

THE INVESTIGATION OF
RECENT TRENDS IN TURKISH
CURRENT ACCOUNT

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ABSTRACT

THE INVESTIGATION OF RECENT TRENDS IN TURKISH CURRENT ACCOUNT

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International trade is still indispensable for each country in today's world for both economic and political reasons. Correspondingly, world trade volume has been uninterruptedly rising. By the same token, Turkish trade volume, in line with other developing countries, has been also growing. However, Turkish imports have been rising much faster than Turkish exports since the 1990s. As a result, Turkey has been chronically suffering from current account deficit problem for years. What is more, Turkish current account balance has started to give huge deficits constantly since the late 1990s. Therefore, the main objective of the thesis is to enlighten the determinants of global current account imbalance and to analyze whether or not those determinants explain the Turkish current account balance and a possible structural break in it. In consequence, there are three main findings of the thesis. First, the evidence from a Vector Autoregressive (VAR) model suggests that the main determinants of Turkish current account are mostly structural factors. Second, VAR model also suggest that Turkey has to import in order to be able to export because Turkish industry is highly dependent on intermediate goods importation to produce export commodities. Third, empirical analyses suggest that there is a structural break in Turkish current account balance in 1999Q1.

Keywords: Current Account Balance, Current Account Deficit, Structural Break

ÖZ

TÜRKİYE’NİN CARİ İŞLEMLER HESABINDAKİ EĞİLİMLERİN İNCELENMESİ

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Uluslararası ticaret günümüzde vazgeçilmezliğini hem ekonomik hem de politik nedenlerle hala korumaktadır. Buna paralel olarak, dünya ticaret hacmi kesintisiz bir şekilde her geçen gün daha da artmaktadır. Aynı şekilde, Türkiye ve diğer gelişmekte olan ülkelerin dış ticaret hacimleri de sürekli büyümektedir. Ancak, Türkiye’de ithalat, ihracata göre çok daha hızlı artmaktadır. Bunun sonucunda, Türkiye yıllardır cari açık problemiyle boğuşmaktadırlar. Dahası, Türkiye 1990’ların sonlarından itibaren giderek daha büyük cari açık vermeye başlamıştır. Dolayısıyla, bu tezin temel amacı küresel cari işlemler dengesizliğinin belirleyici faktörlerini aydınlatmak ve bu faktörlerin Türkiye’deki cari açığı ve Türkiye’nin cari dengesinde 1990’ların sonlarında meydana gelen olası bir yapısal kırılmayı açıklayıp açıklamadığını analiz etmektir. Sonuç olarak, tezin üç temel bulgusundan söz edilebilir. Birinci olarak, VAR modelinin sonuçları göstermektedir ki, Türkiye’nin cari hesabının temel belirleyicisi yapısal faktörlerdir. İkinci olarak, VAR modelinin sonuçları ayrıca göstermektedir ki Türkiye ihraç edebilmek için ithal etmek zorundadır çünkü Türkiye endüstrisi ihracat malları üretebilmek için ara mal ithalatına oldukça bağımlıdır. Üçüncü olarak, ampirik veriler göstermektedir ki Türkiye’nin cari işlemler hesabında 1999 yılının birinci çeyreğinde yapısal kırılma vardır.

Anahtar Kelimeler: Cari İşlemler Dengesi, Cari Açık, Yapısal Kırılma

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey Fuller
AIC	Akaike Information Criterion
BEC	Classification by Broad Economic Categories
BPM5	Balance of Payments Manual Fifth Edition
BPM6	Balance of Payments Manual Sixth Edition
CAB	Current Account Balance
CBRT	Central Bank of Republic of Turkey
CPI	Consumer Price Index
DCG	Domestic Credit Growth
FAB	Financial Account Balance
FD	Financial Deepness
FEVD	Forecast Error Variance Decomposition
FF	Financial Flows/Financial Openness
FO	Financial Openness
FPE	Final Prediction Error
HQ	Hannan-Quinn information criterion
IDE	Import Dependent Export
IMF	International Monetary Fund
IRF	Impulse Response Function
ISIC	International Standard Industrial Classification of All Economic Activities

LR	Likelihood Ratio
NAS	National Savings
NFA	Net Foreign Assets
OECD	The Organization for Economic Co-operation and Development
POIL	Price of Oil
REER	Real Effective Exchange rate
RULC	Relative Unit Labor Cost
S^{Pb}	Public Savings
S^{Pr}	Private Savings
S^F	Foreign Savings
SC	Schwarz Information Criterion
SVAR	Structural Vector Autoregression
SITC	Standard International Trade Classification
TurkStat	Turkish Statistical Institute
VAR	Vector Autoregression
VECM	Vector Error Correction Model
WB	Word Bank
Y	Domestic Economic Growth
ZA	Zivot-Andrews Test
r^*	Foreign interest rate
Y^*	Foreign Economic Growth

CHAPTER 1

INTRODUCTION

“By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it.”

Smith, 1776, Book IV, Chapter II, para. 9

Trade has been seen as one of the main sources of economic development for centuries. Accordingly, international trade is still indispensable for each country in terms of not only economic reasons but also political reasons in today's world. Correspondingly, world trade volume has been uninterruptedly rising. By the same token, Turkish trade volume, in line with other developing countries, has been also growing. Nevertheless, although a proportional increase in exports and imports of a country is more desirable, this has not been the case for Turkey since the 1990s¹. As a result, Turkey, like some other developing and developed countries, has been

¹ See Figure 3.1 and 3.2

suffering from current account deficit problem for years². What is more, given that Turkish current account balance has started to give huge deficits constantly since the late 1990s, there might be a possible structural break in Turkish current account balance in the late 1990s.

The main objective of the thesis, in this sense, is to enlighten the determinants of global current account imbalance and to analyze whether or not those determinants explain the Turkish current account balance and a possible structural break in it. Furthermore, we will provide policy suggestions accordingly with a specific focus on Turkish current account deficit. Hence, although the discussion will be based on Turkish current account deficit in general, global current account imbalances are also discussed in detail. Accordingly, we seek answers for following three main questions;

- (I) Which factors do explain global current account imbalances?
- (II) Do those factors also explain the large current account deficit in Turkey?
- (III) Is there a structural break in the course of Turkish current account deficit in the late 1990s?

In consequence, our main findings are as follows; (i) There are more than enough “determinants” of current account balance in the literature. In a sense, there is a “determinant inflation”. (ii) Turkish current account deficit problem, in fact, is a trade deficit problem that is generated by intermediate goods importation. (iii) Turkish industry is highly dependent on foreign imports to be able to produce its own goods. (iv) Import dependent export (IDE) explains 32.79%, price of oil (POIL) explains 13.37%, domestic economic growth (Y) explains 8.90%, foreign economic growth (Y*) explains 6.72%, financial openness (FF) explains 5.06%, real effective exchange rate (REER) explains 2.98% of Turkish current account balance (CAB). Also, 30.17 % of CAB is explained by its own lags. (v) Turkish current account is

² See Figure 3.3, and Table A.1 and A.2

mostly explained by structural factors (approximately 45%) rather than cyclical factors (approximately 25%). (vi) There is a structural break in Turkish current account balance in 1999Q1.

The outline of the thesis is as follows; the second chapter of the thesis, after the first and introductory chapter, will theoretically discuss the main determinants of current account balance with a focus on global current account imbalances. What are the domestic and foreign factors behind current account developments? In this chapter, the orthodox and heterodox views shall be discussed.

The third chapter of the thesis will intuitively investigate the case of Turkey in detail. The chapter will begin with a detailed examination of the trend in Turkish current account balance. Then, Turkish trade commodities will be explored in line with its current account deficit. Moreover, a possible structural break in Turkish current account balance in the late 1990s will be examined. Also, the determinants highlighted in the previous chapter will be intuitively debated to grasp whether those are explaining Turkey's current account deficit problem or not. Plus, the channel of effects of those determinants on current account balance will be revealed.

The forth chapter will be the econometric part of the thesis in which possible determinants of the Turkish current account deficit will be tested. A proper empirical analysis shall be conducted to find out what the determinants of Turkish current account balance are. Moreover, proper tests will be carried out in order to discover whether or not the late 1990s denotes a structural break in the Turkish current account balance.

The fifth chapter, after an empirical research, will conclude the thesis by providing a brief summary of what has been examined throughout the thesis so far, as well as, by providing certain policy suggestions through comparing and contrasting various theories in order to eliminate current account deficit problem in Turkey. What policy

measures shall be taken? Can current account deficit problem be solved? Then, the thesis will be concluded³.

³ In addition to those chapters mentioned here, the thesis also contains three informative appendices which are; Appendix A: Balance of Payments Recording, Appendix B: Tables and Figures Regarding Econometric Analysis, Appendix C: An Alternative Method. Appendix A dwells on the concept of balance of payments and its recording. It also provides chronological balance of payments position of Turkey. Appendix B provides certain tables and figures related to our econometric analysis. Appendix C shows an alternative econometric method to our original econometric analysis.

CHAPTER 2

THE DETERMINANTS OF GLOBAL CURRENT ACCOUNT IMBALANCES

2.1) Introduction

Enlarging global current account imbalances are becoming more and more prominent with each day passing. Accordingly, the main goal of this chapter is to shed some light on the determinants of current account imbalances in order to avoid its consequences.

Current account imbalances can be observed either as current account deficit or as current account surplus for countries. Although this article's focus is the former, the latter can also lead to certain problems.

Current account deficit means a country's total worth of (i) imports of goods, (ii) imports of services, (iii) incomes dispatched, and (iv) current transfers dispatched are larger than the total worth of its (1) exports of goods, (2) exports of services, (3) incomes received, and (4) current transfers received⁴. In other words,

⁴ And current account surplus means the vice versa.

$$\underbrace{Net\ Exports + Net\ Services}_{\downarrow} + Net\ Incomes + Net\ Current\ Transfers < 0^5$$

Balance of Trade

However, since trade of goods and services constitute the quite large share of current account⁶, one may claim that current account deficit is all about the imbalances between imports and exports of goods and services⁷. In this sense, some argue that current account imbalances, in fact, exhibit the unequal trade between countries since this imbalance in trade is believed to be more beneficial to industrial countries rather than other countries⁸.

Our main finding of this chapter is that there are more than enough “determinants” of current account balance in the literature. Even theoretically, some determinants are very close to each other; in fact, some of them can also be utilized as a proxy for each other. However, we will discuss their relations to each other in the next chapter.

In this chapter, we will examine each of the theoretical determinants put forth by the literature⁹. There are serious discussions about the grounds of current account imbalance. In other words, what does cause the discrepancy between the amount of

⁵ Moreover while “=” demotes that the current account is in balance, “>” denotes current account surplus.

⁶ More than 95% in general, see Appendix A.

⁷ Balance of trade.

⁸ See (Akyüz, 2013), (Gallagher & Ocampo, 2013), (Nayyar, 2003), (Muradian & Martinez-Alier, 2001), (Kaplinsky, 2000), (Köhler, 1998), and (Valenzuela and Valenzuela, 1979).

⁹ Moreover, we will also provide descriptive and theoretical insights of each of the determinant of current account balance without comparing and contrasting them with each other in this chapter. However, the relations of those determinants to each other shall be discussed in the next chapter.

imports and exports of a country? There are several factors that are believed to be the causes of the current account deficit in a certain country. We will focus on ten major theoretical determinants that are directly related with a country's current account balance, which are deeply examined in the literature. Those determinants are national savings, the level of competitiveness, net foreign assets, foreign interest rates, economic growth¹⁰, credit growth, financial openness, financial deepness, import dependent export, and energy prices. The following part of the chapter will examine each of the factors discussed in the literature by introducing different views, as well as, comparing and contrasting those different views.

2.2) National Savings and Current Account Balance

Savings and current account balance relationship is one of the most examined relations in order to understand the reasons behind current account imbalances. The orthodox/classical view believes that current account deficit is directly related with savings. In other words, it sees current account deficit as a result of inadequate domestic savings. The main idea is that:

Assume a simple open economy; in that case, on the one hand, a country's national income/GDP (Y) is equal to its overall expenditures on consumption (C), gross investment (I), government spending (G), and exports (X) minus imports (M), i.e., net exports (NX).

$$Y = C + I + G + X - M \quad (1)$$

¹⁰ Both domestic and foreign economic growth.

On the other hand, national income (Y) can be consumed (C), saved (S), and taxed (T)¹¹.

$$Y = C + S + T \quad (2)$$

So, if we combine (1) and (2),

$$C + S + T = C + I + G + X - M \quad (3)$$

$$S + (T - G) + (M - X) = I \quad (4)$$

$$\underbrace{S^{Pr} + S^{Pb}}_{\downarrow} + S^F = I \quad (5)$$

National savings

where S stands for private savings¹², $(T-G)$ denotes public savings¹³, $(M-X)$ represents foreign savings¹⁴, and I stands for gross investment. In other words, savings are equal to investment.

¹¹ T refers to net tax

¹² S^{Pr}

¹³ S^{Pb}

Therefore, according to this framework, investment is either financed by national savings ($S^{Pr}+S^{Pb}$) or foreign savings (S^F). If domestic savings, which are private savings (S^{Pr}) and public savings (S^{Pb}), are not enough to “finance”¹⁵ gross domestic investment, investment is financed by foreign savings (S^F). In other words, this framework implies that inadequacy of domestic savings to finance gross domestic investment means *importation* of foreign savings ($M-X$) to finance it, which is *current account deficit*.

Moreover, since national savings consist of private and public savings, any surge on both has a direct effect on national savings. Although our focus is on private savings, public savings also require further interest. Government budget balance is known as public savings. Therefore, whether it is in deficit or surplus has a direct influence on current account balance¹⁶. In this sense, this discussion on the close relationship between government budget balance and current account balance is known as *twin deficit hypothesis*. In other words, the higher the government balance deficit is, the higher the current account deficit is. As a result, it is claimed that fiscal balance and current account balance move in the same direction¹⁷.

For all those reasons above, the classical view claims that national savings should be increased, and also foreign saving inflows to the country should be reduced to fight against current account deficit.

¹⁴ S^F

¹⁵ Please see the discussion regarding “saving vs. financing” made by Borio and Disyatat (2011).

¹⁶ See equations (3), (4), and (5)

¹⁷ For further reading regarding twin deficit please see (Bluedorn and Leigh, 2011), (Abbas et al., 2011), (Normandin, 1999), (Corsetti and Müller, 2006), (Leachman and Francis, 2002), and (Marinheiro, 2008).

This approach is widely accepted in the literature. For example, Roubini claims that if a country's investment is more than its savings, then, the gap should be closed by borrowing foreign savings from abroad, which means running current account deficit (2004, p. 20). Likewise, Van den Berg argues that USA has to save more to decrease its current account deficit (2010, p. 79). Similarly, Kreinin disputes that low rate of savings of USA displays its current account deficit (2005, p. 191). Mann also believes that current account deficit occurs due to "spending beyond its means", which implies overconsumption (2002, pp. 134-137). Moreover, Higgins and Klitgaard assert that decreasing level of savings in U.S. would likely to diminish the level of investment in U.S. (1998, para. 4).

In addition to all those arguments above, maybe the most influential, salient, and disputed article regarding classical view was written in 2005 by former chairman of the FED, Ben Bernanke. In his article, *The Global Saving Glut and the U.S. Current Account Deficit*, Bernanke focuses on current account deficit in U.S. which rose to \$635 billion and 5.5% of U.S. GDP in 2005 (2005, p.1).

He argues that U.S current account deficit cannot be only explained by domestic factors such as economic policy, but also and more importantly by global factors. (p.1). By global factors, he means recent increase in global supply of savings¹⁸ which leads to current account deficit and low long term interest rates throughout the world to equilibrate the markets (p. 7). In this sense, according to Bernanke, U.S. current account deficit is on the rise due to increasing global savings and interest of foreigners in investing U.S.

He believes saving glut emerged due to transformation of developing countries from borrowers to lenders (p. 1). He also examines why and how those countries transformed into lenders. He has two main arguments regarding the issue. Firstly, it is due to financial crises they have faced in East Asian countries. Secondly, it is due to escalated oil prices in Middle East countries (p. 6).

¹⁸ which he calls as "global saving glut"

He states that developed countries especially the USA., contrary to developing countries, faced a deficit in their current account balances due to decreasing motives to save and increasing capital inflows to U.S. thanks to its low political risk environment, high technology etc. (pp. 6 – 7).

There are, according to Bernanke, two main means to solve U.S. current account deficit; firstly, foreign patterns of international trade; and secondly, international financial flows (p. 2). The former concentrates on trade related factors; however, Bernanke, believes that the problem is not a specific trade related (p. 2). The latter focuses on investment-saving behavior, and it is more based on global factors rather than domestic factors. In an open economy, excess saving countries lend their savings through financial outflows to deficit countries which use them for capital investment (p. 3). In other words, if a country's saving is less than the required amount to finance its domestic investment, it borrows from other countries' savings to finance. Therefore, current account deficit is equal to net foreign borrowings which also equals to excess capital investment of a country over national savings of that country.

He also suspects the idea that U.S. current account imbalances are solely due to its declining saving rate (18% in 1985 and 14% in 2004) (p. 3). Although he does not completely reject the idea because of an existing empirical proof of decreasing saving rates in U.S., he believes that it is not enough to explain the complete phenomenon and he also rejects the idea that chronic current account of U.S. is "made in U.S".

To sum up, he suggests that global saving glut leads to an increase in U.S. equity, stock, and real estate prices which causes a rise in U.S. spending and fall in U.S. savings; as a result, U.S. faces high current account deficit.

As the main solution to current account deficit, Bernanke, unlike most economists who suggest deficit countries to increase their saving rate, recommends surplus

countries to save less (p. 9). This approach, however, is unfortunately based on blaming other countries (surplus ones) rather than searching for the causes of the failure in deficit ones.

Similarly, his argument regarding the transformation of developing countries from current account deficit countries to surplus ones thanks to economic crisis is quite underestimating the phenomenon. Despite the fact that financial crises have a “correcting” perspective for economies, it is an inadequate way of explaining current account surpluses in developing countries. The reason why it is inadequate is that he does not consider the real important causes of the surplus in those countries such as East Asian state interventions to prompt exports, technology and so forth. Moreover, Turkey and Mexico alongside with other developing countries have also experienced financial crises in the 1990s and the 2000s. However, they are still high current account deficit countries, i.e. if we call them as Bernanke, scant savings¹⁹ countries.

Lastly, his current account deficit analysis is only limited to developed countries. For example, he believes current account deficit lowers the deficit country’s interest rates (p. 7). Although it may be true for developed countries, it is mostly the other way around for developing countries because they are increasing their interest rates to attract financial flows into their country; in other words, they are competing for capital inflows by raising their interest rates. Therefore, he explains current account deficit of developed countries (U.S. mainly) with reference to current account surplus in certain developing countries such as China. In other words, he does not provide a valid explanation for current account deficit in developing countries such as Mexico and Turkey.

Furthermore, there are empirical studies that verify the positive relation between domestic savings and current account balance. For instance, Feldstein and Horioka²⁰

¹⁹ As opposed to Bernanke’s concept of excess saving countries.

²⁰ Known as Feldstein–Horioka puzzle

(1980) find that an increase in national saving rate is approximately create a 1-to-1²¹ increase in investment by examining OECD countries' data²². Therefore, their findings can also be interpreted that there is a negative relation between current account deficit and national savings based on the equation (5) derived above.

What is more, according to Feldstein, based on their previous analysis but with more complex one, an increase in domestic investment with the increase in domestic savings decreases both capital inflows and current account deficit (1982, p. 19). By the same token, Feldstein and Bacchetta (1991) show that there is a significant effect of national savings on domestic investment; and as a result, on current account balance. Again, Tesar (1991) also find the same correlation between national savings and domestic investment; accordingly, also between national savings and current account deficit in a sample of 23 OECD countries. Equally, according to Sachs' perspective (1981, 1982), based on his formal model of the current account, current account deficit resulted from saving-investment decisions. Obstfeld and Rogoff (1996) also provide time-series empirical evaluation to support analysis of Feldstein and Horioka²³.

Moreover, in their empirical analysis, Blanchard and Giavazzi (2002) believe that high current account deficits in Greece and Portugal are driven by lack of national savings which is required to finance domestic investment²⁴. Similarly, Chinn, Eichengreen and Ito (2014) find that global saving glut hypothesis is more significant in developing countries. Likewise, Gruber and Kamin's (2007) empirical analysis

²¹ The estimate of β ($\widetilde{\beta}$) is 0.89 (s.e.=0.07) when gross saving and investment are used and 0.94 (s.e.=0.09) when net saving and investment are used.

²² Their main aim is to compare two approaches on domestic savings and global capital mobility.

²³ As they call intertemporal current account models.

²⁴ The main aim of the article is to prove poorer countries can and should run large current account deficits.

based on panel regression grants some support to Bernanke's global saving glut hypothesis. Calderon, Chong, and Loayza's (2002) pooled time-series and cross-country data analysis also displays a positive correlation between national saving rate and current account balance.

Furthermore, there are also other empirical studies which investigate the direct effect of government budget balance on current account balance; i. e., *the twin deficit hypothesis*. For instance, Bachman (1992) provides support for the hypothesis, by using VAR (Vector Auto Regression) models. Also, according to Normandin (1999), the twin deficit hypothesis is valid for Canada and USA. Similarly, Chinn and Prasad (2003), based on their cross-section and panel regression model, find that there is a positive correlation between government budget balance and current account balance, which represents importance of public savings in addition to private savings. Besides, Chinn and Ito (2008) find that one percentage point improvement in government budget balance is more likely to create 0.10 to 0.49 percentage point improvement on current account balance, based on model specifications. Again, Chinn, Eichengreen and Ito (2014) find that budget balance has one of the most influential effects on current account balance. McDermott and Cashin (1996) argue that Australia has to substantially increase its national saving of between 2 to 4 percent of its GDP in order to stabilize its large current account deficit. Again, Similarly, Akbostancı and Tunç (2001) find that there is a long lasting correlation between government budget balance and current account balance in Turkey by estimating an error correction model. Equally, Acaravci and Ozturk (2008) also provide empirical support for twin deficit hypothesis in Turkey, based on their autoregressive distributed lag (ARDL) model study.

On the other hand, there are also other empirical studies that show there is no positive relation between national savings and current account balance. For instance, Backus et al. (2009) suggest that U.S. current account deficit is not originated by low U.S. savings, but rather by low rates of investment in surplus countries. Moreover,

Kim and Roubini (2008) find some controversial empirical results in their VAR model analysis. On the one hand, they observe that an increase in private savings improves current account balance; on the other hand, a decrease in public savings (government budget deficit) also improves current account balance. Therefore, they argue that there is a “*twin divergence*”, rather than twin deficit (p. 381).

All in all, the literature focuses on the claim that national savings are one of the most important determinants of current account imbalances. In this sense, it is suggested that the basic solution to current account deficit comes from an increase in domestic saving rate. Although some strongly argue that the claim only by itself is enough to solve the whole phenomenon of current account imbalances, it is an inadequate and underestimating approach to the problem of global current account imbalances. However, it definitely explains some of its important features.

2.3) The Level of Competitiveness and Current Account Balance

Current account deficit is also associated with lack of competitiveness of a country. Competitiveness can be defined as the ability of a firm or a country to sell its product to others by ruling out other competitors. If a country's competitiveness is high, its exports are expected to be higher than its imports ($X - M > 0$). Therefore, the higher the competitiveness of a country is, the better its current account balance is. However, how to attain such competitiveness against others is subject to hot debates.

Early literature, such as early classic liberal economic literature and Mundell-Fleming model (1963, 1962), only focus on price of the product, which includes the concepts of exchange rate and cost of production such as taxes, wages etc. This literature simply suggests that if domestic currency of the country depreciates ($e \uparrow$), the country's exports become cheaper to foreigners, and imported goods become more expensive for domestic residents. As a result, while the country's exports

increase, its imports decrease. In other words, competitiveness of the country vis-à-vis others enhances, which leads to an enhancement in the country's balance of payments position.

For example, assume that under simple Mundell-Fleming framework, economy is in current account deficit initially at a_0 , and then also assume that domestic currency depreciates ($e \uparrow$). Under a relative capital mobility and flexible exchange rate regime the depreciation will result in an increase in competitiveness of the country. Formally,

- (1) IS curve shifts to right (IS_0 to IS_1)
- (2) BP curve shifts to right (BP_0 to BP_1)

As a result, current account position of the country improves through rise in net exports ($X-M$) $\uparrow$, and economy settles at e_1 at the end. Therefore, the lower the value of the domestic currency, the better the country's current account position is.

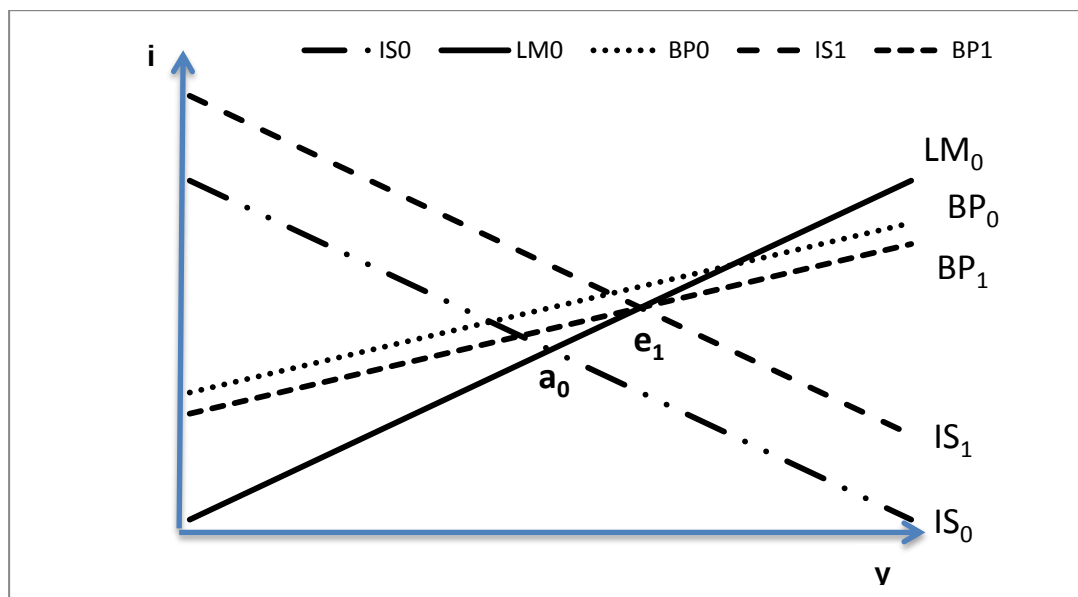


Figure 2.1: Competitiveness under Mundell - Fleming Model

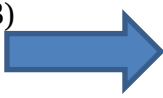
Although this literature explains some portion of competitiveness and its contribution to current account imbalances, it is an inadequate approach due to its sole focus on exchange rate as an only indicator of competitiveness²⁵. Moreover, price competitiveness is an inadequate way of economic development. Price competitiveness, which generally achieved through depreciated/devaluated exchange rate and/or decreased unit labor cost, can increase exports only up to a certain point because price competitiveness is mostly effective on low value added and price elastic goods. In this sense, those countries who cannot innovate and who can only achieve price competitiveness cannot increase their exports further; as a result, they are facing large current account deficits. Moreover, since they cannot increase their exports and national income accordingly, they stuck at a certain level of income, which is known as “*middle income trap*”. In this sense, more multiplex and complex approaches on competitiveness with more than one determinant are required.

One of the contemporary and more complex approaches on competitiveness comes from “*Global Competitiveness Report*” analysis prepared by *World Economic Forum (WEF)*. This report has been prepared in every year since 2004 and it covers 144 economies in 2014. Analysis of the reports based on twelve pillars, namely; *institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation* (Global Competitiveness Report, 2013, pp. 4-

²⁵ It is a fact that exchange rate is an important determinant of competitiveness especially for developing countries. However, the stand point of the thesis is that the whole concept of competitiveness cannot be exclusively enlightened by exchange rate.

9)²⁶. In this sense, they divide world competitiveness into three periods with two transition period.

Table 2.1: Global Competitiveness Index

(1) Factor-driven (first four pillars)	Transition from (1) to (2) 	(2) Efficiency- driven (next six pillars)	Transition from (2) to (3) 	(3) Innovation- driven (last two pillars)
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Source: Global Competitiveness index 2013-2014

Furthermore, another important and comprehensive competitiveness report is *World Competitiveness Yearbook* prepared by *International Institute for Management Development (IMD)*. The report covers 60 countries in 2014 and it is prepared based on 4 main criteria divided to into 20 sub-criteria. Those 4 criteria are *economic performance, government efficiency, business efficiency, and infrastructure* (World Competitiveness Yearbook, 2014).

Table 2.2: Global Competitiveness of Top 10 and Turkey

Global Competitiveness Report (WEF)			World Competitiveness Yearbook (IMD)		
	2014	2013		2014	2013
Switzerland	1	1	United States	1	1
Singapore	2	2	Switzerland	2	2

²⁶ For detailed explanations of each pillar, please see Global Competitiveness Report 2013.

Table 2.2 (Continued)

United States	3	5	Singapore	3	5
Finland	4	3	Hong Kong	4	3
Germany	5	4	Sweden	5	4
Japan	6	9	Germany	6	9
Hong Kong SAR	7	7	Canada	7	7
Netherlands	8	8	UAE	8	8
United Kingdom	9	10	Denmark	9	12
Sweden	10	6	Norway	10	6
Turkey	45	44	Turkey	40	37

Source: Global Competitiveness Report database and World Competitiveness Yearbook database

Moreover, as it can be seen from the table below, most of the first ten most competitive countries' exchange rates are not low, on the contrary, most of them are known as countries with high national currency value. By the same token, almost all of those countries are known for their high wages/salaries which are considered as the main sources of "*cost of production*"; hence, their cost of production are also not very low. Therefore, as opposed to conventional view, competitiveness cannot be solely expressed by price competitiveness based on cost of production and domestic currency value. That being said, we do not reject the importance of competitive exchange rate especially for developing countries. For instance, exchange rate volatility in developing countries may show financial fragilities. Besides, since developing countries are generally dependent on foreign capital goods importation to be able to produce, any surge in exchange rate may also cause a rise in cost of production. In addition, unfortunately it is also very hard to find monthly and quarterly data for competitiveness other than exchange rate and labor cost. Hence,

we accept exchange rate as an important proxy for competitiveness; on the other hand, we just argue that exchange rate cannot be the solitary indicator of competitiveness of a country.

Table 2.3: Top 10 Competitor Countries²⁷ with Their Exchange Rates over U.S. Dollar

1 Switzerland	1.113 USD
2 Singapore	0.805 USD
3 United States	1 USD
4 Finland	1.353 USD
5 Germany	1.353 USD
6 Japan	0.009 USD
7 Hong Kong SAR	0.129 USD
8 Netherlands	1.353 USD
9 United Kingdom	1.714 USD
10 Sweden	0.146 USD

Source: Global Competitiveness Report 2013 and X-rates, 16.07.2014

Furthermore, there are empirical studies concerning the relationship between competitiveness and current account deficit. For instance, Glick and Rogoff (1995) find that productivity shocks, especially country specific ones, negatively affect current account balance in G7 countries. Similarly, according to Blanchard (2007a), current account deficit in the Euro area is due to wage rigidities. Again, Blanchard (2007b) finds that higher unit labor cost of Portugal as compared to the rest of Euro area increased Portugal's current account deficit. Likewise, according to Zemanek,

²⁷ Based on WEF rankings

Belke, and Schnabl (2010), structural reforms aimed to enhance competitiveness such as creating more flexible labor market have a positive effect on trade balance, based on their panel framework. In a similar fashion, European Commission (EC) (2008) argues that if wage rigidities are not eliminated, the competitiveness cannot be restored and current account imbalances remain within the Euro area. What is more, Aiginger (2001) believes that export diversification is an important determinant of competitiveness for trade. Besides, Amable and Verspagen (1995) argue that non-price factors of competitiveness such as technological change are as important as price factors of competitiveness in determination of a country's export performance. Equally, according to Dierx et al (2009), technological change is an important determinant of competitiveness for a country's trade performance. In this sense, Bennet and Zarnic (2008) believe that rocketing current account deficits of some European countries emerged due to losing of competitiveness caused by inability to shift to technological product production.

On the other hand, the empirical analyses in the literature generally focus on exchange rate as an only element of competitiveness. For example, Frankel and Rose (1996) use exchange rate to measure competitiveness of a country for their empirical analysis, in which they use panel data for more than 100 developing countries between the years 1971 and 1992, to find determinants of currency crisis. The similar empirical conclusion is also reached by Milesi-Ferretti and Razin (1998, 2000). Moreover, Obstfeld and Rogoff (2005, 2008) emphasize the importance of exchange rate for current account imbalances. Additionally, Boyd, Caporale, and Smith (2001) provide empirical support for Marshall-Lerner condition²⁸. Similarly, Blanchard, Giavazzi, and Sa (2005) find that Marshall-Lerner condition holds and the effect of exchange rate on trade balance is something between 0.5 and 0.9. Empirical findings of Bahmani-Oskooee (1986, 1991) also suggest that there is a positive relation

²⁸ Marshall-Lerner condition denotes the positive relation between exchange rate and trade balance in the long-run, but not in the immediate-run, see J-curve. In other words, devaluation/depreciation of the national currency is more likely to improve trade balance in the long run.

between exchange rate and trade balance. Again, Bahmani-Oskooee and Niroomand (1998) display that Marshall-Lerner condition holds for almost 30 countries, by using unit root tests and co-integration technique. Khan (1974) also presents that exchange rate has a substantial effect on trade balance of developing countries. Likewise, Shirvani and Wilbratte's empirical analysis confirms validity of Marshall-Lerner condition (1997). They find that trade balance is irresponsive to change in exchange rate in the immediate run among G7 countries; on the other hand, it is significantly affected by exchange rate movements within two years. Furthermore, Arize (1994) find that there is a positive relation between exchange rate and trade balance; beside, they form a stable equilibrium in the long-run. In a similar fashion, Himaros (1989) reaches the same conclusion. What is more, Gomes and Paz (2005) find that Marshall-Lerner condition exists in Brazil, using VECM approach. Likewise, Xiangqian and Guoqiang (2005) find that Marshall-Lerner condition is valid in China. Utilizing a VECM approach, Onafowora (2003) shows that Marshall-Lerner condition holds in the long-run in East Asia. Jamilov (2013) also displays that Marshall-Lerner condition holds for Azerbaijan, based on their analysis of Johansen co-integration approach. In the same way, Akbostanci (2004), by a VAR model analysis, find that although j-curve does not exist in Turkey, the positive relation between exchange rate and trade balance exists. Aydın, Çıplak, and Yücel (2004) find that exchange rate has an effect on trade balance both in single equation and VAR frameworks.

On the other hand, there are counter-arguments that exchange rate does not affect current account balance. For example, utilizing both parametric and non-parametric techniques, Rose (1991) argues that there is almost no empirical support that exchange rate affects balance of trade in 5 main OECD countries. Similarly, Mahmud, Ullah, and Yücel (2004) find that Marshall-Lerner condition only holds for Norway among 6 industrialized countries, using non-parametric kernel estimation technique. Bahmani, Harvey, and Hegerty (2013) also show that Marshall-Lerner

condition is not valid for more than half of 29 countries, based on their ARDL co-integration method.

All in all, the positive theoretical relation between competitiveness and current account balance is obvious. As competitiveness of a country enhances such as through elimination of wage and market rigidities, development in productivity, decrease in unit labor cost, depreciation in exchange rate, structural reforms, technological improvement etc., the country's current account balance improves. Therefore, although counter arguments exist, competitiveness seems to one of the important indicators of current account deficit.

2.4) Net Foreign Assets and Current Account Balance

Net foreign assets (*NFA*) are said to be another significant contributing factor of current account imbalances. Net foreign asset of a nation is that the value of foreign assets owned by residents minus value of domestic assets owned by foreigners. In this sense, any changes in net foreign assets (ΔNFA) are reflected as negative sign in capital and financial account balance ($-FAB$). Therefore,

$$\begin{aligned}
 & \text{Current Account Balance (CAB)} & (6) \\
 & + \\
 & \text{Capital and Financial Account Balance (FAB)} \\
 & = \\
 & 0 \text{ (zero)} \quad ^{29}
 \end{aligned}$$

²⁹ Assuming that net errors and omissions are zero. Unfortunately, it is not the case in real world. Please see Appendix A

Hence,

$$CAB = - FAB \quad (7)$$

$$CAB = \Delta NFA \quad (8)$$

Consequently, any changes in net foreign assets theoretically create 1-to-1 change in current account balance, or vice versa. Furthermore, there are empirical studies that examine the relationship between net foreign assets and current account balance. For example, Chinn and Prasad (2003) provide empirical support to the theory that net foreign assets positively affect current account balance, especially in developed countries. Similarly, Chinn, Eichengreen, and Ito (2014) find that net foreign assets have one of the most influential effects on current account balance. Besides, according to Gruber and Kamin (2009), there is a positive relationship between current account balance and net foreign assets. On the other hand, Gruber and Kamin (2007) find that net foreign assets do not explain the large current account deficit in U.S. and large current account surplus in East Asia.

In conclusion, the combination of (7) the relationship between current account balance (CAB) and capital and financial account balance (FAB), plus the relationship between financial account balance (FAB) and change in net foreign assets (ΔNFA) give (8) the positive relationship between current account balance (CAB) and change in net foreign assets (ΔNFA). On the other hand, while some studies verify the theoretical relation, some do not.

2.5) Foreign Interest rates and Current Account Balance

Foreign interest rates are also believed to be one of the determinants of current account balance. It is believed that there is a positive relationship between foreign interest rates (r^*) and domestic current account balance (CAB). The logic behind the claim is based on both (7) the theoretical relation between current account balance and capital and financial account balance, and (10) uncovered interest rate parity (UIP).

$$(1+r) = (1+r^*) \left(\frac{E(e)}{e} \right) \quad (9)$$

Then,

$$r - r^* = X_a \quad , \quad \text{where } X_a = \left(\frac{E(e)}{e} - 1 \right) \quad (10)$$

where r stands for domestic interest rate, r^* denotes foreign interest rate, and X_a stands for expected percentage depreciation of domestic currency. Therefore, UIP denotes that investors shall be eventually indifferent among all interest rates around the world since interest rates adjust themselves accordingly³⁰. However, during adjustment process investors fly to higher interest rate country, which equalizes all interest rates at the end. In other words, UIP foresees that high yield domestic assets/currencies depreciate through foreign interest rate increase and/or domestic interest rate decrease at the end, and vice versa.

³⁰ For further information regarding uncovered interest rate parity (UIP) please see (Bekaert, Wei, and Xing, 2007), (Lothian & Wu, 2011)

In addition to (10) the uncovered interest rate parity, (7) the relation between current account balance and capital and financial account balance is the second pillar of the discussion. The equation (7) tells that any changes in capital and financial account balance theoretically have a direct negative influence on current account balance, vice versa.

Then, the combination of equations (7) and (10) tells that when foreign interest rate rises ($r^* \uparrow$), ceteris paribus, investors run from home country to foreign country which means negative financial account balance. Then, according to equation (7), current account balance improves³¹.

Furthermore, there are empirical studies regarding the relationship between foreign interest rates and domestic current account balance. For instance, according to empirical analysis of Calderon, Chong and Loayza (2002), which consists of panel data of 44 countries and a reduced form method rather than a certain structural model, there is a positive relationship between foreign real interest rate and current account balance. Likewise, according to Milesi-Ferretti and Razin (2000), their findings are in line with theoretical claims that world interest rate is an important determinant of current account balance, by utilizing a data set of 105 low and middle income countries. Equally, according to Reisen (1998), the lower the world interest rates are, the lower the current account deficit is for debtor countries. On the other hand, Aristovnik suggests that although foreign interest rate measured by LIBOR theoretically has an influence on current account balance, the empirical studies show that the relation is statistically insignificant (2006, p. 10).

In conclusion, the combination of (7) the relation between current account balance (*CAB*) and capital and financial balance (*FAB*) along with (10) the uncovered interest rate parity (*UIP*) constitutes the theoretical background of the argument that there is a positive relation between world interest rate and current account balance. On the other hand, the empirical findings are controversial.

³¹ For further theoretical discussion please see (Miller, 2002) and (Appleyard, Field, and Cobb, 2009).

2.6) Economic Growth and Current Account Balance

Current account imbalances are also associated with economic growth, which means enhancement of wealth of a country from one period of time to another one. In other words, it denotes a raise in domestic and/or national income. Economic growth of a country is generally measured according to percentage change in a country's GDP or GNP³², which are different approaches to define a country's income.

$$M = f(Y) \quad (11)$$

The equation (11) shows that import (M) is a function of domestic income (Y). So, as domestic income increases through economic growth ($Y \uparrow$), imports also increase ($M \uparrow$). Therefore, theoretically there is a positive relationship between [*domestic income, (GDP), (Y)*] and trade deficit [$(X-M)$, (NX)]; as a result, current account balance. In other words, as domestic national income increases current account deficit increases too through rise in imports. The general classical story describes the situation as follows; an increase in national income *ceteris paribus* leads to an increase in demand of imports; accordingly, worsens trade balance and current account balance (McCombie, Thirlwall, and Thompson, 1994).

$$X = f(Y^*) \quad (12)$$

³² However, one may suggest that GDP has already got ahead of GNP as a source of defining wealth of a country with the raise of globalization.

Similarly, the equation (12) shows that export (X) is a function of foreign income (Y^*). So, as foreign income increases through foreign economic growth ($Y^*\uparrow$), exports also increase ($X\uparrow$). Hence, theoretically there is a negative relationship between [*foreign income, (GDP^*), (Y^*)*] and trade deficit [$(X - M)$, (NX)]; as a result, current account balance. To put it another way, as foreign national income increases, domestic current account balance improves through expansion in exports. The theoretical background is that as foreign income raises, *ceteris paribus*, the demand for domestic goods rises as well, which means rise in exports; as a result, current account balance improves (McCombie, Thirlwall, and Thompson, 1994).

There are empirical studies, results of which are aligned with the theoretical framework. For example, according to Aristovnik (2006), economic growth has a negative impact on current account balance, based on his analysis of broadened simple OLS structure by the Parks-Kmenta method and the Beck-Katz PCSE method. Milesi-Ferretti and Razin (1998) also believe that economic growth is one of the determinants of current account deficit and reversals, based on their OLS estimation with White's test. Similarly, Calderon, Chong and Loayza (2002) find a positive relationship between domestic output growth and current account deficit, by using pooled cross sectional and time-series panel data. They also claim to find that a rise in production growth in industrial countries decreases the current account deficits of developing countries through either escalation in demand of developing countries' exports or financial inflows to developing countries. Likewise, Edwards (2004), by using panel data, believes that there is a positive relation between current account reversals and economic growth, which can also be interpreted as that there is a positive relation between current account deficit and economic growth.

On the other hand, there are also other empirical studies that show little or no evidence supporting the theoretical claim. For instance, Prasad, Rajan, and Subramanian (2007) believe that there is a negative relationship between economic growth and current account deficit in non-industrialized countries, based on both

panel and cross-sectional data. Similarly, according to Chinn and Prasad's perspective, there is only a slight connection between growth rate (%GDP) and current account balances, based on their cross-section and panel regression model (2003, p. 73). As opposed their results in 1998, Milesi-Ferretti and Razin (2000) find that current account reversals are not systematically connected to deterioration of economic growth.

In a nutshell, both equation (11) export being a function of foreign income, and equation (12) import being a function of domestic income demonstrate that economic growth³³ is theoretically believed to be an important determinant of current account balance. However, there are contentious arguments regarding this relationship.

2.7) Credit Growth and Current Account Balance

One of the other disputed determinants of current account balance is credit growth. Credit growth can be defined as escalation in bank loans not only to individual customers but also to private and public sector customers. The story is that as credit grows³⁴, more money becomes available for borrowing, which increases purchasing power of both households and firms. What is more, the increase in purchasing power leads to an increase in demand for investment and consumption, which also causes a rise in the demand for imports ($M \uparrow$); as a result, current account balance is deteriorated. In this sense, current account deficit can be worsened by just providing additional credit without any surge in both domestic and foreign savings³⁵. For that reason, Ghosh and Ramakrishnan (2012) argue that excessive credit growth is one of

³³ Both domestic and foreign economic growth.

³⁴ For instance, through foreign financial inflows and domestic banks.

³⁵ Please see global saving argument (Bernanke, 2005) and its counter argument (Borio and Disyatat, 2011).

the main reasons of current account deficit. Likewise, according to Alfirman (2014), Indonesian Central Bank (BI) decided to supervise those banks whose credit growth is more than 20% in order to eliminate large current account deficit of Indonesia. Booms (2004) also suggest that credit booms lead to current account deficits especially in emerging market countries (p. 147).

There are studies that provide empirical support for the claim. For instance, Gourinchas, Valdes, and Landerretche (2001), whose data consists of 91 countries between the years 1960-1996, find that credit growth leads to a substantial rise in external deficits. Similarly, according to Mendoza and Terrones (2008), credit boom leads to widening of current account deficit based on their analysis on 49 developing and developed countries with threshold methods. Hume and Sentance (2009) also believe that credit growth worsens current account balance. According to Ekinci, Erdem, and Kilinc (2014), credit growth negatively affects current account balance, especially in those countries in which financial deepening is very low, with panel data set consists of 49 countries. On the other hand, Cottarelli, Dell'Ariccia, and Vladkova-Hollar argue that credit growth is not necessarily associated with current account balance deterioration. The annoying relation occurs only if the initial stock of loans has already sufficient enough (2005, p. 95). They provide examples of Bosnia, Serbia and Montenegro, Croatia, and Bulgaria; while the credit boom in first three resulted in current account deterioration, it did not in Bulgaria.

To sum up, credit growth means more purchasing power that boosts consumption, which, at least in theoretical sense, leads to an increase in current account deficit. Nevertheless, while some empirical studies verify this theoretical relation, the others reject it.

2.8) Financial Openness and Current Account Balance

There is also an ongoing discussion on whether financial openness is a determinant of current account balance or not. Financial openness is about whether or not a country puts obstacles in front of movements of financial assets into and/or out of the country. Furthermore, unlike other disputed determinants of current account balance, there is no strong theoretical claim regarding in what direction financial openness exactly affects current account balance. In other words, while a certain level of financial openness can positively affect a particular country's current account balance, the same level might negatively affect another country's balance as well. The difference comes from whether the country is a net creditor or a debtor. Some may argue that if it is a net creditor, then, it is more likely for that country's current account balance to be positively affected by higher degree of financial openness, and vice versa.

Empirical studies regarding the issue are as follows; Chin and Prasad (2003) find that there is a negative relationship between financial openness and current account balance, especially for developing countries, based on cross-section and panel regression models. On the other hand, Chinn and Ito's empirical analysis (2007) gives different results for 118 developed and developing countries. While financial openness negatively affects current account balance of the former, its effect on the latter differs among countries. Gruber and Kamin (2007) argue that classic "determinants" of current account deficit, including financial openness, cannot explain large current account deficit in U.S. and large current account surplus in East Asia, based on their panel regression model. As opposed to their conclusion in 2007, Gruber and Kamin (2009) find that the higher the financial openness is, the better the current account balance is, based on their panel data model. Similarly, Aristovnik (2007) believes there is a positive relation between financial openness and current account balance for Middle East and North African countries due to being oil exporters, based on its dynamic panel data regression model. On the other hand,

Aristovnik (2006) provides empirical support for a negative relationship between financial openness and current account balance in former Soviet Union Republics. Likewise, according to Calderon, Chong, and Loayza (2002), there is a negative relationship between financial openness and current account balance

In conclusion, financial openness is one of the most disputed “determinants” of current account balance not only for whether being a determinant or not, but also for the direction of its effect on the balance.

2.9) Financial Deepness and Current Account Balance

The effect of financial deepness on current account balance has been largely examined in the literature especially since the rise of financial liberalization policies. According to Özer, financial deepness is associated with possessing a well-developed and well-functioning after-market (2004, p. 192). Financial deepness can also be described as the level of delivery of wide range financial services to the all layers of the society in a financial market. Therefore, it is the development of the financial system as well. The main reason why the literature focuses on financial deepening is that financial development is seen as a major tool for economic development especially in low income countries (IMF, 2014). Moreover, one may suggest that financial deepness has three main channels of effect on current account balance; (a) international inflows effect, (b) income effect, and (c) exchange rate effect.

The first channel of effect is (a) international inflows effect. It can be argued that as financial development occurs, foreign financial inflows to the country increase for better investment opportunities, which means positive capital and financial account balance; as a result, negative current account balance^{36, 37}. In this sense, some

³⁶ For further information regarding the relation between FAB and CAB please see equations (6) and (7) under Chapter 2.4.

believes that the global imbalances stem from the difference of financial development across the globe (Gruber & Kamin, 2009). Therefore, first channel shows a negative relation between financial development and current account balance.

The second channel of effect is (b) income effect. It is believed that financial deepness creates more credit supply³⁸. Therefore, same as the story of credit growth, increase in purchasing power through more loans leads to higher household incomes ($Y \uparrow$). Moreover, the increased income of households increases their demand for imports ($M \uparrow$); as a result, current account balance deteriorates. Hence, the second channel also suggests that there is a negative relationship between current account balance and financial deepness.

The third channel of effect is (c) exchange rate effect. As the first channel of effect; international inflows effect strikes exchange rate appreciates due to financial inflows, which deteriorates current account balance. On the other hand, as the second channel of effect; income effect strikes, exchange rate depreciates due to increased domestic money supply, which enhances current account balance. For that reason, exchange rate effect suggests a vague relationship between current account balance and financial deepness.

Furthermore, there are empirical studies regarding the effect of financial deepness on current account balance. For example, Chinn and Prasad (2003) find that financial deepening and current account balance are positively related with each other in developing countries, but not in developed countries. Similarly, according to Aristovnik (2007), financial deepness positively affects current account balance in Middle East and North African countries. Moreover, Chinn and Ito (2007) find that financial deepness positively affects current account balance of countries except

³⁷ For further reading regarding the hypothesis please see Gruber & Kamin (2009).

³⁸ See Edwards (1995), Chinn and Prasad (2003), Aristovnik (2007).

from those countries with substantially enhanced legal systems and open markets. On the other hand, Mendoza, Quadrini, and Rios-Rull (2007) argue that the effect of financial deepness on current account balance is negative. Özmen (2004), unlike others, finds an insignificant relationship between financial deepening and current account balance. In a similar fashion, according to Gruber and Kamin (2009), the degree of financial development does not explain the global current account balances based on their panel data model. Caballero, Farhi, and Gourinchas (2006) also believe that there is a negative relationship between financial development and current account balance. Equally, this stand of view is also supported by the findings of Chinn, Eichengreen, and Ito (2014).

In a nutshell, financial deepness can affect current account balance in three main channels; (a) international inflows effect, (b) income effect, and (c) exchange rate effect. While the first two effects show a negative relation, the last effect shows an unclear one. In a similar fashion, empirical studies also provide different empirical results from each other.

2.10) Import Dependent Export and Current Account Balance

Import dependent export is another theoretical determinant of current account balance. It refers to the level of degree of a country's dependency on importation of foreign products in order to be able to export its domestic products. In other words, it shows how much domestic production of export goods is dependent on goods produced outside of the country. The higher the dependency on foreign goods to be able to export is, the lower the positive effect of exports on domestic current account balance is due to the fact that higher foreign input content in export goods means lower value addedness in its exports for the country. For instance, if intermediary goods importation and capital goods importation have the largest shares in all imported goods in a specific country, then, one may claim that the country's exports

are dependent on imported goods from the rest of the world. Therefore, if that is the case, the country's domestic value added content of its exports decreases, which, at the end, deteriorates current account balance. What is more, it is not a secret that lots of industrial and developing countries are dependent on importation of capital and intermediary goods such as energy. Hence, export being dependent on import is an important discussion with respect to global current account imbalances.

Table 2.4: Top 25 Countries' Value Added Export Ratio – Total Domestic Value Added Share of Gross Exports (%)

Country	%	Country	%
1- Brazil	90.97	14- Turkey	78.21
2- United States	88.71	15- Greece	76.85
3- Brunei Darussalam	88.68	16- France	75.25
4- Argentina	87.92	17- Germany	73.36
5- Australia	87.49	18- Poland	72.11
6- Japan	85.21	19- Switzerland	71.53
7- Norway	84.7	20- Mexico	69.67
8- United Kingdom	82.69	21- Israel	69.41
9- New Zealand	81.59	22- Austria	68.36
10- Chile	81.54	23- Denmark	67.99
11- Canada	80.46	24- Bulgaria	67.86
12- Italy	79.92	25- Portugal	67.59
13- Spain	79.27		

Source: OECD-WTO Trade in Value Added (TIVA) database

Unfortunately, empirical studies regarding the issue are quite scarce. However, some studies are as follows; Morsy (2009) finds that energy exportation is one of the largest sources of current account surplus for oil exporting countries, whose coefficient varies between 0.13 and 0.35. The reason why those countries enjoy such a surplus is due to dependency of energy scarce countries on them in order to be able to produce and sell their commodities to others. On the other hand, according to Sachs (1982), oil dependence does not have any effect on current account balance. Moreover, Onaran (2006) argues that import dependency of Turkish economy and production does not only worsen its current account balance, but also makes it chronic.

2.11) Energy Prices and Current Account Balance

Energy prices, which are mostly oil and natural gas prices, are the last assumed determinant of current account balance that we will dwell on. Oil and natural gas are not only utilized in production but also in consumption as heating in residences. In this sense, global energy demand is quite inelastic because there are almost no substitutes for fossil fuels. Hence, energy is one of the most important global commodities that shape both the global economy and global politics. When energy prices increase, the level of imports also increase due to inelastic demand of energy especially in petroleum and natural gas scarce countries. Therefore, as energy prices rise, current account balance of energy scarce countries deteriorates.

The empirical literature regarding the effect of energy prices on current account balance is quite rich. For instance, Gruber and Kamin (2007, 2009) find out that there is a positive relationship between oil balance of a country and current account balance among 61 countries between the years 1982 and 2003. Likewise, Kilian, Rebucci, and Spatafora (2009) analyze the effects of both demand and oil shocks on trade balance by using structural VAR (SVAR) model and monthly data. According

to their findings, the complete effect of an oil price shock on trade balance is largely determined by the response of non-oil trade balance rather than the response of oil trade balance. By using computable general equilibrium (CGE) model, Zaouali (2007) argues that while it is a fact that Chinese economy is negatively affected by rising oil prices, this negative effect is tolerable due to high inflow of foreign capital and investment. By using structural VAR (SVAR) model and monthly data, Özlale and Pekkurnaz (2010) analyze the relationship between Turkish current account balance and oil prices. They discover a negative relationship between oil prices and current account balance of Turkey. Similarly, by using structural VAR (SVAR) model and quarterly data, Özata (2014) finds a strong relationship between oil prices and Turkish current account balance.

2.12) Conclusion

Global current account imbalances remain as an important problem to be solved for global stability. Nevertheless, in order to be able to answer the question of how to solve, one first of all has to find out the determinants of current account. The literature focuses on several factors among which the thesis selects the most influential ten; national savings, the level of competitiveness, net foreign assets, foreign interest rates, economic growth (both domestic and foreign), credit growth, financial openness, financial deepness, import dependent export, and energy prices. Most of those attributed determinants of global current account imbalances have theoretical backgrounds that show how they are supposed to affect current account balance. However, the empirical studies regarding them are quite contentious. While some of the studies corroborate the theoretical claims, the others refute them. On the other hand, some of the determinants theoretically do not even show a certain direction, but rather, display various opposite directions.

Moreover, as discussed in introduction of the chapter, many of those determinants are closely related to each other even theoretically. In this sense, there is some kind of a “*determinant inflation*” in the literature. Hence, the following chapter will discuss their relations to each other. Although testing the effects of those determinants on current account balance by using each of them separately in an econometric model would display that each of them has a distinct effect on current account balance, such an effort, which has been the goal of the literature so far, would not help us to comprehend the genuine dynamics behind current account balance but complicate it. Therefore, we will focus on the channels of effects of the determinants on current account balance rather than focusing on each of the determinants separately in an econometric model.

Nevertheless, before moving on an econometric model, those ten attributed determinants of global current account deficit require further empirical and theoretical attention. In this sense, the following chapter of the thesis will analyze those determinants on Turkish case of current account deficit and discuss whether or not they address a structural break in Turkish current account balance in the late 1990s.

CHAPTER 3

TRENDS IN TURKISH CURRENT ACCOUNT BALANCE

3.1) Introduction

“No extension of foreign trade will immediately increase the amount of value in a country, although it will very powerfully contribute to increase the mass of commodities and therefore the sum of enjoyments.”

David Ricardo, 1821, para 7.1

The significance of trade has been emphasized since Adam Smith. Accordingly, trade among nations has been on the rise for centuries. Nevertheless, the velocity of this rise has never been this high. Similarly, alongside with world trade, Turkey's trade volume is also increasing. However, Turkey's imports rise much more than its exports, which leads to huge trade deficit and current account deficit. In this sense, the aim of this chapter is to intuitively analyze the trade structure of Turkey; and to examine the reasons behind the current account deficit in Turkey. By doing so, we

also investigate whether there is a structural break regarding current account deficit in Turkey in the late 1990s or not. The main findings of the chapter are as follows;

Our analyses display that Turkish current account deficit problem, in fact, is a trade deficit problem. While the service sector incomes smoothens Turkish current account deficit, dependency on energy importation worsens it. Moreover, high levels of intermediate goods importation exhibits that Turkish industry is highly dependent on foreign inputs. Furthermore, despite being too early to arrive at a conclusion, the trend in current account balance intuitively indicates that there might be structural break in it in the late 1990s. The last but not the least, it is argued that there are six main channels affecting current account balance which are *financial flows (FF)*³⁹, *domestic economic growth (Y)*, *foreign economic growth (Y*)*, *real effective exchange rate (REER)*⁴⁰, *import dependent export (IDE)*, and *energy prices (POIL)*. Correspondingly, the outline of the chapter will be as follows;

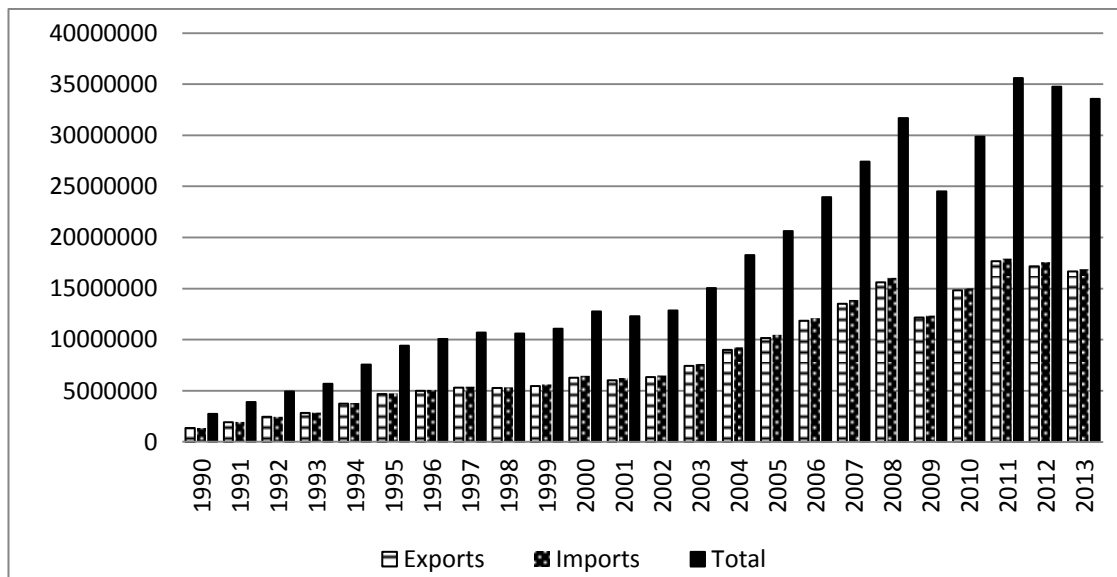
First, the movements in trade and current account balance of Turkey will be explored. Second, there will be a detailed analysis of Turkish trade commodities. Third, the concept of structural break concerning Turkish current account deficit will be intuitively analyzed. The last but not the least, we will intuitively examine whether or not the possible determinants of current account imbalances, proposed by the literature and discussed in Chapter 2, explain Turkish current account balance and a possible structural break in it. Moreover, we will also investigate channels of effects of the determinants put forth by the literature on the current account balance. Then, the chapter will be concluded.

³⁹ Financial flows (FF) are used as a proxy for financial openness.

⁴⁰ Real effective exchange rate (REER) is used as a proxy for competitiveness

3.2) Movements in Turkish Trade and Current Account Balance

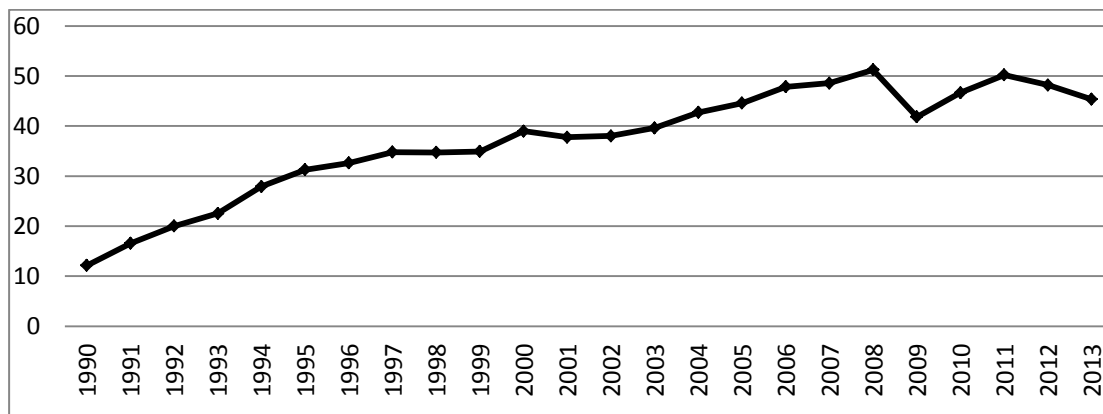
Rising trade volume around the world is becoming more and more obvious with each passing day. The data also prove the observed phenomenon. According to WITS and IMF data, the below two figures (3.1 and 3.2) exhibit that global exports and imports⁴¹ enlarged from 2,726,028 million U.S. Dollars (12.16 % of world GDP) in 1990 to 33,556,216 million U.S. Dollars (45.36 % of world GDP) in 2013. Hence, global exports and imports enlarged more than 12-fold only in 24 years (and 4-fold with respect to world GDP ratio).



Source: WITS data, current prices

Figure 3.1: World Trade Volume (Million U.S. Dollars, 1990-2013)

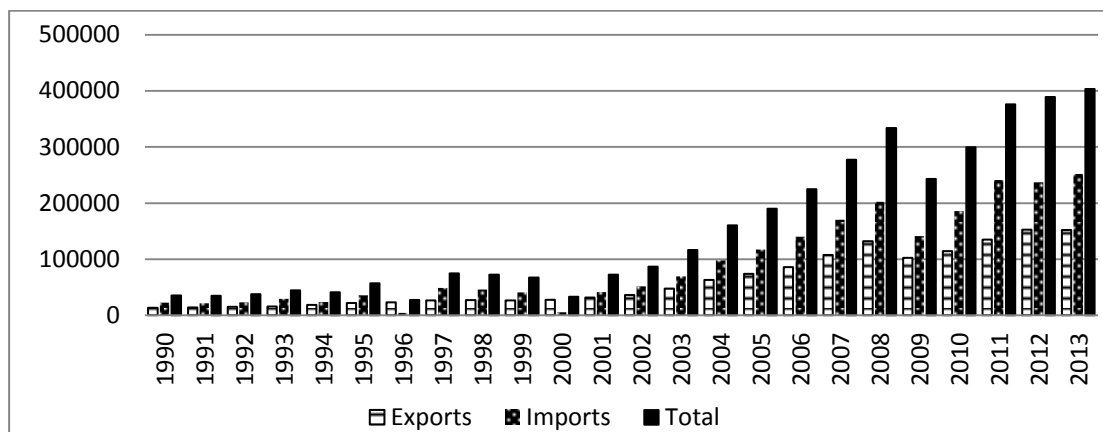
⁴¹ Global trade volume.



Source: WITS data and IMF data, current prices

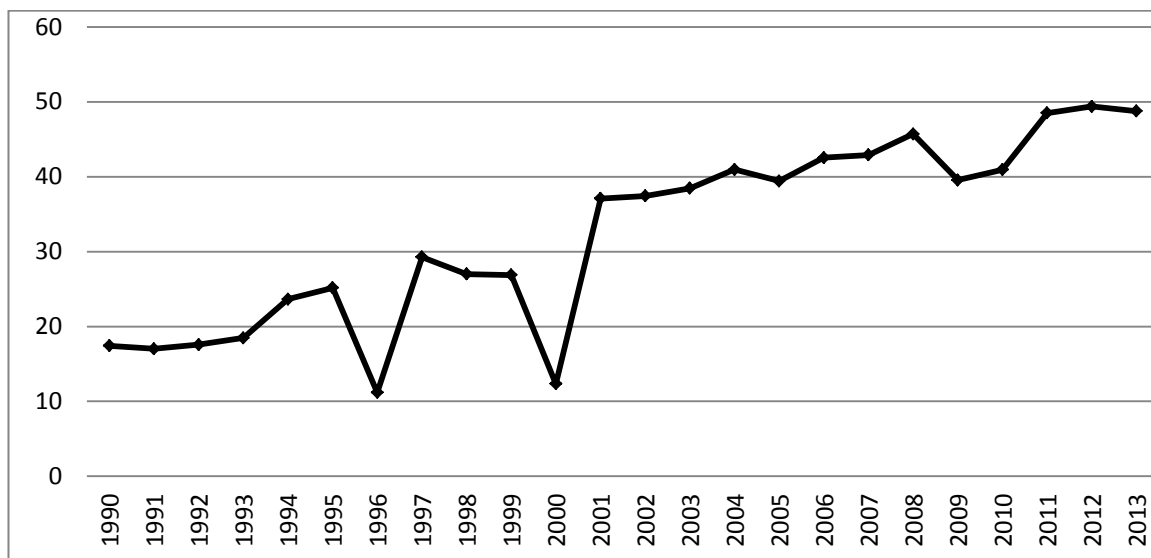
Figure 3.2: World Trade Volume (% of World GDP, 1990-2013)

Similarly, Turkey's trade volume has been also increasing quite sharply following the global pattern. Based on WITS and IMF data, the below two figures (3.3 and 3.4) display that Turkey's trade volume raised from 35,260 million U.S. Dollar (17.43% relative to its GDP) in 1990 to 403,447 million U.S. Dollar (48.77 % relative to its GDP) in 2013. In other words, Turkey's exports and imports increased almost 12-fold (and 3-fold with respect to its GDP) merely in 24 years.



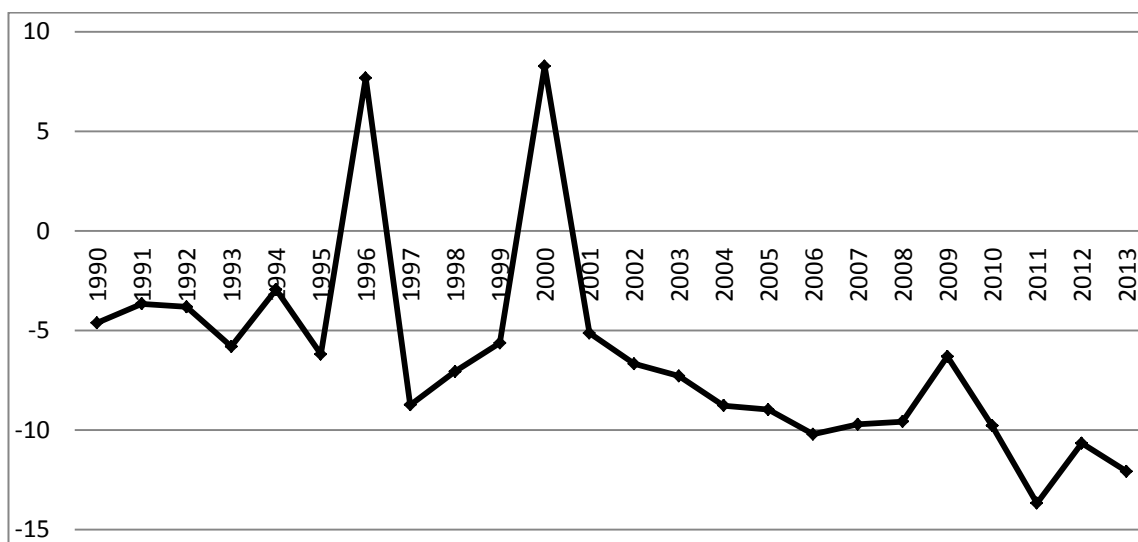
Source: WITS data, current prices

Figure 3.3: Trade Volume of Turkey (Million U.S. Dollars, 1990-2013)



Source: WITS data and IMF data, current prices

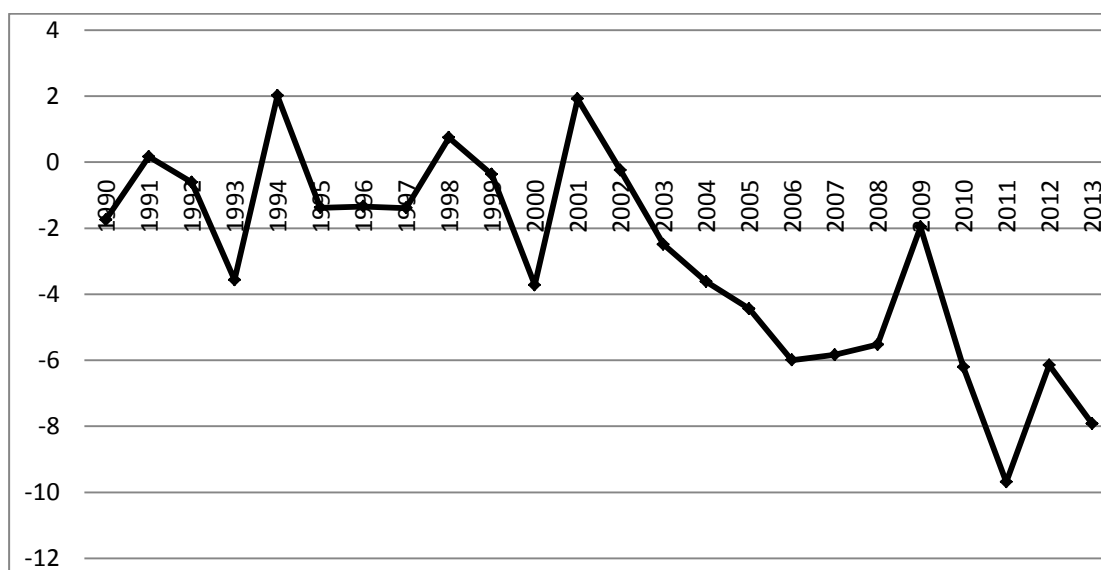
Figure 3.4: Turkish Trade Volume (% of GDP, 1990-2013)



Source: WITS data and IMF data, constant prices

Figure 3.5: Turkish Trade Balance (% of GDP, 1990-2013)

By the same token, as compared to enlargement of trade volume of the world, the trend in the expansion of Turkey's trade volume demonstrates some extraordinary characteristics, which has been a quite controversial issue since the 1990s, and especially after the 2000s. However, although exports and imports of a country are desirable to increase proportionally with each other, Figure 3.3 displays that Turkish imports have been ever- increasing more than its exports. Therefore, Turkey has been chronically suffering from trade deficits especially since the 1990s. However, Figure 3.5 exhibits that the trade deficit⁴² has reached unprecedented levels (-13.67% in 2011) since the 2000s. As it can be seen from Figure 3.3, the gap has been almost uninterruptedly widening. In other words, Turkey's balance of trade has been in deficit (negative) for quite a long time.



Source: Central Bank of Republic of Turkey (CBRT) data

Figure 3.6: Turkish Current Account Balance (% of GDP, 1990-2013)

⁴² Trade balance refers to the relationship between export and import commodities of a country ($X \sim M$). If $(X - M) > 0$, then there is trade surplus. If $(X - M) = 0$, then the trade is in balance. If $(X - M) < 0$, then the trade is in deficit.

Due to the high trade deficit discussed above, it is a well-known fact that Turkey, like many other countries, has been chronically suffering from current account deficit problem. Although the Turkish current account balance has been almost always in deficit since the 1990s, the deficit has been enlarged tremendously since the 2000s. For instance, based on CBRT and WB data, Figure 3.6 displays that in 1990, Turkey's current account deficit (2 625 million U.S. Dollars) relative to its GDP (150 676 million U.S. Dollars) was 1.7%. On the other hand, in 2011, Turkey's current account deficit (75 082 million U.S. Dollars) relative to its GDP (774 775 million Dollars) reached 9.7%.

However, it is noticeable that Turkey's trade deficit (-12.07% in 2013) is larger than its current account deficit (-7.92% in 2013). The considerable difference is largely compensated by service sector incomes⁴³. In 2013, service sector incomes helped lowering current account deficit by 23 055 million U.S. Dollars. Tourism (or Travel) income has the largest share in service sector incomes. In 2013, tourism revenues constitute the 60% of service sector revenues and tourism balance was 23 180 million U.S Dollars⁴⁴.

In addition to those above, trade partners of a country are also important features that exhibit the country's trade structure. In this sense, Turkey's major trade partners are shown in below Table 3.1. As seen, Turkish goods are generally exported to European and OECD countries. However, this trend is slowing down and the share of European and OECD countries in exported goods is decreasing. For instance, the share of Organization of Islamic Cooperation (OIC) countries has increased sharply. Likewise, Turkey's import partners are mostly European and OECD countries. However, similar to the trend in exports, the share of them in imported goods is diminishing.

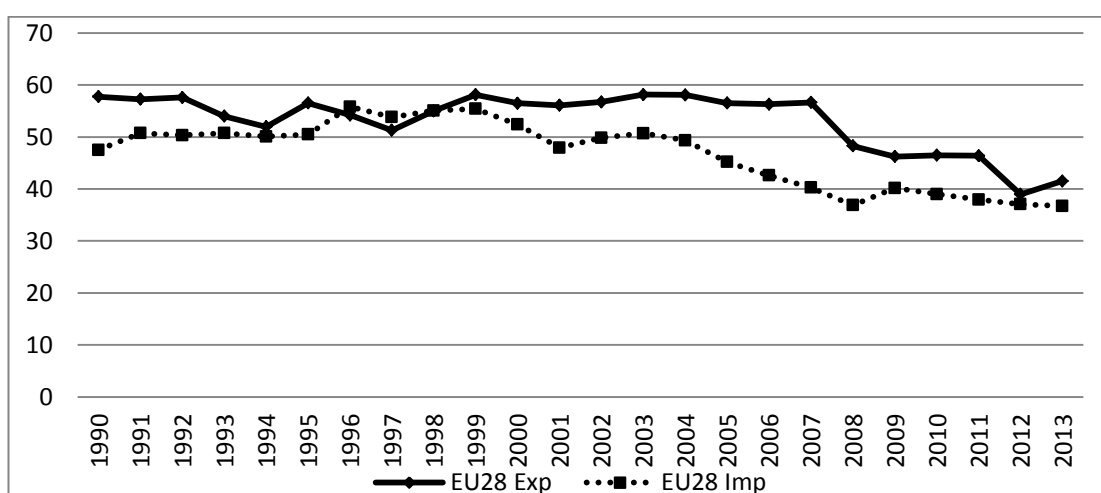
⁴³ See Tables A.1 and A.2

⁴⁴ See Table A.2

Table 3.1: Turkey's Trade Partners (TOP 20) and Their Shares (%) in 2013

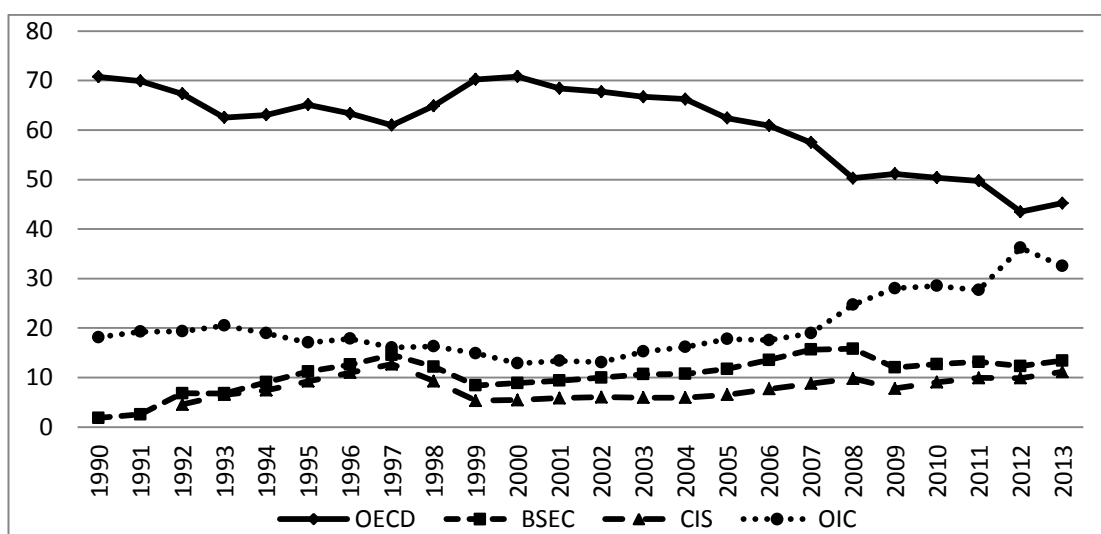
Rank (Exp)	Country	Share (%)	Average share of Imports (2004-13)	Rank (Imps)	Country	Share (%)	Average share of Exports (2004-13)
1	Germany	9.0	11.90	1	Russia	10.0	10.7
2	Iraq	7.9	7.90	2	China	9.8	4.7
3	UK	5.8	10.23	3	Germany	9.6	6.9
4	Russia	4.6	5.79	4	Italy	5.1	4.0
5	Italy	4.4	5.50	5	USA	5.0	6.2
6	France	4.2	3.79	6	Iran	4.1	5.2
7	USA	3.7	2.66	7	Switzerland	3.8	4.5
8	UAE	3.3	4.58	8	France	3.2	3.3
9	Spain	2.9	2.69	9	Spain	2.6	3.4
10	Iran	2.8	1.68	10	India	2.5	2.3
11	China	2.4	3.02	11	UK	2.5	1.4
12	Netherlands	2.3	2.50	12	S. Korea	2.4	2.6
13	Egypt	2.1	0.64	13	UAE	2.1	1.5
14	Saudi Arabia	2.1	2.27	14	Ukraine	1.8	1.7
15	Azerbaijan	2.0	0.90	15	Greece	1.7	1.2
16	Libya	1.8	1.71	16	Belgium	1.5	1.0
17	Israel	1.7	1.70	17	Romania	1.4	1.7
18	Romania	1.7	2.03	18	Japan	1.4	2.3
19	Belgium	1.7	1.65	19	Netherlands	1.3	1.7
20	Ukraine	1.4	1.18	20	Poland	1.3	1.2
	Others	32.2	25.68		Others	26.8	32.5

Source: TurkStat data



Source: TurkStat data

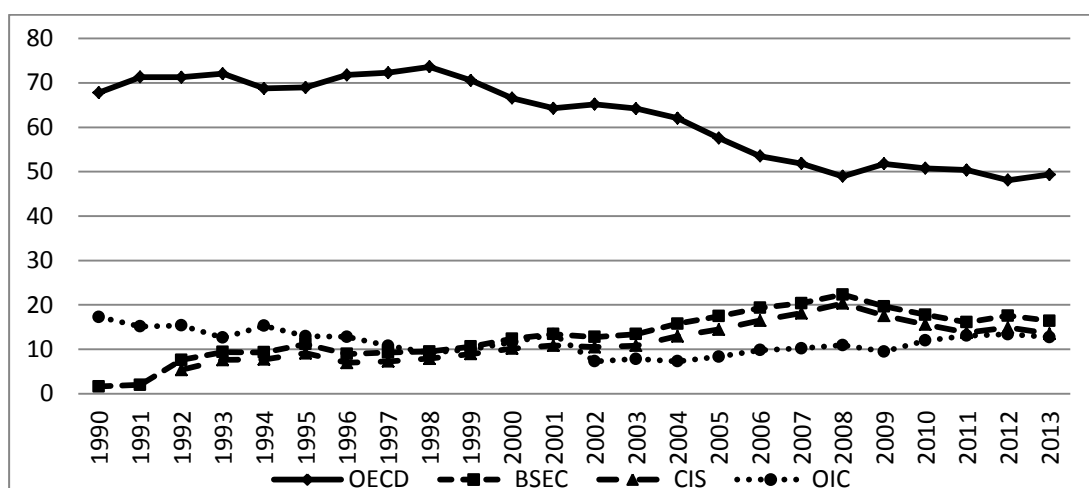
Figure 3.7: The Share of Exports to and Imports from EU28 in Total Turkish Exports and Imports (% , 1990-2013)⁴⁵



Source: TurkStat data

Figure 3.8: The Share of Exports to Selected Group of Countries in Total Turkish Exports (% , 1990-2013)⁴⁶

⁴⁵ While "Exp" refers to exports and "Imp" refers to imports.



Source: TurkStat data

Figure 3.9: Imports to Selected Groups of Countries (% , 1990-2013)

Based on Table 3.1 and Figures 3.7, 3.8, and 3.9, it can be argued that Turkey has been diversifying its export and import markets, which, according to some, is believed to be a positive trend because it is argued that market diversification makes trade more efficient⁴⁷. The basic logic is that if there are more markets available, the country can sell more amounts of goods, as well as, more types of goods. Therefore, thanks to diversification, the country does not only receive more income, but also it enjoys more stable trade because its trade is no longer dependent on few countries and few trade commodities⁴⁸.

⁴⁶ OECD: Organization for Economic Co-operation and Development
 BSEC: Organization of the Black Sea Economic Cooperation
 CIS: Commonwealth of Independent States (established in December 1991, data start from 1992)
 OIC: Organization of Islamic Cooperation

⁴⁷ It can be suggested that some portion of the decrease in trade with EU and OECD is resulted from EU crisis.

⁴⁸ It is suggested that market diversification is associated with export diversification. Therefore, some argue that export diversification enables a country to reach more markets; as a result, it can export

In a nutshell, Turkey's trade partners have been overwhelmingly OECD and EU countries. Although their share decreased dramatically in 10 years, they are still the biggest trade partners of Turkey. Furthermore, it is observed that Turkish exports and imports have not been rising proportionally since the 1990s. The rise in imports is much higher than the rise in exports, which leads to tremendous amount of trade deficit; as a result, Turkish economy has been giving large current account deficit. However, it is observed that beginning with the late 1990s, the current account balance of Turkey displays some extraordinary trend as compared to previous years. In this sense, it can be argued that there might be a structural break in current account balance of Turkey in the late 1990s, which will be discussed later in more detail in this chapter. Moreover, the enormous current account deficit caused by trade deficit is smoothened thanks to service sector incomes, especially tourism sector incomes. Therefore, Turkish current account deficit problem, in fact, is a trade deficit problem. In this sense, Turkish export and import commodities, which will be the focal point of the following part of the chapter, should be discussed in more detail.

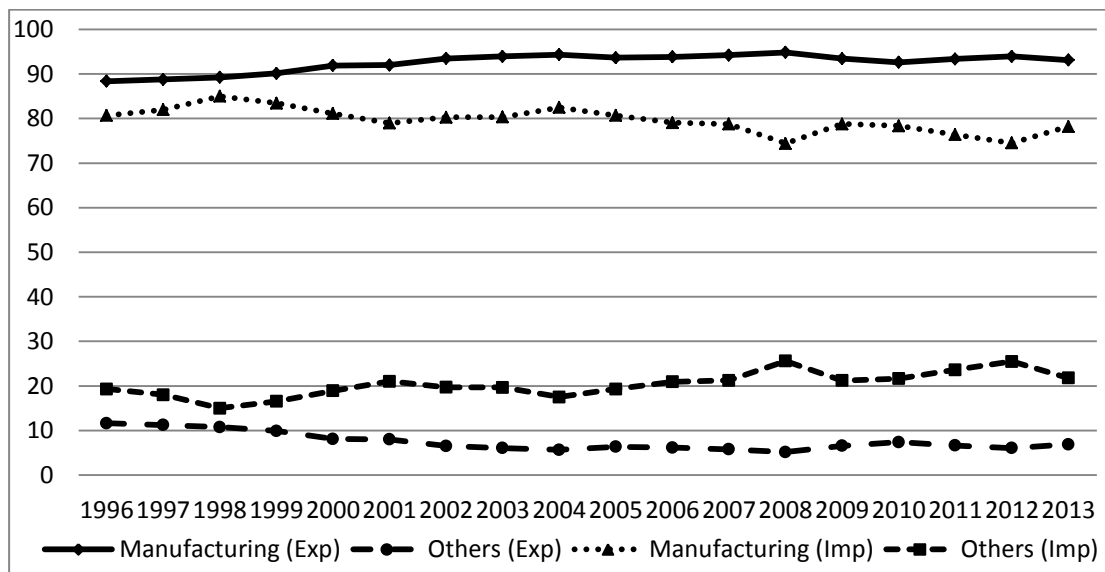
3.3) A Detailed Investigation of the Structure of the Turkish Exports and Imports

It is discussed in previous part of the chapter that the main reason of Turkish current account deficit is its huge trade deficit. Therefore, in addition to what literature proposes, Turkish export and import commodities require a specific focus. In this sense, this part of the chapter intuitively elucidates the import and export structures of Turkey, which give rise to its persistent current account deficit.

To begin with, Turkey's exports and imports are the first to explore. Based on International Standard Industrial Classification of All Economic Activities rev.3

more (Honeck, 2012; Sannassee, Seetanah, and Lamport, 2014; Nicita, Ognivtsev, and Shirotori, 2013; Nicita, Shirotori, and Klok, 2013; and Basu & Das, 2011).

(ISIC rev. 3)⁴⁹ calculation, Turkey's exports and imports are overwhelmingly *manufacturing goods* (TurkStat); in fact, the domination of manufacturing goods in exports is more distinguishable than imports. Moreover, sectorial composition of Turkey's top 1000 exporter firms is as follows; 20.4% automobile industry, 12.5% chemistry, 12.4 % steel production, 10.3% garment and apparel, and 9.6% electric-electronic and services (TEA⁵⁰, 2013).



Source: TurkStat data

Figure 3.10: Industrial Composition of Turkish Exports and Imports

(%, 1996-2013)⁵¹

⁴⁹ International Standard Industrial Classification of All Economic Activities (ISIC) was created by United Nations (UN). For further information, please visit unstats.un.org.

⁵⁰ Turkish Exporters Assembly (TEA), or, Türkiye İhracatçılar Meclisi (TİM)

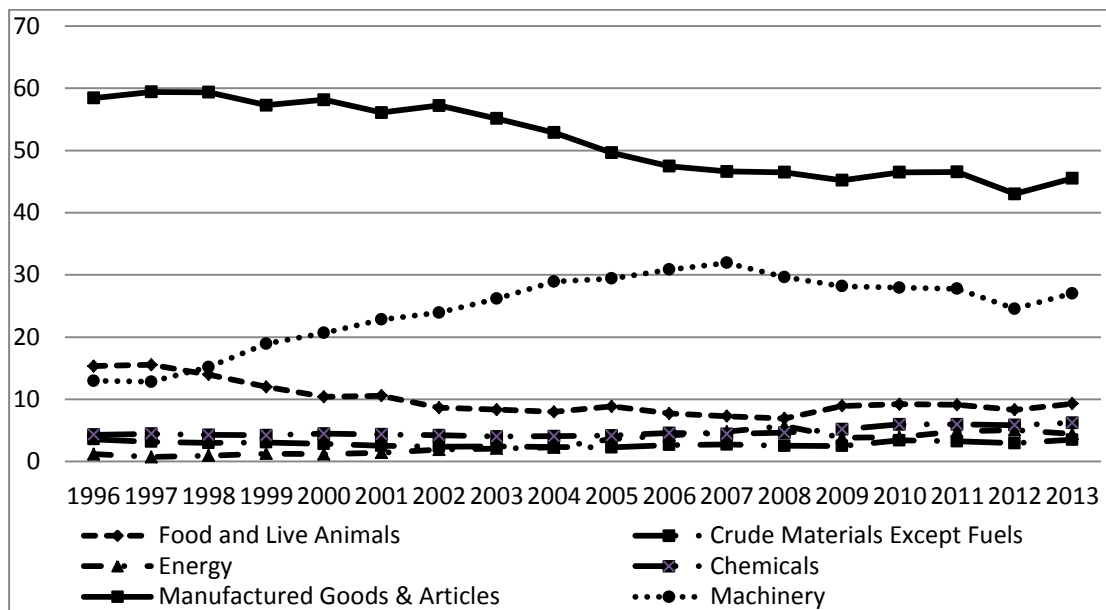
⁵¹ "Others" represents those goods which are (1) Agriculture and Forestry, (2) Fishing, (3) Mining and quarrying (4) Electricity, gas and water supply, (5) Wholesale and retail trade, (6) Real estate, renting and business activities, (7) Other social and personal service activities (TurkStat).

In addition to ISIC rev 3, Standard International Trade Classification rev.3 (SITC rev. 3)⁵² provides more interesting results. It shows that Turkey's main export goods are *manufacturing goods and articles*⁵³ (46% of all exports in 2013) and *machinery* (27% in 2013). On the other hand, Turkey's main imports are *machinery* (27% of all imports in 2013), *energy* (22%), and *manufacturing goods and articles* (21% in 2013). Those show that Turkey's most exporting sectors are also the most importing sectors. In a similar fashion, Turkey's export leader firms are also the import leader firms. For example, according to data provided by Capital (2007), exports of FORD Otosan, one of the largest exporters of Turkey, were 2.461 billion U.S. Dollars in 2006, on the other hand, its imports were 2.367 billion U.S. Dollars. Similarly, according to same data, Vestel's exports were 1.8 billion U.S. Dollars in 2006, but its imports were 1.5 billion U.S. Dollars. What is more, according to a CBRT working paper, the cost of imports usage in the total production cost in different sectors in 2007 is as follows; 62.5% in paper products and prints, 81.4% in petro-chemistry, 56.9% in chemistry, 55.4% in sponge-plastic, 66% in basic metal and processed metal, 57% in electrical machinery, 70.6% in electronics, 53.4% in motor vehicles, and 54.6% in all manufacturing industry (Saygılı et al., 2010, p.68). Therefore, such a picture clearly illustrates that production in Turkey is excessively dependent on imports.

Moreover, some sectors' proportions of imports covered by exports are more than 100%, whereas the others are not. While *food and live animals sector* and *manufactured goods and articles sector* are giving trade surpluses, *energy*, *chemicals*, and *crude materials except fuel* sectors are in trade deficit.

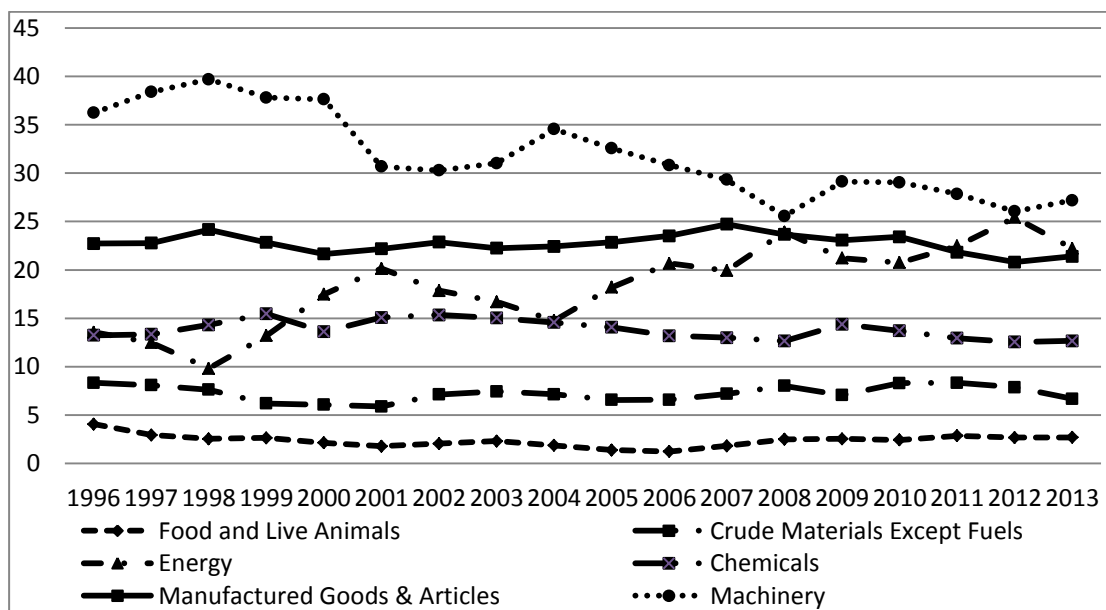
⁵² Standard International Trade Classification (SITC) was created by United Nations (UN). For further information, please visit unstats.un.org.

⁵³ The concept of "*Manufacturing goods and articles*" is created by combination of "*Manufactured goods classified chiefly by material*" and "*Miscellaneous manufactured articles*" under SITC, rev. 3.



Source: TurkStat data

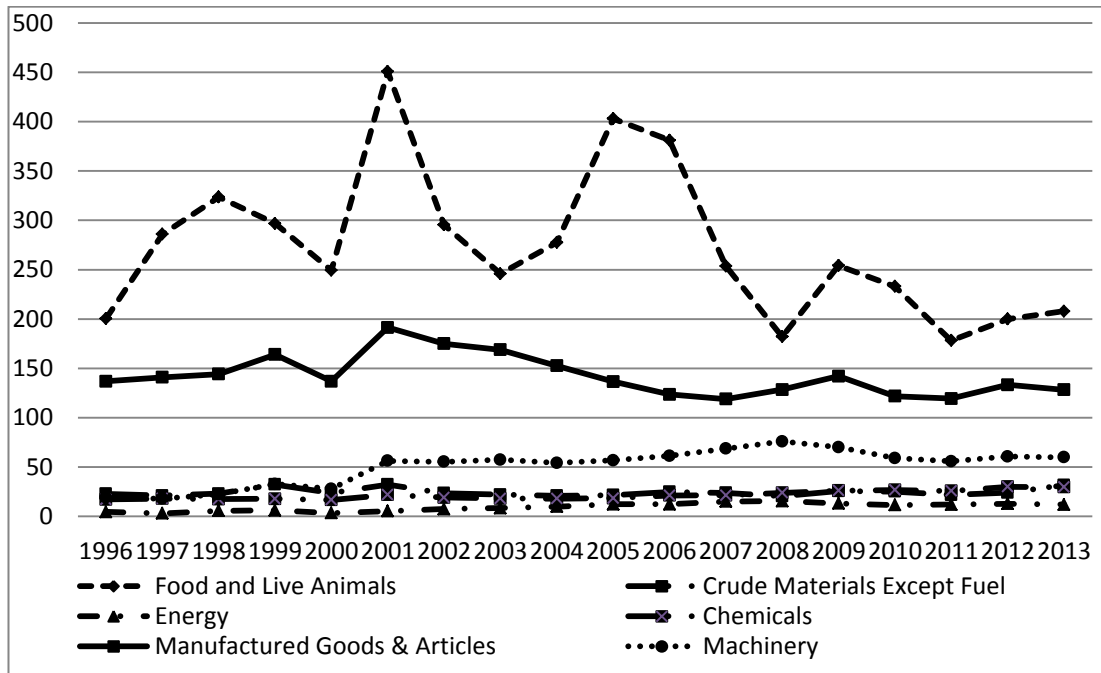
Figure 3.11: Sectorial Composition of Turkish Exports (% , 1996-2013)⁵⁴



Source: TurkStat data

Figure 3.12: Sectorial Composition of Turkish Imports (% , 1996-2013)

⁵⁴ There are also “Other sectors” that we do not include due to their small share. Those are; (1) beverages and tobacco, (2) animal and vegetable oils, fats and waxes, and (3) commodities and transactions not classified elsewhere in the SITC.



Source: TurkStat data

Figure 3.13: Sectorial Proportion of Imports Covered by Exports
(%, 1996-2013)⁵⁵

Furthermore, SITC shows that energy⁵⁶ importation constitutes a significant part of Turkey's imports, and its share in total imports has been increasing (See Figure 3.12). In fact, it rose from 14% of all imports in 1996 to 22% of all imports in 2013. The reason why energy importation of Turkey, which is a petroleum and natural gas (fossil fuels) scarce country, has been increasing is mainly about its economic growth

⁵⁵ 100% represents the trade balance in a sector. Therefore, while points above 100% represents trade surplus, points below 100% represents trade deficit.

⁵⁶ In TurkStat's SITC rev. 3, Energy is represented under the title of "Mineral fuels, lubricants and related materials", which consists of coal, coke and briquettes; petroleum, petroleum products and related materials; gas, natural and manufactured; electrical energy; confidential data

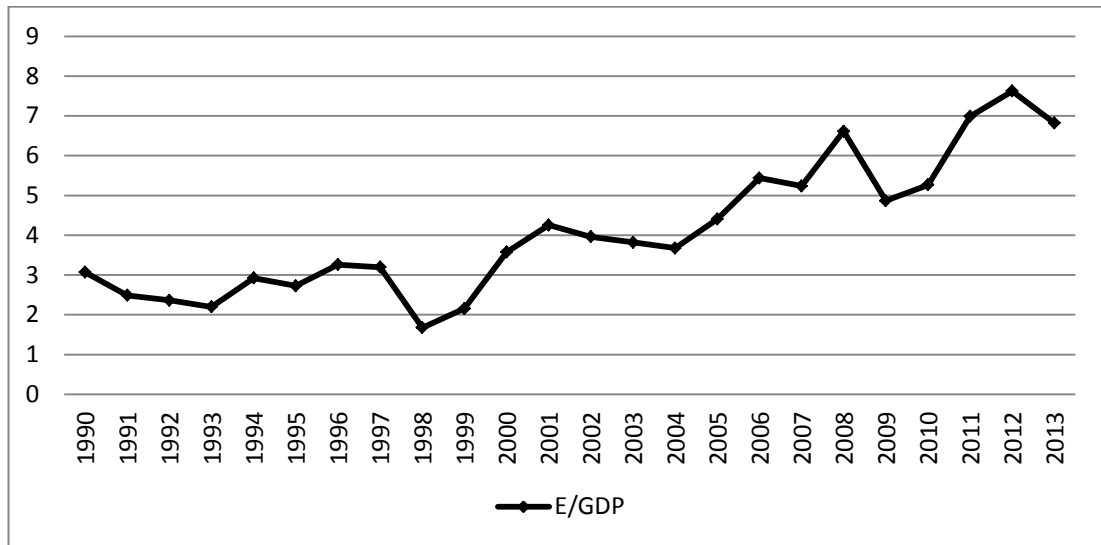
that comes with its increasing energy demand. In other words, the economy grows when the country produces more, which can only be possible through consumption of energy. However, the problem is that the required energy resources are not available in the country. Nevertheless, the rise in energy importation of Turkey is much more than the rise in its GDP due to mainly two reasons. First, energy production of Turkey is dependent on energy importation. For instance, to produce electricity, Turkey has to import. To be clearer, in 2005, Turkey's "*Electricity, gas and water supply production and distribution*" constituted 39.71% of all energy consumption (TurkStat). Similarly, Turkey's electricity production is dependent on natural gas importation. In 2012, 43.6% of all electricity generation is made by natural gas which is an imported good (TurkStat). On the other hand, electricity produced by renewable energy constitutes only 3.1% of all electricity production (TurkStat). Second, all imported energy do not move to production. For instance, although industry sector has the largest share (36.74%) in the consumption of energy in 2012 (WECTNC⁵⁷, 2012), very large portion of the imported energy is also consumed by the households (34.63%), which do not seek to produce but to heat themselves, i.e., consume.

Table 3.2: Sectorial Share of Energy Consumption in Turkey (%) in 2012

Industry	Transportation	Housing and Services	Agriculture	Non-energy
36.74	18.39	34.63	6.10	4.15

Source: DEKTMK data

⁵⁷ World Energy Council Turkish National Committee (WECTNC), or, Dünya Enerji Konseyi Türk Milli Komitesi (DEKTMK)

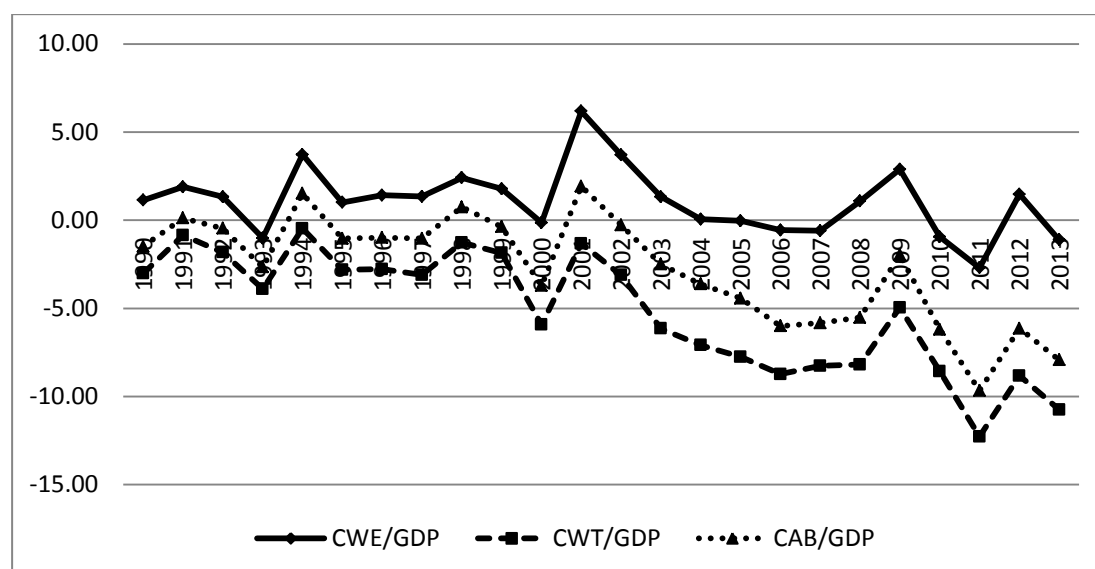


Source: World Bank and TurkStat data

Figure 3.14: Energy Importation of Turkey (% of GDP, 1990-2013)

The discussion above implies that the large share of energy in imports is one of the main reasons of current account deficit of Turkey. In 2013, Turkey spent 55.92 billion U.S. Dollars for energy importation. In this sense, Turkey's current account balance without energy importation is quite surprising. Figure 3.15 shows that Turkish current account balance is mostly in surplus if the energy importation is ignored. However, this cannot be an excuse for having a huge current account deficit. At the end, Turkey is not the only energy scarce country in the world. For instance, Japan and South Korea can also be regarded as energy scarce countries in terms of fossil fuels; however, they are able to give current account surpluses in general. What is more, one way or another Turkey needs energy imports just like other imports. In fact, energy is the hardest "import commodity" to substitute domestically. Therefore, the officials' insistence to focus on the current account deficit without energy importation does not make a lot of sense because energy is being consumed as well as other imported goods.

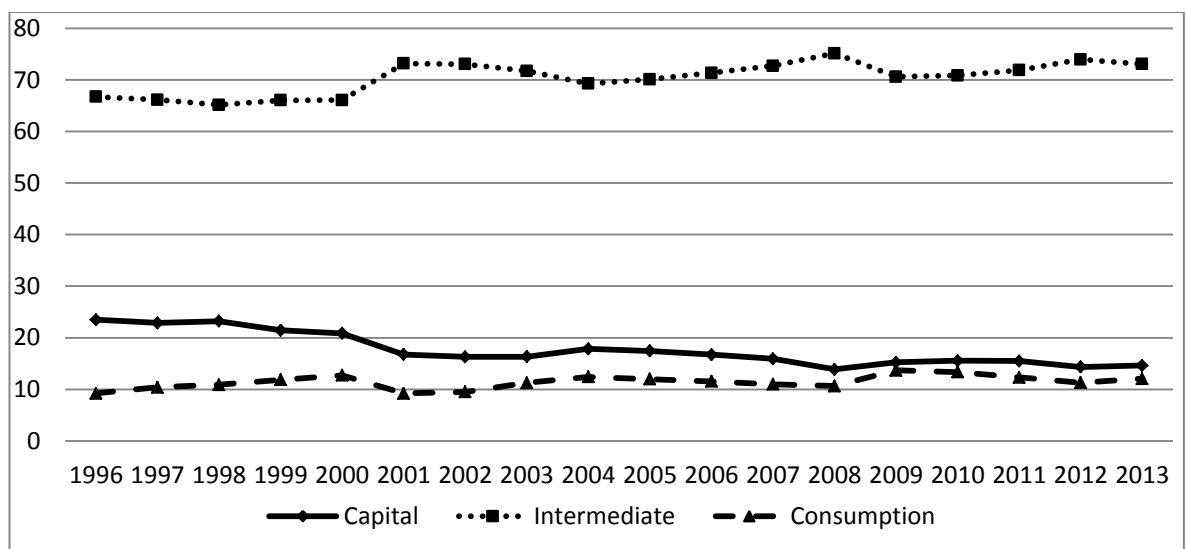
Furthermore, on the one hand, Turkey is a huge energy importer country; on the other hand, it is also a huge tourism income receiver country. According to United Nations World Tourism Organization (UNWTO, 2014), Turkey was the 6th most visited country (37.8 million tourists) in 2013 and Turkey was the 10th most tourism income earner country (27.9 billion U.S. Dollars) in 2013. Below Figure 3.15 displays that tourism credits of Turkey are really helpful to its current account balance. Therefore, if some claim that “energy importation of Turkey is something exceptional so that current account balance of Turkey should be examined without energy importation”, then, they should accept that the same logic can also be applicable to tourism incomes. In this sense, although current account balance without energy importation reveals some important weaknesses of the Turkish economy and current account balance, focusing *solely* on this concept may be misleading.



Source: CBRT, TurkStat and OECD data

Figure 3.15: Turkish Current Account Balance without Energy Importation (CWE) and without Net Tourism Revenues (CWT) (% of GDP, 1990-2013)

Furthermore, importing goods in order to be able to export is not only limited to energy importation. According to Classification by Broad Economic Categories (BEC)⁵⁸, importation of intermediate goods constitutes the largest share of Turkey's imports (73% of all imports in 2013). An intermediate good can be defined as a semi-finished good that is more likely to be utilized in the production of the final good. In fact, Jones defines an intermediate good as just another shape of a capital good (2011, p. 2). Therefore, high levels of intermediate good importation show that Turkey has to import in order to be able produce and export⁵⁹.



Source: TurkStat data

Figure 3.16: Imports Composition of Turkey⁶⁰ (% , 1996-2013)⁶¹

⁵⁸ BEC was created by United Nations (UN). BEC characterizes goods into three main categories which are capital goods, intermediate goods, and capital goods. For further information, please visit unstats.un.org.

⁵⁹ It is argued that there are several reasons to blame behind this dependency such as EU customs union, lack of domestic fossil energy resources, overvalued TL etc. However, this comprehensive discussion is beyond the scope of the thesis.

⁶⁰ Classification by Broad Economic Categories (BEC).

To sum up, high intermediate goods importation including the high energy importation clearly elucidate that industrial production of Turkey is highly dependent on foreign goods. Relatedly, Turkey's export and import commodities, apart from energy, are quite similar. Therefore, the most exporting sectors of Turkey look like to be also the most importing sectors. Moreover, energy deficit of the country is huge; however, this should not mean that Turkey's exports and imports are actually proportional to each other. On the contrary, energy is the hardest import to substitute domestically, even in the long-run. Hence, solely focusing on non-energy current account deficit can be misleading. Rather, the focus should be shifted towards the trade structure of Turkey because one way or another it is a fact that Turkey has a huge trade deficit. In fact, it is observed that this trade deficit is widening exceptionally since the late 1990s. Moreover, this widening may signifies a structural break in Turkish current account balance. In this sense, the reason of accelerated widening is quite significant to understand Turkish current account dynamics. Therefore, the following part of the chapter will focus on a possible structural break in Turkish current account balance.

3.4) Structural Break

Although Turkish current account balance has been generally in deficit throughout its history, it sometimes gave surpluses up until the late 1990s especially in years of economic crises. However, beginning with the late 1990s, the Turkish current account balance did not only stop giving its occasional surpluses, but also it started to give huge deficits (see Figure 3.6). In this sense, it is arguable that the late 1990s

⁶¹ "Other goods" are excluded from the figure since they constitute only a very small category.

may illustrate a *structural break* or *structural change* in Turkish current account balance.

Yet, what does *structural break* or *change* mean? It is suggested that the parameters are expected to be consistent and constant in an econometric model; however, if they are not, it can be argued that *the structural break* or *structural change* has took place in that time series (Kargupta, 2005, p. 392).

Therefore, a structural break is observed if there is an unanticipated shift in a time series. Since it is clearly observable in Figure 3.6 that the Turkish current account balance shifted in the late 1990s, it is logical to suspect that there might be a structural break in the late 1990s. Nevertheless, the literature lacks a proper econometric research conducted to analyze whether or not a structural break occurred in Turkish current account balance in the late 1990s. Likewise, what might be the reason(s) of a possible structural change in current account balance of Turkey are still ambiguous; it might occur due to external forces such as change in foreign interest rate, change in net foreign assets, or change in foreign economic growth; or due to domestic forces such as change in domestic credit growth rate, change in REER, or change in national savings. In this sense, while the preceding and the following two parts of this chapter intuitively analyze the reasons behind current account deficit in Turkey, they also implicitly shed light on to possible structural break in Turkey as well.

All in all, there are signs about a structural break in current account balance of Turkey. However, just by looking at the graph, one cannot prove that there was a structural break. Therefore, rather than intuitively arguing about structural change, the next chapter will econometrically analyze whether or not a structural break occurred in the late 1990s in Turkey. Still, before moving on to the econometric analysis, the potential reasons behind current account deficit in Turkey and a possible structural break should be discussed further in detail in order to be able to better grasp the causes of huge Turkish current account deficit.

3.5) The Potential Determinants of Current Account Deficit in Turkey: Theoretical Arguments Proposed by the Literature

It is acknowledged that Turkish current account deficit has reached enormous amounts. Accordingly, “how and why does an economy give such a big deficit?” are important questions which require further academic interests. In this sense, the literature provides many explanations to current account imbalances, which were discussed in Chapter 2 in detail. Relatedly, in order to grasp the idea that which of those possible determinants seem to be related (or not related) with current account deficit in Turkey, this part of the chapter analyze the trends in the previously discussed determinants of current account balance. Those determinants are national savings, the level of competitiveness, net foreign assets, foreign interest rates, economic growth, credit growth, financial openness, financial deepness, import dependent export, and energy prices.

To begin with, it is expressed in Chapter 2 that savings are the sum of private savings (S^{Pr}) plus public savings (S^{Pb}) and plus foreign savings (S^F). Since S^F represents trade deficit, national savings have a direct influence on current account balance. Foreign savings come as portfolio investment, foreign direct investment, or other investments (credit, in general) through financial inflows to the domestic economy. Therefore, according to some, lack of domestic savings affects current account balance through *financial flows*, in general.

$$S + (T - G) + (M - X) = I \quad (4)$$

$$\underbrace{S^{Pr} + S^{Pb}}_{\substack{\Downarrow \\ \text{National savings}}} + S^F = I \quad (5)$$

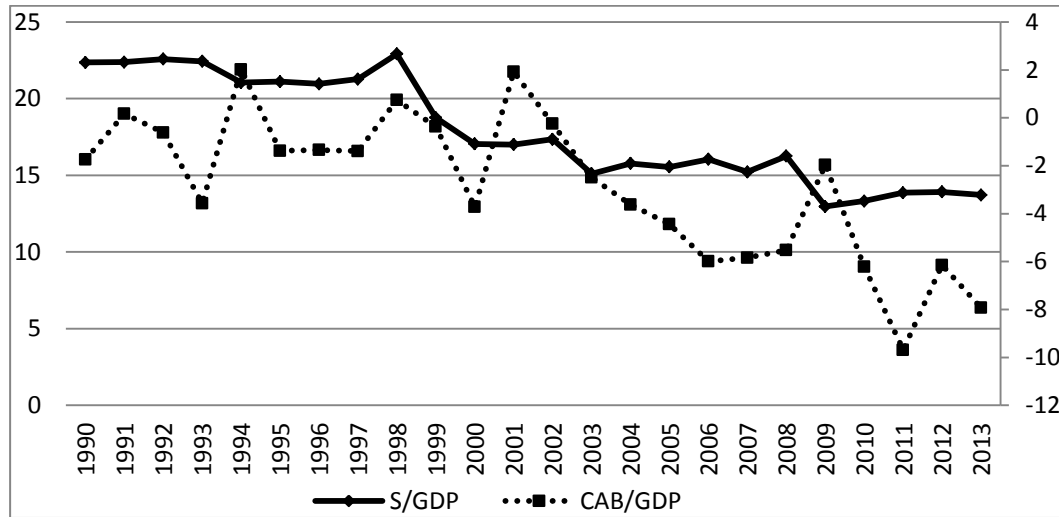
In addition to those identities above, foreign savings can also be used for domestic or imported consumption goods. Therefore, foreign savings, like the above identity, do not have to be utilized only for production purposes, but also for consumption purposes. If that is the case, it is harder for the country to repay borrowed foreign savings in the future since the country's production capacity will not increase. In other words, inflow of foreign savings also represents spending beyond the means either on capital or consumption goods. Also, since the inflow of foreign savings appreciates domestic currency vis-à-vis foreign currencies, net exports are also damaged both through exports and imports sides. Additionally, if households do not save, this means that they are consuming and economy is growing through consumption. Since certain portion of the consumed goods is imported commodities, decreasing savings means increasing imports, which implies current account balance deterioration. Therefore, decreased savings also affects current account balance through domestic economic growth. In this sense, above discussion exhibits that savings affect current account balance through *financial flows*, *exchange rate (REER)*, and *economic growth*.

Furthermore, it is observed that Turkish saving rate has been decreasing dramatically. Turkish saving rate has continuously decreased from 22.4% relative to GDP in 1990 to 13.7% relative to GDP in 2013 (IMF, 2014). Similarly, Turkey was the 19th least saving country in the world in 2013 (WB, 2014)^{62, 63}. In short, Turkey does not save adequately. Likewise, the below graph indicates that as national savings are decreasing, current account balance is worsening. Therefore, based on

⁶² Excluding 8 dissaving countries.

⁶³ Out of 83 countries.

the theoretical proposal of the literature and below figure, decreasing saving rate of Turkey *might* negatively affect its current account balance.



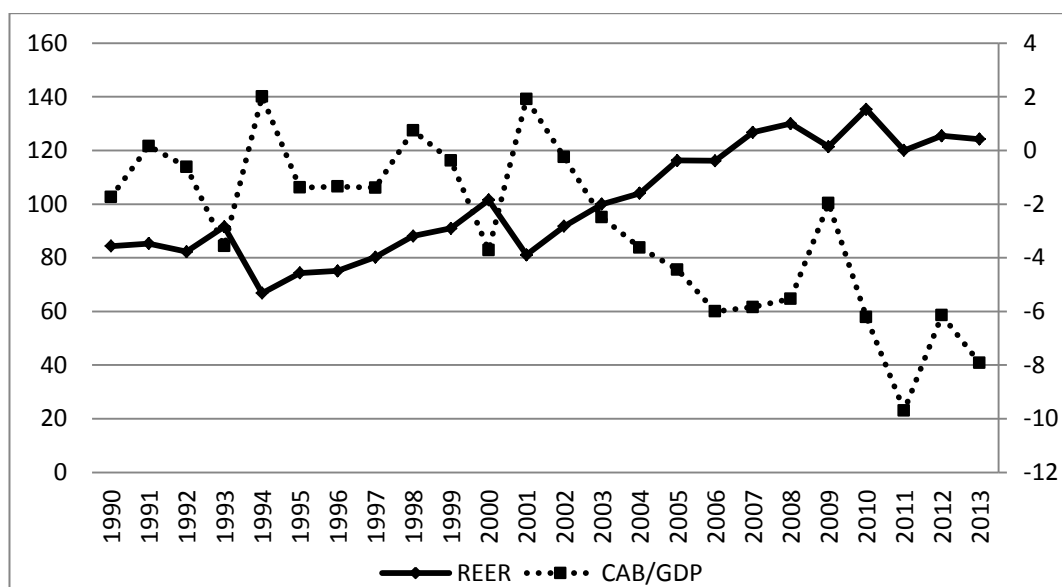
Source: IMF data, TurkStat data, and CBRT data, % CAB is on the right axis⁶⁴

Figure 3.17: The Trend in Turkish Saving Rate (% of GDP, 1990-2013)

Second, it is discussed in Chapter 2 that competitiveness has a positive effect on current account balance. As the country's products become more competitive in international markets, it is able to sell and export more; as a result, its current account balance improves. Firstly, when the real effective exchange rate (*REER*) in Consumer Price Index (CPI) of Turkey is examined as a proxy for competitiveness, it is perceived that there is a negative relationship between *REER* and current account balance of Turkey. An increase in *REER* denotes that Turkish Lira appreciates; as a result, Turkey's competitiveness decreases, which deteriorates current account balance of Turkey. Likewise, the below figure shows that as *REER* increases, Turkish current account balance worsens. What is more, as the figure displays, while

⁶⁴ "% CAB" denotes CAB as a percentage of GDP for all figures.

Turkish lira appreciates sharply after 2000, current account worsens dramatically. Therefore, based on the theoretical proposal of the literature and below figure, Turkey's decreasing competitiveness *might* negatively affect its current account balance.



Source: Bruegel⁶⁵ data, TurkStat data, and CBRT data, % CAB is on the right axis

Figure 3.18: The Trend in Turkish REER (normalized⁶⁶, 1990-2013)

Secondly, when relative unit labor cost (*RULC*) is examined as a proxy for competitiveness, the figure is much more complicated. Although it can be argued

⁶⁵ Bruegel is a European independent think tank organization interested in the field of economics. For more information please visit <http://www.bruegel.org>.

⁶⁶ The base year of the original data is 2007. In other words, 2007 REER is equal to 100. However, to better grasp the structural change of Turkey's current account balance in the early 2000s, the base year is converted from 2007 to 2003. Hence, 2003 REER is equal to 100 in the figure.

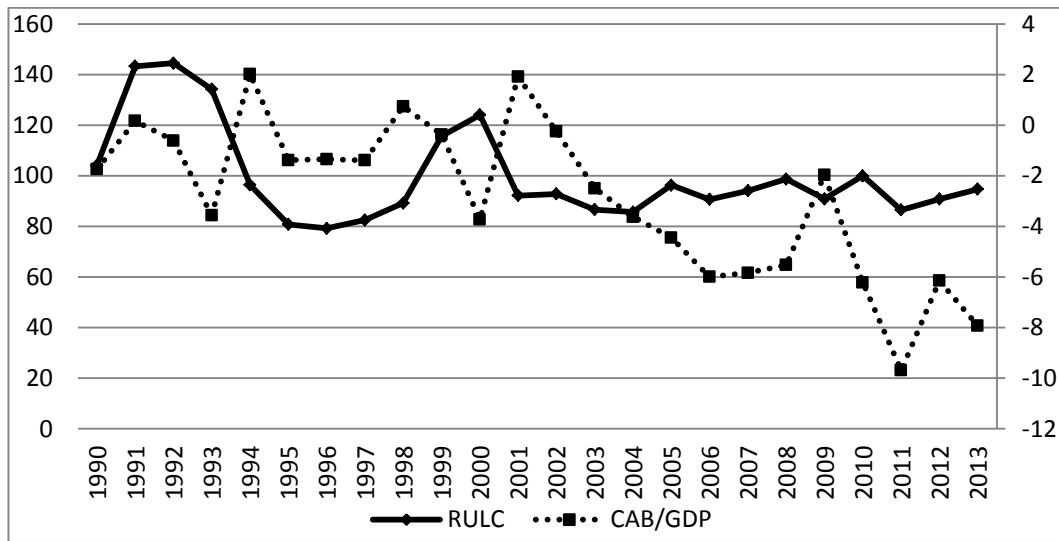
that RULC is the most popular way of measuring international competitiveness⁶⁷, it displays ambiguous effects on Turkish current account balance. Figure 3.19 displays a fairly negative relationship⁶⁸ between RULC and current account balance in the 1990s. On the other hand, beginning with the 2000s, the relationship almost disappears. The major reason behind this might be that as economy is getting more and more open, other global variables such as financial flows etc. involve in determination of current account balance so that the effect of unit labor cost on current account diminishes. Moreover, Kaldor (1978) empirically showed that those countries whose economy and exports grew faster and faster after World War II were also those experiencing faster growth in their RULC⁶⁹. Therefore, based on theoretical and empirical findings of Kaldor Paradox and descriptive data of Figure 3.18 and Figure 3.19, REER in CPI is a better proxy for competitiveness for Turkey⁷⁰.

⁶⁷ For detailed discussion, please see Boltho (1996), Fagerberg (1998), Neary (2006), and Felipe & Kumar (2011).

⁶⁸ Probably with one lag.

⁶⁹ This argument is known as “Kaldor Paradox” which suggests that a higher labor share will not necessarily decrease a country’s competitiveness.

⁷⁰ In fact, REER is also measured in RULC rather than CPI; in this sense, it might be the best proxy for competitiveness because it covers both exchange rate cost and labor cost. However, although this data are available for number of countries, they are quite limited for Turkey with respect to periodization. Nevertheless, the limited data can be obtained from evds.tcmb.gov.tr.



Source: OECD data, TurkStat data, and CBRT data, % CAB is on the right axis

Figure 3.19: The Trend in Turkish Relative Unit Labor Cost (RULC) (Index⁷¹, 1990-2013)

Third, any changes in net foreign assets are directly expressed in current account balance, which is argued in equation (8) under Chapter 2. Therefore, according to theory, as the country's net foreign assets increase, its current account balance improves.

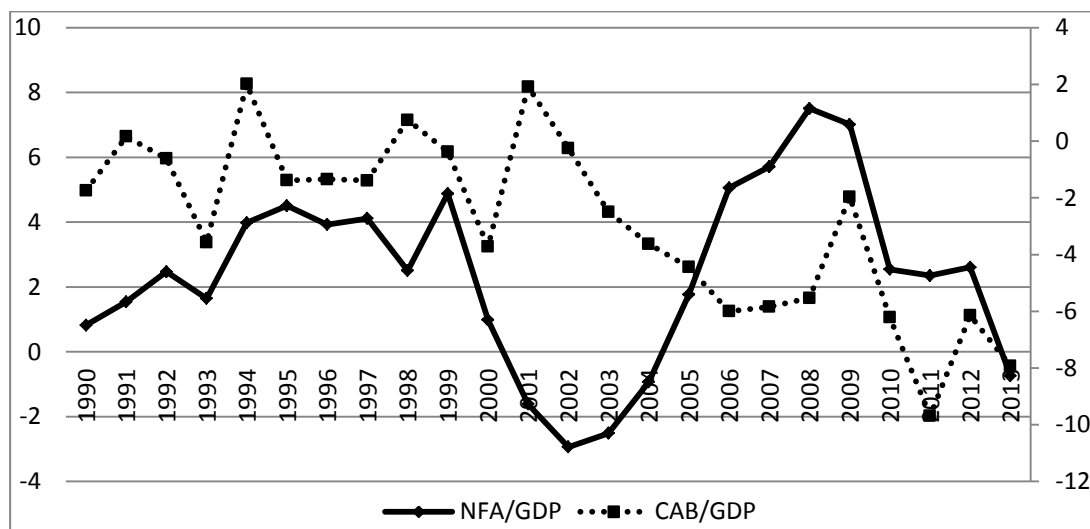
$$CAB = \Delta NFA \quad (8)$$

The direct influence can be more visible through an example. For instance, if the country's current account deficit is \$100, then it has to borrow \$100 to compensate its deficit, which directly and 1-to-1 reflects to the country's NFA position as \$100

⁷¹ 2010 is equal to 100.

decrease. Moreover, as foreign income comes through inflows, it appreciates exchange rate. Therefore, NFA, like national savings, affects current account balance through *financial flows* and *exchange rate (REER)* channel. In this sense, NFA data somewhat include foreign savings flows to Turkey.

However, according to figure below, the relationship between net foreign assets of Turkey and its current account balance seems somewhat ambiguous⁷². There is some kind of a positive relationship between current account balance and net foreign asset in the 1990s and after 2006 period. On the other hand, there is a negative relationship between the years 2000 and 2006. Therefore, whether net foreign asset is a determinant of Turkish current account balance or not seems vague based on the figure.



Source: World Bank data and TurkStat data, % CAB is on the right axis

Figure 3.20: The Trend in Turkish NFA (% of GDP, 1990-2013)

⁷² Similarly, Turkish net foreign assets as a percentage of GDP have been also quite unstable. However, it is crystal clear that it reached its peak in 2008 (7.51%) just before the global financial crisis. Since 2008, it has been decreasing dramatically. Moreover, between 2005 and 2012, Turkey's net foreign assets reached enormous amounts in its economic history (₺71,363,735,317 in 2008).

Fourth, the positive relationship between foreign interest rates (r^*) and current account balance (CAB) is discussed with respect to equation (7) and equation (10) in Chapter 2. Therefore, according to the theory, as foreign interest rate increases, domestic current account balance improves.

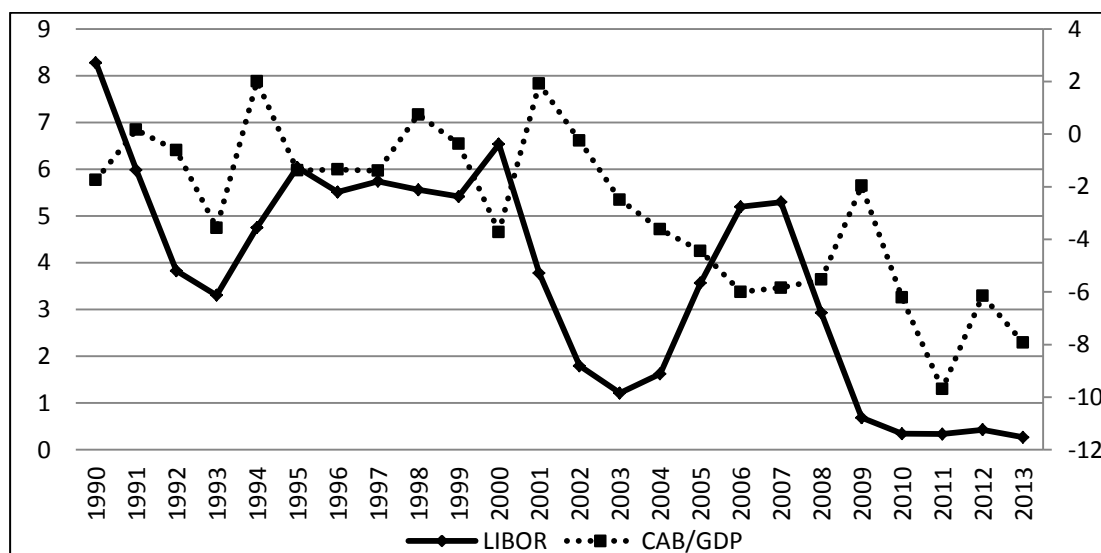
$$CAB = -FAB \quad (7)$$

$$r - r^* = X_a, \quad \text{where } X_a = \left(\frac{E(e)}{e} - 1 \right) \quad (10)$$

The logic behind these identities and equations is that as foreign interest rate increases, the home country experiences financial outflows. Financial outflow means that country can no longer enjoy foreign savings for its consumption or investment. Therefore, since it cannot spend, its current account balance improves. Also, since financial outflow depreciates domestic currency, net exports increases both through exports and imports. In this sense, again, the effect of foreign interest rate on current account balance is through *financial flows* and *exchange rate (REER)*.

Moreover, the empirical data suggest that world interest rates are declining sharply. 3-Month LIBOR declined from 8.28 in 1990 to 0.27 in 2013, based on LIBOR data (St. Louis FED data, 2014). Similarly, current account balance of Turkey was decreased further from -1.74% in 1990 to -7.92 in 2013. In this sense, although year to year movements of foreign interest rate and current account balance of Turkey do not seem exactly in the same direction in the figure below, their long-run trends are quite in line with each other. Therefore, based on the theoretical proposal of the

literature and their similar long-run trends, decreasing foreign interest rate *might* negatively affect current account balance of Turkey⁷³.



Source: St. Louis FED data, TurkStat data, and CBRT data, % CAB is on the right

Figure 3.21: The Trend in World Interest Rates (% LIBOR, 1990-2013)

Fifth, the effect of both domestic and foreign economic growth on current account balance was displayed in equation (11) and equation (12). Therefore, according to the theory, as domestic income increases through economic growth, imports also increase, which leads to a decrease in net exports; as a result, current account balance deteriorates. Similarly, as foreign income increases through economic growth, their demand for import (our exports) increases, which leads to an increase in domestic net exports; as a result, domestic current account balance improves.

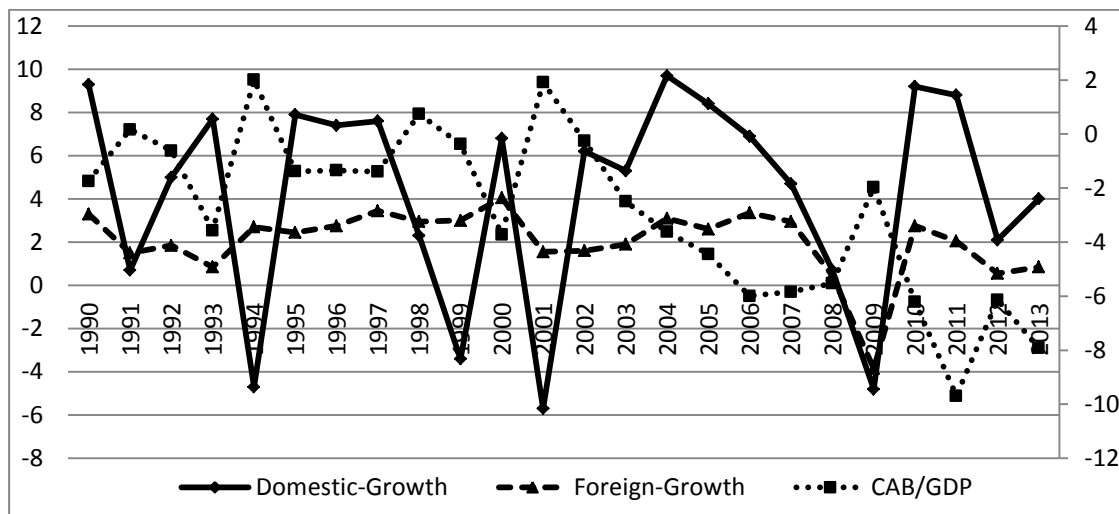
⁷³ The effect of foreign interest rate probably changes from country to country based on several factors such as financial openness and perception of the economy by foreigners

$$M = f(Y) \quad (11)$$

$$X = f(Y^*) \quad (12)$$

Furthermore, both domestic and foreign economic growths have been volatile since the 1990s, which are shown in below figure. Turkish economic growth has been quite volatile throughout its history. Between 1990 and 2013, the economy had four negative economic growth episodes, which are economic crises years. While 1994, 1999, and 2001 crises were resulted from domestic economic environment, the recent 2009 crisis was mostly related to the global crisis. In line with what the economic theory suggests, those years also display improvements in current account balance of Turkey. After 2001 crisis, Turkey has been continuously growing, apart from the 2009 global economic crisis. Again in line with theories, those economic growth years exhibited deteriorations in current account balance of Turkey. In a similar fashion, world economic growth is also quite volatile. Between 1990 and 2013, the most shocking fact is that the world economy shrank dramatically in 2009 global economic crisis. Therefore, since 2009 crisis was a global one, both decreases in world and Turkish economic growths had opposite effects⁷⁴ on the Turkish current account balance. Yet, it is noticeable that current account balance slightly improved in 2009. Hence, based on figure, it can be suggested that domestic economic growth has stronger effect on current account balance of Turkey than foreign economic growth has. Consequently, based on the theoretical proposal of the literature and the figure, while domestic economic growth *might* negatively affect current account balance of Turkey, foreign economic growth *might* positively affect it.

⁷⁴ Positive effect from economic crisis in Turkey (decreased imports), but a negative effect from foreign economic crisis (decreased exports).



Source: WB data, OECD data, and CBRT data, % CAB is on the right axis

Figure 3.22: The Trend in World⁷⁵ and Turkish GDP Growth (% , 1990-2013)

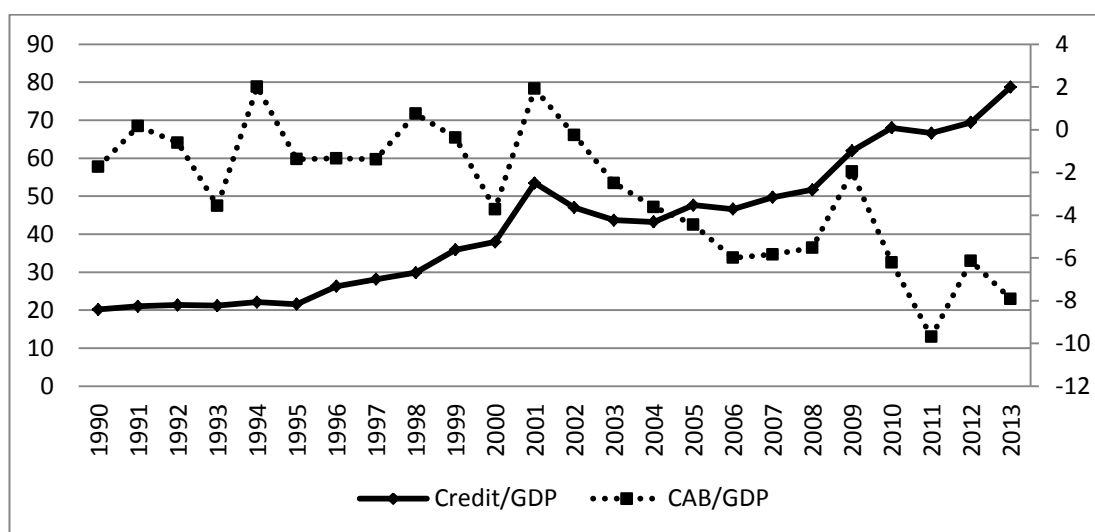
Sixth, as discussed in Chapter 2, since domestic credit growth⁷⁶ increases purchasing power of economic agents, it has a negative effect on current account balance. Therefore, according to the theory, as purchasing powers of economic agents increase, demand for investment and consumption increase, which also leads to an increase in the demand for imports; as a result, net exports decrease and current account balance deteriorates. To put it another way, as credit grows, economy also grows due to rise in consumption and investment, which means that there might be collinearity between those two variables. Hence, the effect of credit growth on current account balance is through domestic *economic growth*.

Moreover, the data show that Turkish domestic credit has been increasing uninterruptedly since 1990. It reached ₺ 1,232,260,794,050 in 2013 (78.73% of

⁷⁵ The average of OECD-Total and OECD-Europe GDP growths is utilized as a proxy for World GDP growth. The reason why such proxy is used will be discussed in Chapter 4.

⁷⁶ Credit growth can be defined as escalation in bank loans not only to individual customers (households) but also to private and public sector customers (see Chapter 2.7).

GDP). Moreover, the rise is stepping up in the late 1990s. Therefore, this change *may* be one of the reasons behind a possible structural change in current account balance of Turkey. Relatedly, according to the figure, like what economic theory suggests, the relationship between credit growth and current account balance seems negative. Hence, according to figure and theoretical claims, credit growth *might* negatively affect Turkish current account balance.

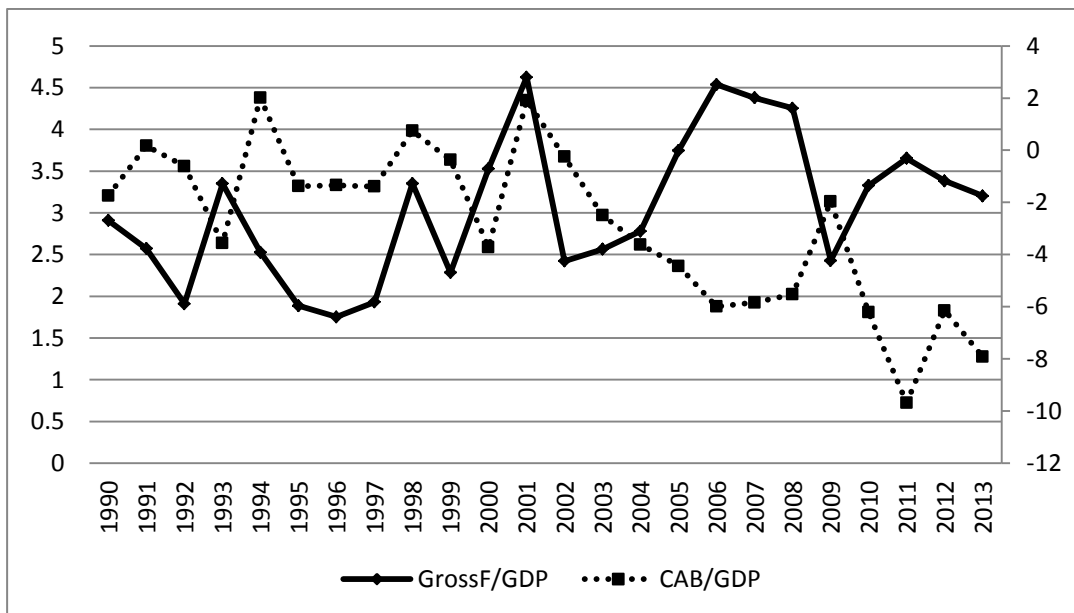


Source: CBRT data and TurkStat data, % CAB is on the right axis

Figure 3.23: The Trend in Turkish Domestic Credit Growth (% of GDP, 1990-2013)

Seventh, as discussed in Chapter 2, the effect of financial openness on current account balance may differ from one country to another. The difference comes from whether the country is a net creditor or net debtor. Hence, if it is a net creditor, financial openness is more likely to have a positive effect on its current account balance; on the other hand, if it is a net debtor, financial openness is more likely to have a negative effect. In this sense, since Turkey can be considered as a net debtor country, its current account balance is more likely to be negatively affected from

financial openness. According to the figure, it can be argued that Turkish financial openness has been fluctuating since the 1990s. According to the figure below, between the years 1994 and 2002, there is a positive relationship between financial openness and current account balance. On the other hand, after the year 2002 the negative relation between financial openness and current account balance is quite striking. Therefore, although whether financial openness has a positive, or a negative, or no effect on current account balance seems indeterminate based on both theoretical arguments and below figure, financial openness might signify a possible structural break in Turkish current account balance in the late 1990s. Moreover, since financial openness can be measured by financial flows, financial openness affects current account balance mainly through *financial flows* and *exchange rate (REER)* channels.



Source: CBRT data and TurkStat data, % CAB is on the right axis

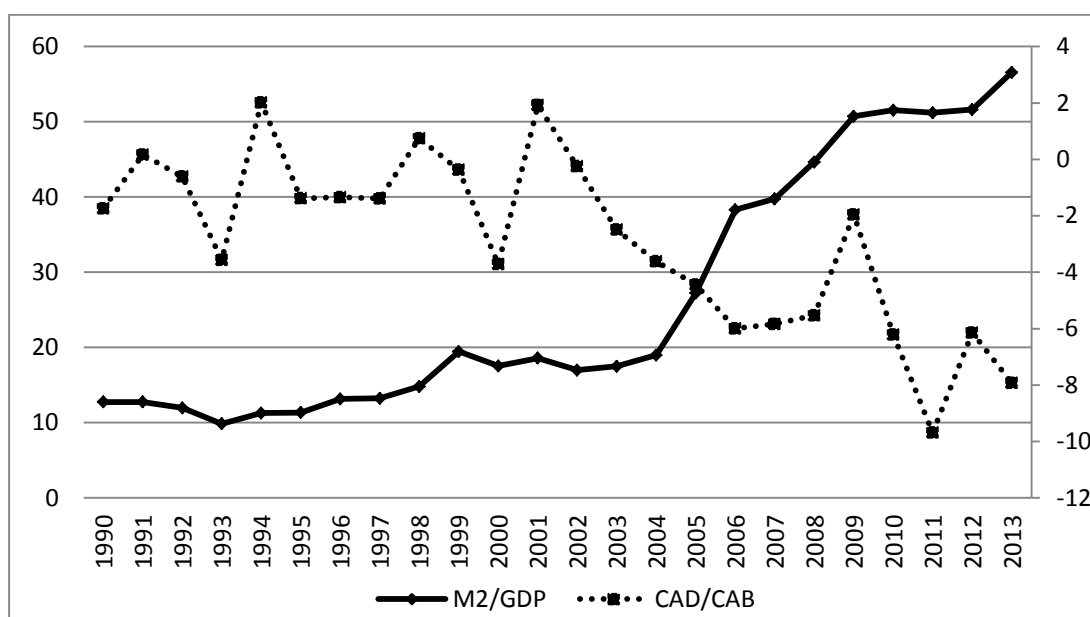
Figure 3.24: The Trends in Turkish Financial Openness (Gross financial flows as a % of GDP, 1992-2013)

Eighth, the theoretical effect of financial deepness on current account balance is expected to take place through three channels; (a) international inflows effect, (b) income effect, and (c) exchange rate effect. While the first two channels propose a negative relationship, the effect of the third channel is uncertain⁷⁷. Similar to the relationship between economic growth and credit growth, there might also be collinearity among those two and financial deepness because, as discussed in the previous chapter, (b) income effect of financial deepness is directly related to credit growth; as a result, also to economic growth. Income effect suggests that financial deepness creates more credit supply⁷⁸. Hence, financial deepness affects current account balance principally through *financial flows*, *economic growth*, and *exchange rate* (REER).

What is more, Turkey's financial market is argued to be getting deeper and deeper in line with its economic development. The figure below exhibits that Turkey's financial deepness has been on the rise since the 1990s. Furthermore, it also displays that the deepness has been intensifying more sharply after 2004. Accordingly, the figure below shows a negative relationship between financial deepness and current account balance especially after the late 1990s. Nonetheless, although there seems to be a negative relationship between them in the long-run, the figure displays quite weak relationship between financial deepness and current account balance in the 1990s. In this sense, this change in the late 1990s *may* reflect a structural break in Turkish current account balance.

⁷⁷ See chapter 2 for detailed discussion.

⁷⁸ See chapter 3.9.



Source: CBRT data and TurkStat data, % CAB is on the right axis

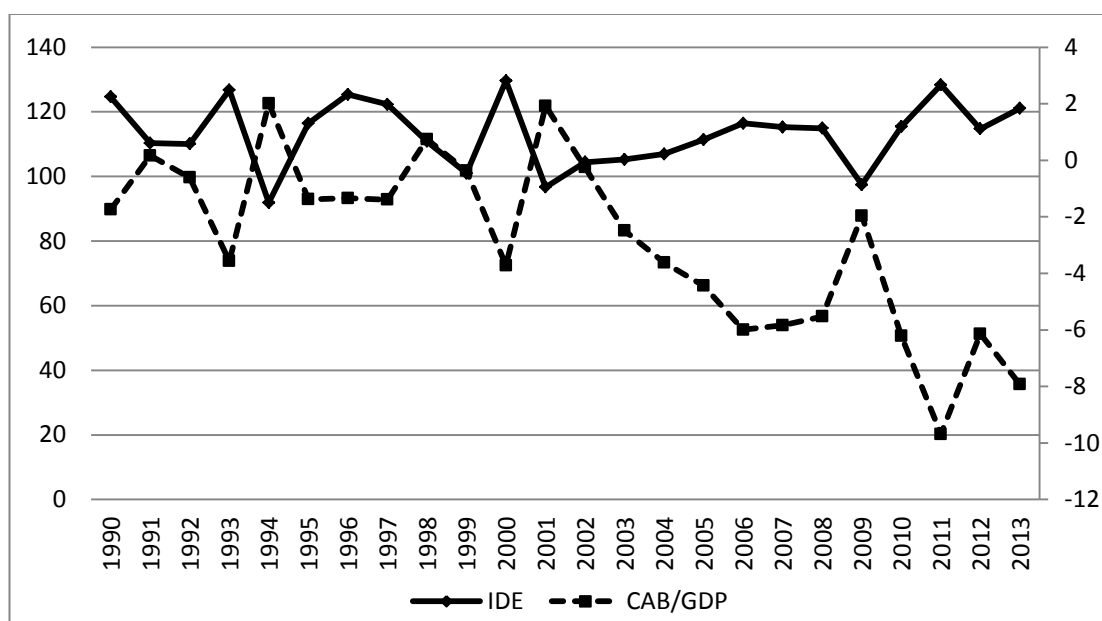
Figure 3.25: The Trend in Turkish Financial Deepness (M2 as a % of GDP, 1990-2013)

Ninth, it is discussed in Chapter 2 that the degree of import dependence in the production of an export commodity negatively affects the current account balance of that country. Therefore, as the country exports more, it also imports more if its production is dependent on imported goods.

Moreover, one can claim that Turkey's exports are dependent on its imports by looking at its import content. It is discussed in detail in the previous part of the chapter⁷⁹ that Turkey's imports are overwhelmingly intermediate goods. Below figure shows the ratio of imported intermediate goods and total exports (*IDE*). The figure shows that the ratio is below or very close to 100% level (which means lower dependency of export goods on imported goods) in only four years (1994, 1999, 2001, and 2009); which are crises years; as a result, they were very small current

⁷⁹ See Chapter 3.3: a Detailed Investigation of Turkish Exports and Imports

account deficit or even surplus years. Hence, based on the theoretical proposal of the literature and the figure below, import dependent export *might* negatively affect the current account balance of Turkey.



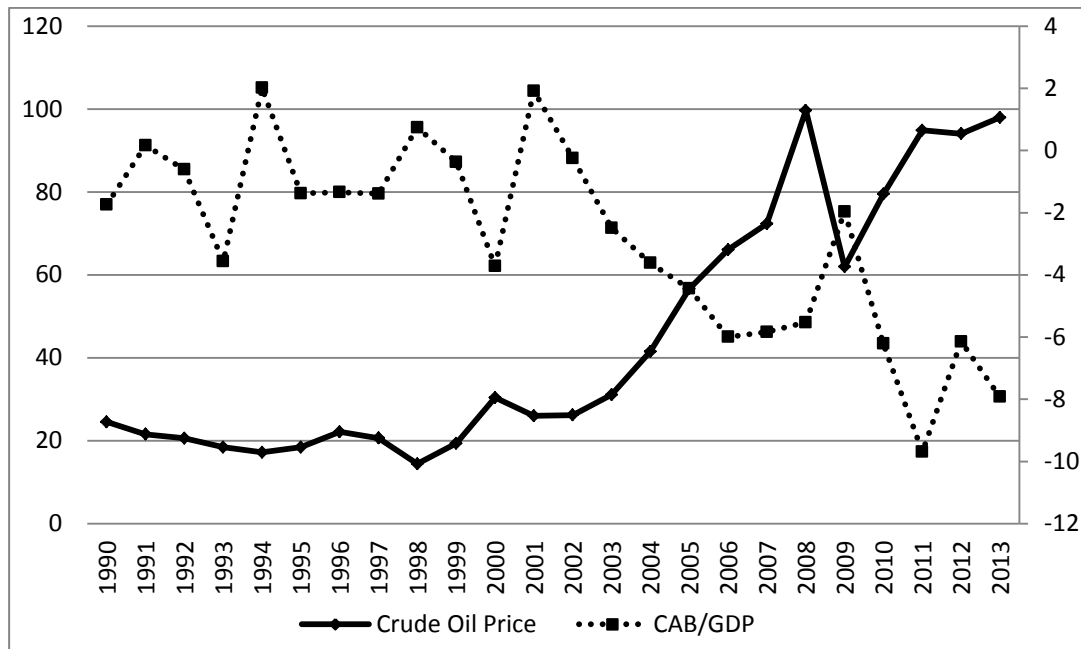
Source: CBRT data and TurkStat data, % CAB is on the right axis

Figure 3.26: The Trend in Turkish Exports' Dependency on Imports (% , 1990-2013)⁸⁰

Last, it is discussed that energy prices negatively affect current account balances in energy importer countries, vice versa. Since energy has an inelastic demand, and since each country requires fossil fuels for industrial production of commodities and for residential heating, energy is a huge import commodity in energy importer countries.

⁸⁰ IDE refers to the ratio of imported intermediate goods and total exports.

Moreover, price of crude oil as a proxy for all energy prices is quite unstable throughout years. However, it is observable that it has a rising trend especially beginning with the late 1990s. Also, Figure 3.27 depicts a negative relationship between price of crude oil and Turkish current account balance especially beginning with the late 1990s. In this sense, it *might* represent a possible structural break in Turkish current account balance. Also, based on theory and descriptive data below, energy prices *may* negatively affect Turkish current account balance.



Source: U.S. Energy Information Administration, % CAB is on the right axis

Figure 3.27: The Trend in Price of Crude Oil (Dollars per Barrel, 1990-2013)

All things considered, above theoretical discussions and descriptive data regarding the effects of ten variables⁸¹ on the Turkish current account balance, in fact, reveals

⁸¹ Actually eleven variables, if we consider "domestic economic growth" and "foreign economic growth" separately.

that those variables actually revolve around six variables; *financial flows (FF)*, *domestic economic growth (Y)*, *foreign economic growth (Y*)*, *exchange rate (REER)*, *import dependent export (IDE)*, and *energy prices (POIL)*⁸². In other words, we showed theoretically that those ten variables affect current account balance through these six channels. Therefore, as we discussed in the previous chapter, there are more than enough determinants in the literature. To put it another way, there is some kind of a “determinant inflation” in the literature. Hence, although econometrically each of those ten variables might have a distinct effect on Turkish current account balance, testing those six variables should be sufficient enough to uncover the determinants of Turkish current account balance and to examine the structural break in Turkish current account balance in the late 1990s, if any. Besides, including five more variables in to our model would consume too many degrees of freedom.

⁸² Table 3.3 and Figure 3.28 summarize the relations between variables.

Table 3.3: Links between Variables^{83, 84}

	<i>FF</i>	<i>Y</i>	<i>Y*</i>	<i>REER</i>	<i>IDE</i>	<i>POIL</i>
NAS	+	+		+		
REER				+		
NFA	+			+		
<i>r*</i>	+			+		
<i>Y</i>	+					
<i>Y*</i>			+			
DCG		+				
FO	+			+		
FD	+	+		+		
IDE					+	
POIL						+

⁸³ Reminder: NAS (National Savings), REER (Real Effective Exchange Rate), NFA (Net Foreign Assets), *r** (Foreign Interest Rate), *Y* (Economic Growth), *Y** (Foreign Economic Growth), DCG (Credit Growth), FO (Financial Openness), FD (Financial Deepness), IDE (Import Dependent Export), POIL (Energy Prices), and FF (Financial Flows).

⁸⁴ Financial Flows (NAS, NFA, *r**, FO, FD), Domestic Economic Growth (NAS, *Y*, DCG, FO, FD), Foreign Economic Growth (*Y**), Real Effective Exchange Rate (NAS, REER, NFA, *r**, FO, FD), Import Dependent Export (IDE), Energy Prices (POIL)

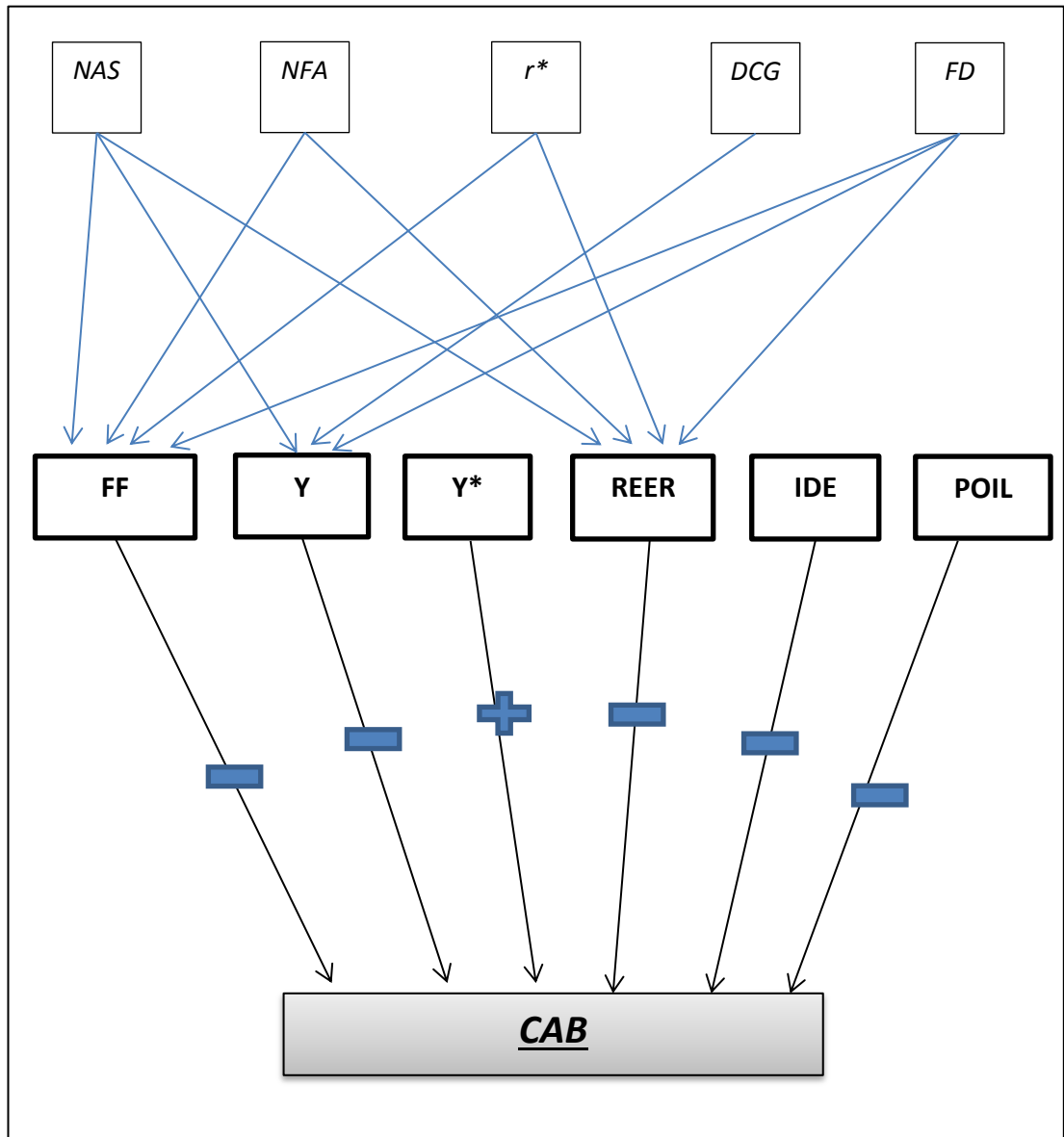


Figure 3.28: Effects of Variables on Turkish Current Account Balance⁸⁵

⁸⁵ Financial openness is represented as financial flows.

In a nutshell, theoretical claims regarding the ten potential determinants of current account balance put forth by the literature, which are also discussed in Chapter 2, are intuitively analyzed and covered for Turkish current account deficit case in this part of the chapter. Also, it is observed that those ten variables affect Turkish current account balance through six main channels; *financial flows (FF)*, *domestic economic growth (Y)*, *foreign economic growth (Y*)*, *exchange rate (REER)*, *import dependent export (IDE)*, and *energy prices (POIL)*. Therefore, although those six variables are enough to uncover the genuine dynamics behind Turkish current account balance, including too many similar variables has been motto in the literature. Therefore, there is a “determinant inflation” in the literature as we discussed in Chapter 2. Moreover, the figures shown above display that while some determinants such as saving rate, competitiveness, foreign interest rate, credit growth, domestic and foreign GDP growth, financial deepness and import dependent export seem to have an effect on Turkish current account balance, others such as net foreign assets and financial openness seem to have ambiguous effects on Turkish current account balance. Our theoretical and intuitive discussions give more precise results regarding relationships between competitiveness (REER; as the proxy) and Turkish current account deficit; plus, economic growth and Turkish current account deficit; as well as, import dependent on exports and Turkish current account deficit. Those three seems to have considerable effects on current account balance of Turkey. Moreover, sharp changes in credit growth rate, financial deepness and financial openness in the late 1990s *might* reflect the structural change in Turkish current account balance. Nonetheless, those are intuitive discussions based on descriptive data. Therefore, they do not give definite results. For conclusive results, econometric analysis should be utilized, which will be done in the following chapter.

3.6) Conclusion

Turkish economy has been giving enormous amount of current account deficit. In this sense, this chapter intuitively examined; (I) the trends in Turkish trade and current account balance, (II) Turkish trade commodities, (III) a possible structural break in Turkish current account balance around the late 1990s, and (IV) the potential determinants of Turkish current account balance proposed by the literature in order to comprehend the structural problems giving rise to the deficit. The main findings of this chapter as follows;

First, this analysis shows that the service sector is smoothing the harsh current account deficit created by huge trade deficit⁸⁶ that reached 13.67% of GDP in 2011, which is really huge if it is considered that the current account balance is mostly shaped by trade of goods. In other words, thanks to tourism sector incomes, Turkish current account deficit is being diminished fairly. On the other hand, energy importation of Turkey constitutes a huge burden on the shoulders of Turkish current account balance.

Second, another crucial argument that can be drawn as a conclusion is that Turkish industry is highly dependent on imports. High intermediate goods importation including high levels of energy importation, plus, the top exporter firms also being the top importer ones are evidences of the fact.

Third, the trend in current account balance intuitively suggests that there might be a structural break in Turkish current account balance in the late 1990s. However, it is too early to reach a conclusion on this point. Therefore, a further argument supporting structural break should be provided through econometric analysis.

Fourth, after long evaluations of formerly discussed theoretical variables of Turkish current account balance, it is brought to light that those ten potential determinants of current account balance, in fact, revolve around six possible variables, which are

⁸⁶ Trade deficit is used as a synonym for goods balance.

*financial flows (FF)*⁸⁷, *domestic economic growth (Y)*, *foreign economic growth (Y*)*, *exchange rate (REER)*, *import dependent export (IDE)*, and *energy prices (POIL)*. Hence, although those six determinants would be enough to analyze current account balance, there has been “determinant inflation” in the literature. Furthermore, the figures and descriptive data clearly illustrate that there is a negative relationship between current account deficit and domestic economic growth (*Y*). The negative relation is also observable between current account deficit and some other variables such as import dependent exports (*IDE*), energy prices (*POIL*), financial flows (*FF*), and *REER*⁸⁸ which is used as a proxy for competitiveness. Also, figures and descriptive data display a positive relationship between current account deficit and foreign economic growth (*Y**). However, it is again too early to reach a definite conclusion before an appropriate econometric analysis.

In conclusion, Turkish current account deficit seems to be quite problematic. If these problems are not solved, they are going to create more serious problems in the future. Therefore, further analysis on current account balance of Turkey is required. In this sense, an econometric study will be carried out in the following chapter in order to identify the determinants of current account deficit in Turkey, and to check the existence of a structural break in the late 1990s.

⁸⁷ Here financial flows (FF) is used as a proxy for financial openness.

⁸⁸ This negative relationship implies that there is a positive relationship between current account balance and competitiveness.

CHAPTER 4

ECONOMETRIC ANALYSIS OF CURRENT ACCOUNT IN TURKEY

4.1) Introduction

In the previous chapter, the trends and structural problems in Turkish economy and trade regarding its large current account deficit were discussed in depth. We will empirically test these arguments in this chapter. In the light of literature review and aforementioned discussions made in earlier chapters, we will employ a Vector Autoregression (VAR) model in this empirical study to test the effects of *financial flows (FF)*, *domestic economic growth (Y)*, *foreign economic growth (Y*)*, *exchange rate (REER)*, *import dependent export (IDE)*, and *energy prices (POIL)* on *Turkish current account balance (CAB)*. In this regression model, we will utilize the six important independent variables, derived from the literature and our own analyses, to shed light on the following questions; 1) Which factors do explain the large current account deficit in Turkey? 2) Is there a structural break in the course of Turkish current account deficit in the late 1990s? 3) If there is a structural break, what are the reasons behind it?

The main findings of the chapter can be summarized as follows; i) The main contribution of our study comes from structural break analysis of Turkish current account balance for the reason that we are the first to show that there is a structural

break in Turkish current account balance in 1999Q1. ii) Import dependent export (IDE) is the most significant determinant of Turkish current account (CAB), which indicates Turkey's dependency on intermediate goods importation to be able to export its goods. iii) CAB is mostly (approximately 45%) explained by IDE and energy prices (POIL), which shows that Turkish current account deficit problem is a structural problem. iv) Cyclical factors explaining current account balance is found relatively weaker (approximately 25%) as compared to structural factors. Although domestic economic growth (Y) is the third significant determinant of CAB, contributions of other cyclical factors; foreign economic growth (Y^*), financial flows (FF), and real effective exchange rate REER are found to be weak.

The remainder of the chapter is organized as follows; previous studies regarding the Turkish current account balance will be reviewed in Section 2. Then, econometric methodology will be discussed in Section 3. Section 4 will analyze the periodization and data of the research in detail. The existence of a possible structural break in current account balance will be tested in Section 5. Variables will be tested by using vector autoregression (VAR) model in Section 6. Besides, estimation results will be revealed and interpreted by utilizing proper econometric tools. Section 7 will check the robustness of the model. Then, the chapter will be concluded.

4.2) Literature Review

There are several different approaches and findings regarding the determinants of Turkish current account balance in the literature. Moreover, both qualitative and quantitative methods are utilized for this purpose. Although Chapter 2 reviewed related previous studies about global current account imbalances, this part aims to briefly review some of the previous studies which are directly related to Turkish current account balance.

Reviewing different previous studies, İnel and Kayıkçı (2012) analyze coefficients of imported input use in certain sectors. They also examine how Turkish current account deficit was financed between 1987 and 2010. They argue that Turkish current account balance is not sustainable; in fact, its sustainability is getting harder and harder due to foreign input dependence of domestic industry and decreasing quality of financing instruments of the deficit.

Likewise, Gülcan and Önel (2008) examine the sustainability of Turkish current account deficit in the context of the Intertemporal Budget Constraint (IBC) approach between 1992Q1 and 2007Q1 periods. They test whether Turkish current account balance is sustainable or not through analyzing the relationship between exports and imports in the long run. For this purpose, they employ exports, imports, and net interest payments. By using several cointegration and unit root techniques, Gülcan and Önel (2008) conclude that Turkish current account deficit is not sustainable in the long run because there is no long run relationship between real exports and real imports.

Dalgın and Gupta (2012) reason that Turkish current account deficit may cause serious problems in the long run due to confidence loss of investors. However, their calculations and geopolitical reasoning suggest that it is sustainable in the short run. Therefore, according to them, there is no reason to worry about the current account in the short-run.

Similarly, Akçay and Üçer (2008) calculate the “norm” current account deficit in Turkey by using Rahman’s empirical benchmark model of current account balance. They argue that although Turkish current account deficit is not sustainable, this deficit will not lead to a serious economic crisis. Nevertheless, they suggest that Turkey should overcome this deficit problem in the long run. Moreover, they demonstrate that Turkish current account deficit is not originated from the fallacy of monetary and exchange rate policy, but lack of well-organized economic reform program.

Using Auto Regressive Distributed Lag (ARDL) model between the years 1987 and 2009, İnsel and Kayıkçı (2013) search for relationships between the current account balance in Turkey and broad set of macroeconomic variables which are real GDP growth rate, ratio of gross capital formation to GDP, ratio of savings to GDP, ratio of exports and imports to GDP (openness), growth of Brent oil prices in Europe, consumer price index growth rate, and real effective exchange rate. They find that the effects of economic growth, inflation, and investment on current account balance are higher than the effects of other variables. In addition, it is shown that the current account balance is positively related to inflation, but it is negatively related to oil prices, economic growth, investment, appreciated Turkish Lira, and openness of the economy.

Özlale and Pekkurnaz (2010) analyze the relationship between Turkish current account balance and oil prices by using structural vector autoregression (SVAR) model. For this purpose, they control other determinants of current account balance which they define as; economic growth, output gap, and exchange rate misalignment. They use monthly data from September 1998 to September 2008. They find a negative relationship between oil prices and current account balance of Turkey. Moreover, they emphasize that this negative relationship is more significant particularly in the short-run.

Özmen (2004) constructs OLS and GIVE models consisting of 79 countries including Turkey to analyze the cross country evolution of current account balance. According to his findings, a country's ability to sustain current account deficit increases with better governance; however, it decreases with original sin based on cross sectional data. He also concludes that openness of the economy and flexible exchange rate are positively related to current account balance. In addition, the effect of financial deepening is found to be unclear.

Özata (2014) utilizes a structural vector autoregression (SVAR) model to analyze Turkish current account balance between 1998Q1 and 2012Q4 periods. He examines

the relationship between the current account balance and three variables; oil imports, real income, and real exchange rate. He demonstrates that Turkish current account deficit is mostly explained by economic growth, overvalued currency, and changes in oil prices. He believes that this is the result of dependency of domestic production on imported intermediate commodities and increased private consumption of imported goods.

By using an error correction model and quarterly data between 1987Q1 and 2001Q3, Akbostancı and Tunç (2001) verify the twin deficit hypothesis for Turkey. They reveal that there is a long-run correlation between government budget balance and current account balance in Turkey.

Kara and Sarıkaya (2013) compute cyclically-adjusted current account in Turkey by deducting cyclical factors, which are domestic demand, foreign demand, and trade prices (TOT), from Turkish current account balance. After adjustment, they obtain current account balance in Turkey explained by non-cyclical (structural) factors. They conclude that cyclically-adjusted current account balance deteriorated significantly between 1998 and 2011.

4.3) Econometric Methodology

Vector autoregression (VAR) models have been getting more and more popular since the 1980s. Sims (1980) argues that VAR model is an important tool for macroeconomic analysis. In a VAR model, each variable is explained by an equation which includes its own lagged values and other variables lagged values. Therefore, the model does not require a priori theoretical knowledge regarding which variable influences the other. In other words, a priori knowledge regarding the endogeneity or exogeneity of variables, unlike other models, is not necessary. All variables are treated as endogenous variables. In addition to Sims, Litterman (1986) also suggests that VAR obtains better forecasting results as compared to other econometric

models. For those reasons, our empirical approach depends on VAR analysis⁸⁹. However, there are some disadvantages of VAR. Stock and Watson argue that there are two main limitations of VAR framework (2011, p. 11). First, if some variables used in VAR model are persistent, impulses responses and variance decomposition interpretations of VAR might give misinforming results. Secondly, VAR fails to detect nonlinearities and conditional heteroscedasticity in parameters if no modifications are made. In addition, adding more variables into VAR model significantly increases the number of model's parameters; as a result, decreases the degrees of freedom of the model. Nevertheless, one should bear in mind that each econometric method has its own advantages and disadvantages. And if there was one perfect econometric method, we would not see so many different econometric approaches in various studies.

VAR in its structural form (SVAR)⁹⁰ with p lags can be represented as;

$$\Gamma Y_t = A(L)X_{t-1} + U_t \quad (13)$$

⁸⁹ For detailed and advance information regarding VAR framework, please see the below references

- Sims, C. A. (1980). Macroeconomics and reality. *Econometrica: Journal of the Econometric Society*, 1-48.
- Stock, J. H., & Watson, M. W. (2001). Vector autoregressions. *Journal of Economic perspectives*, 101-115.
- Gujarati, D. N. (2003). *Basic Econometrics Fourth Edition* McGraw Hill Gujarati, DN,(2003). *Basic Econometrics*.
- Greene, W. H. (2003). *Econometric analysis*. Pearson Education India.
- Litterman, R. B. (1986). Forecasting with Bayesian vector autoregressions—five years of experience. *Journal of Business & Economic Statistics*, 4(1), 25-38.
- Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: Journal of the Econometric Society*, 424-438.
- Luetkepohl, H. (2011). *Vector Autoregressive Models*. EUI Working Papers

⁹⁰ Structural Vector Autoregression (SVAR)

where X_t is a $K \times 1$ vector of endogenous variables, $A(L)$ is a $K \times K$ matrix of lag polynomial, and U_t is $K \times 1$ vector of error terms, or shocks, or impulses, or innovations. Error term U_t has mean zero ($E(U_t) = 0$), has constant variance-covariance matrix ($E(U_t U_t') = \Omega$), and there is no correlation between error terms across time ($E(U_t U_{t-k}') = 0$). Furthermore, equation (13) shows that variables have contemporaneous effect on each other directly.

However, we will use the reduced form VAR which can be obtained by multiplying both sides of the equation (13) by Γ^{-1} ;

$$\Gamma^{-1}\Gamma Y_t = \Gamma^{-1}A(L)X_{t-1} + \Gamma^{-1}U_t \quad (14)$$

And

$$Y_t = B(L)X_{t-1} + e_t \quad (15)$$

where $B(L) = \Gamma^{-1}A(L)$ and $e_t = \Gamma^{-1}U_t$. Also, X_t is a $K \times 1$ vector of endogenous variables, $B(L)$ is a $K \times K$ matrix lag polynomial, and e_t is a $K \times 1$ vector of reduced form error terms, or shocks, or impulses, or innovations.

Furthermore, equation (13) shows that variables in SVAR have contemporaneous effect on each other directly. Equation (15) exhibits that reduced form of VAR shows each variable in a linear function of its own lags and lags of other variables. In this sense, there are no direct contemporaneous effects of variables on each other. Nonetheless, any movements in an innovation U_t may cause contemporaneous effects on other variable indirectly since $e_t = \Gamma^{-1}U_t$. What is more, VAR models can be estimated by several methods such as OLS, GLS, ML, and Bayesian methods (Luetkepohl, 2011, pp. 7-10).

In addition, the reduced form innovation model can be formulated as (Castro, 2006, p. 914);

$$CU_t = V_t \quad (16)$$

where V_t is the vector of the structural orthogonal shocks. The model is specified by utilizing Cholesky decomposition with the ordering⁹¹; POIL, Y^* , FF, REER, Y, IDE, and CAB. Therefore, the reduced form innovation model is as follows;

$$U_t^{poil} = V_t^{poil} \quad (17)$$

$$U_t^{y*} = c_{2,1}U_t^{poil} + V_t^{y*}$$

$$U_t^{ff} = c_{3,1}U_t^{poil} + c_{3,2}U_t^{y*} + V_t^{ff}$$

$$U_t^{reer} = c_{4,1}U_t^{poil} + c_{4,2}U_t^{y*} + c_{4,3}U_t^{ff} + V_t^{reer}$$

$$U_t^y = c_{5,1}U_t^{poil} + c_{5,2}U_t^{y*} + c_{5,3}U_t^{ff} + c_{5,4}U_t^{reer} + V_t^y$$

$$U_t^{ide} = c_{6,1}U_t^{poil} + c_{6,2}U_t^{y*} + c_{6,3}U_t^{ff} + c_{6,4}U_t^{reer} + c_{6,5}U_t^y + V_t^{ide}$$

$$U_t^{cab} = c_{7,1}U_t^{poil} + c_{7,2}U_t^{y*} + c_{7,3}U_t^{ff} + c_{7,4}U_t^{reer} + c_{7,5}U_t^y + c_{7,6}U_t^{ide} + V_t^{cab}$$

All in all, based on above discussions, the general current account balance model in reduced VAR model can be formulated as^{92, 93};

⁹¹ Cholesky decomposition denotes that the first variable Y_t^1 is not affected by the shock of second variable V_t^2 contemporaneously; on the other hand, Y_t^2 is affected by the shocks of both variables contemporaneously. Hence, the ordering of variables is very important, which will be discussed in Section 6. Moreover, our model is robust to different orderings of variables as discussed in section 7.

$$\begin{aligned}
(CAB)_t = & \sum_{i=1}^4 \beta_i (POIL)_{t-i} + \sum_{i=1}^4 \beta_{i+4} (Y^*)_{t-i} + \sum_{i=1}^4 \beta_{i+8} (FF)_{t-i} + \sum_{i=1}^4 \beta_{i+12} (REER)_{t-i} \\
& + \sum_{i=1}^4 \beta_{i+16} (Y)_{t-i} + \sum_{i=1}^4 \beta_{i+20} (IDE)_{t-i} + (U)_t
\end{aligned} \tag{18}$$

or, in matrix form;

$$Y_t = B(L)X_{t-1} + e_t \tag{15}$$

where $X_t = [POIL_t, Y^*_t, FF_t, REER_t, Y_t, IDE_t, CAB_t]'$ and $U_t = [U_t^{poil}, U_t^{y*}, U_t^{ff}, U_t^{reer}, U_t^y, U_t^{ide}, U_t^{cab}]'$.

4.4) The Periodization and Data

Our sample runs from 1992Q1 to 2014Q4⁹⁴. Different data sources such as Bruegel, OECD, Turkish Statistical Institute (TurkStat), and Central Bank of Republic of Turkey (CBRT) were utilized to obtain the data of various variables in our analysis.

⁹² Note that this is only one equation among many in our VAR model. Nevertheless, this is the particular equation that we are genuinely interested.

⁹³ There is also one exogenous dummy variable in our model that is not presented here.

⁹⁴ Those periods cover all available quarterly data of variables of the model.

Data of CAB, FF, and IDE are deseasonalized by utilizing X-12 method⁹⁵. However, data of POIL, Y*, REER, and Y are not deseasonalized because they are calculated as changes or growths from the previous year's (t-1) same quarter (Q) to following year's (t) same quarter (Q)⁹⁶. Also, seasonal changes do not affect them in a considerable way⁹⁷. Hence, we assume that those data does not require further deseasonalization.

The level of competitiveness will be shown as the change in consumer price index based real effective exchange rate (REER). The quarterly REER is obtained from Bruegel. The data are calculated by using consumer price index (CPI) and by taking weights of 41 trading partner countries. It is argued that REER displays sophisticated evaluation of the international pressure on domestic firms in medium-run by including wide-range macroeconomic developments like changes in prices and exchange rate (Lauro & Schmitz, 2012, p. 3). Furthermore, REER is broadly used to measure competitiveness of a country. For instance, European Central Bank (ECB) uses REER as a measure of price and cost competitiveness. In this vein, ECB has been preparing reports on competitiveness for EU and some non-EU members by using this measure since 1999⁹⁸.

⁹⁵ For detailed information regarding X-12 method, please see Findley et al. (1998) and visit the website of U.S. Census Bureau (www.census.gov).

⁹⁶ The logic is that since we calculate those variables subject to the same quarter of different years, they do not have seasonality problem at all.

⁹⁷ The examination of raw data of POIL, Y*, REER, and Y plus their seasonally adjusted data in a single graph indicates that there are only very minor changes between raw and seasonally adjusted data of those variables.

⁹⁸ Please visit the website of website of European commission (ec.europa.eu) to see the reports on "*Price and Cost Competitiveness*" http://ec.europa.eu/economy_finance/db_indicators/competitiveness/index_en.htm

The domestic economic growth (Y) is measured as percentage real GDP growth based on constant prices (Real GDP). The data are acquired from TurkStat. Moreover, since the base year used in calculation of real GDP is changed from 1987 to 1998 by TurkStat, while the data of real GDP up until 1998 (1998 included) is obtained from 1987 base year calculations, the data after 1998 is obtained from 1998 base year calculations.

The foreign economic growth (Y*) data are extracted from OECD database of quarterly national accounts (QNA). The foreign economic growth is also measured as percentage real GDP growth based on constant prices (Real GDP). The foreign economic growth is calculated by taking average of the sum of OECD-Total and OECD-Europe. The reason why the average of OECD-Total and OECD-Europe is taken although the OECD-Europe is also included in OECD-Total is that Turkey's exports are predominantly to European countries as discussed in the previous chapter⁹⁹.

Financial flows (FF) are presented as the ratio of gross financial flows and adjusted¹⁰⁰ nominal GDP. Gross financial flows are calculated by using BPM5 data under CBRT database. Both credits and debits of direct investments, portfolio investments, and other investments under financial account balance are summed by

⁹⁹ It was discussed and shown with empirical data in the previous chapter that Turkey's export markets are mainly OECD and EU countries.

¹⁰⁰ The reason why adjusted nominal GDP data is utilized that TurkStat changed the base year used in GDP calculation from 1987 to 1998. Therefore, the GDP data previous to 1998 are adjusted based on 1998 prices by using their growth rates. For example, the adjusted 1997 data (with 1998 prices) are calculated by using 1998 growth rates (with 1987 prices) on 1998 data (with 1998 prices). Hence, adjusted data are calculated by reversely using GDP growth rates. In other words,

$$\text{adj-GDP}_{1997} = \frac{GDP_{1998}}{(1 + GROWTH_{1998})}$$

taking their absolute values. Monthly gross financial flows data are converted into quarterly data by summing the relevant three months.

Import dependent export (IDE) is measured by the ratio of intermediate goods and total exports, which represents how many intermediate goods have to be imported to export one unit of export. In this sense, since intermediate goods are largely used in the production of other goods, the ratio shows how much domestic economic production of exported goods is dependent on imported goods. Both data are obtained from Broad Economic Categories (BEC) in TurkStat database.

Change in Europe Brent Oil price (POIL) is used as a proxy for energy prices since oil is the major energy resource. The level data are measured in dollars per barrel. The quarterly data are obtained from the U.S. Energy Information Administration (EIA).

Current account balance (CAB) is expressed as a percentage of adjusted nominal GDP. Current account balance data are taken from BPM5 data under CBRT database. Monthly data are transferred into quarterly data by summing the relevant three months.

Descriptive statistics (Table 4.1) and correlation among variables (Table 4.2) are indicated below. Table 4.1 shows basic information regarding the data such as number of observation and their maximum-minimum values in the data set. Table 4.2 shows that oil prices, financial flows, real effective exchange rate, real domestic economic growth, and import dependent export are all strongly and negatively correlated with current account balance. This is quite expected as debated in aforementioned chapters. On the other hand, real foreign economic growth is weakly and negatively correlated with current account balance (-0.008), which is unexpected

because our expectation was a positive correlation between those two as discussed earlier¹⁰¹. Moreover, Figure 4.1 shows time series graph of data.

Table 4.1: Descriptive Statistics of the Variables (1992Q1-2014Q4)

	POIL	Y*	FF	REER	Y	IDE	CAB
Mean	12.652	1.982	12.446	2.250	4.240	112.930	-3.198
Median	6.612	2.350	12.517	4.161	5.500	113.325	-3.417
Maximum	159.369	4.750	24.767	30.995	13.800	147.493	4.833
Minimum	-56.065	-5.200	2.842	-30.769	-14.700	80.295	-10.230
Std. Dev.	36.668	1.692	4.376	13.103	5.604	11.777	3.284
Sum	1163.98	182.35	1144.99	206.99	390.10	10389.53	-294.24
Sum Sq. Dev.	122356.60	260.39	1742.64	15622.69	2858.14	12620.74	981.24
Observations	92	92	92	92	92	92	92

Table 4.2: Correlation among Variables (1992Q1-2014Q4)

	POIL	Y*	FF	REER	Y	IDE	CAB
POIL	1.000	0.409	0.001	0.152	0.312	0.156	-0.257
Y*	0.409	1.000	0.038	0.218	0.482	0.272	-0.008
FF	0.001	0.038	1.000	-0.065	-0.028	0.132	-0.338
REER	0.152	0.218	-0.065	1.000	0.437	0.359	-0.156
Y	0.312	0.482	-0.028	0.437	1.000	0.636	-0.444
IDE	0.156	0.272	0.132	0.359	0.636	1.000	-0.570
CAB	-0.257	-0.008	-0.338	-0.156	-0.444	-0.570	1.000

¹⁰¹ It is discussed that increase in foreign income is more likely to improve current account balance through rise in exports.

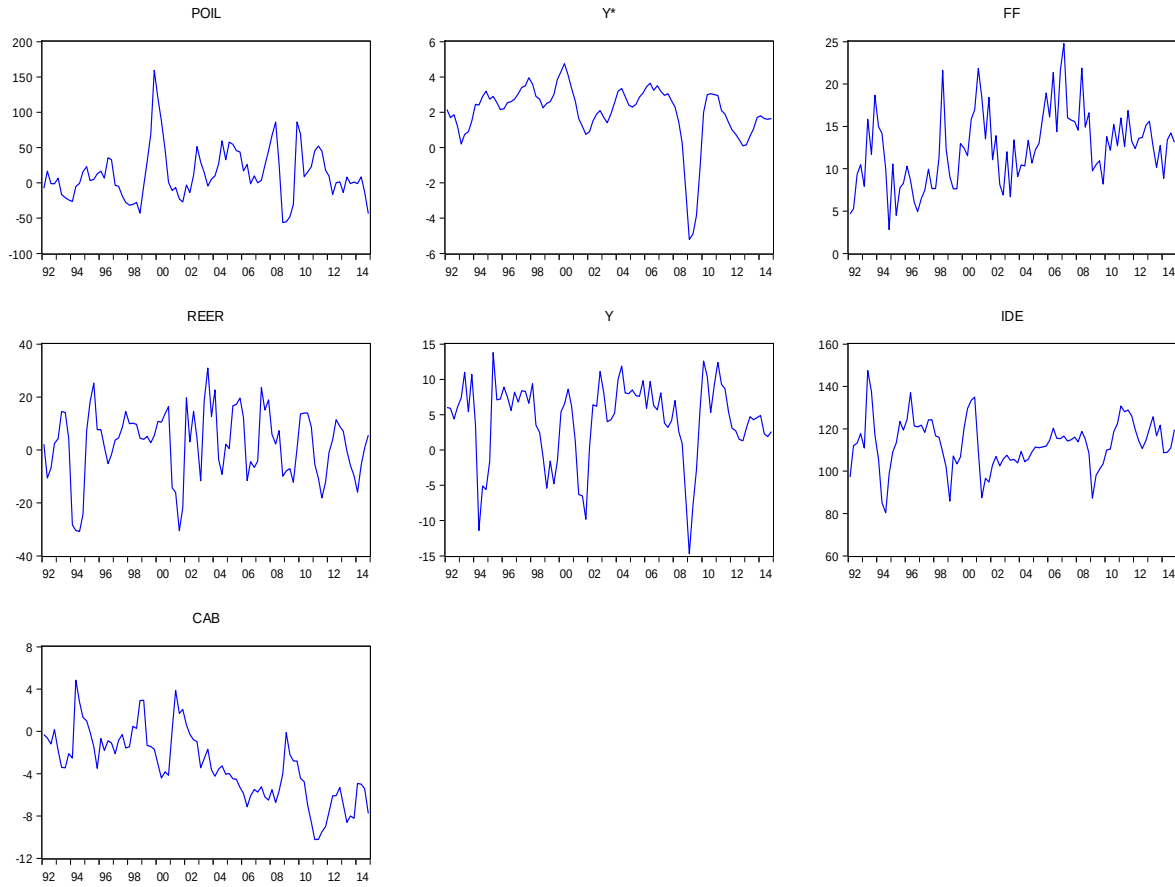


Figure 4.1: Time Series Graph

4.5) Structural Break in Current Account

It is argued in earlier chapters that there might be a structural break in Turkish current account balance because time series graph of Turkish current account demonstrates a significant shift in the late 1990s. This is a very important and strong statement because no one else has tested such an argument yet. In other words, we are the first to test whether or not there is a structural break in Turkish current account balance in the late 1990s.

To test if this is the case, we will employ two different structural break tests; an endogenous structural break test and an exogenous structural break test¹⁰². The former tests for breaks when the break date is unknown; on the other hand, the latter tests for breaks when the break date is known. In this sense, both exogenous and endogenous structural break tests should be conducted. Moreover, while endogenous structural break test will check for structural break in current account balance within the current account balance data, exogenous structural break test will check for structural break in current account balance within the entire estimated model by considering all other variables' data as well.

To begin with, we will utilize Zivot-Andrews test (ZA) (1992) which is an endogenous structural break test. In fact, ZA is a “*unit root test with structural break*”. Hence, this test examines structural break within the data, not in the entire model. More typical unit root tests, such as ADF that is utilized in our VAR analysis, do not test for structural break. ZA uses three different models to check a possible one-time structural break in an unknown date; (i) *change in intercept*, (ii) *change in trend*, and (i) *change in both*. Since we are after a structural break in the (ii) *trend* of current account balance, we will employ the second model, which can be shown as;

$$\Delta y_t = c + \alpha y_{t-1} + \beta_t + \theta DT_t + \sum_{j=1}^k d_j \Delta y_{t-j} + \varepsilon \quad (19)$$

where DT_t is an indicator dummy variable for a trend shift occurring at each possible break date (TB); more formally, they present (Waheed and Ghauri, 2006, p.5);

¹⁰² Structural break test can be divided into two main categories; endogenous structural break tests and exogenous structural break tests.

$$DT_t = \begin{cases} t - TB \dots\dots\dots \text{if } t > TB \\ 0 \dots\dots\dots \text{otherwise} \end{cases}$$

H_0 is that $\alpha = 0$, which indicates y_t is non-stationary (has a unit root) with a drift that excludes any structural break. On the other hand, H_1 is that $\alpha \leq 0$, which indicates y_t is stationary (does not have a unit root) with a structural break occurred in an unknown date (or at time TB) (Waheed and Ghauri, 2006, p.6). The exact break date is assumed to be unknown. The break point is automatically determined by the test where the t-value from an ADF test is at minimum and mostly negative (Bryne and Perman, 2006, p. 6).

Table 4.3 shows simplified ZA test results with the null hypothesis that CAB has a unit root with a structural break in the trend. We fail to reject the null hypothesis, which implies that there is a structural break in Turkish current account balance in 1999Q1. Hence, the result verifies our argument that Turkish current account experienced a structural break in the late 1990s.

Table 4.3: Zivot-Andrews Endogenous Structural Break Test
Sample: 1992Q1 2014Q4
Included observations: 92
Null Hypothesis: CAB has a unit root with a structural break in the trend
Chosen lag length: 3 (maximum lags: 4)
Chosen break point: 1999Q1

	t-Statistic	Prob. *
Zivot-Andrews test statistic	-5.186450	0.454796
1% critical value:	-4.80	
5% critical value:	-4.42	
10% critical value:	-4.11	

* Probability values are calculated from a standard t-distribution and do not take into

account the breakpoint selection process

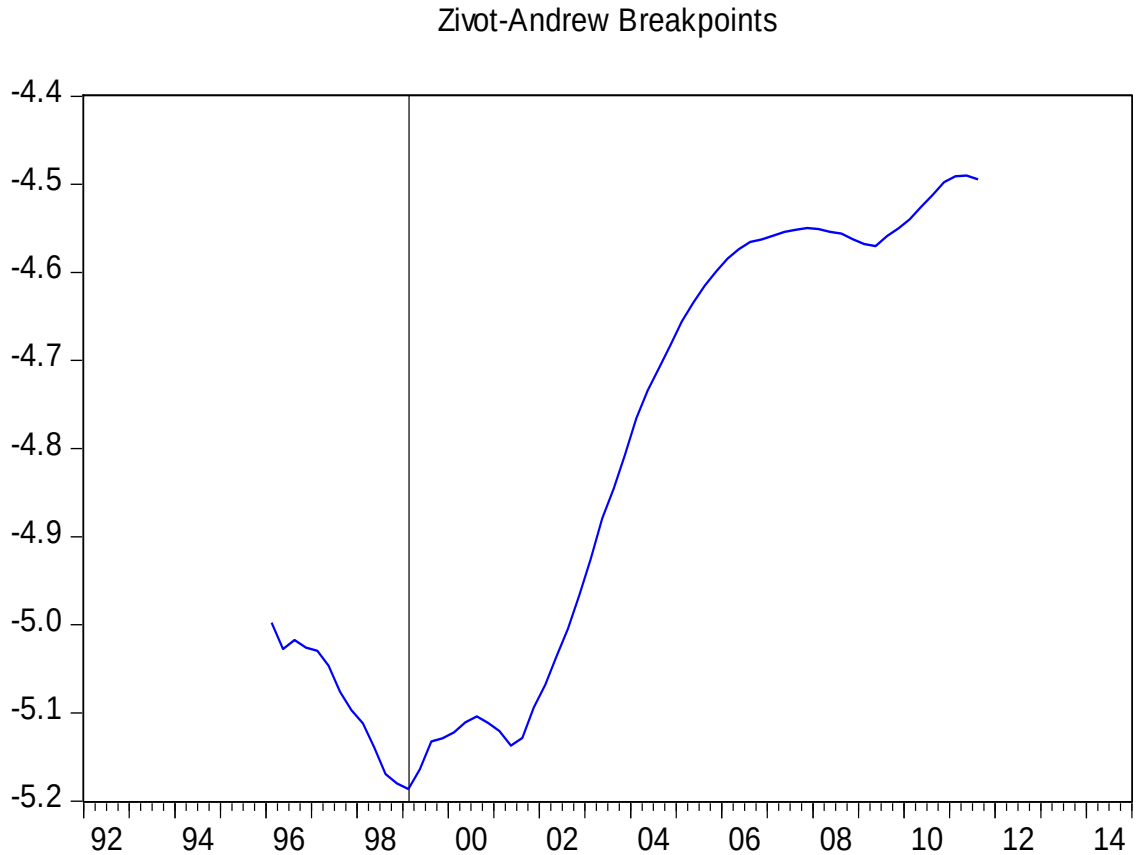


Figure 4.2: Zivot-Andrews Endogenous Structural Break Test

In addition, Chow test which is an exogenous structural break test is utilized to check the structural break in Turkish current account balance. Chow test, unlike ZA, checks for a known structural break. For that purpose, a specific data has to be chosen. Since ZA test demonstrated that there is a structural break in Turkish current account balance in 1999Q1, we will select that period for chow test. Moreover, ZA test examines structural break within the data. Alternatively, chow test examines structural break in dependent variable by considering all variables in the model.

Chow test divides the sample into two sub-groups and estimate each of them separately. To see whether there is a structural break between those two sub-groups, the sameness of their parameters is tested by utilizing F-statistics. To put it more formally, suppose that our model is;

$$y = \alpha + \beta x + u \quad (\text{N observations}) \quad (20)$$

then, we divide it into two sub groups;

$$y = \alpha_1 + \beta_1 x + u_1 \quad (\text{N}_1 \text{ observations}) \quad (21a)$$

$$y = \alpha_2 + \beta_2 x + u_2 \quad (\text{N}_2 \text{ observations}) \quad (21b)$$

The null hypothesis is that the parameters of two sub-groups are same; $\alpha_1 = \alpha_2$ and $\beta_1 = \beta_2$.

$$F = \frac{(SSR - (SSR1 + SSR2)) / k}{(SSR1 + SSR2) / (N1 + N2 - 2K)} \quad (22)$$

where SSR is sum of squared residuals, N is number of observation, and k is number of restrictions. The test follows F distribution.

To utilize Chow test, VAR model¹⁰³ is estimated, and then, turned into system. Table 4.4 provides Chow test result. We reject the null hypothesis that there is no structural break in Turkish current account balance in 1999Q1. In this sense, we will use a dummy variable¹⁰⁴ that covers those two years in our model.

Table 4.4: Chow Test Result

Chow Breakpoint Test: 1999Q1

Null Hypothesis: No breaks at specified breakpoints

Equation Sample: 1992Q3 2014Q4

F-statistic	2.192651	Prob. F(16,58)	0.0154
Log likelihood ratio	42.57380	Prob. Chi-Square(16)	0.0003
Wald Statistic	35.08241	Prob. Chi-Square(16)	0.0039

Furthermore, what did cause the structural break? It might be argued that there are three major reasons behind structural break in Turkish current account balance in the late 1990s. First, current account might shift due to cheaply available intermediate goods in the global market. Since those goods are reasonably cheaper, they prevent development of intermediate goods industry in Turkey, which make Turkey dependent on imports for industrial production. As a result, Turkish current account worsened and shifted. It can be argued that there are two reasons behind this trend. One reason might be overvalued Turkish Lira. Turkish producers can cheaply import necessary goods for production thanks to overvalued Turkish Lira. The other reason

¹⁰³ The estimation process will be explained in detail in the following section.

¹⁰⁴ The dummy variable will be treated as exogenous in the model.

might be rise of economies like China and India, which can produce with fairly low cost. Their products are now all around the world thanks to globalization.

Second, another reason may be sharp domestic credit growth. More available credit means more consumption and investment, which leads to rise in imports. Upsurge in financial inflows might be a reason for credit boom in Turkey. Another reason for credit boom might be change in economy policy, which highly stimulates consumption of households.

Third, shift in industrial production may also be a reason. In fact, we believe that this is the main reason behind the structural break based on our analyses. Industrial production in Turkey shifted from less import dependent sectors towards more import dependent sectors. For instance, the star of the economy is no longer textile sector but automobile sector. What is more, automobile sector is more dependent on foreign inputs than textile sector.

All in all, both structural break tests; Zivot-Andrews test¹⁰⁵ and Chow test¹⁰⁶, show that there is a structural break in Turkish current account balance in 1999Q1. Also, we examined potential causes of structural break in this section. We believe that the main reason behind the structural break is due to change in Turkish industrial production structure. Our result has significant policy implications. If we are faced with a structurally different current account balance as compared to pre-2000s, we need to develop different methods and policies to solve the current account deficit problem. For instance, what monetary or fiscal policy should be implemented to solve the problem? If we are faced with a structural break, and if the reasons behind this break are structural factors, then, monetary policy would not be that efficient. Rather, fiscal policy should be implemented in the form of structural reform to solve

¹⁰⁵ Zivot-Andrews test is an endogenous structural break test that considers only the data of one specific variable.

¹⁰⁶ Chow test is an exogenous structural break test that considers the data of all variables in the model.

the problem. For example, the production structure should be changed by promoting intermediate goods production within the country.

4.6) Estimation Results

The possible determinants of current account balance in Turkey between the periods 1992Q1 and 2014Q4 are going to be analyzed by employing a VAR model in this section. There are 89 observations in the estimation output of the model after adjustment.

Before going into VAR analysis, one has to be make sure that all variables are stationary ($I(0)$) for VAR analysis. If a variable is not stationary ($I(d)$), it has to be differenced d times¹⁰⁷. It is argued that stationarity is a significant requirement to run VAR models because it ensures constant means, variance, and autocovariances of the model through time (Lütkepohl, 2007, p. 181). In this sense, Augmented Dickey Fuller (ADF) unit root test is performed and its result is demonstrated in Table 4.5¹⁰⁸. Under the hypothesis that it is random walk with intercept and trend, Table 4.5 displays that variables are stationary at their levels. In other words, variables are integrated of order 0, or, $I(0)$ ¹⁰⁹.

¹⁰⁷ This treatment transforms VAR into Vector Error Correction Model (VECM).

¹⁰⁸ The null hypothesis is that the variable has a unit root, indicates that the variable is non-stationary. If the p value is less than 5% significance level, the null hypothesis is rejected.

¹⁰⁹ We also checked the stability of the entire model.

Table 4.5: Results of ADF at Level

VARIABLES	ADF ¹¹⁰	
	lag ¹¹¹	p-value
CAB	0	0.019
FF	1	0.029
IDE	0	0.007
POIL	1	0.001
REER	4	0.019
Y¹¹²	4	0.058
Y*	1	0.000

Deciding how many lag terms to include into the model is also quite important. Gujarati argues that including too many lags decreases degrees of freedom and increases the possibility of multicollinearity; on the other hand, using few lags lead to specification errors; in this sense, he suggests to utilize various criteria¹¹³ to determine how many lags to use (2003, p. 849). Correspondingly, the number of lags is set as 4 according to the information provided by Likelihood Ratio (LR), Final Prediction Error (FPE), and Akaike Information Criterion (AIC) test statistics, which are shown in Table 4.6.^{114, 115, 116}. Here, we choose 4 lags because it can be argued

¹¹⁰ With trend and intercept.

¹¹¹ All lags are automatically selected based on Schwarz Information Criterion (SC).

¹¹² It is seen that Y is more than statistically significance level of 0.05. However, Y will be treated as stationary for three main reasons. First, all other variables are stationary ($p < 0.05$). Second, Y is less than the statistically significance level of 0.1. Third, if the maximum lag is restricted with 3 or less, Y turns out to be stationary with $p = 0.000$.

¹¹³ He mainly suggests AIC and SC.

¹¹⁴ The maximum lag is restricted to 4 lags to conserve degrees of freedom.

that 1 lag or 2 lags are too short for a model with quarterly data to provide adequate and reliable economic explanations (Kim and Roubini, 2008)¹¹⁷.

Table 4.6: Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC
0	-1960.630	NA	7.29E+10	44.877
1	-1686.690	491.851	4.41E+08	39.765
2	-1595.440	149.318	1.73E+08	38.805
3	-1529.300	97.698	1.24E+08	38.415
4	-1462.840	87.613*	93437761*	38.019*

Note: * indicates lag order selected by the criterion

The ordering of variables employed in VAR framework is quite important because it affects the results of both *impulse response function (IRF)* and *forecast error variance decomposition (FEVD)* ((Sims, 1981), Lütkepohl, 2007))¹¹⁸. For this purpose, the model is ordered from the most exogenous variable to the most

¹¹⁵ Regardless of the lag restriction, Schwarz Information Criterion (SC) always selects lag 1. Similarly, regardless of the lag restriction, Hannan-Quinn information criterion (HQ) always selects lag 2.

¹¹⁶ If the maximum lag is restricted to 6 lags, LR and FPE select lag 4 yet again. However, AIC selects lag 5. Moreover, if the maximum lag is restricted to 7 lags, LR and FPE again select lag 4. However, AIC selects lag 7.

¹¹⁷ Nevertheless, our results are robust to different lags. For instance, we also estimated our model with 2 lags in Appendix C. The results are practically as same as the results of our original analysis. Please see Appendix C.

¹¹⁸ Moreover, Sims (1981) proposes to try various orderings to test the sensitivity of impulse responses.

endogenous one. Following the economic theory, literature, and our early discussions, the order is; energy prices (POIL), foreign economic growth (Y^*), financial flows (FF), real effective exchange rate (REER), domestic economic growth (Y), import dependent export (IDE), current account balance (CAB), and dummy¹¹⁹.

Table B.1 presents VAR results¹²⁰. Outcomes of residual tests, which are shown in Table B.2 and Table B.3, display that the results are free from heteroskedasticity and autocorrelation problems respectively.

FEVD and *IRF* are important tools to interpret VAR results. To begin with, *FEVD* demonstrates how much percentage of the forecast error variance of a variable is explained by a particular shock. In other words, *FEVD* is employed to reveal how much a variable explains another variable in the model. In this vein, *FEVD* is the *main tool* for us to interpret VAR results because our main objective is to find out which variables and how much these variables explain Turkish current account balance. The result of *FEVD* is exhibited in Figure 4.3¹²¹.

¹¹⁹ We add a dummy variable into our model due to structural change in Turkish current account balance.

¹²⁰ Since the focus of our study is the effect of certain variables on CAB, only the result of current account balance (CAB) as the dependent variable is shown rather than the whole VAR result.

¹²¹ *FEVD* result is also exhibited in Table B.4.

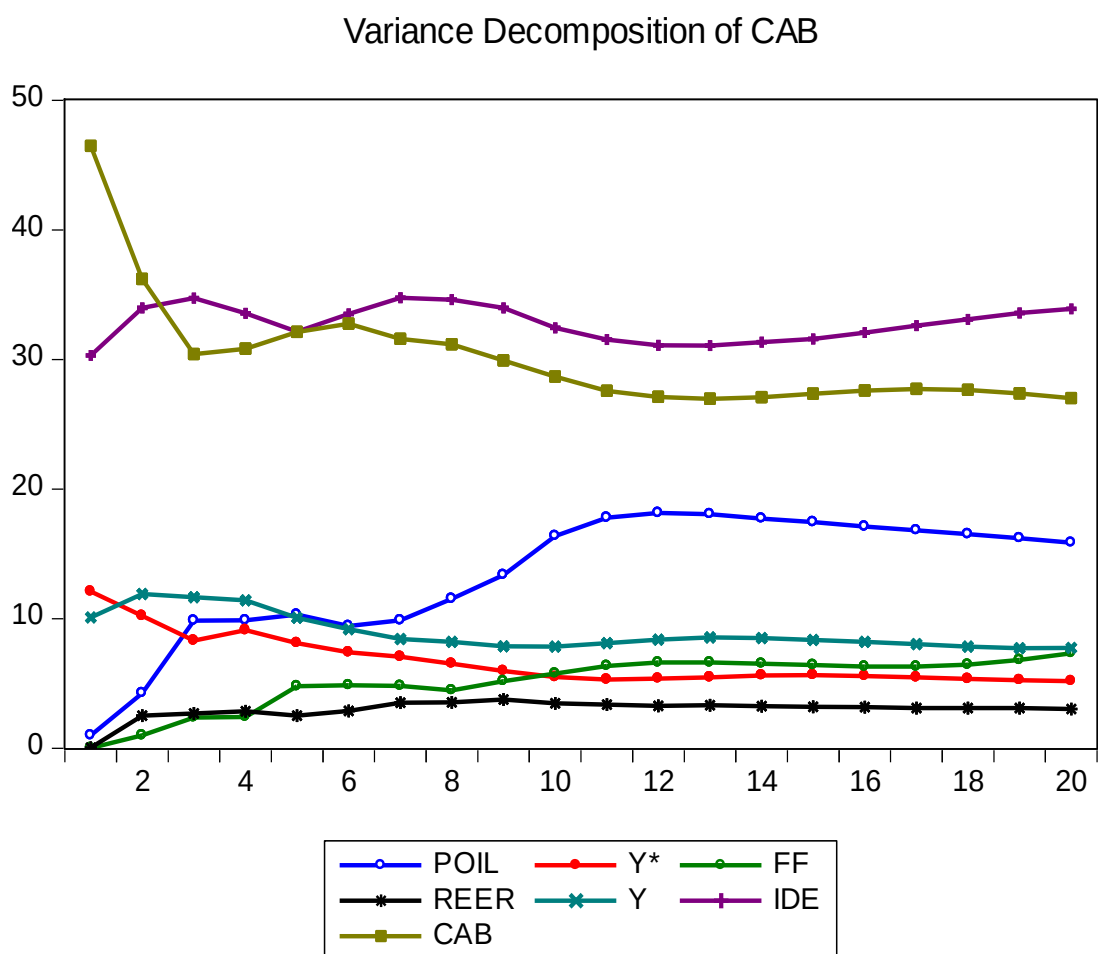


Figure 4.3: Forecast Error Variance Decomposition (FEVD)

Results show that on average IDE explains 32.79% and POIL explains 13.37% of Turkish current account balance at the end of 20 periods, which verifies that Turkish industry is highly dependent on intermediate goods importation to produce export commodities. In other words, Turkey has to import in order to be able to export. Consequently, high contributions of IDE and POIL designate that Turkish industry is incapable of producing key commodities for a sustainable economic activity. Hence, Turkish current account deficit problem is a structural problem that requires serious reforms to solve. In this sense, our result is in line with Onaran (2006), Kara and

Sarıkaya (2013), Gruber and Kamin (2007, 2009), Özlale and Pekkurnaz (2010), and Özata (2014). However, it should be emphasized that explanatory powers of IDE and POIL are very high in our study as compared to other studies in the literature.

In addition, contribution of cyclical factors, which are Y , Y^* , FF , and $REER$, are weaker (approximately 25%) than structural factors. Y shapes approximately 8.90% of Turkish account balance, which shows that domestic demand is the third significant determinant CAB ¹²². Hence, the result is consistent with Milesi-Ferretti and Razin (1998), Aristovnik (2006), Calderon, Chong and Loayza (2002), and Edwards (2004). Y^* explains approximately 6.72% of the balance, which verifies that the effect of domestic income on current account balance is much more than the effect of foreign income, as argued in earlier chapters. FF and $REER$ explain quite minor portion of Turkish current account, 5.06% and 2.98% respectively. Low impact of FF suggests that regardless of the financial openness of Turkish economy, Turkey is a net borrower country.

Low contribution of $REER$ has very important implications. It shows that the argument “the more depreciated the currency of a country is, the more commodity it exports and less commodity it imports”, a.k.a. Marshall Lerner condition, is not a major determinant of international trade in Turkish case. Hence, price competitiveness explains only a small portion of export and import demand as we discussed previously. In this sense, our result is mostly in line with the findings of Rose (2011), Mahmud, Ullah, and Yücel (2004), and Bahmani, Harvey, and Hegerty (2013). In our globalized world, economic agents do not decide solely by looking at

¹²² Here we considered Y as cyclical factor in line with Kara and Sarıkaya (2013). However, one can also consider it as a structural factor if Y is considered as *domestic production* rather than *domestic demand*. As we discussed earlier in Chapter 3 that Turkey’s domestic production requires imports, whose more than 70% of it is intermediate goods. Therefore, very large portion of Turkish imports are used in production. In this vein, high contribution of Y towards explaining Turkish current account balance comes from production side of the economy rather than consumption side. Hence, if Y is considered as a structural factor, then structural factors explain almost 55%, and cyclical factors explain less than 15% of Turkish current account balance. In conclusion, Y can be considered as both cyclical and structural factor.

prices, but also by looking at the brand of the product, the technology of it, and the quality of it, which are structural factors that show the productability of an economy. Therefore, rather than giving all our attention to exchange rate or labor costs, Turkey should focus on creating brands and producing technology which require structural reforms.

Also, on average 30.17% of current account balance (CAB) is explained by its own lag values. Besides, this shows the persistency of current account deficit in Turkey. Again, this result is directly related to industrial production structure of Turkey. In other words, the same production structure of Turkish economy creates current account deficit each and every year. High explanatory power of lag values of CAB shows that it is very hard to change the production structure of a country especially in the short run, which is known as “path dependency”.

Moreover, at the beginning, the explanatory power of CAB is very high; 46.47%. Then, its explanatory power gradually decreases. On the other hand, the explanatory power of POIL is quite low at the beginning; 0.98%. Then, its explanatory power is increasing sharply. Explanatory powers of all other variables remain almost stable over periods.

Furthermore, IRF is utilized to seek the response of one variable to an impulse in another variable (Lütkepohl, 2007, p. 51). IRF presents the effect of one standard deviation shock to the system. Hence, it measures how a variable responds to an exogenous shock or innovation. The result of IRF is displayed in Figure B.1, which shows the response of Turkish CAB to impulses. The most explanatory three variables (POIL, IDE, and Y) plus CAB provide both statistically and logically significant results. Responses of POIL, IDE, and Y remain significant approximately for a year. All three negatively affect current account balance as expected. In addition, CAB remains statistically significant for all 20 periods. The impact response of CAB to its lag values is positive. In other words, previous current account deficits of Turkey worsens current account deficit problem even more.

Furthermore, this also shows the persistency of current account deficit in Turkey. On the other hand, Y^* provides statistically significant but logically insignificant result. It remains statistically significant almost for half a year. It negatively affects current account balance as opposed to what we expected. Moreover, results of FF and REER, which have very small explanatory power anyway, are statistically insignificant.

4.7) Robustness Checks

Five robustness checks are performed in this section. To begin with, a variety of different orderings is carried out to check the robustness of our VAR model. It is found that our model is robust to various different specifications of the ordering of variables under one assumption; POIL and Y^* are the most exogenous variables. Hence, any ordering fulfilling this one single assumption does not change the main findings of the model¹²³.

Second, inclusion of more lags does not change the main findings of our analyses. If maximum lag is restricted to 8 lags, the number of lag is set as 5 according to information provided by Likelihood Ratio (LR) and Final Prediction Error (FPE) test statistics. Contributions of POIL and Y^* slightly increase if the model is run with 5 lags. Nevertheless, there are no major changes in the results.

Third, the model is also run without a dummy variable. Actually, results do not change in a substantial way. FEVD and IRF results are almost as same as the results of the model with the dummy.

¹²³ In fact, the main findings also do not change much without fulfilling these two assumptions. However, contributions of independent variables towards explaining current account balance shrink.

Fourth, we also run our model with desasonalized POIL, Y^* , REER, and Y by X-12 method. Outcomes of FEVD and IRF are practically as same as the outcomes of our original analysis.

Last, we run our model with an alternative method. Rather than deseasonalizing our data with X-12 method, we moving annualized¹²⁴ our data. We achieved to obtain the same results by estimating our model with this method. The results of IRF and FEVD are almost as same as the results that we obtain in our original analysis¹²⁵. Moreover, ZA and chow test show that there is a structural break in Turkish current account balance in 1999Q1 once again¹²⁶. Furthermore, we utilized 2 lags based on the information provided by SC and HQ to show that our results are robust to different lags. For more detail, please see Appendix C, in which calculation of data and estimation results are provided.

4.8) Conclusion

To sum up, we are interested in two main subjects in this chapter; structural break in Turkish current account balance and its determinants. Our findings have significant policy implications. First, we argued that there *might* be a structural break in Turkish current account balance in the late 1990s by looking at time series graph in earlier chapters. We tested our argument by conducting two structural break tests; Zivot-Andrews endogenous structural break test and Chow exogenous structural break test. Both tests show that there is a structural break in Turkish current account balance in 1999Q1. We also discussed possible reasons behind the structural break.

¹²⁴ See Appendix C.

¹²⁵ There are only pretty minor differences.

¹²⁶ Chow test in Appendix C shows structural break in 1999Q1 with 10% significance level.

Second, the effects of *energy prices (POIL)*, *foreign economic growth (Y*)*, *financial flows (FF)*, *exchange rate (REER)*, *domestic economic growth (Y)*, and *import dependent export (IDE)* on *Turkish current account balance (CAB)* is tested with VAR framework. Our results show that IDE is by far the best determinant of CAB (32.79%). In addition to IDE, POIL and Y are the other most influential determinants of Turkish current account balance respectively, which indicates that Turkish industry is highly dependent on intermediate goods importation. Effects of Y*, REER, and FF are found to be weak. Weak effect of REER on current account balance suggests that price competitiveness is not a very significant tool to increase exports and decrease imports. Instead, focusing on technological progress and reputable brand creation, all of which require structural reforms, seem to be more important tools to boost international competitiveness of the country.

To put it another way, we find that Turkish current account balance is mostly explained by structural factors; POIL and IDE (approximately 45%), rather than cyclical factors; Y, Y*, FF, and REER (approximately 25%). Therefore, Turkish economy needs serious structural reforms that will change the production capacity and ability of the economy. Besides, lags of CAB explain 30.17% of CAB, which shows the persistency of Turkish current account deficit. The results are found to be robust.

Two main findings of this chapter have important policy implications. Although it is a fact that globalization created interdependence among national industries all around the world, our analyses show that Turkey's industry is dependent¹²⁷ rather than

¹²⁷ This dependency is different from what Prebisch (1950) and Singer (1950) argued in "Dependency Theory". They argue that dependency stem from international division of labor in trade; poor nations (periphery) provide cheap labor, raw materials, and markets to developed countries (core), thanks to which core enriches itself even more. However, we suggest that Turkey's dependence is not originated from exportation of cheap raw materials, but rather, excessive importation of intermediate goods.

interdependent¹²⁸. In this chapter and the previous one, we showed that this dependence is mainly originated from inability to produce intermediate goods domestically; especially energy. In this sense, Turkey's import dependent industrial production structure should be eradicated by initiating structural reforms which will stimulate the production of key industrial commodities for sustainable economic activity. By doing so, Turkey can eliminate its chronic current account deficit problem.

¹²⁸ In our globalized world, national economies are interdependent upon each other due to universal division of labor. Each country uses the product of another country to produce its own product.

CHAPTER 5

POLICY IMPLICATIONS AND CONCLUDING REMARKS

Turkey has been suffering from large current account deficit since the 1990s. However, this deficit has reached unprecedented levels beginning with the late 1990s and the early 2000s. In this sense, the main objective of the thesis is to reveal the determinants of global current account imbalance and to examine whether or not those determinants explain the Turkish current account balance and a possible structural break in it. Accordingly, we investigate the potential determinants of current account balance in Chapter 2. Afterwards, we analyzed whether or not those potential determinants discussed in second chapter explain large Turkish current account deficit in Chapter 3. We also intuitively discussed a possible structural break in Turkish current account balance in the late 1990s in that chapter. Subsequently, we tested our arguments by utilizing vector autoregression (VAR) model in Chapter 4. We also investigate a potential structural break in Turkish current account balance in the late 1990s by utilizing Zivot-Andrews (ZA) and chow test.

Our main findings are as follows; (i) There is a “*determinant inflation*” in the literature. In other words, there are more than enough determinants in the literature. (ii) Turkish current account deficit is driven by trade deficit which is originated by high levels of intermediate goods importation. (iii) Production of export goods is highly dependent on foreign inputs in Turkey. (iv) Import dependent export (IDE)

explains 32.79%, price of oil (POIL) explains 13.37%, domestic economic growth (Y) explains 8.90%, foreign economic growth (Y*) explains 6.72%, financial openness (FF) explains 5.06%, real effective exchange rate (REER) explains 2.98% of Turkish current account balance (CAB). Besides, 30.17 % of CAB is explained by its own lags. (v) Structural factors (IDE and POIL) explain approximately 45% of CAB; on the other hand, cyclical factors (Y*, FF, REER, Y) explain approximately 25% of CAB. (vi) We are the first to show that there is a structural break in Turkish current account balance in the late 1990s, specifically in 1999Q1.

Our findings have significant policy implications; first, including too many very similar variables, unfortunately, has been the motto in the literature. However, authorities should avoid considering too many variables/determinants which are very close to each other because such an effort would complicate and hide the genuine dynamics behind current account balance. Therefore, proper set of variables should be taken into account to fight against current account imbalance.

Second, authorities should focus on trade structure of Turkey because chronic Turkish current account deficit problem, in fact, is a chronic trade deficit problem. On the other hand, some portion of large Turkish trade deficit is compensated by service sector incomes.

Third, dependency of Turkish industry on foreign imports for production and high contributions of structural factors (IDE and POIL) towards explaining Turkish current account balance show that Turkish current account balance is a structural problem. Therefore, Turkish production structure should be shifted towards less import dependent one. Intermediate goods production should be stimulated and supported by government itself. However, this support should be temporary and should not be turned into outdated inefficient import substitution policies.

Forth, we refute the argument “the more depreciated the currency of a country is, the more commodities it exports”, a.k.a. Marshall Lerner condition for Turkey. Hence,

the low contribution of REER shows that price competitiveness does not explain much about current account in modern world because economic agents do not decide only by looking at price of the product, but also by looking at the brand of the product, the technology of the product, and the quality of the product, which are structural factors that shows the productability and real competitiveness of an economy.

For instance, although there are plentiful tablets in the market with relatively cheaper prices, the vast majority of people are not buying them, but rather they are buying much more expensive tablets such as iPad and Samsung's tablet. In this sense, nobody is buying iPad or Samsung's tablet because of their price advantage, but rather due to their advanced technology and quality. Therefore, producing and exporting high income elasticity and high value added products are the key features of upgrading a country's competitiveness. Aiginger (2001) also believes that high technology goods enable producers to afford higher production costs due to receiving higher revenues; on the other hand, competitiveness in low technology goods can only be done through offering lower prices than others¹²⁹. Hence, Turkey should enhance its competitiveness not by providing "cheap products" but by developing "*dynamic comparative advantage*" in high income elasticity and high value added sector^{130, 131, 132}.

¹²⁹ The impact of such an effort on current account balance and economic development would likely to be limited. Even if lowering prices provides an improvement, this improvement can only be sustained up to a certain level. Yet, low price policy to increase competitiveness may work if government permits very low wages. The most stunning example is Chinese economy which has been growing rapidly. Although this discussion is beyond the scope of the thesis, one should ask "at what cost does Chinese economy grow and give current account surplus?", "If workers work like slaves for many hours for low wages, how is this economic development beneficial?"

¹³⁰ See (Redding, 1997), (Akyüz, 2005, 2013), (Dietz & Cypher, 1998), (Klein, 1973), (Widodo, 2009a, 2009b), (Katz, 1984), (Mody, 1990), (Barnes, Kaplinsky, and Morris, 2006), and (Grossman & Helpman, 1991).

Last, structural break in Turkish current account balance denotes that Turkish current account is now in a different structure as compared to the 1990s. In other words, Turkish current account balance problem has a different meaning; as a result, different solution as compared to the 1990s. Hence, authorities should provide a different perspective on Turkish current account problem. Moreover, although we discussed possible reasons behind structural break in Chapter 4.5, we believe the main reason is that there is a shift in Turkish industrial production from less import dependent sectors towards more import dependent sectors. For instance, the star of the economy is no longer textile sector but automobile sector. What is more, automobile sector is more dependent on foreign inputs than textile sector. Therefore, structural break in Turkish current account also tells us that Turkey's production structure is import dependent. In this sense, as we said before, authorities should focus on structural reforms that will change the production structure of the country.

¹³¹ Dynamic comparative advantage is very different from Ricardo's static comparative advantage which suggests that competitiveness is spontaneously endowed in a nation. Moreover, static comparative advantage is that a country can produce a product cheaper than other country. In other words, a country has comparative advantage if the opportunity cost of producing that good is lower than other country.

¹³² Although there are different approaches on dynamic comparative advantage, it can be basically defined as developed comparative advantage by a country itself in order to shift its competitiveness in international trade.

BIBLIOGRAPHY

Abbas, S. A., Bouhga-Hagbe, J., Fatás, A., Mauro, P., & Velloso, R. C. (2011). Fiscal policy and the current account. *IMF Economic Review*, 59(4), 603-629.

Acaravci, A., & Ozturk, I. (2008). Twin deficits phenomenon: empirical evidence from the ARDL bound test approach for Turkey. *International Journal of Statistics & Economics*TM, 2(A08), 57-64.

Aiginger, K. (2001). *Europe's position in quality competition*. Office for Official Publications of the European Communities.

Akbostanci, E. (2004). Dynamics of the trade balance: the Turkish J-curve. *Emerging Markets Finance and Trade*, 40(5), 57-73.

Akbostanci, E., & Tunç, G. İ. (2001). *Turkish Twin Effects: An Error Correction Model of Trade Balance* (No. 0106). ERC-Economic Research Center, Middle East Technical University.

Akçay, C., & Üçer, M. (2008). A narrative on the Turkish current account. *The Journal of International Trade and Diplomacy*, 2(2), 211-238.

Akyüz, Y. (1993). Financial Liberalization: the Key Issues, *Finance and the Real Economy*, Ed. Yılmaz Akyüz and Günther Held, United Nations University/World Institute for Development Economics Research/Economic Commission for Latin America and the Caribbean/United Nations Conference on Trade and Development, Santiago,.

Akyüz, Y. (2005). *Trade, Growth and Industrialisation: Issues, Experiences and Policy Challenges*. Third World Network.

Akyüz, A. (2013, September). Waving or Drowning: Developing Countries after the Financial Crisis. . *Economic and Political Weekly*, XLVIII(37), 38-48.

Akyüz, Y., Chang, H. J., & Kozul-Wright, R. (1998). New perspectives on East Asian development. *The Journal of Development Studies*, 34(6), 4-36.

Akyüz, Y., & Gore, C. (1996). The investment-profits nexus in East Asian industrialization. *World Development*, 24(3), 461-470.

Al-Awada, M. & Elhiraika, A. (2003). Cultural Effects and Savings: Evidence from Immigrants to the United Arab Emirates, *The Journal of Development Studies*, 39(5), 139-151

Alfirman, L. (2014). Retrieved September 26, 2014 from <http://www.oecd.org/eco/surveys/CAD-Indonesia.pdf>

Amable, B., & Verspagen, B. (1995). The role of technology in market shares dynamics. *Applied Economics*, 27(2), 197-204.

America, O. L. (1950). The economic development of Latin America and its principal problems.

Amsden, A. (1990). Third World Industrialization: 'Global Fordism' or a New Model?. *New Left Review*, 182, 5-31.

Appleyard D., Field A., & Cobb S. (2009). *International Economics International Edition (The McGraw-Hill Series Economics)* (7th ed.). McGraw-Hill/Irwin.

Arize, A. C. (1994). Cointegration test of a long-run relation between the real effective exchange rate and the trade balance. *International Economic Journal*, 8(3), 1-9.

Aristovnik, A. (2006). *The Determinants & Excessiveness of Current Account Deficits in Eastern Europe & the Former Soviet Union* (No. wp827). William Davidson Institute at the University of Michigan.

Aristovnik, A. (2007). Short-and medium-term determinants of current account balances in Middle East and North Africa countries.

Aydın, M. F., Çıplak, U., & Yücel, M. E. (2004). Export supply and import demand models for the Turkish economy. *The Central Bank of the Republic of Turkey Research Department Working Paper*, 4(09).

- Bachman, D. D. (1992). Why is the U.S. current account deficit so large? Evidence from vector autoregressions. *Southern Economic Journal*, 232-240.
- Backus, D., Henriksen, E., Lambert, F., & Telmer, C. (2009). *Current account fact and fiction* (No. w15525). National Bureau of Economic Research.
- Bahmani-Oskooee, M. (1986). Determinants of international trade flows: the case of developing countries. *Journal of Development Economics*, 20(1), 107-123.
- Bahmani-Oskooee, M. (1991). Is there a long-run relation between the trade balance and the real effective exchange rate of LDCs?. *Economics Letters*, 36(4), 403-407.
- Bahmani-Oskooee, M., & Niroomand, F. (1998). Long-run price elasticities and the Marshall–Lerner condition revisited. *Economics Letters*, 61(1), 101-109.
- Bahmani, M., Harvey, H., & Hegerty, S. W. (2013). Empirical tests of the Marshall-Lerner condition: a literature review. *Journal of Economic Studies*, 40(3), 411-443.
- Barnes, J., Kaplinsky, R., & Morris, M. (2004). Industrial policy in developing economies: Developing dynamic comparative advantage in the South African automobile sector. *Competition and Change*, 8(2), 153-172.
- Basu, S. R., & Das, M. (2011). *Export Structure and Economic Performance in Developing Countries: Evidence from Nonparametric Methodology*. UN.

- Bekaert, G., Wei, M., & Xing, Y. (2007). Uncovered interest rate parity and the term structure. *Journal of International Money and Finance*, 26(6), 1038-1069.
- Bennett, H. Z., & Zarnic, Z. (2008). *International competitiveness of the Mediterranean quartet: A heterogeneous-product approach* (Vol. 8). International Monetary Fund.
- Bernanke, B. S. (2005). *The Global Saving Glut and the U.S. Current Account Deficit*. Remarks at the Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia, March 10, 2005.
- Bhagwati, J. (1958). Immiserizing Growth: A Geometrical Note, *Review of Economic Studies* 25, 201-205.
- Blanchard, O. (2007a). Current account deficits in rich countries (No. w12925). National Bureau of Economic Research.
- Blanchard, O. (2007b). Adjustment within the euro. The difficult case of Portugal. *Portuguese Economic Journal*, 6(1), 1-21.
- Blanchard, O., & Giavazzi, F. (2002). Current account deficits in the euro area: the end of the Feldstein-Horioka puzzle?. *Brookings papers on economic activity*, 2002(2), 147-209.

Blanchard, O., Giavazzi, F., & Sa, F. (2005). *The U.S. current account and the dollar* (No. w11137). National Bureau of Economic Research.

Bluedorn, J., & Leigh, D. (2011). Revisiting the twin deficits hypothesis: the effect of fiscal consolidation on the current account. *IMF Economic Review*, 59(4), 582-602.

Boltho, A. (1996). The assessment: international competitiveness. *Oxford review of economic policy*, 1-16.

Booms, W. A. C. (2004). Are Credit Booms In Emerging Market a Concern?. *World Economic Outlook*.

Borio, C. & Disyatat, P. (2011). *Global Imbalances and the Financial Crisis: Link or no Link?*. BIS Working Papers 346, Bank for International Settlements.

Boyd, D., Caporale, G. M., & Smith, R. (2001). Real exchange rate effects on the balance of trade: cointegration and the Marshall–Lerner condition. *International Journal of Finance & Economics*, 6(3), 187-200.

Byrne, J. P., & Perman, R. (2006). Unit roots and structural breaks: a survey of the literature. *Paper provided by Business School-Economics, University of Glasgow in its series Working Papers with*, (2006_10).

Caballero, R. J., Farhi, E., & Gourinchas, P. O. (2006). *An equilibrium model of "global imbalances" and low interest rates* (No. w11996). National Bureau of Economic Research.

Calderon, C. A., Chong, A., & Loayza, N. V. (2002). Determinants of current account deficits in developing countries. *Contributions in Macroeconomics*, 2(1).

Capital. (2008). *Hem İhracat Hem İthalat Şampiyonu!*

Caroll, C. D., Rhee C., and Rhee B. (1994). Are There Cultural Effects on Saving? Some Cross-Sectional Evidence. *The Quarterly Journal of Economics*, Oxford University Press, 109(3), 685-700

Central Bank of Republic of Turkey (CBRT). “*Balance of Payments*” *Methodology*. CBRT Statistics Department Balance of Payments Division.

Central Bank of Republic of Turkey (CBRT). (2014) Note on the Changeover to the 6th Edition of the Balance of Payments and International Investment Position Manual (BPM6) Methodology. CBRT Statistics Department Balance of Payments Division.

Central Bank of Republic of Turkey (CBRT). *Balance of Payments - Yearly Analytic Presentation (1975 – 2013)*.

Central Bank of Republic of Turkey (CBRT). *Balance of Payments - Yearly Detailed Presentation (1984-2013)*.

Chinn, M. D., Eichengreen, B., & Ito, H. (2014). A forensic analysis of global imbalances. *Oxford Economic Papers*, 66(2), 465-490.

- Chinn, M. D., & Ito, H. (2007). Current account balances, financial development and institutions: Assaying the world “saving glut”. *Journal of International Money and Finance*, 26(4), 546-569.
- Chinn, M. D., & Ito, H. (2008). Global Current Account Imbalances: American Fiscal Policy versus East Asian Savings*. *Review of International Economics*, 16(3), 479-498.
- Chinn, M. D., & Prasad, E. S. (2003). Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration. *Journal of International Economics*, 59(1), 47-76.
- Corsetti, G., & Müller, G. J. (2006). Twin deficits: squaring theory, evidence and common sense. *Economic Policy*, 21(48), 597-638.
- Cottarelli, C., Dell’Ariccia, G., & Vladkova-Hollar, I. (2005). Early birds, late risers, and sleeping beauties: Bank credit growth to the private sector in Central and Eastern Europe and in the Balkans. *Journal of banking & Finance*, 29(1), 83-104.
- Crotty, J. & Lee, K. (2002). Is financial liberalization good for developing nations? The case of South Korea in the 1990s. *Review of Radical Political Economics*, 34, 327-334.
- Cypher, J. M., & Dietz, J. L. (1998). Static and dynamic comparative advantage: a multi-period analysis with declining terms of trade. *Journal of Economic Issues*, 305-314.

Dalgin, M. H., & Gupta, K. (2012). How Relevant is Turkey's Current Account Deficit. *International Research Journal of Finance and Economics*, 97, 14-22.

Darvas, Z. (2012). Real effective exchange rates for 178 countries: A new database (No. 2012/06). Bruegel Working Paper.

De Castro, F. (2006). The macroeconomic effects of fiscal policy in Spain. *Applied Economics*, 38(8), 913-924.

Dierx, A., Ilzkovitz, F., Galgau, O., & Leib, K. (2009, May). Trade performance and structural competitiveness developments in the euro area: are member states equipped to meet the globalisation challenges of the 21st century. In *Workshop: The Implications of European Integration, held by the Federal Reserve Bank of St. Louis and the European Union Studies Association*.

Edwards, S. (1995). *Why are saving rates so different across countries?: An international comparative analysis* (No. w5097). National Bureau of Economic Research.

Edwards, S. (2004). Thirty years of current account imbalances, current account reversals and sudden stops (No. w10276). National Bureau of Economic Research.

Ekinci, M. F., Erdem, F. P., & Kilinc, Z. (2014). *Credit Growth, Current Account and Financial Depth* (No. 1421).

Etzkowitz, H., & Brisolla, S. N. (1999). Failure and success: the fate of industrial policy in Latin America and South East Asia. *Research Policy*, 28(4), 337-350.

European Commission (EC). (2008) EMU: Success and Challenges after 10 Years of Economic and Monetary Union, *European Economy*, Brussels.

Evans, K. (2002). *Foreign Portfolio and Direct Investment: Complimentary, Differences, and Integration*. Global Forum on International Investment: Attracting Foreign Direct Investment for Development, OECD Publishing.

Fagerberg, J. (1988). International competitiveness. *The economic journal*, 355-374.

Federal Reserve Bank of St. Louis. (2014). Retrieved December 5, 2014 from <http://research.stlouisfed.org/fred2/series/USD3MTD156N/downloaddata>

Feldstein, M. (1982). *Domestic Saving and International Capital Movements in the Long Run and the Short Run* (No. 0947). National Bureau of Economic Research, Inc.

Feldstein, M. (1998). Refocusing the IMF. *FOREIGN AFFAIRS-NEW YORK*-,77, 20-33

Feldstein, M., & Bacchetta, P. (1991). National saving and international investment. In *National saving and economic performance* (pp. 201-226). University of Chicago press.

- Feldstein, M. & Horioka, C. (1980). Domestic savings and international capital flows. *The Economic Journal*, 90, 314-329.
- Felipe, J., & Kumar, U. (2011). Unit labor costs in the eurozone: the competitiveness debate again. *Levy Economics Institute of Bard College Working Paper*, (651).
- Ferretti, G. M. M., & Razin, A. (2000). Current account reversals and currency crises: empirical regularities. In *Currency crises* (pp. 285-323). University of Chicago Press.
- Findley, D. F., Monsell, B. C., Bell, W. R., Otto, M. C., & Chen, B. C. (1998). New capabilities and methods of the X-12-ARIMA seasonal-adjustment program. *Journal of Business & Economic Statistics*, 16(2), 127-152.
- Fleming, J. M. (1962). *Domestic Financial Policies Under Fixed and Under Floating Exchange Rates*. Staff Papers, (9), 369-379, (Washington D.C.: International Monetary Fund)
- Flood, R. P. (2001). *IMF Annual Research Conference*. International Monetary Fund Staff Papers, 47, Special Issue, Epub.
- Frankel, J. A., & Roseb, A. K. (1996). Currency crashes in emerging markets: An empirical treatment. *Journal of International Economics*, 41, 351-366.
- Froot, K. A. (2008). *Foreign Direct Investment*. The National Bureau of Economic Research (NBER) Project Report, University of Chicago Press.

Gallagher, K. (2011). *Regaining Control? Capital Controls and the Global Financial Crisis*. Political Economy Research Institute, UMASS, Gordon Hall.

Gallagher, K. & Ocampo, J. A. (2013, March). IMF's New View on Capital Controls. *Economic and Political Weekly*, XLVIII (12), 10-13.

Garelli, S. (2014). Competitiveness of nations: the fundamentals. IMD World Competitiveness Yearbook 2014.

Garon, S. (2012), Why the Chinese save?, *Foreign policy*

Gereffi, G., & Korzeniewicz, M. (Eds.). (1994). *Commodity chains and global capitalism* (No. 149). ABC-CLIO.

Glick, R., & Rogoff, K. (1995). Global versus country-specific productivity shocks and the current account. *Journal of Monetary economics*, 35(1), 159-192.

Gourinchas, P. O., Valdes, R., & Landerretche, O. (2001). *Lending booms: Latin America and the world* (No. w8249). National Bureau of Economic Research.

Ghosh, A., & Ramakrishnan, U. (2012). Retrieved September 22, 2014 from <http://www.imf.org/external/pubs/ft/fandd/basics/current.htm>

Grabel, I. (2003). "International Private Capital Flows and Developing Countries" in H.-J. Chang (ed.) *Rethinking Development Economics*, London:Anthem.

Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: Journal of the Econometric Society*, 424-438.

Greene, W. H. (2003). *Econometric analysis*. Pearson Education India.

Grossman, G. M., & Helpman, E. (1991). *Comparative advantage and long-run growth*.

Gruber, J. W., & Kamin, S. B. (2007). Explaining the global pattern of current account imbalances. *Journal of International Money and Finance*, 26(4), 500-522.

Gruber, J., & Kamin, S. (2009). Do differences in financial development explain the global pattern of current account imbalances?. *Review of International Economics*, 17(4), 667-688.

Gujarati, D. N. (2003). *Basic Econometrics* Fourth Edition McGraw Hill Gujarati, DN,(2003). *Basic Econometrics*.

Gülcan, Y., & Önel, G. (2008). The Sustainability of Turkish Current Account Deficit with Structural Breaks. *Review of Social, Economic & Business Studies*.

Hall, B. H., Mairesse, J., & Mohnen, P. (2009). *Measuring the Returns to R&D*(No. w15622). National Bureau of Economic Research.

Harbaugh, R. (2004). China's High Savings Rates The Rise of China Revisited: Perception and Reality.

Higgins, M. (1997). Demography, National Savings and International Capital Flows. *FRB of New York Staff Report*, (34).

Higgins, M. & Klitgaard, T. (1998). Viewing the Current Account Deficit as a Capital Inflow. *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, 4 (13).

Himarios, D. (1989). Do devaluations improve the trade balance? The evidence revisited. *Economic inquiry*, 27(1), 143-168.

Honeck, D. (2012). LDC Export Diversification, Employment Generation and the "Green Economy": What roles for tourism linkages?'. WTO Staff Working Paper ERSD-2012-24.

Hume, M., & Sentance, A. (2009). The global credit boom: Challenges for macroeconomics and policy. *Journal of International Money and Finance*, 28(8), 1426-1461.

Insel, A., & Kayikci, F. (2012). Evaluation of sustainability of current account deficits in Turkey. *Modern Economy*, 3(1), 43.

Insel, A., & Kayıkçı, F. (2013). Determinants of the Current Account Balance in Turkey: an ARDL Approach. *Ekonomika istraživanja*, 26(1), 1-16.

International Monetary Fund (IMF). (1993). *Balance of Payments Manual* (5th ed.). International Monetary Fund.

International Monetary Fund (IMF) (2003), “Current Account Sustainability in the Baltic Countries”, Republic of Estonia: Selected Issues and Statistical Appendix, IMF Country Report No. 03/331

International Monetary Fund (IMF). (2009). Retrived June 26, 2014 from <http://www.imf.org/external/np/sec/pr/2009/pr09375.htm>

International Monetary Fund (IMF). (2009). Retrived September 26, 2014 from <https://www.imf.org/external/np/res/dfidimf/topic5.htm>

International Monetary Fund (IMF). (2010). *Balance of Payments and International Investment Position Manual* (6th ed.). International Monetary Fund.

International Monetary Fund (IMF). (2011). *IMF Develops Framework to Manage Capital Inflows*. IMF survey online. Retrieved June 22, 2014 from <http://www.imf.org/external/pubs/ft/survey/so/2011/NEW040511B.htm>

International Monetary Fund (IMF). (2014). *Gross National Savings*. Retrieved August 22, 2014 from http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/weoselser.aspx?c=186&t=1#s.SD_NGDP

International Monetary Fund (IMF). (2014). Retrieved August 22, 2014 from goo.gl/xBTJgw

International Monetary Fund (IMF). (2014). Retrieved October 18, 2014 from goo.gl/wc2pmj

International Monetary Fund (IMF). (2014). Retrieved December 22, 2014 from <http://goo.gl/iaFXbQ>

International Monetary Fund (IMF). (2014). Retrieved December 22, 2014 from <http://goo.gl/A7fBOj>

Jamilov, R. (2013). J-curve dynamics and the Marshall–Lerner condition: evidence from Azerbaijan. *Transition Studies Review*, 19(3), 313-323.

Johansen, S. (1995). Likelihood-based inference in cointegrated vector autoregressive models. *OUP Catalogue*.

Jones, C. I. (2011). Intermediate goods and weak links in the theory of economic development. *American Economic Journal: Macroeconomics*, 1-28.

Kaldor, N. (1978). The effect of devaluations on trade in manufactures. *Further essays on applied economics*, 99-118.

Kaplinsky, R. (2000). Globalisation and unequalisation: What can be learned from value chain analysis? *Journal of Development Studies*, 37 (2).

Kara, A. H., & Sarikaya, C. (2013). Cyclically adjusted current account balance in Turkey. *İktisat İşletme ve Finans*, 28(332), 9-31.

Kargupta, H. (Ed.). (2005). *Proceedings of the Fifth SIAM International Conference on Data Mining* (Vol. 119). SIAM.

Katz, J. M. (1984). Domestic technological innovations and dynamic comparative advantage: Further reflections on a comparative case-study program. *Journal of Development Economics*, 16(1), 13-37.

Kaufman, B. (2013). The optimal level of market competition: neoclassical and new institutional conclusions critiqued and reformulated. *Journal of Economic Issues*, 47(3), 639-672.

Keyder, Ç. (1992). İstanbul'u nasıl satmalı. *İstanbul Dergisi*, 3, 81-5.

Kilian, L., Rebucci, A., & Spatafora, N. (2009). Oil shocks and external balances. *Journal of International Economics*, 77(2), 181-194.

- Kim, S., & Roubini, N. (2008). Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the U.S. *Journal of International Economics*, 74(2), 362-383.
- Klein, R. W. (1973). A dynamic theory of comparative advantage. *The American Economic Review*, 173-184.
- Köhler, G. (1998). The Structure of Global Money and World Tables of Unequal Exchange. *Journal of World Systems Research*, 4 (2).
- Kreinin, M. E. (2005). *International Economics: a Policy Approach International Edition* 10th ed.). South-Western Pub.
- Krueger, A. O. (1974). The political economy of the rent-seeking society. *The American economic review*, 291-303.
- Lauro, B., & Schmitz, M. (2012). Euro Area Exchange Rate-based Competitiveness Indicators: a Comparison of Methodologies and Empirical Results. *BIS IFC Bulletin*, (36).
- Leachman, L. L., & Francis, B. (2002). Twin deficits: apparition or reality?. *Applied Economics*, 34(9), 1121-1132.
- Litterman, R. B. (1986). Forecasting with Bayesian Vector Autoregressions—Five Years of Experience. *Journal of Business & Economic Statistics*, 4(1), 25-38.

Lothian, J. R., & Wu, L. (2011). Uncovered interest-rate parity over the past two centuries. *Journal of International Money and Finance*, 30(3), 448-473.

Luetkepohl, H. (2011). *Vector Autoregressive Models*. EUI Working Papers

Lütkepohl, H. (2007). *New introduction to multiple time series analysis*. Springer Science & Business Media.

Mahmud, S. F., Ullah, A., & Yucel, E. M. (2004). Testing Marshall-Lerner condition: a non-parametric approach. *Applied Economics Letters*, 11(4), 231-236.

Mann, C. L. (2002). *Perspectives on the U.S. Current Account Deficit and Sustainability*. *Journal of Economic Issues*, 16(3), 131-152.

Marinheiro, C. F. (2008). Ricardian equivalence, twin deficits, and the Feldstein–Horioka puzzle in Egypt. *Journal of Policy Modeling*, 30(6), 1041-1056.

McAndrews, J., Sarkar, A., & Wang, Z. (2008). The effect of the term auction facility on the london inter-bank offered rate. *FRB of New York Staff Report*, (335).

McCombie, J. S., Thirlwall, A. P., & Thompson, P. (1994). *Economic growth and the balance-of-payments constraint*. New York: St. Martin's press.

- McDermott, C. J., & Cashin, P. (1996). *Are Australia's Current Account Deficits Excessive?*. International Monetary Fund.
- McKinnon, R. I. (1973). *Money and Capital in Economic Development*. Washington D.C.: Brookings Institute.
- Mendoza, E. G., & Terrones, M. E. (2008). *An anatomy of credit booms: evidence from macro aggregates and micro data* (No. w14049). National Bureau of Economic Research.
- Mendoza, E. G., Quadrini, V., & Rios-Rull, J. V. (2007). *Financial integration, financial deepness and global imbalances* (No. w12909). National Bureau of Economic Research.
- Miller, N. C. (2002). *Balance of payments and exchange rate theories*. Edward Elgar Publishing.
- Milesi-Ferretti, G., & Razin, A. (1998). Sharp reductions in current account deficits an empirical analysis. *European Economic Review*, 42(3), 897-908.
- Milesi-Ferretti, G. M. M., & Razin, A. (2000). Current account reversals and currency crises: empirical regularities. In *Currency crises* (pp. 285-323). University of Chicago Press
- Mody, A. (1990). Institutions and dynamic comparative advantage: the electronics industry in South Korea and Taiwan. *Cambridge Journal of Economics*, 291-314.

- Morsy, H. (2009). *Current Account Determinants for Oil-Exporting Countries (EPub)* (No. 9-28). International Monetary Fund.
- Mundell, R. A. (1963). Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates. *Canadian Journal of Economics and Political Science*, 29, 303-324.
- Muradian, R. & Martinez-Alier J. (2001). Trade and the Environment: from a Southern perspective *Ecological Economics*, 36, 281-297.
- Nayyar, D. (2003). "Globalisation and Development" in H.-J. Chang (ed.) *Rethinking Development Economics*, London: Anthem
- Neary, J. P. (2006). Measuring competitiveness. *Economic and Social review*, 37(2), 197.
- Nicita, A., Ognivtsev, V., & Shirotori, M. (2013). Global Supply Chanis: Trade and Economic Policies for Developing Countries. United Nations Conference on Trade and Development.
- Nicita, A., Shirotori, M., & Klok, B. T. (2013). *Survival Analysis Of The Exports Of Least Developed Countries: The Role Of Comparative Advantage* (No. 54). United Nations Conference on Trade and Development.
- Normandin, M. (1999). Budget deficit persistence and the twin deficits hypothesis. *Journal of International Economics*, 49(1), 171-193.

Nouriel, R. & Brad S. (2004). *The U.S. as a Net Debtor: The Sustainability of the U.S. External Imbalances*.

Obstfeld, M., & Rogoff, K. (1996). *The intertemporal approach to the current account* (No. w4893). National Bureau of Economic Research.

Obstfeld, M., & Rogoff, K. S. (2005). Global current account imbalances and exchange rate adjustments. *Brookings papers on economic activity*, 2005(1), 67-146.

Obstfeld, M., & Rogoff, K. (2009). *Global imbalances and the financial crisis: products of common causes*.

OECD. (2014). Retrieved June 25, 2014 from <http://stats.oecd.org/Index.aspx?querytype=view&queryname=209#>

OECD. (2014). Retrieved June 21, 2014 from <http://stats.oecd.org/index.aspx?queryid=167#>

OECD. (2014). Retrieved June 25, 2014 from <http://stats.oecd.org/index.aspx?queryid=167#>

Onafowora, O. (2003). Exchange rate and trade balance in East Asia: is there a J-curve. *Economics bulletin*, 5(18), 1-13.

Onaran, Ö. (2006). Speculation-led growth and fragility in Turkey: Does EU make a difference or "can it happen again"?.

Ostry, J. D., Ghosh, A. R., Chamon, M., & Qureshi, M. S. (2012a). Tools for Managing Financial-Stability Risks from Capital Inflows. *Journal of International Economics*, 88(2), 407-421.

Ostry, J. D., Ghosh, A. R., Habermeier, K., Chamon, M., Qureshi, M. S., & Reinhardt, D. B. S. (2010). *Capital Inflows: The Role of Controls*. Staff Position Note 10/04. International Monetary Fund.

Ostry, J. D., Ghosh, A. R., Habermeier, K., Laeven, L., Chamon, M., Qureshi, M. S., & Kokenyne, A. (2011). *Managing Capital Inflows: What Tools to Use?*

Özlale, Ü., & Pekkurnaz, D. (2010). Oil prices and current account: A structural analysis for the Turkish economy. *Energy Policy*, 38(8), 4489-4496.

Özata, E. (2014). Sustainability of current account deficit with high oil prices: Evidence from Turkey. *International Journal of Economic Sciences*, 2014(2), 71-88.

Özer, M. (2004). *Türkiye Ekonomisi*. Anadolu Üniversitesi.

Özmen, E. (2004). Current Account Deficits, Macroeconomic Policy Stance and Governance: An Empirical Investigation. *METU-ERC Working Papers in Economics*, 4, 14.

Prebisch, R. (1950). The economic development of Latin America and its principal problems.

Redding, S. (1999). Dynamic Comparative Advantage and the Welfare Effects of Trade, *Oxford Economic Papers*, Oxford University Press, 51(1), 15-39.

Reisen, H. (1998). Sustainable and excessive current account deficits. *Empirica*, 25(2), 111-131.

Reis Gomes, F. A., & Senne Paz, L. (2005). Can real exchange rate devaluation improve the trade balance? The 1990–1998 Brazilian case. *Applied Economics Letters*, 12(9), 525-528.

Ricardo, D. (1821). *On the Principles of Political Economy and Taxation*, Library of Economics and Liberty.

Rodrik, D. (1995). Getting Interventions Right: How South Korea and Taiwan Grew Rich. NBER Working Paper. *Economic Policy*, (20), 55-107.

Rose, A. K. (1991). The role of exchange rates in a popular model of international trade: Does the ‘Marshall–Lerner’ condition hold?. *Journal of international economics*, 30(3), 301-316.

Roubini, N., & Setser, B. (2004). The U.S. as a net debtor: the sustainability of the U.S. external imbalances. *New York: New York University. Photocopy (September)*.

Sachs, J. D. (1981). The Current Account and macroeconomic Adjustment in the 1970s. *Brookings Papers on Economic Activity*, 12(1), 201-282.

Sachs, J. D. (1982). Aspects of the current account behavior of OECD economies.

Sachs, J. (1982). The current account in the macroeconomic adjustment process. *The Scandinavian Journal of Economics*, 147-159.

Sala-i-Martin, X., Bilbao-Osorio, B., Blanke, J., Hanouz, M. D., Geiger, T., & KO, C. (2013). The Global Competitiveness Index 2013–2014: Sustaining Growth, Building Resilience. *Global Competitiveness Report 2013-2014*.

Sannassee, R. V., Seetanah, B., & Lamport, M. J. (2014). Export diversification and economic growth: the case of Mauritius. *to global markets*, 11.

Sapienza, A., Zingales, L., and Guiso. (2006). Does Culture Affect Economic Outcomes?. *Journal of Economic Perspectives*, American Economic Association, 20(2), 23-48.

Saygılı, Ş., Cihan, C., Yalçın, C., & Hamsici, T. (2010). Türkiye İmalat Sanayiinin İthalat Yapısı. *Central Bank of Republic of Turkey Working Paper No. 10*, 2.

Schwab, K. (2014). The Global Competitiveness Index 2014–2015: Sustaining Growth, Building Resilience. *Global Competitiveness Report 2014-2015*.

- Schwab, K., & Porter, M. (2008). The global competitiveness report 2008–2009. World Economic Forum.
- Shaw, E. S. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Shirvani, H., & Wilbratte, B. (1997). The relationship between the real exchange rate and the trade balance: an empirical reassessment. *International economic journal*, 11(1), 39-50.
- Shoham, A. & Malul, M. (2012). The role of cultural attributes in savings rates. *Cross Cultural Management: An International Journal*, 19(3), 304 – 314
- Sims, C. A. (1980). Macroeconomics and reality. *Econometrica: Journal of the Econometric Society*, 1-48.
- Singer, H. W. (1950). The distribution of gains between investing and borrowing countries. *The American Economic Review*, 473-485.
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. Edwin Cannan, ed. 1904 . Library of Economics and Liberty.
- Stock, J. H., & Watson, M. W. (2001). Vector autoregressions. *Journal of Economic perspectives*, 101-115.

Tesar, L. L. (1991). Savings, investment and international capital flows. *Journal of International economics*, 31(1), 55-78.

The Economist. (2002, April). America's current-account deficit: The O'Neill doctrine. *The Economist*.

The Economist. (2013, October). Capital: Just in Case. *The Economist* .

The European Parliament and the Council of the European Union. (2005). *Regulation (EC) No 184/2005 of the European Parliament and of the Council of 12 January 2005 on Community statistics concerning balance of payments, international trade in services and foreign direct investment*. Official Journal of European Union

Turkish Exporters Assembly (TİM). (2013). *Top 1000 Exporter companies of Turkey*.

Turkish Statistical Institute (TurkStat) (2013). *Foreign Trade by Years*. Retrieved June 5, 2014, from http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=621

Turkish Statistical Institute (TurkStat) (2014). Retrieved October 20, 2014 from http://www.tuik.gov.tr/PreTablo.do?alt_id=1046

Valenzuela, J. S. and Valenzuela, A. (1979). "Modernization and Dependence: Alternative Perspectives in the Study of Latin American Underdevelopment" in *Transnational Capitalism and National Development: New Perspectives on Dependence*, Ed. José Villamil, Sussex: The Harvester Press.

Van den Berg, H. (2010). *International Finance and Open-economy Macroeconomics: Theory, History, and Policy*. World Scientific Publishing Company.

Wachtel, P. (1998). *Current account balances and external debt in transition economies: lessons for Central Asia*. New York University, Leonard N. Stern School of Business.

Waheed, M., Alam, T., & Ghauri, S. P. (2006). Structural breaks and unit root: evidence from Pakistani macroeconomic time series. *Available at SSRN 963958*.

Westphal, L. E. (1990). Industrial policy in an export propelled economy: lessons from South Korea's experience. *The Journal of Economic Perspectives*, 41-59.

Widodo, T. (2009). Comparative advantage: Theory, empirical measures and case studies. *Review of Economic and Business Studies (REBS)*, (4), 57-82.

Widodo, T. (2009). Dynamic comparative advantages in the ASEAN+ 3. *Journal of Economic Integration*, 24(3), 505-529.

World Bank. (2000). *The World Bank economic review*, 14(3)

World Bank. (2014). Retrieved June 21, 2014 from <http://databank.worldbank.org/data/download/GDP.pdf>

World Bank. (2014). Retrieved June 21, 2014 from
<http://databank.worldbank.org/data/views/reports/tableview.aspx?isshared=true#>

World Bank. (2014). Retrieved June 25, 2014 from
<http://data.worldbank.org/indicator/NY.GNS.ICTR.ZS/countries?page=2&=default>

World Bank. (2014). Retrieved July 19, 2014 from
http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?order=wbapi_data_value_2010+wbapi_data_value&sort=desc

World Bank. (2014). Retrieved September 21, 2014 from
<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTGLOBALFINREPORT/0,,contentMDK:23268788~pagePK:64168182~piPK:64168060~theSitePK:8816097,00.html>

World Bank. (2014). Retrieved October 13, 2014 from
<http://data.worldbank.org/indicator/FM.AST.NFRG.CN>

World Bank. (2014). Retrieved October 14, 2014 from
<http://data.worldbank.org/indicator/NY.GDP.MKTP.CN>

World Bank. (2014). Retrieved October 17, 2014 from
<http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>

World Bank. (2014). Retrieved October 22, 2014 from <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?display=default>

World Bank. (2014). Retrieved December 14, 2014 from <http://wits.worldbank.org/CountryProfile/Country/TUR/Year/2013/Summary#>

World Bank. (2014). Retrieved December 20, 2014 from <http://wits.worldbank.org/CountryProfile/Country/WLD/Year/2013/Summary>

World Bank. (2014). Retrieved December 21, 2014 from <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>

World Bank. (2014). Retrieved December 21, 2014 from <http://data.worldbank.org/indicator/NV.IND.TOTL.ZS?page=1>

World Bank. (2014). Retrieved December 21, 2014 from <http://data.worldbank.org/indicator/NV.SRV.TETC.ZS?page=1>

World Economic Forum. (2012). The global competitiveness report 2012-2013.

World Energy Council Turkish National Committee. (2014). Retrieved October 16, 2014 from <http://www.dektmk.org.tr/incele.php?id=MTAw>

World Tourism Organization (2013), UNWTO Annual Report 2013, UNWTO, Madrid

X-rates. Retrieved July 22, 2014 from <http://www.x-rates.com/calculator/?from=SGD>

Xiangqian, L., & Guoqiang, D. (2005). The Influence of Fluctuation of Real RMB Exchange Rate to Chinese Import and Export: 1994—2003. *Economic Research Journal*, 5, 003.

Zaouali, S. (2007). Impact of higher oil prices on the Chinese economy. *Opec Review*, 31(3), 191-214.

Zemanek, H., Belke, A., & Schnabl, G. (2010). Current account balances and structural adjustment in the euro area. *International Economics and Economic Policy*, 7(1), 83-127.

Zhang, W. (2011). *How Confucianism Influences Patterns of Middle Class Consumption in China*, Paper presented at the annual meeting of the American Sociological Association Annual Meeting, Caesar's Palace, Las Vegas.

Zivot, E., & Andrews, D. W. (1992). Further Evidence on the Great Crash, the Oil-Price Shock, and the Unit-Root. *Journal of Business & Economic Statistics*, 10(3).

APPENDICES

APPENDIX A

BALANCE OF PAYMENTS RECORDING

A.I) Balance of Payments Statistics

In this appendix, we will briefly examine balance of payments recording. Accordingly, we will also investigate Turkey's balance of payments position. Balance of payments recording requires attention to better comprehend the discussions made throughout the thesis, as well as, Turkey's balance of payments position.

Balance of payments¹³³ is a detailed statistical summary that records all economic transactions of goods, service, income, and transfers between residents of a country and the rest of the world (non-residents), as well as, liabilities and assets created by those in a certain period of time, generally a year. In addition, there are also other definitions that should be considered too.

¹³³ Moreover, one may also call balance of payments as "International Transactions Statement" (Kreinin, 2005, p. 183).

Balance of payments can also be defined as maintenance of orderly record of all economic transactions between the home country and the rest of the world for a particular period of time, in general a year (Appleyard, Field, and Cobb, 2009, pp. 454-455). Similarly, according to the IMF's *Balance of Payments and International Investment Positional Manual (BPM6)* published in 2010 and updated in November 2013, the balance of payments as a statistical report summarizes operations between residents and nonresidents through a period (IMF, 2009, p. 9).

How to record balance of payments is explained in the IMF's Balance of Payments Manuals in every detail. It was first published in 1948 (IMF, 1993, p. ix). The aim of the IMF was to establish a theoretical worldwide guideline for balance of payments statics (p. 3). Then the second edition was published in 1948, third edition in 1950, fourth edition in 1977, the fifth edition in 1993, and the last sixth edition in 2010. Although the sixth edition (BPM6) is the most up-to-date edition of the manual, it has just been fully implemented. In this sense, all analysis, descriptions, and categorizations presented throughout the thesis will be based on the fifth edition of the manual (BPM5)¹³⁴. Yet, OECD claims that most of the OECD countries will have switched from BPM5 to BPM6 by the end of 2014 (2013, p. 90).

According to BPM5, there are two main categories under balance of payments which are *current account* and *capital and financial account*. However, balance of payments can be divided into five major groups; *current account*, *capital account*, *financial account*, *net errors and omissions*, and *reserve assets*.

¹³⁴ Central Bank of Republic of Turkey (CBRT) has been publishing balance of payments statistics in accordance with BPM6 since September 2014 balance of payments statistics. Nevertheless, BPM5 presentation of balance of payments statistics is available up until March 2015 (CBRT, 2014).

Table A.1: Balance of Payments of Turkey in Years

Million Dollars, Years	1990	2000	2005	2012	2013
A- Current Account	-2 625	-9 920	-21 449	-48 497	-65 025
1 Exports	12 959	30 825	78 365	163 221	163 374
2 Imports	-22 407	-52 882	-111 445	-228 552	-243 305
Balance on Goods	-9 448	-22 057	-33 080	-65 331	-79 931
3 Services: Credit	8 083	19 463	27 958	43 089	46 444
4 Services: Debit	-3 117	-8 088	-11 942	-20 527	-23 389
Balance on Goods and Services	-4 482	-10 682	-17 064	-42 769	-56 876
5 Income: Credit	917	2 836	3 644	5 034	4 523
6 Income: Debit	-3 425	-6 838	-9 483	-12 195	-13 872
Balance on Goods, Services, and Income	-6 990	-14 684	-22 903	-49 930	-66 225
7 Current Transfers	4 365	4 764	1 454	1 433	1 200
B- Capital Account				-52	-92
C- Financial Account	4 037	9 584	42 685	70 311	72 734
8 Direct Investment Abroad	16	-870	-1 064	-4 074	-3 114
9 Direct Investment in Turkey	684	982	10 031	13 224	12 865
10 Portfolio Investment Assets	-134	-593	-1 233	2 657	2 619
11 Portfolio Investment Liabilities	681	1 615	14 670	38 132	21 090
12 Other Investment Assets	-409	-1 939	-553	-707	1 836
13 Other Investment Liabilities	3 199	10 389	20 834	21 079	37 438
D- Net Errors and Omissions	-468	-2 661	1 964	1 059	3 146
E- Reserve Assets	-944	2 997	-23 200	-22 821	-10 763

Source: CBRT data

Table A.2: Composition of Goods and Services of Turkey in Years

Million Dollars, Years	1990	2000	2005	2012	2013
A- Goods	-9 448	-22 057	-33 080	-65 331	-80 016
Exports	12 959	30 825	78 365	163 221	163 365
Imports	-22 407	-52 882	-111 445	-228 552	-243 381
1 General Merchandise	-7 916	-20 157	-29 213	-70 896	-67 961
Exports	12 959	30 825	77 840	148 428	158 419
Imports	-20 875	-50 982	-107 053	-219 324	-226 380
2 Others	-1 532	-1 900	-3 867	5 565	-12 055
Exports	0	0	525	14 793	4 946
Imports	-1 532	-1 900	-4 392	-9 228	-17 001
B- Services	4 966	11 375	16 016	22 562	23 124
Credit	8 083	19 463	27 958	43 089	46 648
Debit	-3 117	-8 088	-11 942	-20 527	-23 524
1 Transportation	20	492	-25	3 611	3 296
Credit	920	2 955	5 076	12 467	13 137
Debit	-900	-2 463	-5 101	-8 856	-9 841
2 Travel	2 705	5 923	16 087	21 251	23 180
Credit	3 225	7 636	19 191	25 345	27 997
Debit	-520	-1 713	-3 104	-4 094	-4 817
3 Others	2 241	4 960	-46	-2 300	-3 352
Credit	3 938	8 872	3 691	5 277	5 514
Debit	-1 697	-3 912	-3 737	-7 577	-8 866

Source: CBRT data

Table A.3: The Share of Trade in Current Account of Turkey

Years	Total Current Account in a Year	Total trade	Share of Trade in Current Account (%)
2013	496 107	476 513	96.05%
2012	474 051	455 389	96.06%
2011	454 630	437 113	96.147%
2010	371 782	354 091	95.24%

Source: CBRT data

APPENDIX B

TABLES AND FIGURES REGARDING ECONOMETRIC ANALYSIS

Table B.1: Vector Autoregression (VAR) Model Estimation Output

Vector Autoregression Estimates
Sample (adjusted): 1992Q4 2014Q4
Included observations: 89 after adjustments
Standard errors in () & t-statistics in []

	CAB			CAB
POIL(-1)	-0.016		REER(-4)	0.031
	(-0.009)			(-0.023)
	[-1.774]			[1.368]
POIL(-2)	0.001		Y(-1)	-0.039
	(-0.011)			(-0.081)
	[0.010]			[-0.482]
POIL(-3)	0.016		Y(-2)	0.066
	(-0.011)			(-0.078)
	[1.460]			[0.852]
POIL(-4)	-0.003		Y(-3)	-0.042
	(-0.008)			(-0.070)
	[-0.389]			[-0.599]
Y*(-1)	0.302		Y(-4)	-0.075
	(-0.450)			(-0.054)
	[0.671]			[-1.372]
Y*(-2)	-0.150		IDE(-1)	-0.049
	(-0.782)			(-0.034)
	[-0.192]			[-1.459]
Y*(-3)	-0.599		IDE(-2)	0.005
	(-0.732)			(-0.035)
	[-0.819]			[0.154]
Y*(-4)	0.678		IDE(-3)	0.075
	(-0.393)			(-0.037)
	[1.726]			[2.053]
FF(-1)	0.077		IDE(-4)	0.041
	(-0.055)			(-0.039)
	[1.421]			[1.057]
FF(-2)	0.002		CAB(-1)	0.442
	(-0.058)			(-0.184)
	[0.028]			[2.396]

Table B.1 (Continued)

	CAB			CAB
FF(-3)	-0.143		CAB(-2)	0.063
	(-0.059)			(-0.174)
	[-2.418]			[0.363]
FF(-4)	0.070		CAB(-3)	0.238
	(-0.065)			(-0.182)
	[1.073]			[1.205]
REER(-1)	-0.030		CAB(-4)	0.206
	(-0.021)			(-0.171)
	[-1.425]			[1.221]
REER(-2)	0.008		C	-8.591
	(-0.022)			(-3.588)
	[0.371]			[-2.395]
REER(-3)	-0.024		Dummy	0.007
	(-0.024)			(-0.788)
	[-1.003]			[0.008]
R-squared		0.877		
Adj. R-squared		0.815		
Sum sq. resids		117.006		
S.E. equation		1.420		
F-statistic		14.230		
Log likelihood		-137.402		
Akaike AIC		3.805		
Schwarz SC		4.649		
Mean dependent		-3.322		
S.D. dependent		3.304		
Determinant resid covariance (dof adj.)		11987457.000		
Determinant resid covariance		647655.900		
Log likelihood		-1462.835		
Akaike information criterion		38.019		
Schwarz criterion		43.931		

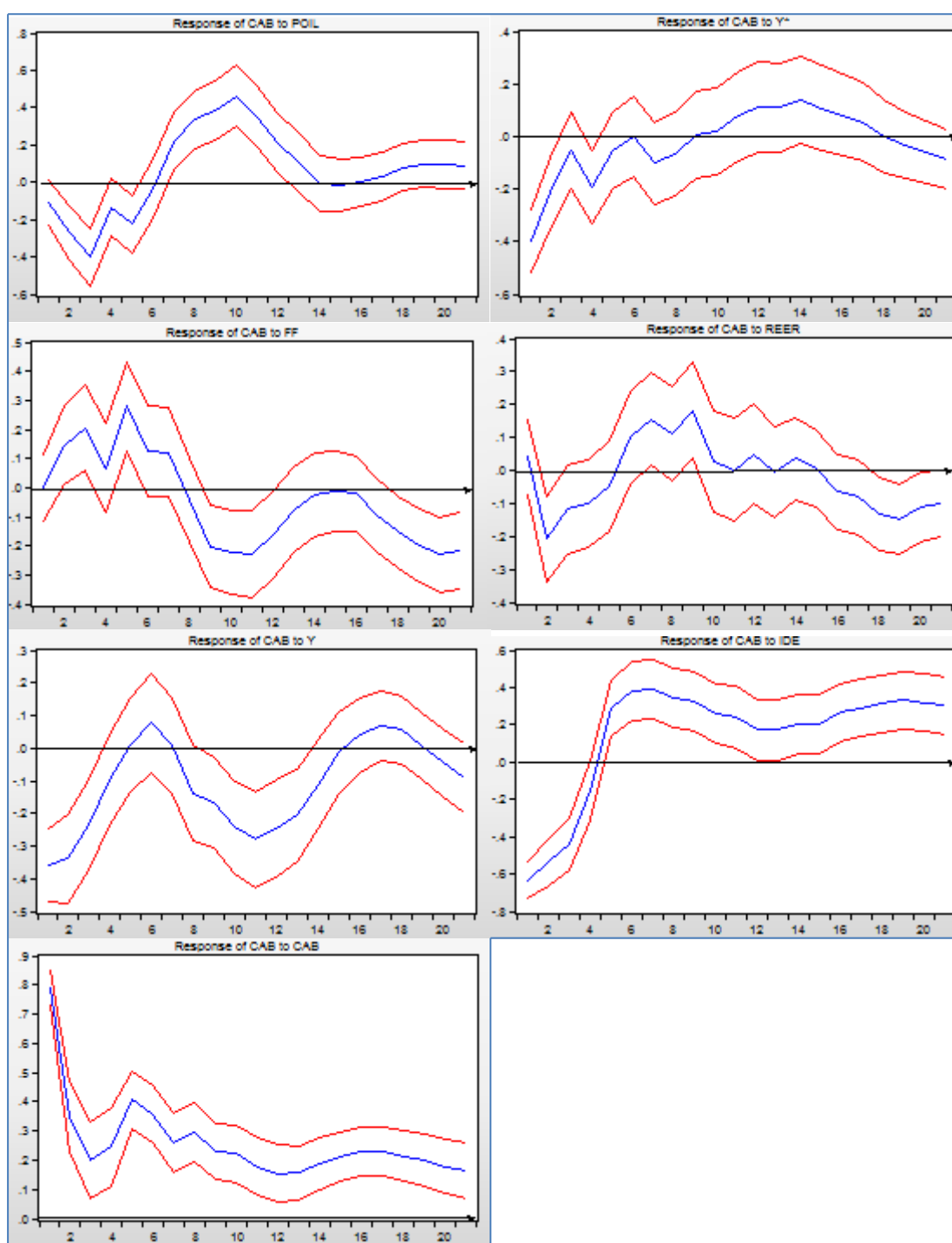


Figure B.1: Impulse Response Function (IRF) (± 1 S.E)

Table B.2: VAR Residual Heteroskedasticity Tests: No Cross Terms

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Sample: 1992Q1 2014Q4

Included observations: 88

Joint test:					
Chi-sq	df	Prob.			
1651.241	1596	0.164			
Individual components:					
Dependent	R-squared	F(57,30)	Prob.	Chi-sq(57)	Prob.
res1*res1	0.740	1.497	0.116	65.114	0.215
res2*res2	0.615	0.841	0.718	54.131	0.583
res3*res3	0.709	1.283	0.232	62.397	0.290
res4*res4	0.757	1.643	0.071	66.645	0.179
res5*res5	0.695	1.202	0.297	61.199	0.328
res6*res6	0.627	0.883	0.663	55.147	0.545
res7*res7	0.646	0.963	0.561	56.892	0.479
res2*res1	0.733	1.447	0.137	64.535	0.230
res3*res1	0.708	1.274	0.238	62.278	0.294
res3*res2	0.696	1.203	0.295	61.221	0.327
res4*res1	0.761	1.676	0.063	66.973	0.172
res4*res2	0.587	0.748	0.829	51.642	0.676
res4*res3	0.672	1.078	0.421	59.134	0.398
res5*res1	0.779	1.852	0.035	68.525	0.141
res5*res2	0.708	1.273	0.239	62.265	0.294
res5*res3	0.522	0.574	0.964	45.903	0.854
res5*res4	0.477	0.480	0.991	41.994	0.932
res6*res1	0.772	1.781	0.044	67.929	0.152
res6*res2	0.659	1.018	0.491	58.003	0.438
res6*res3	0.614	0.839	0.721	54.068	0.586
res6*res4	0.603	0.800	0.769	53.089	0.623
res6*res5	0.647	0.965	0.557	56.953	0.477
res7*res1	0.640	0.935	0.596	56.302	0.501
res7*res2	0.744	1.526	0.105	65.431	0.207
res7*res3	0.709	1.282	0.233	62.381	0.291
res7*res4	0.578	0.720	0.859	50.825	0.705
res7*res5	0.711	1.293	0.225	62.543	0.286
res7*res6	0.690	1.169	0.326	60.684	0.345

Table B.3: VAR Residual Serial Correlation LM Tests

VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Sample: 1992Q1 2014Q4

Included observations: 88

Lags	LM-Stat	Prob
1	57.002	0.202
2	61.195	0.113
3	43.484	0.696
4	63.266	0.083
5	48.755	0.483
6	34.341	0.944
7	34.163	0.947
8	33.301	0.958
9	63.676	0.078
10	45.578	0.613
11	51.277	0.385
12	47.147	0.549

Probs from chi-square with 49 df.

Table B.4: Forecast Error Variance Decomposition (FEVD)

Variance Decomposition of CAB:

Period	S.E.	POIL	Y*	FF	REER	Y	IDE	CAB
1	22.052	0.982	12.087	0.007	0.039	10.098	30.317	46.471
2	30.117	4.245	10.204	0.983	2.508	11.892	33.977	36.191
3	32.554	9.848	8.298	2.372	2.677	11.654	34.740	30.411
4	34.183	9.873	9.113	2.411	2.841	11.402	33.550	30.810
5	34.989	10.296	8.115	4.774	2.507	10.054	32.145	32.110
6	37.490	9.430	7.404	4.851	2.862	9.183	33.521	32.750
7	39.568	9.857	7.060	4.796	3.511	8.425	34.766	31.586
8	41.045	11.539	6.519	4.462	3.534	8.192	34.599	31.155
9	41.786	13.367	5.965	5.161	3.752	7.860	33.979	29.918
10	42.037	16.370	5.492	5.750	3.455	7.836	32.437	28.661
11	42.078	17.795	5.304	6.333	3.352	8.115	31.539	27.562
12	42.203	18.154	5.376	6.624	3.266	8.380	31.090	27.111
13	42.353	18.054	5.458	6.612	3.307	8.544	31.058	26.967
14	42.487	17.724	5.616	6.521	3.248	8.485	31.334	27.071
15	42.638	17.442	5.642	6.424	3.197	8.354	31.588	27.352
16	42.752	17.114	5.571	6.304	3.158	8.194	32.077	27.581
17	42.794	16.797	5.463	6.302	3.103	8.027	32.592	27.718
18	42.830	16.526	5.350	6.454	3.085	7.844	33.097	27.644
19	42.871	16.205	5.245	6.800	3.082	7.722	33.573	27.373
20	42.935	15.859	5.169	7.320	3.024	7.729	33.897	27.003
Cholesky Ordering: POIL Y* FF REER Y IDE CAB								

APPENDIX C

AN ALTERNATIVE METHOD

C.1) The Periodization and Data

The data of the thesis cover the period between 1992Q4 and 2014Q3¹³⁵. Quarterly data are used for each determinant in each year. Furthermore, each determinant's data, which will be introduced in the following part of the chapter, is extracted from various resources such as Bruegel, OECD, TurkStat and CBRT.

Data of POIL, Y*, REER, and Y are subjected to same specifications explained in our original analysis. On the other hand, FF, CAB, and IDE are measured in a different way, i.e., they are *moving-annualized*.

The method works in a simple way. Calculation of FF variable will be presented as an example¹³⁶. Both gross financial flow and GDP data are calculated as moving-annualized when measuring quarterly ratio data. Measuring the ratio of gross flows and GDP datum at q^{th} quarter of year t by only considering their q^{th} quarter of year t data creates seasonality problem. In this sense, we moving-annualized our data. We summed four quarters of gross financial flows data (as nominator) and four quarters

¹³⁵ Those periods cover all available quarterly data of variables of the model.

¹³⁶ The other two variables are also calculated in the same manner.

of GDP data (as denominator) to measure one quarter ratio of gross financial flows and GDP. For instance, while measuring quarter three 2005 ratio, the sum of quarter four 2004 and quarter one 2005 and quarter two 2005 and quarter three 2005 gross financial flows is divided by the sum of quarter four 2004 and quarter one 2005 and quarter two 2005 and quarter three 2005 GDP. In other words,

$$Q3RATIO2005 = \frac{(Q4FF2004 + Q1FF2005 + Q2FF2005 + Q3FF2005)}{(Q4GDP2004 + Q1GDP2005 + Q2GDP2005 + Q3GDP2005)}$$

By doing so, we include all quarters data to measure one quarter datum. In this sense, our data do not suffer from seasonality problem. This method can be preferred to X-12 because this is a much natural way of deseasonalizing data. Accordingly, below tables and figures display related statistics and estimation results.

Table C.1: Descriptive Statistics of the Variables (1992Q4-2014Q4)

	POIL	Y*	FF	REER	Y	IDE	CAB
Mean	12.992	1.985	12.493	2.496	4.200	112.928	-3.162
Median	6.644	2.400	12.492	4.305	5.400	114.686	-2.953
Maximum	159.369	4.750	20.371	30.995	13.800	129.648	2.384
Minimum	-56.065	-5.200	6.153	-30.769	-14.700	91.866	-9.706
Std. Dev.	37.193	1.720	3.419	13.216	5.693	9.091	2.992
Sum	1156.245	176.650	1111.876	222.164	373.800	10050.550	-281.457
Sum Sq. Dev.	121731.700	260.267	1028.735	15371.180	2852.120	7273.581	787.525
Observations	89	89	89	89	89	89	89

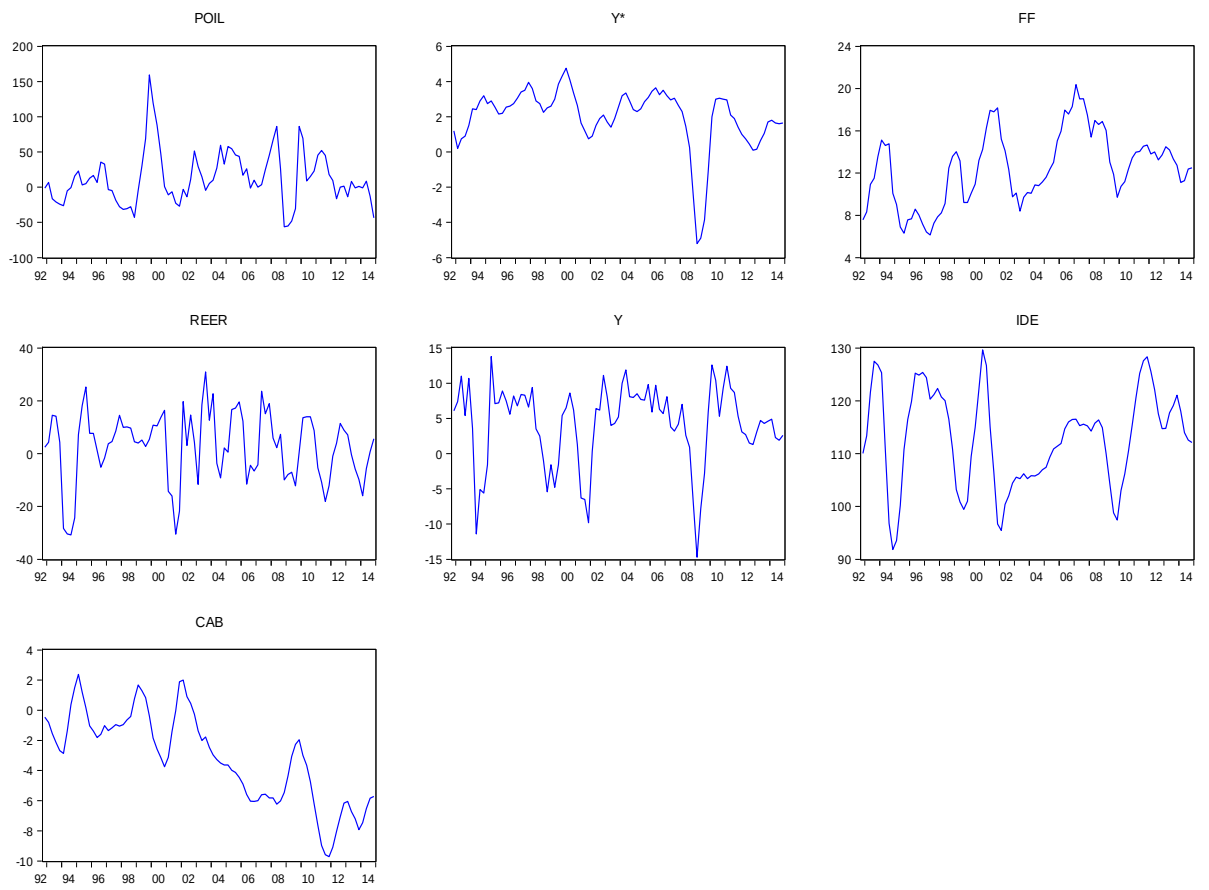


Figure C.1: Time Series Graph

C.2) Structural Break

Table C.2: Zivot-Andrews Endogenous Structural Break Test

Sample: 1992Q4 2014Q4

Included observations: 89

Null Hypothesis: CAB has a unit root with a structural
break in the trend

Chosen lag length: 1 (maximum lags: 4)

Chosen break point: 1999Q1

	t-Statistic	Prob. *
Zivot-Andrews test statistic	-6.317804	0.145605
1% critical value:	-4.80	
5% critical value:	-4.42	
10% critical value:	-4.11	

* Probability values are calculated from a standard t-distribution
and do not take into account the breakpoint selection process

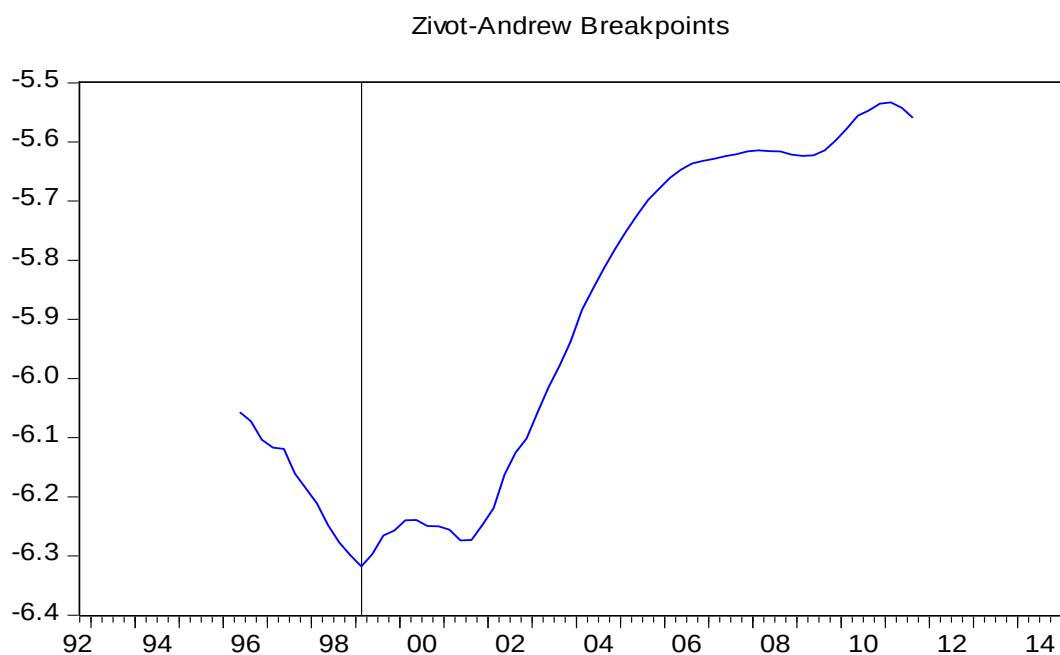


Figure C.2: Zivot-Andrews Endogenous Structural Break Test

Table C.3: Chow Test Results

Chow Breakpoint Test: 1999Q1

Null Hypothesis: No breaks at specified breakpoints

Equation Sample: 1993Q2 2014Q4

F-statistic	1.638877	Prob. F(16,55)	0.0892
Log likelihood ratio	33.91724	Prob. Chi-Square(16)	0.0056
Wald Statistic	26.22203	Prob. Chi-Square(16)	0.0510

C.2) Estimation Results

Table C.4: Results of ADF at Level

VARIABLES	ADF ¹³⁷	
	lag ¹³⁸	p-value
CAB	1	0.000
FF¹³⁹	5	0.073
IDE	1	0.000
POIL	1	0.001
REER	4	0.023
Y	1	0.004
Y*	1	0.000

Table C.5: Lag Order Selection Criteria¹⁴⁰

Lag	LogL	SC	HQ
0	-1837.148	43.959	43.718
1	-1331.363	34.619	33.537
2	-1208.893	34.298*	32.374*
3	-1167.025	35.874	33.109
4	-1102.315	36.913	33.305

Note: * indicates lag order selected by the criterion

¹³⁷ With trend and intercept.

¹³⁸ All lags are automatically selected based on Schwarz Information Criterion (SC).

¹³⁹ It is seen that FF is more than statistically significance level of 0.05. However, FF will be treated as stationary for two reasons. First, since all other variables are stationary ($p < 0.05$) and FF is less than the statistically significance level of 0.1, it can be treated as stationary. Second, if the maximum lag is restricted to 2 or 3, FF turns out to be stationary ($p < 0.05$).

¹⁴⁰ The maximum lag is restricted to 4 lags to conserve degrees of freedom. However, even if it is restricted to 7 lags, SC and HQ select lag 2 yet again.

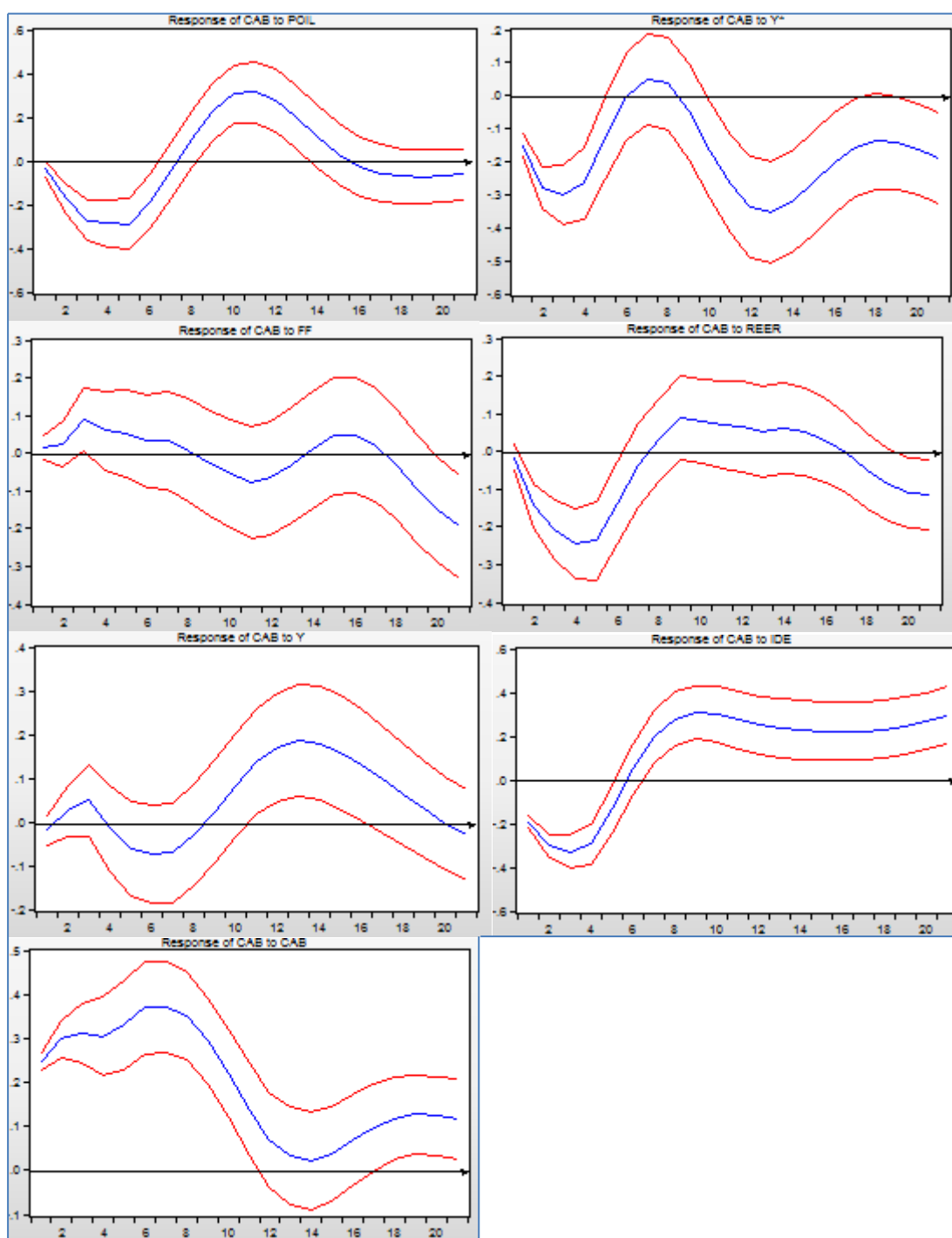


Figure C.3: Impulse Response Function (IRF) (± 1 S.E)

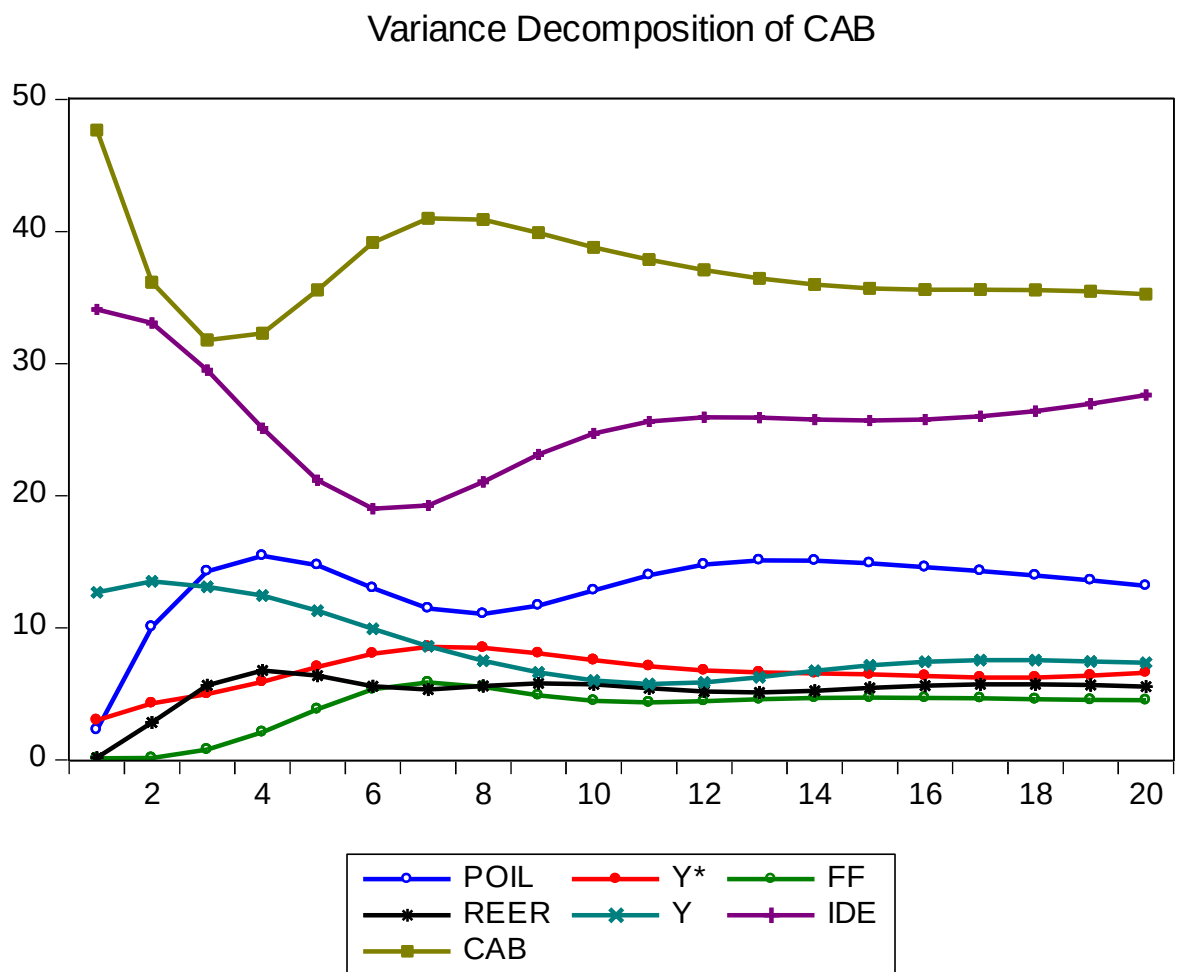


Figure C.4: Forecast Error Variance Decomposition (FEVD)

Table C.6: Forecast Error Variance Decomposition (FEVD)

Period	S.E.	POIL	Y*	FF	REER	Y	IDE	CAB
1	22.540	2.272	3.000	0.108	0.162	12.687	34.103	47.669
2	30.436	10.063	4.258	0.137	2.816	13.517	33.058	36.150
3	32.676	14.265	4.974	0.762	5.645	13.091	29.495	31.768
4	33.359	15.450	5.902	2.083	6.757	12.422	25.106	32.280
5	34.143	14.741	7.035	3.833	6.376	11.286	21.170	35.558
6	35.268	12.992	8.042	5.335	5.558	9.919	19.003	39.151
7	36.243	11.466	8.538	5.862	5.313	8.598	19.242	40.981
8	36.879	11.040	8.471	5.502	5.576	7.484	21.047	40.880
9	37.268	11.667	8.060	4.878	5.791	6.602	23.118	39.884
10	37.582	12.826	7.537	4.452	5.699	5.995	24.701	38.791
11	37.877	13.982	7.068	4.339	5.413	5.740	25.600	37.857
12	38.120	14.779	6.756	4.435	5.168	5.856	25.922	37.084
13	38.285	15.109	6.608	4.582	5.110	6.244	25.899	36.449
14	38.391	15.079	6.540	4.680	5.231	6.726	25.768	35.976
15	38.482	14.866	6.457	4.710	5.434	7.145	25.692	35.695
16	38.581	14.594	6.336	4.693	5.614	7.420	25.755	35.589
17	38.685	14.298	6.232	4.646	5.713	7.539	25.991	35.580
18	38.778	13.961	6.231	4.586	5.719	7.535	26.403	35.566
19	38.851	13.574	6.365	4.529	5.654	7.451	26.963	35.464
20	38.904	13.167	6.588	4.501	5.549	7.336	27.617	35.242
Cholesky Ordering: POIL Y* FF REER Y IDE CAB								

APPENDIX D

TURKISH SUMMARY

Ticaret, yüzyıllardır ekonomik kalkınmanın temel kaynaklarından biri olarak görülmüştür. Bu nedenle, uluslararası ticaret günümüzde vazgeçilmezliğini hem ekonomik hem de politik nedenlerle hala korumaktadır. Buna paralel olarak, dünya ticaret hacmi kesintisiz bir şekilde her geçen gün daha da artmaktadır. Aynı şekilde, Türkiye ve diğer gelişmekte olan ülkelerin dış ticaret hacimleri de sürekli büyümektedir. Ancak, Türkiye’de ithalat, ihracata göre çok daha hızlı artmaktadır. Bunun sonucunda, Türkiye yıllardır cari açık problemiyle boğuşmaktadırlar. Dahası, Türkiye 1990’ların sonlarından itibaren giderek daha büyük cari açık vermeye başlamıştır. Dolayısıyla, bu tezin temel amacı küresel cari işlemler dengesizliklerinin belirleyici etmenlerini aydınlatmak ve bu etmenlerin Türkiye’deki cari açığı ve Türkiye’nin cari dengesinde 1990’ların sonlarında meydana gelen olası bir yapısal kırılmayı açıklayıp açıklamadığını analiz etmektir. Bu analizlerimizin sonucunda Türkiye odaklı politika önerileri sunulmuştur. Her ne kadar tartışmanın geneli Türkiye’nin cari işlemler açığı olsa da, küresel cari işlemler dengesizlikleri de detaylı bir şekilde tartışılmıştır. Bu tezde üç temel sorunun cevabı aranmıştır;

- (I) Hangi etmenler küresel cari işlemler dengesizliklerini açıklar?
- (II) Bu etmenler aynı zamanda Türkiye’nin büyük cari işlemler açığını açıklamada yardımcı olur mu?
- (III) Türkiye’nin cari işlemler açığında 1990’ların sonunda yapısal bir kırılma meydana gelmiş midir?

Tez 5 ana bölümden ve 5 ekten oluşmaktadır. Eklerin ilk üçü teze dair açıklayıcı bilgiler, tablolar ve grafikler sunmaktadır. Birinci ekte (Appendix A), cari işlemler açığının ne olduğuna dair kısa bir bilgi verildikten sonra Türkiye'nin cari işlemler dengesini hem standart olarak hem de detaylı olarak kronolojik bir şekilde gösteren iki tablo bulunmaktadır. Aynı zamanda, Türkiye'nin cari işlemler hesabının çok büyük bir bölümünün (yaklaşık %95) mal ve hizmetler hesaplarından oluştuğunu gösteren bir tablo bulunmaktadır. İkinci ekte (Appendix B) ise, ekonometrik analizlerin sonuçlarını gösteren tablolar ve grafikler bulunmaktadır. Son olarak üçüncü ekte (Appendix C) de alternatif bir ekonometrik yöntem açıklanmakta ve sonuçları tablolar ve grafikler halinde gösterilmektedir.

Bölümler de ise; birinci bölümde teze giriş yapılmakta, işlenecek konular anlatılmakta ve tezin taslağı çıkarılmaktadır. Aynı zamanda tezin temel bulguları da bu bölümde özet olarak sunulmaktadır.

İkinci bölümde ise teorik olarak ve detaylı bir şekilde küresel cari işlemler dengesizliklerinin etmenleri tartışılmaktadır. Cari işlemler dengesizlikleri hem açık olarak hem de fazla olarak gözlenebilmektedir. Her ne kadar tezin odak noktası cari işlemler açığı olsa da, cari fazla da pek çok soruna neden olabilmektedir.

Cari işlemler açığı bir ülkenin toplam (i) mal ithalatı, (ii) servis ithalatı, (iii) net faktör giderleri ve (iv) cari transfer giderlerinin ülkenin toplam (1) mal ihracatı, (2) servis ihracatı, (3) net faktör gelirleri ve (4) cari transfer gelirlerinden fazla olması demektir¹⁴¹.

Ancak, mal ve hizmet dengesi cari işlemler dengesinin çok büyük bir kısmını oluşturduğu için, cari işlemler dengesizliğinin temelde mal ve hizmet ihracatı ve ithalatı arasındaki dengesizlikten kaynaklandığı iddia edilebilir.

¹⁴¹Cari fazla ise bunun tam tersi demektir.

Bu bölümde, literatürde var olan tüm temel teorik etmenler tartışılmaktadır. Bu tartışmalar hem ortodoks hem de heterodoks görüşler birbiriyle karşılaştırılarak yapılmıştır. Literatürde cari açığın etmenlerinin ne olduğuna dair ciddi görüş ayrılıkları mevcuttur. Bu bölümde, literatürde geniş bir şekilde yer bulan 11 ana teorik etmene yer verilmiştir. Bunlar; ulusal tasarruflar, rekabetçilik seviyesi, net yabancı varlıklar, yabancı faiz hadleri, yurtiçi ekonomik büyüme, uluslararası ekonomik büyüme, kredi genişlemesi, finansal açıklık, finansal derinlik, ithalat bağımlı ihracat ve enerji fiyatlarıdır. Ancak, bu etmenlerin cari işlemler dengesini nasıl etkilediğine dair literatürde var olan mevcut ampirik verilerin birbiriyle oldukça çelişkili olduğu görülmüştür. Bazı ampirik veriler teorik iddiaları doğrularken, bazıları ise teorik iddialarla çelişmektedir. Bu bölümün temel bulgusu ise literatürde gereğinden fazla cari açığı etkileyen “etmenler” olduğudur. Dolayısıyla literatürde bir “etmen enflasyonu” olduğundan söz edilebilir. Her ne kadar bu 11 etmenin cari açık üzerinde ayrı ayrı ekonometrik etkisi bulunsa da, böyle bir ekonometrik analizin cari işlemler hesabının gerçek dinamiklerini açıklamaktan çok gizlediği söylenebilir. Ne yazık ki literatürdeki genel çaba akla gelen tüm etmenleri bir araya toplayıp ekonometrik bir model oluşturmaktan öteye pek geçememiştir. Dolayısıyla, bu tezde her bir etmene ayrı ayrı odaklanmak yerine bu etmenlerin “etki kanallarına” odaklanılarak cari işlemler dengesizlikleri açıklanmıştır. Buna bağlı olarak, bir sonraki bölümde bu 11 etmenin birbiriyle ne kadar ilişkili olduğu ve bu etmenlerin etki kanalları tartışılmıştır.

Üçüncü bölümde Türkiye’nin cari hesaplar dengesi ekonometrik analiz yapılmadan tartışılmıştır. Bu bölüme Türkiye’nin cari açık trendi detaylı bir şekilde incelenerek başlanmıştır. Türkiye’nin ihracatının ve ithalatının 1990’larda birbirine paralel olmayan bir şekilde arttığı görülmektedir. İthalattaki artış, ihracattaki artıştan çok daha fazladır. Bu tartışmada görülmektedir ki Türkiye’nin cari açık problemi aslında ticaret (mal) açığı problemidir. Bu mal açığı, Türkiye’nin turizm gelirleriyle bir hayli düşürülse de, Türkiye’nin cari açığını kapatmaya hiç de yetmemektedir.

Daha sonra, Türkiye'nin ticaret yapısı analiz edilmiştir. Türkiye'nin ticaret ortakları ve ihrac ettiği ve ithal ettiği mallar detaylı bir şekilde incelenmiştir. Türkiye'nin temel ticaret ortakları AB-28 ülkeleri ile OECD ülkeleridir. Her ne kadar bu ülkelerin payları küresel krizden sonra azalmaya başlasa da, hala Türkiye'nin ticaret hacminin yaklaşık %45'ini bu ülkeler oluşturmaktadır. Türkiye'nin son zamanlarda özellikle ihracat pazarlarını çeşitlendirdiği göze çarpmaktadır. İslam İşbirliği Teşkilatı (OIC) ülkelerine yapılan ihracatın son yıllarda büyük bir ivme kazandığı gözlenmektedir.

Türkiye'nin cari işlemler açığı probleminin aslında bir ticaret (mal) açığı olmasından dolayı Türkiye'nin ticaret yapısının detaylı bir şekilde incelenmesi büyük bir önem arz etmektedir. ISIC¹⁴² sınıflandırmasına göre Türkiye'nin ihracat ve ithalat mallarını büyük ölçüde imalat malları oluşturmaktadır. Ayrıca, Türkiye'nin en çok ihracat yapan 1000 firmasının %20,4'ünü otomobil endüstrisi, %12,5'ini kimya endüstrisi, %12,4'ünü çelik üretimi, 10,3'ünü konfeksiyon ve hazır giyim endüstrisi, %9,6'sını elektrik elektronik ve servisleri endüstrisi oluşturmaktadır.

SITC¹⁴³ sınıflandırmasına göre ise Türkiye'nin temel ihrac mallarını imalat malları (%46) ve makineler (%27) oluşturmaktadır¹⁴⁴. Türkiye'nin ithalat mallarını ise en çok enerji (%22) ve imalat malları (%21) oluşturmaktadır. Bu veriler göstermektedir ki Türkiye'nin en çok ihracat yaptığı sektörler aynı zamanda en çok ithalat yaptığı sektörlerdir. Aynı zamanda veriler göstermektedir ki Türkiye'de en çok ihracat yapan firmalar aynı zamanda en çok ithalat yapan firmalardır. Bunlara ek olarak, TCMB araştırmalarına göre ithal girdi maliyetinin toplam üretim maliyeti içerisindeki payı; kâğıt ürünlerinde %62,5, petrokimyada %81,4, kimyada %56,9, metal ve işlenmiş metalde %66, elektrikli makinelerde %57, elektronikte %70, motorlu araçlarda

¹⁴²International Standard Industrial Classification of All Economic Activities (ISIC).

¹⁴³Standard International Trade Classification (SITC).

¹⁴⁴2013 verilerine göre hesaplanmıştır.

%53,4, tüm imalat sanayide % 54,6'dır. Tüm bu veriler göstermektedir ki Türkiye'de endüstriyel yapı çok büyük ölçüde ithalata bağımlıdır.

Bazı sektörlerde ihracatın ithalatı karşılama oranı %100'den fazla iken, bazı sektörlerde ise oldukça altındadır. Örneğin, *gıda ve canlı hayvan ürünleri* ve *imalat malları* sektörleri ticaret fazlası verirken, *enerji, kimyasallar ve yakıt hariç ham malzemeler* sektörleri ticaret açığı vermektedir.

Enerji, Türkiye'nin en temel ithalat mallarından biridir. Enerji ithalatının GSYH'ye oranı yıllar içerisinde sürekli artış göstermiştir. Diğer bir deyişle, Türkiye'nin enerji ithalatı, GSYH'sinden çok daha hızlı artmaktadır. Bunun iki temel sebebi vardır. Birincisi, Türkiye'nin enerji üretimi enerji ithalatına bağımlıdır. Yani Türkiye enerji üretebilmek için bile enerji ithal etmek durumundadır. Örneğin, 2012 yılında elektrik üretiminin %43,6'sı doğal gaz ile yapılmıştır. Yenilenebilir enerji kaynaklarıyla yapılan üretim ise ne yazık ki sadece toplam üretimin %3,1'ine denk gelmektedir. İkinci olarak, ithal edilen enerji tamamen endüstriyel amaçlı kullanılmamaktadır. Örneğin, ısınma amaçlı hanelerde de enerji kullanılmaktadır.

Veriler göstermektedir ki Türkiye'nin enerji dışı cari işlemler dengesi oldukça sorunsuz bir yapıya sahiptir. Enerji dışı cari denge genellikle fazla vermektedir. Bu noktadan hareketle, bazı bilim insanları, siyasiler ve bürokratlar Türkiye'nin cari açık sorununun aslında çok da önemli olmadığını ileri sürmektedir. Ancak, bir ülkenin enerji dışı cari işlemler dengesinin belli aralıklarla fazla vermesi o ülkenin çok büyük cari işlemler açığı vermesine bir bahane olamaz. Daha da önemlisi, sorunu hafifletici bir etmen ise hiç olamaz. Türkiye, Dünya'daki tek fosil enerji kaynakları¹⁴⁵ kıt ülke değildir. Örneğin, Güney Kore ve Japonya da fosil enerji kaynakları yönünden fakir sayılabilirler. Ancak, bu durum onların cari işlemler fazlası vermelerine engel teşkil etmemektedir. Bunlara ek olarak, Türkiye için enerji ithalatı vazgeçilmezdir. Hatta enerji özellikle kısa dönemde ikame edilmesi en zor maldır. Dolayısıyla, resmi

¹⁴⁵Fosil enerji kaynaklarından kasıt petrol ve doğal gazdır.

kaynakların enerji dışı cari dengeye gereğinden fazla odaklanmaları çok da mantıklı görünmemektedir¹⁴⁶.

Ayrıca, BEC¹⁴⁷ sınıflandırmasına göre Türkiye'nin toplam ithalatının %73'ünü ara mal ithalatı oluşturmaktadır. Ara mal, genellikle nihai ürünün üretilmesinde kullanılacak olan yarı işlenmiş bir mal olarak tarif edilebilir. Dolayısıyla, yüksek orandaki ara mal ithalatı gösteriyor ki Türkiye'nin üretebilip ihracat yapabilmesi için ithalat yapmasına ihtiyacı vardır. Bu da var olan cari işlemler açığı sorunun aslına bir kısır döngü olduğunu göstermektedir.

Dahası, Türkiye'nin cari hesaplar dengesinde 1990'ların sonlarında meydana gelmiş olabilecek olası bir yapısal kırılma ekonometrik metoda başvurulmadan tartışılmıştır. Grafikler ve veriler göstermektedir ki Türkiye'nin cari işlemler hesabı 1990'ların sonlarından itibaren çok büyük açıklar vermeye başlamış ve bir daha da kayda değer bir fazla verememiştir¹⁴⁸. Bu noktadan hareketle, Türkiye'nin cari işlemler hesabında 1990'ların sonlarında yapısal bir kırılma olduğundan şüphe edilmektedir. Bu sebeple, bir sonraki bölümde bu tartışma ekonometrik olarak test edilmiştir.

Bunlara ek olarak, bir önceki bölümde teorik ve detaylı bir şekilde incelenen küresel cari işlemler dengesinin etmenlerinin Türkiye'deki cari işlemler açığını açıklayıp açıklamadığı yine ekonometrik yöntemlere başvurulmadan ancak veriler kullanılarak tartışılmıştır. Ayrıca bu etmenlerin birbirleri arasındaki ilişkiler ve “etki kanalları” da detaylı bir şekilde tablo ve grafikler de kullanılarak gösterilmiş ve analiz edilmiştir. Analizlerimiz göstermektedir ki literatürde en çok kullanılan 11 değişken aslında 6 temel değişken aracılığıyla cari işlemler dengesini etkilemektedir. Bunlar, finansal

¹⁴⁶Enerji dışı cari denge kuşkusuz önemli bir göstergedir. Burada eleştirilen nokta ise bu kavrama gereğinden fazla odaklanılarak gerçek sorunun göz ardı edilmesidir.

¹⁴⁷Classification by Broad Economic Categories (BEC).

¹⁴⁸Sadece kriz dönemlerinde kısa süreli ve küçük miktarlarda cari fazladan söz edilebilir.

akımlar (FF)¹⁴⁹, yurtiçi ekonomik büyüme (Y), uluslararası ekonomik büyüme (Y*), reel efektif döviz kuru (REER), ithalat bağımlı ihracat (IDE) ve enerji fiyatlarıdır (POIL). Dolayısıyla bir önceki bölümde tartışıldığı üzere, literatürde gereğinden fazla cari açığı etkileyen “etmenler” vardır. Bir başka deyişle, literatürde bir “etmen enflasyonu” olduğundan söz edilebilir. Bu sebeple, bu altı değişken üzerinden Türkiye’nin cari işlemler hesabını test etmek yeterli olacaktır¹⁵⁰.

Dördüncü bölümde Türkiye’nin cari işlemler hesabı ekonometrik metotlarla test edilmiştir. Vektör Otoregresyon (VAR) modeli kullanılarak yukarıda sayılan 6 değişkenin Türkiye’nin cari işlemler hesabı üzerindeki etkileri analiz edilmiştir. Bu 6 değişkene literatürden, teoriden ve bizim kendi analizlerimizden ulaşılmıştır.

Bu bölümde ilk olarak Türkiye’nin cari açık problemiyle ilgili daha önceden yazılmış ampirik çalışmalar incelenmiştir¹⁵¹. Insel ve Kayıkçı (2012) bazı sektörlerde ithal girdi katsayısını araştırmışlardır. Aynı zamanda 1987 ve 2010 yılları arasında Türkiye’nin cari işlemler açığının nasıl finanse edildiğini de incelemişlerdir. Sonuçları göstermektedir ki Türkiye’nin cari işlemler açığı sürdürülebilir değildir. Hatta sürdürülebilirliği gitgide daha da azalmaktadır.

Gülcan ve Önel (2008) Türkiye’nin cari açık probleminin sürdürülebilirliğini IBC¹⁵² yöntemini kullanarak 1992 ve 2007 yıllarını kapsayacak şekilde analiz etmişlerdir. Sonuçları göstermektedir ki Türkiye’nin cari açığı uzun vadede sürdürülebilir değildir çünkü reel ihracat ve reel ithalat arasında uzun dönemli bir ilişki bulunmamaktadır.

¹⁴⁹Finansal açıklığa bir “proxy” olarak kullanılmıştır.

¹⁵⁰Ayrıca 5 değişken daha eklemek serbestlik derecesini (degrees of freedom) oldukça düşürecektir.

¹⁵¹Her ne kadar ikinci bölümde daha önceden yazılmış ampirik çalışmalara oldukça geniş bir şekilde yer verilmiş olsa da, bu bölümde sadece Türkiye ile ilgili olan ampirik çalışmalara odaklanılmıştır.

¹⁵²Intertemporal Budget Constraint (IBC).

Akçay ve Üçer (2008) Türkiye için “norm” cari işlemler açığı oranını Rahman Kriteri’ni kullanarak hesaplamışlardır. Türkiye’nin cari açığının sürdürülemez olduğunu savunmalarına karşın bu açığın çok büyük bir krize yol açmayacağını iddia etmektedirler. Ancak yine de Türkiye’nin bu problemi uzun vadede halletmesi gerektiğini söylemektedirler.

İnsel ve Kayıkçı (2013) Otoregresif Dağıtılmış Gecikmeler (ARDL)¹⁵³ yöntemini kullanarak 1987 ve 2009 yılları arasında Türkiye’nin cari işlemler dengesi ile pek çok makroekonomik değişken arasındaki ilişkiyi incelemişlerdir. Sonuçları göstermektedir ki ekonomik büyümenin, enflasyonun ve yatırımın cari denge üzerindeki etkileri diğer makroekonomik değişkenlere göre oldukça fazladır. Sonuçlarına göre cari denge enflasyon ile pozitif olarak ilişkili iken, petrol fiyatları, ekonomik büyüme, yatırım, değerli Türk Lirası ve ekonomik açıklık ile negatif olarak ilişkilidir.

Özlale ve Pekkurnaz (2010) Yapısal Vektör Otoregresyon (SVAR)¹⁵⁴ modelini kullanarak Türkiye’nin cari işlemler dengesi ile petrol fiyatları arasındaki ilişkiyi incelemişlerdir. Petrol fiyatları ile Türkiye’nin cari dengesi arasında negatif bir ilişki bulmuşlardır.

Daha sonra ekonometrik metodoloji tartışılmıştır. Bu çalışmada temel ekonometrik metot olarak Vektör Otoregresyon (VAR) modeli kullanılmıştır. Bir VAR modelinde, her bir değişken hem kendinin hem de diğer değişkenlerin lag (gecikme) değerlerini içeren bir denklem tarafından açıklanır. Bu modelde daha önceden belirlenmiş teorik bir bilgiye gerek yoktur. Bir diğer deyişle, değişkenin içsel ya da dışsal olduğuna dair herhangi bir ön bilgiye ihtiyaç yoktur. Tüm değişkenler içsel olarak kabul edilir. P lag değişkenli bir yapısal VAR (SVAR) modeli şu şekilde gösterilebilir.

¹⁵³ Auto Regressive Distributed Lag (ARDL).

¹⁵⁴ Structural Vector Autoregression (SVAR).

$$\Gamma Y_t = A(L)X_{t-1} + U_t \quad (13)$$

X_t , $K \times 1$ endojen değişkenli bir vektör; $A(L)$, $K \times K$ lag polinom matrisi; U_t ise $K \times 1$ hata terimleri ya da şokları vektörüdür. Hata terimi U_t 'nin ortalaması sıfırdır ($E(U_t) = 0$), sabit bir varyans- kovaryans matrisine sahiptir ($E(U_t U_t') = \Omega$), ve hata terimleri arasında zaman içinde korelasyon yoktur ($E(U_t U_{t-k}') = 0$).

Ancak, bizim analizimizde indirgenmiş VAR modeli kullanacağı için denklem (13)'ün iki yanını Γ^{-1} ile çarpılmalıdır.

$$\Gamma^{-1}\Gamma Y_t = \Gamma^{-1}A(L)X_{t-1} + \Gamma^{-1}U_t \quad (14)$$

ve

$$Y_t = B(L)X_{t-1} + e_t \quad (15)$$

$B(L) = \Gamma^{-1}A(L)$ ve $e_t = \Gamma^{-1}U_t$. Ayrıca X_t , $K \times 1$ endojen değişkenli bir vektör; $B(L)$, $K \times K$ lag polinom matrisi; e_t ise $K \times 1$ indirgenmiş formda hata terimleri ya da şokları vektörüdür.

Bu tartışmadan hareketle genel cari denge modeli bizim 6 değişkenimizle şu şekilde gösterilebilir;

$$\begin{aligned}
(CAB)_t = & \sum_{i=1}^4 \beta_i (POIL)_{t-i} + \sum_{i=1}^4 \beta_{i+4} (Y^*)_{t-i} + \sum_{i=1}^4 \beta_{i+8} (FF)_{t-i} \\
& + \sum_{i=1}^4 \beta_{i+12} (REER)_{t-i} + \sum_{i=1}^4 \beta_{i+16} (Y)_{t-i} + \sum_{i=1}^4 \beta_{i+20} (IDE)_{t-i} \\
& + (U)_t
\end{aligned} \tag{18}$$

Ya da matris halinde;

$$Y_t = B(L)X_{t-1} + e_t \tag{15}$$

$$X_t = [POIL_t, Y^*_t, FF_t, REER_t, Y_t, IDE_t, CAB_t]' \text{ ve}$$

$$U_t = [U_t^{poil}, U_t^{y^*}, U_t^{ff}, U_t^{reer}, U_t^y, U_t^{ide}, U_t^{cab}]'.$$

Dahası, modele dair periyodizasyon ve veriler detaylı bir şekilde açıklanmıştır. Çalışmamız 1992 birinci çeyrek (1992Q1) ile 2014 dördüncü çeyrek (2014Q4) arasındaki tüm çeyrek dönemleri kapsamaktadır. CAB, FF ve IDE verileri X-12 metodu kullanılarak mevsimsellikten arındırılmışlardır.

Rekabetçilik seviyesi, reel efektif döviz kurundaki (REER) değişiklikler olarak gösterilmiştir. Veri seti Bruegel'den alınmıştır. Veriler, Tüketici Fiyat Endeksi (TÜFE) kullanılarak ve Türkiye'nin 41 ticaret ortağının ağırlıkları dikkate alınarak hesaplanmıştır.

Yurtiçi ekonomik büyüme (Y), reel GSYH'deki büyüme olarak ölçülmüştür. Veri seti TÜİK'ten elde edilmiştir.

Uluslararası ekonomik büyüme (Y*) veri seti OECD veritabanından alınmıştır. Uluslararası ekonomik büyüme, OECD-Toplam ile OECD-Avrupa'nın reel

ekonomik büyümelerinin ortalamaları alınarak hesaplanmıştır. Bunun sebebi OECD-Avrupa'nın OECD-Toplam ile kıyaslandığında Türkiye'nin ticaret ortakları içerisinde çok daha büyük bir çoğunluğu oluşturmamasından kaynaklanmaktadır.

Finansal akımlar (FF), nominal finansal akımların nominal GSYH'ye oranı olarak gösterilmiştir. Cari finansal akımlar, IMF tarafından hazırlanan Ödemeler Dengesi El Kitabı'nın 5. versiyonuna (BPM5)¹⁵⁵ göre hesaplanmıştır.

İthalat bağımlı ihracat (IDE), ara mal ithalatının toplam ihracata oranı olarak gösterilmiştir. Bu değişken bir birim ihracat yapabilmek için kaç birim ara mal ithalatı yapılması gerektiğini göstermektedir. Ara mal ithalatı ve toplam ihracat verileri TÜİK'ten alınmıştır.

Enerji fiyatları (POIL), Avrupa brent petrolünün fiyatındaki değişim olarak gösterilmiştir. Veri seti ABD Enerji Bilgi İdaresi'nden¹⁵⁶ alınmıştır.

Cari işlemler dengesi (CAB) nominal GSYH'nin oranı olarak gösterilmiştir. Cari işlemler dengesi verileri TCMB'nin BPM5'e göre hazırladığı veritabanından alınmıştır. Aylık veriler, üç aylık (çeyrek dönem) verilerine çevrilmiştir.

Bir sonraki aşamada, Türkiye'nin cari işlemler hesabında olası bir yapısal kırılma ekonometrik testler yardımıyla araştırılmıştır. İki farklı yapısal kırılma testinden faydalanılmıştır. Bunlardan birincisi Zivot-Andrews testi (ZA). Bu test içsel bir testtir. Yani, bir kırılma tarihi verilmeksizin testin kendisi uygun olan kırılma tarihini bulur ve test eder. ZA sonuçları göstermektedir ki Türkiye'nin cari işlemler dengesinde 1999 yılının birinci çeyreğinde (1999Q1) yapısal bir kırılma vardır.

İkinci başvurduğumuz test ise Chow testidir. Bu test, ZA'nın aksine dışsal bir yapısal kırılma testidir. Yani, dışarıdan belirli bir tarih belirtilmesi gerekmektedir. ZA sonucu

¹⁵⁵Balance of Payments Manual Fifth Edition (BPM5).

¹⁵⁶U.S. Energy Information Administration (EIA).

1999Q1 olduđu için, yine bu tarih bu kez de Chow test tarafından analiz edilmiştir. Sonuç bir kez daha göstermektedir ki Türkiye'nin cari işlemler hesabında 1999Q1 tarihinde yapısal bir kırılma vardır¹⁵⁷. Bu yapısal kırılmanın tespitinin ne gibi anlamlara geldiğı en son bölümde tartışılmaktadır. Ancak, şunu belirtmekte fayda vardır ki Türkiye'nin cari işlemler hesabında yapısal bir kırılmanın olduğı ilk kez bu çalışmada gözler önüne serilmiştir.

Bir sonraki aşamada VAR modeli analiz edilmiştir. VAR sonuçlarımızın dayanıklı (robust) olduğı çeşitli yöntemler kullanılarak test edilmiştir. Sonuçlarımız farklı değişken sıralamalarına, farklı laglara, dummy kullanıp kullanmamaya, mevsimselliğe ve son olarak da farklı bir metot¹⁵⁸ ile gösterilmeye tamamen dayanıklıdır.

Modelin nasıl kurulduğı, durağanlık testi (ADF), lag seçimi ve değişkenlerin nasıl sıralandığı detaylı bir şekilde anlatılmıştır. VAR sonuçları etki tepki fonksiyonu (IRF)¹⁵⁹ ve tahmin hatası varyans ayrıştırması (FEVD)¹⁶⁰ kullanılarak yorumlanmıştır.

FEVD sonuçları göstermektedir ki 20 periyodun sonunda ortalamada ithalat bağımlı ihracat (IDE) cari dengenin %33'lük kısmını açıklarken, enerji fiyatları (POIL) %13'lük kısmını açıklamaktadır. Bu sonuç göstermektedir ki Türkiye endüstrisi ihracat malları üretebilmek için ara mal ithalatına son derece bağımlıdır. Yani Türkiye ihracat yapabilmek için ithalat yapmak zorundadır. IDE ve POIL'in yüksek açıklayıcı gücü göstermektedir ki Türkiye endüstrisi sürdürülebilir bir ekonomik

¹⁵⁷Yapısal kırılmadan dolayı VAR modelimize bir dummy değişken dışsal olarak eklenmiştir.

¹⁵⁸Bu metot Appendix C'de detaylı bir şekilde anlatılmıştır.

¹⁵⁹Impulse response function (IRF).

¹⁶⁰Forecast error variance decomposition (FEVD).

faaliyet için gerekli olan kilit malları üretememektedir. Dolayısıyla, Türkiye'nin cari işlem açığı problemi yapısal bir sorundur.

Bunların yanı sıra konjonktürel etmenlerin¹⁶¹ açıklayıcılığı (%25) yapısal etmenlerin açıklayıcılığına (%46) göre oldukça düşüktür. Yurtiçi ekonomik büyüme (Y) cari açığın %9'unu açıklamaktadır. Bu da Y'yi üçüncü temel etmen yapmaktadır. Uluslararası ekonomik büyüme (Y*) cari açığın %7'sini şekillendirmektedir. Finansal akımlar (FF) ise cari dengenin %5'ini oluşturmaktadır. Düşük FF göstermektedir ki Türkiye, ekonomisinin finansal açıklığından bağımsız olarak net borçlanan bir ülke konumundadır.

En düşük açıklayıcılık ise reel efektif döviz kurundan (REER) gelmektedir. REER 20 dönem sonunda ortalamada cari dengenin sadece %3'ünü açıklamaktadır. Bu sonuç göstermektedir ki Marshall Lerner koşulu olarak bilinen “bir para birimi değersizleştikçe o ülke daha çok ticaret fazlası verir” argümanı Türkiye için geçerli değildir. Yani fiyat rekabeti cari işlemler dengesinin sadece çok küçük bir kısmını açıklamaktadır. Küreselleşen Dünya'da, ekonomik aktörler bir mal alırken artık sadece o malın fiyatına bakmamakta, aynı zamanda o malın markasına, teknolojisine ve kalitesine de bakmaktadır. Bunlar bir ülkenin gerçek rekabet gücünü gösteren yapısal faktörlerdir.

Cari işlemler dengesi (CAB), aynı zamanda %30 civarında kendi lag değerleri tarafından açıklanmaktadır. Bu da Türkiye'de cari açığın ne kadar kalıcı ve ısrarcı olduğunu göstermektedir. Bu sonuç da doğrudan Türkiye'nin üretim yapısı ile (yapısal faktörlerle) ilişkilidir. Aynı üretim yapısı her sene cari açığı tekrar tekrar

¹⁶¹Konjonktürel etmenler şunlardır; yurtiçi ekonomik büyüme (Y), uluslararası ekonomik büyüme (Y*), finansal akımlar (FF) ve reel efektif döviz kuru (REER).

üretmektedir. Bu yüksek oran göstermektedir ki bir ülkenin üretim yapısını özellikle kısa vadede değiştirmek oldukça güçtür. Bu da yol bağımlılığıdır¹⁶².

Sonuçlarımız kamu politikalarına ilişkin önemli öneriler ortaya koymaktadır. Birinci olarak, literatürdeki genel çaba ne yazık ki akla gelen tüm etmenleri bir araya toplayıp ekonometrik bir model oluşturmaktan öteye pek geçememiştir. Ancak, otoriteler pek çok değişkene odaklanmaktan kaçınmalıdırlar çünkü bu değişkenlerin pek çoğu birbirine çok yakın hatta birbirlerinin yerine proxy olarak bile kullanılabilecek değişkenlerdir. Dolayısıyla, bunların hepsine birden odaklanmak cari işlemler hesabının arkasında yatan gerçek anlamı gizlemekten başka bir işe yaramayacaktır. Bu yüzden, belirli sayıda değişkenleri içeren bir değişken seti belirlenerek cari işlemler açığı ile savaşılmalıdır. Bu değişken seti ise bizim yaptığımız gibi “etmen kanalları” ile belirlenmelidir.

İkinci olarak, otoriteler Türkiye’nin ticaret yapısına odaklanmalıdır çünkü Türkiye’nin kronik cari işlemler açığı problemi aslında kronik bir ticaret açığı problemidir. Diğer bir taraftan, Türkiye’nin çok büyük boyutlardaki ticaret açığı servis gelirleri (çoğunlukla turizm gelirleri) ile azalmakta ve cari açığa olumlu yönde katkı yapmaktadır.

Üçüncü olarak, Türkiye endüstrisinin ara mal ithalatına bağımlılığı ve yapısal faktörlerin Türkiye’nin cari açığı üzerinde oldukça yüksek açıklayıcılığa sahip olması göstermektedir ki Türkiye’nin cari açık problemi yapısal bir problemidir. Dolayısıyla Türkiye’nin endüstriyel üretim yapısı yapısal reformlarla daha az ithal girdiye dayalı bir yapıya evrilmelidir. Ara mal üretimi bizzat devlet tarafından özendirilmeli ve desteklenmelidir. Ancak bu destek geçici olmalı ve verimsiz eski ithal ikameci politikalara dönüşmemelidir.

Dördüncü olarak, çalışmamız Marshall Lerner koşulunun ülkemizde geçerli olmadığını göstermektedir. Dolayısıyla, düşük REER göstermektedir ki bir mal

¹⁶²Path dependency.

alımında ekonomik aktörler artık fiyattan çok o malın markasına ve teknolojisine bakmaktadır. Örneğin, piyasada pek çok uygun fiyatlı tablet olmasına karşın insanların çok daha pahalı olan iPad'i tercih etmesinin sebebi iPad'in markasından ve teknolojisinden kaynaklıdır. Bu sebeple, yüksek gelir esnekliği olan ve yüksek katma değeri olan ürünler üretip ihraç etmek bir ülkenin rekabetçiliğini geliştirmesi için kilit öneme sahiptir.

Son olarak, bu çalışmada ilk kez gösterilmiştir ki Türkiye'nin cari işlemler hesabında 1999Q1 tarihinde yapısal bir kırılma vardır. Yani Türkiye'nin 2000'lerdeki cari işlemler dengesinin yapısı ve anlamı ile 2000'ler öncesi cari işlemler dengesinin yapısı ve anlamı birbirinden farklıdır. Dolayısıyla, otoriteler daha farklı bir bakış açısıyla cari işlemler açığı sorununa yaklaşmalıdır. Dördüncü bölümde yapısal kırılmaya neyin sebep olmuş olabileceği tartışılmıştır. Ancak biz inanmaktayız ki yapısal kırılmanın temel sebebi Türkiye'nin endüstriyel üretim yapısının az ithal mal girdi gereksinimi olan sektörlerden çok ithal mal girdi gereksinimi olan sektörlerle kaymasıdır. Örneğin, ekonominin göz bebeği artık tekstil sektörü değil otomobil sektörüdür ve otomobil sektöründe ithal girdi oranı çok daha yüksektir. Dolayısıyla bu yapısal kırılma bize Türkiye'nin endüstriyel yapısının ithal girdiye aşırı bağımlı olduğunu bir kez daha göstermektedir. Dolayısıyla otoriteler yapısal reformlarla üretim yapısını değiştirmeye odaklanmalıdır.

APPENDIX E

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü	☐
Sosyal Bilimler Enstitüsü	☒
Uygulamalı Matematik Enstitüsü	☐
Enformatik Enstitüsü	☐
Deniz Bilimleri Enstitüsü	☐

YAZARIN

Soyadı : Yüksel
Adı : Gökay
Bölümü : İktisat

TEZİN ADI (İngilizce) : The Investigation of Recent Trends in Turkish
Current Account

TEZİN TÜRÜ : Yüksek Lisans ☒ Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☒
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☒
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. ☐

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: .08.2015