center of the international financial system. Third, the US deficit is enormous in absolute terms in 2005 in which case it exceeded 800 billions and is being financed by a very large percentage of world savings (Edwards, 2006).

According to IMF estimates, the U.S. current account deficit would rise further - %6 percent of GDP in 2007 with large surpluses continuing in Japan, parts of emerging Asia, and oil-exporting countries in the Middle East and elsewhere. Many emerging markets have run current account surpluses for the first time. In emerging Asia, a corollary has been to build up international reserves. Some call this as a new world order (Rajan, 2005).

This deficit is mirrored in some equally market surpluses on the part of some of the United States trading partners. The current account balances of major developing East Asian economies (China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand) have moved from an aggreate deficit $27 billion in 1995 to a surplus of $186 billion in 2004 or from negative 1.2 percent of GDP to positive 5.3 percent of GDP. More generally, the aggregate current account balance of the developing countries moved into surplus starting in 2000 (Gruber and Kamin, 2005). In Turkey, current account deficit exceed 8 percent of GDP. The first month in 2006 current account deficit increased and realized 28 million dollar. The World Bank estimated that current account deficit in Turkey will reach 7.5 percent of GDP in 2007 and 6.4 percent of GDP in 2008.

The aim of this paper is to provide general framework about current account balance and analyze the current account deficit in Turkey. In the folllowing sections, this paper reviews some developments about current account deficit in the world, discusses some reasons and proposal for current account deficit for countries and explains the development of the current account balance in Turkey. Finally, we analyze the current account deficit in Turkey by using time series econometric techniques.

2. Developments about Current Account Deficit

The current account of the balance of payments refers to the monetary value of international flows associated with transactions in goods and services, investment income, and unilateral transfers (Carbaugh, 2000) Current account balanced can be characterized into three approaches: trade balance, the saving-investment balance, and net capital inflow. Firstly, the current account balance is portrayed as the difference between a nation's exports, broadly defined, and its imports. From this perspective, the determinants of the current account balance are roughly the same as the determinants of the trade balance: exchange rates, prices, and incomes at home and abroad. According to a second perspective, the current account balance is defined as the difference between a nation's saving and its investment. Finally, the current account deficit is equivalent to the net inflow of capital from abroad because any excess of national spending overincome must be financed by foreigners (Ferguson, 2005).

These three approaches (the trade balance, the saving-investment balance, and net capital inflows) might appear to attribute the emergence of the large U.S.current account deficit to highly distinct factors. From the trade balance perspective, the widening of the U.S. current account deficit is frequently attributed to the strengthening of the dollar since the mid-1990s, which led U.S. imports to be cheaper measured in dollars and U.S. exports to be more expensive in foreign currency. The definition of the saving-investment balance highlights the decline in the ratio of national saving to GDP over the past ten years, even as investment rates have moved up a bit on balance, as the central cause of the widening of the U.S. current account deficit. Third approach points to the surge of capital inflows into U.S. economy as the key development underlying the emergence of the large external deficit (Ferguson, 2005).

IMF estimates that current account deficits will continue in U.S and in some emerging markets. According to Table 1, it will continue at the same rate in most countries. Especially, in emerging markets, the current account deficits are on the high rates. Both developed and developing countries meet the current account deficits. In this respect, the current account deficits must be evaluated both in global and national respects.

Table 1: Current Account Deficits (as a percent of GDP) in Selected Countries

Countries	2006	2007
Iceland	13.8	8.6
Bulgaria	10.2	9.1
Portugal	9.5	9.4
Rumania	8.3	8.1
Hungary	8.2	7.5
Spain	8.1	8.5
Greece	7.9	7.9
US	6.5	6.5
Turkey	6.1	6.1

Resource: IMF

The current account in Japan, China, Russia and Germany gives surplus (Table 2). Especially in some countries like Singapore, Norway, Malaysia, Middle East realize the large current account plus, and IMF estimates that the same process will continue in 2007.

Table 2: Current Account Surplus (as a percent of GDP) in Selected Countries

Countries	2006	2007
Singapore	26.7	26.3
Middle East/ Petrolcüler	23.6	21.2
Norway	18.6	19.9
Malaysia	14.9	14.7
Venezuela	14.1	13.4
Switzerland	13.7	13.1
Russia	11.8	9.5
China	6.9	6.7
Germany	3.6	4.3
Japan	3.2	2.9

Resource: IMF

3. Reasons and Proposals for Current Account Deficits

Current account imbalances have steadily increased in developed countries over the last twenty years. While United States current account deficit dominates the numbers and news, other countries, especially with in the Euro area, are also running large deficits These deficits are different from the Latin American deficits of the early 1980's or the Mexican deficit of the early 1990's. They involved rich countries and reflect mostly private saving and investment decisions. Fiscal deficits often play a marginal role. In addition, the deficits are financed mostly thorugh equity, FDI and own-currency bonds rather than through bank lending (Blanchard, 2006).

The reasons for the widening of the U.S. current account deficit are the rise in the dollar between 1995-2002 and the higher elasticity of U.S. imports with respect to income than U.S. exports with respect to foreign income. What caused the appreciation of the dollar? The answers of this question are characterized as follow: (Gruber and Camin, 2005).

The simultaneous emergence of fiscal and current account deficits in the United States in the mid-1990's gave rise to the twin deficit hypothesis. This hypothesis notes that the current account balance is equal the saving minus investment, so any expansion of the fiscal deficit that reduce publics saving must, at the same time lower the current account balance.

According to another explanation, a budget deficit leads to an increase in the real domestic interest rate; this attracts foreign capital and results in an appreciation of the domestic currency, which leads to a current account (import plus net transfers abroad, minus exports). Thus, the entire current account deficit and part of the budget deficit is financed by a net capital inflow. There is A strong emprical evidence that a direct relationship exist between the budget and the current account deficits for all the seven largest and most important industrial countries -The United States, Japan, Germany, United Kingdom, France, Italy and Canada- (Salvatore, 2006).

Since mid-1990's the U.S personal saving rate has moved down from about 5 percent of disposable income to below 2 percent, while the gross private saving rate, which also incorporates corporate saving, has also declined a bit. Along with the slide in public saving rates, the decline in private saving could help to explain the widening of the current account deficit. The decline on saving has reflected a number of factors from the U.S. productivity boom to a reduced inflation risk premium on dolar assets to the substantial housing equity extraction accompanying low U.S. interest rates in recent years.

Hubbard (2006) explained that the decline in U.S. saving has come not from the corporate sector, but from a decline on government saving and household saving. The link between the fall in government saving (the rise in U.S. budget deficit) and net exports is not clear, as some economist have argued that the increase in the budget deficit has crowded out private domestic spending, with only a modest effect on the current account deficit. By contrast, the decline in household saving, particularly through consumption of housing equity-bears a close relation to the deterioration of the current account.

The growth rate of U.S. labor productivity rose from some 1 ½ percent annually in the 1975-95 period to about 3 percent subsequently. This increases likely boosted perceived rates of return on U.S. assets, generating capital inflows and buying the dollar. Expectations of higher rates of return likely also motivated greater domestic investment and consumption may have been supported by increases in stock prices and perceived long run income. All these developments may have contributed to larger deficits.

In recent years, the correlation between national saving and investment rates has declined suggesting that savings are being used to finance investment to a greater extent than in the past. Additionally, there is considerable evidence that the extent of home bias in portfolio allocation that is, the tendency for portfolios to be overweight domestic assets- is declining. All these trends signal improvements in international financial intermediation which allow larger external imbalances to be financed than in the past.

In addition, emerging market financial crises may generate current account surpluses (or lower deficit) through several channels: the economy may lose access to foreign credit; financial intermediation within the economy may become obstructed, causing a credit crunch; balance sheet problems amongs firms and consumers may restrain domestic spending; and authorities may respond to the weakness in domestic demand by taking actions to keep exchange rate competitive so as to maintain external demand. All of those factors were involved in the Asian's developing countries swing into surplus: investment rates collapsed, along with bank lending, while exchange rates remained weak against the dollar, even though the currencies of foreign industrial economies were appreciating.

Another reason of current account deficit is competitiveness in the world. Some of their trading partners (mainly Asian) have been intervening to keep their currencies competitive and promote their own growth.

Rising oil prices is other reason for current account deficit. Rising oil prices is not as fundemental as the other explanations for the large U.S. deficit. Nonetheless, between 1996 and 2004, U.S. imports of oil rose by nearly $ 100 billion. Much of this rise owed to

the higher prices, and thus accounts for about 1 percentage point of the 4.1 percentage point rise in the current account/GDP ratio from 1996 to 2000.

Calderon, Chong and Loayza (2000) examine the emprical links between current account deficit and economic variables in developing countries. To accomplish this, they complement and extend previous research by using a large, consistent set of macroeconomic data on public and private domestic savings, external savings, and national income variables; focusing on developing economies by drawing on a panel data set for 44 developing countries and annual information for the period 1966–95. Their findings are as follow:

• Current account deficits in developing countries are moderately persistent. The level of persistence is much smaller in heavily-indebted countries.

• A rise in domestic output growth generates a larger current account deficit. The domestic growth rate is associated with a larger increase in domestic investment than in national saving.

• Increases in savings rates have a positive effect on the current account.

• Shocks that increase the terms of trade or cause the real exchange rate to appreciate are linked with higher current account deficits.

• Either higher growth rates in industrial economies or higher international interest rates reduce the current account deficit in developing economies. This may occur through either an increase in the demand for developing countries' exports or a rise in investment going to other industrialized countries at the expense of external financing to developing countries. The negative effect on the current account deficit is stronger in the sample of heavily-indebted countries.

• The countries that whose per capita GDP is closer to that of industriliazed countries tend to run lower current account deficits.

Are the current account deficits seen as a problem? There are some strong opinions on both sides of this question. These opinions are as follows: Sensible risk management, exchange rate movements, consumption and cooperative solution.

One solution to solve to problem is sensible risk management. The current situation is unprecedented. Quantitatively, United States current account deficit is more than twice the size of that of all the other countries in the world running current account deficit. It is a potential risk because if United States current account were to rapidly contract, it would likely be accompanied by a large depreciation of the dollar. And it is reasonable to suppose that this risk is larger now than it would be if the US current account were 1% of GDP in deficit. High exchange rate depreciation does not in itself imply large adverse consequences for the global economy, but sensible risk management suggests that policy ought to take this risk into account. Sensible risk management would seem to call for someone efforts to mitigate problem (Rogoff, 2006).

Second approach to deal with the issue is exchange rate movements. Exchange rate movements will also have an important role in facilitating the transition. This implies that a number of currencies, especially in Emerging Asia, will need to appreciate (Rajan, 2005) Flexible exchange rate regime facilitiates changes in relative prices. Domestic financial

system serves as a precaution against international financial crisis when capital flows revert and lower the necessity of hoarding large foreign reserves (Corbo, 2006).

According to Ogawa and Kudo (2007), in order to reduce the current account deficit a significant depreciation of the US dollar will be necessary. The responses of the East Asian currencies to a sudden and a sharp depreciation of the US dollar will differ with countries because the linkages of the East Asian Chinese yuan, the Hong Kong Dollar, the Vietnamese dong still have very high linkages to the US dollar while the Singapur dollar and the Brunei dollar began to decrease the linkages to the US dollar and its level is relatively low. As a result, a regional coordination of the exchange rate policy is neccessary to the East countries to response appropriately to a possible depreciation of the US dollar in the future. In a large number of countries, including Japan, the Euro area, Emerging Asia, and oil exporters, further structural reforms are needed to increase domestic incentives to invest, and in some cases, consume (Rajan, 2005).

Another instrument for solution is the consumption. Consumption has to give way smoothly to investment, as past excess capacity is worked off and as expansionary policies in industrial countries returned to normal. Consumption growth in the United States is too slow, and this will require a steady withdrawal of the massive amounts of fiscal and monetary stimulus infused in the post-bubble years. In addition, demand which shifts from countries running deficits to countries running surpluses is another explanation (Rajan, 2005).

Cooperative solution requires adjustment efforts from all key players: US, EU, Japan, oil exporters, and emerging Asia. The role of the authorities is to promote a gradual and cooperative adjustment, increasing savings in the US. It is essential to use the international forums to create awareness of the effects of re-balancing abruptly and promote cooperative solutions. In the meantime, other countries need to strengthen policies to prepare themselves for the uncertain world (Corbo, 2006).

4- Developments about Current Account Balance in Turkey

Turkey is among the 20th largest economies of the world and at the same time 7th largest economy in the Europe and 6th largest foreign trade partner of the European Union. Since 2002, Turkey has been following a very comprehensive economic program. The program and its implementation have been producing positive results. Despite strong growth, inflation has come down to around 8 percent from around 70 percent in three years time. The economy has been growing without interruption for five years around 7 percent annual average. During that period, a cumulative growth of nearly 40 % has been achieved. Growth has been driven by mainly private sector, not by a fiscal expansion or monetary loosing. Productivity growth in private manufacturing sector has been around 10 percent on average during the last three years. This has been very encouraging in terms of sustainability of growth process and maintaining the competitiveness of Turkish economy (ESS, 2007). (Table 3)

Table 3: Selected Economic Indicators in Turkey (2003-2007)

Indicators	2003	2004	2005	2006	2007
Population (in 1000s)	70,000	71,000	72,000	73,000	74,000
GDP per capita	2,900	3,500	4,000	4,100	4,300
Economic Growth	6 %	9 %	8 %	6 %	5%
Inflation	18 %	9 %	8%	9%	8%
Government deficit	11%	7%	2%	2%	2%
Employment Rate	48%	49%	49%	50%	50%
Unemployment Rate	10%	10%	9%	9%	9%
R & D Rate	0,7%	0,7%	0,8%	0,8%	0,9%

Source: National Report: Turkey, EES 2007, TOBB, Eurochambres, http://www.eurochambres.eu/PDF/ pdf_ees2007/National%20Report/Turkey.pdf

IMF-backed reforms since the 2001 financial crisis have reduced macroeconomic instability. A large current-account deficit and heavy reliance on short-term capital inflows leave the economy vulnerable to sharp changes in investor sentiment. (Economist, 2007).

From the second half of 2005 onwards, export growth slowed down, whereas import growth gained pace. During the 2005-2006 period, annual increases in exports and imports were realized as 13.4 percent and 17.8 percent, respectively. Hence the foreign trade deficit, which was USD 24.3 billion in the January-September period of 2005 reached USD 32 billion in the same period of 2006 and current account deficit exceeded 7 % of GDP in 2006 (Table 4).

Table 4: Selected Indicators (Billion $)

	2005	2006(January-September)
Current Account	-15.9	-25.3
Goods	-24.3	-32.0
Exports	56.0	63.9
Imports	-80.2	-95.9

Source: CBRT.

The most of Turkey's exports are comprised of industrial goods. 60 % of the countrys' exports are sent to the most developed and competitive markets such as the EU and the US. Export of the textile and clothing sector, having the largest share in overall exports, which had been displaying low performance since the last quarter of 2005, increased in May and June. In the January-September period, the largest contribution to overall exports came from exports of the basic metal industry, which increased by 32.3 percent, displaying growth above overall export performance. Exports of motor vehicles machinery and equipment, coke, refined petroleum products and nuclear fuels were the other sectors that contributed significantly to total exports. Imports of capital and consumer goods rose by 9.9 per cent and 20.8 per cent, respectively. Meanwhile, imports of intermediate goods were realized as 19.5 per cent between January and September. Imports of crude oil and natural gas under this item made the highest contribution to overall import growth owing to price increases (CBRT,2006).

Analyzing exports developments by country groups, it is observed that growth in exports to EU countries, which comprises the largest share in total exports. Increasing trend

in domestic demand and economic activities of EU countries are effective in this situation. Especially, exports, including France, Ireland, Spain, Italy, Greece and Portugal displayed high increases. However, the biggest trade partner, exports to Germany became a limited increase in 2006. Similarly, it is observed that exports to Middle Eastern countries displayed a limited increase and their share in total exports dropped (Table 5).

Compared to 2005, the total share of imports from the EU decreased**.** On the other hand, non-member European Countries and Asian and Middle Eastern Countries made a significant contribution to the growth in imports. When analyzing on a country basis, the high-rated increases in imports from Russia and China attract particular attention. In addition to Russia and China, the large share of Germany continued (Table 5).

Table 5 : Export and Import- Country Decomposition
(Million ABD dollar, 2005-2006)

	EXPORT		**IMPORT**	
	2005	**2006***	**2005**	**2006***
Total	53.515	60.697	85.329	100.540
EU	27.832	31.625	35.973	39.694
Others	23.483	26.935	48.803	60,192
Free Zones	2201	2137	553	654
OECD	32.286	36.534	48.898	52.753
US	3694	3.818	4.108	4.164
Germany	6924	6.977	9.945	10.788
England	4262	4.809	3.463	3.693
Middle East	7485	7.800	5.851	8.144
Russia	1704	2.163	9.098	12.466

* January-September
Source: TÜİK.

Liquid international markets, stable politics, and several bold steps in both political and economic fronts served Turkey well in the aftermath of the 2000-01 financial crises leading to an impressive macro economic transformation. Government's commitment to tight fiscal policy and more recently, privazation in a context of a renewed IMF program- and impressive legislative steps toward EU membership were the key drivers of this transformation. But a very favorable global environment and the attendent recovery in capital flows to emerging markets significantly contributed to this turnout as well (Akçay and Üçer, 2006).

In addition, the continuance of privatization and mergers in 2006 led to high levels of direct investment. There was a net capital inflow amounting to USD 12.4 billion between January and September in 2006. Comparative analysis of developing countries demonstrates that even if yield spreads narrowed and interest rates fell throughout 2005, portfolio investment continued to be in the form of inflows. This show that, besides interest rates differentials, sustained economic stability as a result of structural reforms and positive expectations about the future have an important impact on the investments in questions (CBRT, 2006).

The current account deficit has been the subject of recent policy discussions. The dynamics of the current account deficit and its financing are characterized as follows: First of all, the deficit has not been driven by fiscal expansion or monetary loosening. Rather, it has been the result of high energy prices, productivity and private sector-led growth, high investment goods imports and the strength of the currency, which has been supported by the increased confidence of domestic and foreign investors for the YTL. Second, the current account deficit has not been growing due to a weak exports performance. As a matter of fact, despite the strength of the currency, exports have more than doubled during the last four years, indicating the continuing competitiveness of our economy. The main driving force behind the widening current account deficit has been the boost in imports, especially that of intermediary goods, which has been driven by economic growth. According to a calculation, the current account deficit as a percentage of GNP would have been 4 percent lower in 2006 than the actual figure if energy prices had stayed at the 2002 level. On the other hand, the briskness of capital goods imports, which in turn bolsters growth and exports, has been the other factor driving imports up (TURK-US, 2007).According to the OECD, the current account deficit, which will likely become a historically high level above 7% of GDP in 2007, continues to be financed by growing private debt and foreign direct investment. Strong GDP growth is expected to continue but risks remain in Table 6.

Table 6: Selected Indicators

	2006	**2007**	**2008**
GDP Growth	6.1	5.3	6.3
Consumer Price Index	9.6	7.9	5.7
Current Account Balance	-8.1	-7.6	-7.0

Source: OECD, OECD Observer No. 258/259, December 2006. http://www.oecdobserver.org/news/fullstory.php/aid/2038/Turkey:_Reform_agenda.html

Akçay and Ucer (2006) said that the current account deficit is not neccessarily alarming, as well. According to them, the deficit comes at a time Turkey is undergoing significant structural change. One demonstration of this is a notable improvoment in the quality of the deficit. Specifically, the current cycle appears to be driven by strong investment rather consumption, and the private rather than the public sector. Moreover, the quality of financing seems to be rapidly improving as well from debt to non-debt flows. Turkey appears to have come a very long way in terms of macro economic stability. From this perspective, it is quite conceivable that Turkey may historically be able to sustain the current account deficits at these historically high levels for a while longer, and then, eventually, undergo an adjustment in the style of industrialized countries with slower growth and some currency weakening instead of experiencing a capital outflow-driven reversal, with currency crises and growth collapse.

Kalyoncu (2005) also examined sustainability of current account for Turkey during the period 1987:1- 2002:4. He has tested for a long run relationship between two Turkey exports measures and import measures using quartely data. His empirical results indicate that there exists a unique long run or equilibrium relationship among real exports and imports and their percentage to real GDP. His findings show that the current account of Turkey is sustainable in the long run.

On the other hand, according to Ulagay (2006), current account deficit is unsustainable. He believes that desicions of IMF showed that international markets cannot balance itself and there is a need to intervene with the international markets for solving the problems of current account deficits.

What can be done? The floating exchange rate regime, Turkey's commitment to sound policies and structural reforms, and the increased credit ratings of both the public and private sectors are comforting factors with regard to Turkey's ability to tackle the high current account deficit in the medium term. The improved soundness of the financial sector, evidenced by high capital adequacy ratios and very low open foreign exchange positions, also provide further development. The main response to the current account deficit is the continuation of the tight fiscal policy implementation. This will help prevent the domestic savings gap from further expansion as well as relieve the pressures on monetary policy (TURK.US,2007).

Maintaining fiscal discipline is also crucial, while monetary policy credibility needs to be bolstered, in particular by consolidating the independence of the central bank. The transparency and quality of fiscal institutions needs to be strengthened by adopting international accounting standards and multi-year spending targets for general government. Additional structural reforms are required to rein in the high current account deficit, enhance the competitiveness of the economy and promote the formal sector (OECD, 2006).

In addition, Standard & Poor's informed that there is a need more foreign direct investment to finans the current account deficit in Turkey. Otherwise, the balance can be provided with the depreciation in exchange rate.

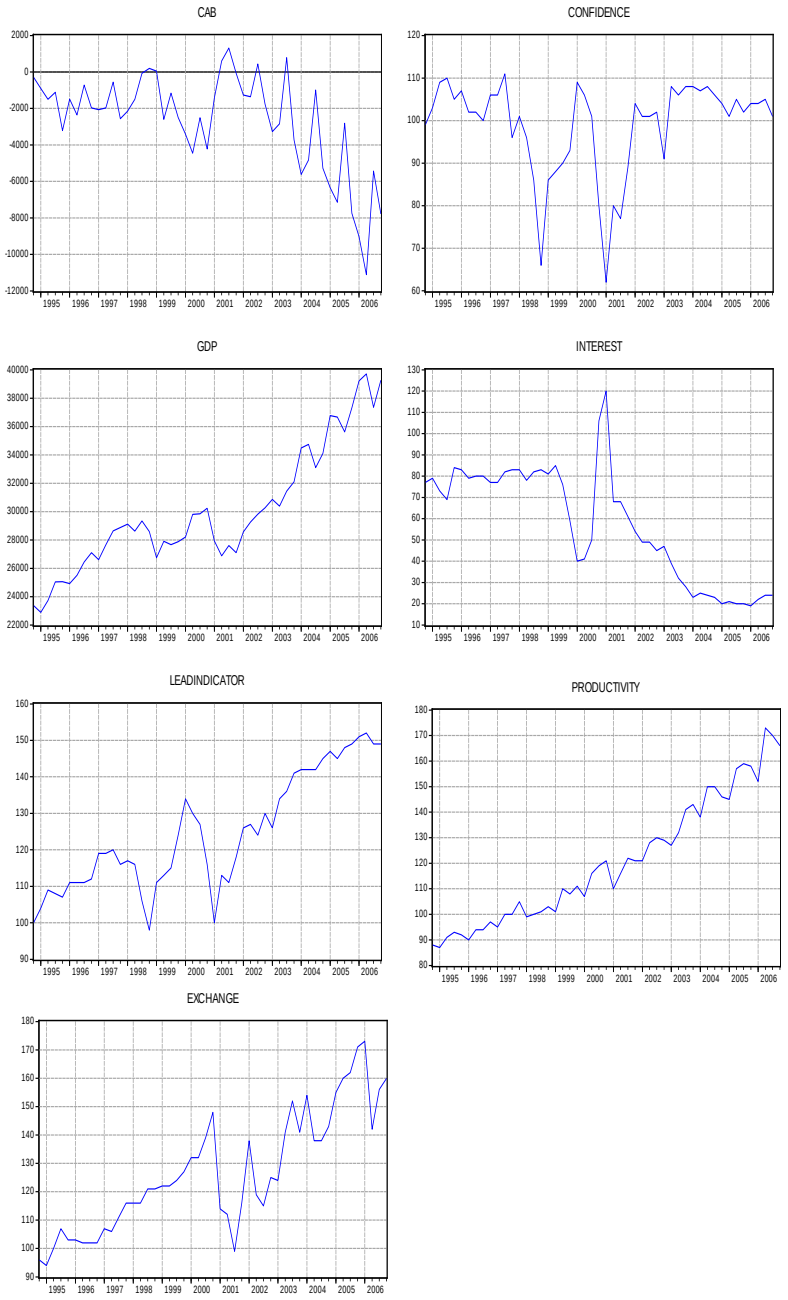
Also, generally, achieving a rapid but sustainable growth performance has to be Turkey's priority to address the following issues: debt dynamics, the employment of rapidly growing population, the shifting the large population from agriculture to other sectors, the solve the problems of income distribution and the regional disparities to catch-up the EU avarage per capita national income levels in the membership process.

5. Econometric Application

Main aim of this econometric application is to investigate the relationships current account balance (CAB) and GDP, exchange rate, interest rate, reel sector confidence index, composite leading indicator and partial productivity index in manufacturing industry. The sustainability of CAB is most important indicators for investors; therefore it is very important to analyze the factors affecting CAB. Main important factors affecting CAB can broadly separate into two categories reel and financial variables. There also other important factors affecting CAB such as the economic agents' confidence for the countries they invest and the social-political-economic stability conditions of these countries. In order to design efficient economic policy, we have to analyze the factors effecting CAB.

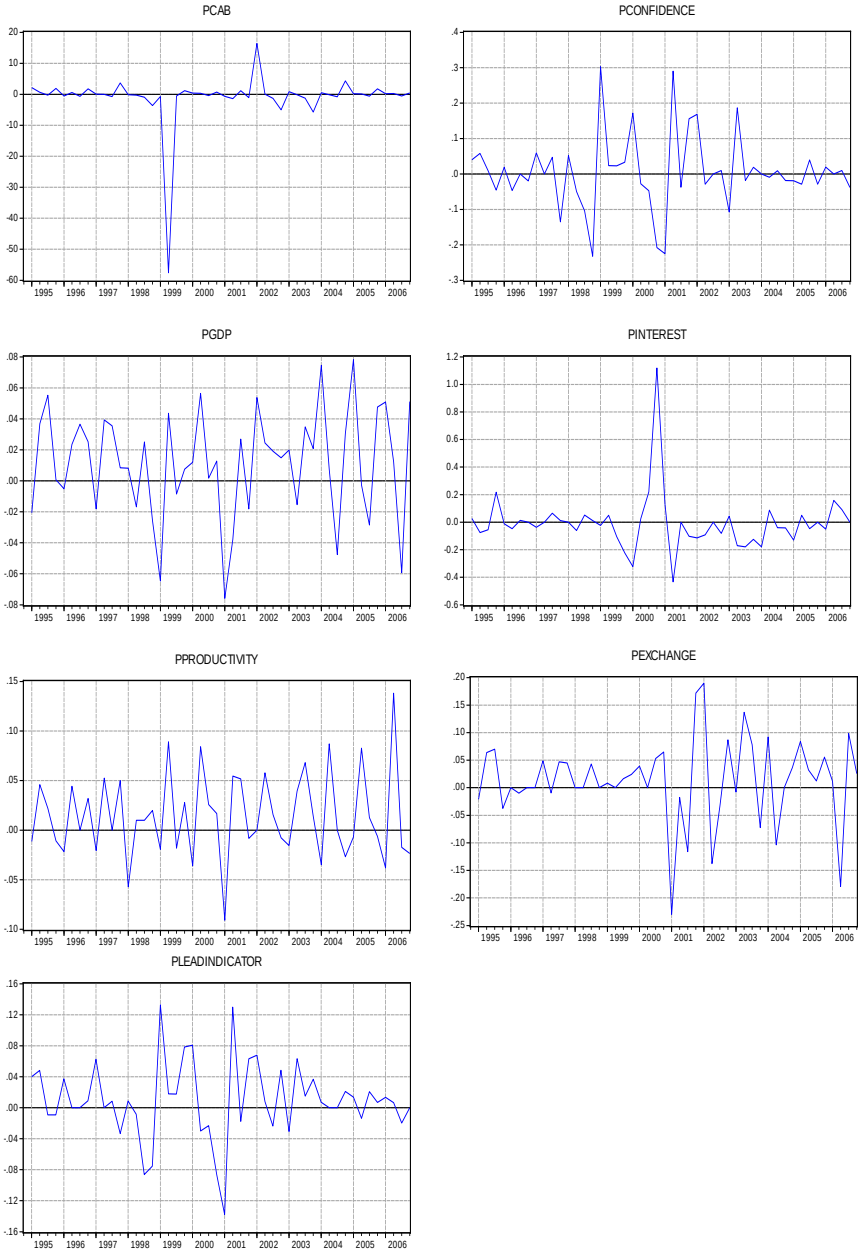
The methodology we applied depends on time series econometric techniques that include analyzing the stationary conditions of the variables, cointegration, vector error-correction mechanism, and Granger causality, VAR models with impulse-response and variance decomposition techniques. We analyze the period of 1994Q4-2006Q4 for Turkish economy. The selection criteria of the analysis period mostly depends on the existence of the data set which is satisfied the econometrical methodology.

Figure-1 Time Series Graphs of the Variables in Level



Source: CBRT

Figure-2 Time Series Graphs of the Variables in Percent Change



Source: CBRT

ADF unit root tests results in Table-7 show that all variables are stationary in first difference.

TABLE-7 ADF UNIT ROOT TEST RESULTS FOR THE VARIABLES

	CAB	LEXCH	LINTRST	LPRDCT	LCONFDN	LLEADINDC	LGDP
Level	-1.9	-3.7	-3.1	-2.2	-3.1	-2.6	-2.1
1st Difference	-2.95*	-7.8*	-5.3*	-10.1*	-7.7*	-6.4*	-6.9*

*** indicates significance at the 1% level**

As we want to prevent over parameterization due to number of variables, we separate the variables into two categories for the cointegration analyze. In first group, CAB, exchange rate, interest rate exist and gdp variable and in the second group, CAB, productivity, leading indicators and confidence index exist. Johansen Cointegration test results in Table-2 and in Table-5 for each group show that variables are cointegrated[1].

Table-8 Johansen Cointegration Test Results for the variables CAB LEXCHANGE LINTEREST LGDP

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		**Trace**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.460684	60.62885	54.07904	0.0117
At most 1	0.310681	31.60849	35.19275	0.1159
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.460684	29.02036	28.58808	0.0440
At most 1	0.310681	17.48641	22.29962	0.2054
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				

Cointegration vector in Table-9 indicates that GDP affects the CAB variable in the opposite direction; Exchange rate and interest rate affect the CAB in the same direction.

Table-9 Normalized Cointegrating Coefficients Results for the Variables CAB LEXCHANGE LINTEREST LGDP

CAB	LEXCHANGE	LINTEREST	LGDP	C
1.000000	41115.33	14441.22	-2405.063	235181.0
	(11599.8)	(3066.56)	(16604.5)	(149120.)

[1] In the econometric application process, we consider the financial crises and seasonal effects on the variables by using dummy variables.

Error Correction mechanism runs and the speed of adjustment depends on the value of coefficients.

Table-10 Error Correction Coefficients for the Variables CAB LEXCHANGE LINTEREST LGDP				
Error Correction:	D(Cab)	D(Lexchange)	D(Lınterest)	D(Lgdp)
CointEq1	-0.115762	1.15E-05	-5.31E-07	3.27E-06
	[-1.69869]	[4.91120]	[-0.08829]	[3.50106]

Relevant variables are cointegrated in Table-11.

Table-11 Johansen Cointegration Test Results for the Variables CAB LLEADINDICATOR LPRODUCTIVITY LCONFIDENCE				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None *	0.639802	69.55124	55.24578	0.0017
At most 1	0.335013	24.62272	35.01090	0.4062
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None *	0.639802	44.92852	30.81507	0.0005
At most 1	0.335013	17.95149	24.25202	0.2728
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				

Cointegration vector in Table-12 indicates that Leading Indicator and reel sector confidence index affect the CAB variable in the same direction; Lproductivity affect the CAB in the opposite direction.

Table-12 Normalized Cointegrating Coefficients Results for the Variables CAB LLEADINDICATOR LPRODUCTIVITY LCONFIDENCE			
Normalized cointegrating coefficients			
CAB	LLEADINDICATOR	LPRODUCTIVITY	LCONFIDENCE
1.000000	201593.5	-408988.7	21224.29
	(39707.1)	(78141.4)	(19668.9)

Error Correction mechanism runs and the speed of adjustment depends on the value of coefficients.

Table-13 Error Correction Coefficients for the Variables

Error Correction:	D(CAB)	D(LLEADINDICATOR)	D(LPRODUCTIVITY)	D(LCONFIDENCE)
CointEq1	0.003060	7.02E-06	-3.33E-07	1.14E-05
	[0.08362]	[5.53358]	[-0.53449]	[4.11059]

Pairwise Granger causality results in Table-14 shows that all variable are Granger causes of CAB variable.

Multipe Granger causality results in Table-15 shows that all variables except productivity variable are Granger causes of CAB variable at the 10% significance level.

Table- 14 VAR Granger Pairwise Causality/Block Exogeneity Wald Tests			
Dependent variable: PCAB			
Independent Variables	**Chi-sq**	**df**	**Prob.**
PGDP	2.886160	1	0.0893
PCONFIDENCE	4.136787	1	0.0420
PEXCHANGE	50.33718	4	0.0000
PINTEREST	32.95685	6	0.0000
PLEADINDICATOR	26.73078	4	0.0000
PPRODUCTIVITY	8.536146	4	0.0738

Table-15 VAR Granger Multiple Causality/Block Exogeneity Wald Tests Results			
Dependent variable: PCAB			
Excluded	Chi-sq	df	Prob.
PCONFIDENCE	15.79642	4	0.0033
PEXCHANGE	19.55094	4	0.0006
PGDP	13.83512	4	0.0078
PINTEREST	11.37848	4	0.0226
PLEADINDICATOR	16.48084	4	0.0024
PPRODUCTIVITY	2.075345	4	0.7219
All	97.65994	24	0.0000

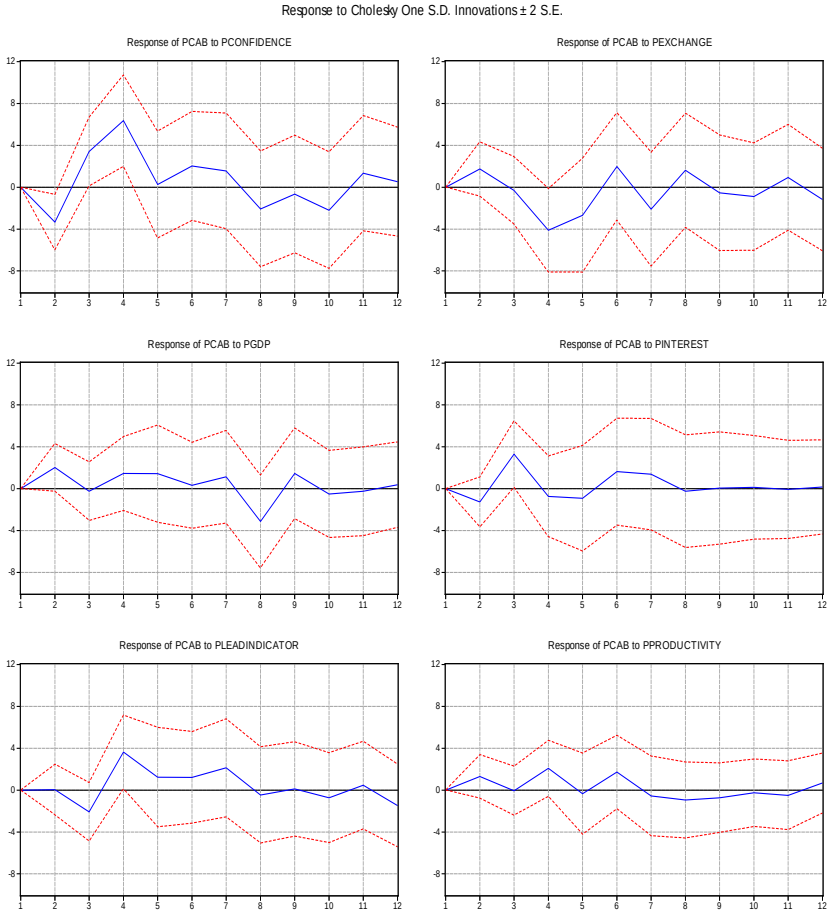
Variance decomposition results in Table-16 shows the the source of the change of the variance of the CAB variable.

Table- 16 Variance Decomposition of PCAB								
Period	**S.E.**	**PCAB**	**PCONF**	**PEXCH**	**PGDP**	**PINTRST**	**PNDICATOR**	**PPRODC**
1	5.7	100.0	0.0	0.0	0.0	0.0	0.0	0.0
2	7.4	60.9	20.1	5.5	7.4	2.9	0.0	3.1
3	9.1	40.9	27.6	3.8	5.1	15.2	5.3	2.1
4	12.7	21.7	39.2	12.5	3.9	8.1	10.9	3.8
5	13.1	20.2	36.6	15.7	4.8	8.0	11.0	3.6
6	14.1	23.5	33.7	15.6	4.2	8.3	10.3	4.6
7	14.7	21.9	32.4	16.5	4.5	8.6	11.6	4.4
8	15.3	20.7	31.6	16.3	8.3	7.9	10.8	4.4
9	15.4	20.5	31.3	16.2	9.1	7.8	10.6	4.6
10	15.7	20.9	32.0	15.9	8.8	7.5	10.4	4.4

The source of the change of the variance of the CAB is affected mostly up to 32 per cent, by reel sector confidence index, up to 16 per cent by the exchange rate, up to 9 percent by GDP, up to 7.5 percent by interest rate, up to 10.4 by composite leading indicators index and up to 4.4 by productivity index from first period to tenth period. This shows us confidence index and exchange rate have important effect on the CAB.These results are the same as the results of Granger Causality.

Impulse response results for the variables in Figure-3 shows that response of the CAB variable for the shock from other variables is not significant statistically and is not much volatile.

Figure-3 Impulse Response Results for the CAB Variable to Other Variables.



5. Conclusion

The world economy maintained its high rate growth in 2006. While China continued to become to main determinant of the ongoing strong growth tendency, stable growth in the economies of the European Union and Japan also contributed to the growth in the world economy. Uncertainties about oil prices and international liquidity conditions and global instabilities, such as current account deficits are the leading risks for growth of the world economy. The main aim of this paper is to provide a general framework about current account balance and analyze the current account deficit in Turkey by using time series econometric techniques.

Current account deficits have been seen developed and developing countries. In developing countries, increases in current account deficits tend to be associated with a rise in domestic output growth and shocks that increase the terms of trade and cause the real exchange rate to appreciate. Higher savings rates, higher growth rates in industrial economies, and higher international interest rates tend to have the opposite effect. Decreasing the current account deficit is not entirely in the hands of the home country. A reduction in one nation's current account deficit must go hand in hand with a decrease in the current account surplus of the rest of the world. Complementary policy in foreign countries can help in successful transition.

In Turkey, CAB variable is affected by the exchange rate, interest rate, gdp, productivity, leading indicator and reel sector confidence index. These variables are both Granger Causes of CAB variable in short term and cointegrated in the long term. On the other hand, the sources of change of variance decomposition are affected by these variables. As a result in economic policy design process, in order to obtain sustainable CAB level, these variables should be managed carefully.

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