SUDDEN STOPS AND THE ADJUSTMENT OF REAL EXCHANGE RATES TO CURRENT ACCOUNT DEFICITS

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ABSTRACT

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This study aims to analyze the causes and consequences of sudden stops in international capital flows with special reference to the recent Turkish experience. We aim to investigate also the vulnerability of the Turkish economy to a sudden stop and compute the required change in the real exchange rates for a current account adjustment in the face of a sudden stop. The assessment of the economic and structural indicators, which are assumed to be related with the resilience of the economy against sudden stops, such as openness and dollarization, refers that the risk of experiencing a sudden stop has increased in Turkey in the last two years, despite a decrease in its exposure to the destructive effects of such shocks thanks to the structural improvements in the economy. Our empirical results based on a small open economy model with tradables and non-tradables suggest that a sudden stop that requires the closing of the current account imbalance in Turkey would necessitate a real depreciation of around 36 percent as of May 2008 under the assumption that international reserves were not used in order to mitigate the level and the effects of the adjustment. Although the effects of such a real depreciation may be milder due to the decreased currency mismatches in the public and banking sector, there is still the risk of experiencing a financial crisis following a sudden stop because of the high liability dollarization in the real sector.

Keywords: Sudden Stops, Capital Flows, Current Account Deficit, Real Exchange Rate, Turkish Economy

ÖZ

ANİ KESİNTİLER VE DÖVİZ KURLARININ CARİ AÇIKLARA İNTİBAKI

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Bu çalışma, uluslararası sermaye akımlarındaki ani kesintilerin nedenlerinin ve sonuçlarının, Türkiye ekonomisinin son dönemdeki deneyimlerine özel bir atıf yapılarak analiz edilmesini amaçlamaktadır. Bu çerçevede Türkiye'nin ani kesintilere olan kırılganlığının değerlendirilmesi ve maruz kalınan bir ani kesinti karşısında cari açığın intibakı için reel döviz kurunda meydana gelmesi gereken değişikliğin hesaplanması amaçlanmaktadır. Ekonominin ani kesintiler karşısındaki dayanıklılığı ile ilişkili olduğu düşünülen dışa açıklık ve dolarizasyon gibi ekonomik ve yapısal göstergelerin incelenmesi sonucunda, Türkiye'nin ani kesintilerin olumsuz etkilerine olan duyarlılığının ekonomideki yapısal iyileşme sayesinde azaldığı; ancak son iki yılda ülkenin ani kesintilere maruz kalma ihtimalinin arttığı sonucuna varılmıştır. Ticareti yapılabilir ve yapılamayan mallar ayrımına dayanan küçük açık ekonomi modelinden elde ettiğimiz ampirik sonuçlar, cari açığın tamamının kapatılmasını gerektiren bir ani kesinti halinde, cari açık ve reel kurlardaki intibakın düzeyini ve etkilerini azaltmak amacıyla ülkenin uluslararası rezervlerinin kullanılmadığı varsayımı altında, 2008 yılı Mayıs ayı itibarıyla reel kurun yüzde 36 civarında bir oranda değer kaybetmesi gerektiğine işaret etmektedir. Böyle bir reel değer kaybının ekonomi üzerindeki olumsuz etkisinin, kamu ve bankacılık sektöründeki açık pozisyonların önemli ölçüde azalmış olması nedeniyle, eskiye kıyasla hafiflemiş olduğu düşünülmekle birlikte, reel sektördeki yüksek yükümlülük dolarizasyonu nedeniyle ani kesinti sonrasında finansal kriz yaşama riski hala bulunmaktadır.

Anahtar Kelimeler: Ani Kesinti, Sermaye Hareketleri, Cari İşlemler Açığı, Reel Döviz Kuru, Türkiye Ekonomisi

To my family

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LIST OF ABBREVIATIONS

CAD: Current Account Deficit

CBRT: Central Bank of the Republic of Turkey

CPI: Consumer Price Index

EM: Emerging Market

EMF: Emerging Market Fund

EU: European Union

FDI: Foreign Direct Investment

FX: Foreign Exchange

GDP: Gross Domestic Product

GNP: Gross National Product

IMF: International Monetary Fund

IT: Inflation Targeting

RER: Real Exchange Rate

REER: Real Effective Exchange Rate

SDIF: Savings and Deposits Insurance Fund

SPO: State Planning Organization

TRY: (New) Turkish Lira

TSI: Turkish Statistical Institute

CHAPTER 1

INTRODUCTION

After the 2001 crisis, Turkish economy has entered to a restructuring period with the implementation of disciplined monetary and fiscal policies, floating exchange rate regime and structural reforms aiming to eliminate the fragilities in the economy. This results in a decline in inflation rates, interest rates and public debt, an improvement in the structure of public finance and a decrease in the financial vulnerabilities of the economy. Accordingly, with the progress made towards stability, as from 2002 high growth rates together with massive foreign capital inflows have experienced. However, because of the relatively high dependence of the Turkish real output production structure on imported inputs and the real appreciation of (New) Turkish Lira (TRY) that have caused the producers to substitute imported inputs for domestic inputs, the high real output growth rates during the period have been realized with a substantial increase in the volume of imports. Therefore, in spite of the high export performance, current account deficits (CAD) have increased to record high levels both in nominal terms and as a share of GDP in recent years. This continuous increase in the CAD has caused the sustainability of it to become the main debate issue in Turkey.

There are different definitions and views about the sustainability of CAD. However, according to its simplest and most generally accepted definition, a CAD position is sustainable as long as foreign investors are willing to finance it. Hence, as Ozmen (2004b) stresses, the vulnerabilities of an economy to a sudden stop should be the main cause of concern about the sustainability of CAD instead of the level of it. This fact brings the sudden stop in capital flows (hereafter sudden stop) concept in the foreground. Sudden stops refer to large and unexpected reductions in the flow of international capital into a country, triggering an adjustment or even a reversal in current account deficits. The adjustment of the current account to the new levels of capital flows that are available following a sudden stop, is maintained by a

depreciation in real exchange rates (RER). Assuming Marshall-Lerner condition holds, depreciation of RER will likely increase the world demand to the country's exports and decrease the domestic demand to imported goods, improving the current account and taking the current account deficit to the levels compatible with the net capital inflows. However, this shock to credit may generate real effects with long-run outcomes as Calvo *et al.* (2003) states by causing a collapse in growth and employment, by increasing the inflation, by deteriorating the public finance and even by triggering a financial crisis. Although developments at the center of capital markets are usually key in producing a sudden stop, domestic policies and conditions play an important role in determining the possibility of experiencing a sudden stop and the strength of its effects. In this context, weak domestic fundamentals and especially high dollarization together with a low level of openness increase the possibility and exacerbate the negative effects of sudden stops. Accordingly, empirical studies in the literature highlight that sudden stops are a much more common feature of the developing countries. Therefore, as Guidotti *et al.* (2004) denote, sudden stops in capital flows and the ensuing current account reversals they induce have been at the center of economic policy discussions since the outbreak in the mid-1990s of the series of financial crises that plagued emerging market economies. Correspondingly, the financial crisis that Turkey had experienced in 2001 was driven by a sudden stop and reversal of capital flows emanated from the increased concerns of foreign investors about the sustainability of existing macroeconomic policies in Turkey.

As from 2002, high growth performance, high real interest rates, appreciation of TRY and the positive attitude of global capital markets to developing countries have provided Turkey to attract foreign capital at high levels and finance the high CADs during this period. However, these growing external imbalances have increased the vulnerabilities of Turkish economy to external shocks and sudden stops. In fact, despite the improved structure of the capital inflows with higher foreign direct investments (FDI) and long term capital inflows, the level of FDI, which is the most stable capital item, is still low in Turkey and a significant amount of the capital inflows are composed of portfolio inflows and short term capital, which are very sensitive to the developments in the economy and are ready for leaving the country in

case of a negative event. The movements of these capital items in Turkey during the turmoil that the global financial markets have been experiencing as from 2006, are the concrete proofs of their volatile structure. Moreover, the slowdown in FDI, the increased dependence to external borrowing of corporate sector and the financial flows that fell short of financing the CAD in the first five months of 2008, due to the rising domestic political tensions and tightening liquidity in the global markets, have exacerbated the concerns about the sustainability of CAD and its financing. Correspondingly, in their reports and studies on Turkey, international institutions, credit rating agencies and various analysts[1] cites the deterioration in the external financing of large and still widening CAD as the main risk factor for the stability of the economy by its potential to lead large CAD and RER adjustments.

Because of the increased importance of these widening external imbalances on the stability of Turkish economy, this thesis aims to analyze the concept of sudden stops with its triggers and effects, to evaluate the Turkish economy in terms of its exposure to sudden stops and to calculate the required level of change in RER in the face of a sudden stop in Turkey. The plan of the rest of this thesis is as follows. In Chapter 2, we discuss the determinants and sustainability of current account deficits along with the causes, consequences and policy implications of sudden stops. Chapter 3 provides the brief overview of the Turkish economy as from 1989 and evaluates the recent developments in the macroeconomic variables that are related with the risk of experiencing a sudden stop. Chapter 4 introduces the model that is used to calculate the required RER change in case of a sudden stop and lays out the results for Turkey with its implications for the economy. Finally, chapter five presents the conclusion together with the policy implications for Turkey.

[1] IMF (2008), Fitch Ratings (2008), Standar&Poor's (2008a, 2008b), Raymond James (2008b),

CHAPTER 2

CURRENT ACCOUNT AND SUDDEN STOPS: THE THEORY

2.1. Current Account: The Theory

In this section the balance of payments and current account of a country is defined, the literature on the relationship between real exchange rate and current account is briefly surveyed. This section also discusses the concept of the current account sustainability.

2.1.1. The Definition of Current Account

The balance of payments is a systematic record of all economic transactions between residents of one country and the rest of the world for a specific time period. In principle, the balance of payments consists of three main items: *Current account*, *Capital account* and *Official reserves*. While the current account records international flows of goods, services and transfer payments, the capital account records international transactions in financial assets. In total, the balance of payments shows the net flow of money to the country before the changes in official reserves are taken into account. It is in surplus when there is a net inflow of money to the country and in deficit when there is a net outflow of money from the country.

Inclusive of the official reserves item, which shows the change in the international reserves of the country as a result of the interventions of the central bank to the foreign exchange market, the balance of payments must sum to zero. This can be shown in equation (2.1).

$$\Delta R_t = CA_t + KA_t \tag{2.1}$$

where CA_t, KA_t and ΔR_t indicates the current account, the capital account and the change in the official reserves at time t, respectively.

If this equality cannot be maintained, it means that there is a failure to record all the transactions in the current account and capital account. Thus, a balancing item, called "net errors and omissions", is added to the balance of payments.

As can be seen from the equation (2.1), a current account deficit (surplus) must be met either by a capital account surplus (deficit) or by a decrease (increase) in the foreign exchange reserves. Either way, a current account deficit (surplus) is matched by a reduction (an increase) in foreign assets held. Thereby, the direction and amount of international borrowing or lending patterns are claimed to be determined by the current account of a country. In this context, the utmost importance is given to the current account of the balance of payments in the literature.

There are two ways to measure the current account. One of them is to add the trade balance, net transfer payments and net international investment incomes as explained above. The other one is to compute the current account from the basic national income equation given in (2.2). This second method is called "absorption approach" to the current account.

$$GDP_t = C_t + I_t + G_t + X_t - M_t \tag{2.2}$$

According to the equation (2.2), gross domestic product at time t (GDP_t) is defined as the sum of private sector's consumption expenditures (C_t), public and private sectors' investment expenditures (I_t), government purchases of goods and services (G_t), exports (X_t) and imports (M_t) of goods and services at time t. As the difference between gross domestic product (GDP) and gross national product (GNP) is emanated from net factor payments which is the product of net foreign assets (NFA) and real international interest rate (r), we can reach to the equation (2.3)

$$GNP_t = C_t + I_t + G_t + X_t - M_t + r_t NFA_t \tag{2.3}$$

As can be seen from the definition of current account made above, the expression ($X_t - M_t + r_t NFA_t$) infers the current account at time t (CA_t). Thereby, the equation (2.3) can be expressed as in (2.5) where ($C_t + I_t + G_t$) can also be defined as total absorption.

$$CA_t = X_t - M_t + r_t NFA_t \tag{2.4}$$

$$GNP_t - C_t - I_t - G_t = CA_t \quad (2.5)$$

Since ($C_t + G_t$) is equal to total consumption at time t, the difference between this expression and GNP_t gives the total savings in the economy. Thus, "absorption approach" tells that current account is equal to the difference between savings and investments.

$$S_t - I_t = CA_t \quad (2.6)$$

The total savings in an economy is composed of the savings of private sector (S^P) and savings of public sector (S^G). Similarly, the total investments can be divided into two as private sector investments (I^P) and public sector investments (I^G). In this way, the equation (2.6) is turn out to be:

$$CA_t = S_t - I_t = (S^P{}_t - I^P{}_t) + (S^G{}_t - I^G{}_t) \quad (2.7)$$

According to the equation (2.7), current account reflects the gaps between the savings and investments of the private and public sectors. If saving falls short of desired investment, foreigners must take up the balance, acquiring as a result claims on domestic income or output (Obstfeld and Rogoff, 1994). This viewpoint stresses how macroeconomic factors ultimately determine international borrowing or lending patterns (Alexander, 1952).

2.1.2. The Relation Between Current Account and Real Exchange Rate

Real exchange rate (RER) shows the relative price of goods from different countries in a common currency and indicates a country's competitiveness in world markets. It is measured as shown in (2.8) where E, P and P^F denote the nominal exchange rate, domestic inflation rate and foreign inflation rate, respectively.

$$RER = \frac{P}{E * P^F} \quad (2.8)$$

On the other hand, most of the theoretical studies in the literature define the RER as the relative price of the non-tradables and tradables[2] in a country under the assumption that the prices of tradables will be equal all around the world in terms of same currency. This second definition is mathematically represented in (2.9) where P^N and P^T indicate the domestic prices of non-tradable and tradable goods respectively and P^{TF} refers to international prices of tradable goods.

$$RER = \frac{P^N}{P^T} = \frac{P^N}{E * P^{TF}} \tag{2.9}$$

According to Kesriyeli and Kıpıcı (1997), these two definitions of RER usually give different results despite coinciding in some very special cases.

A decrease in RER means that domestic goods and services are cheaper (or less expensive) than foreign ones or that the tradables goods are produced more efficiently and more profitably relative to non-tradables, causing an improvement in the country's competitiveness in international markets.[3] In this context, the lower the RER and so the higher the level of the country's competitiveness in world markets, the higher will be the demand for exports. And also the lower the RER, the lower will be the import demand, since the foreign goods become more expensive in terms of domestic currency. Thus RER plays a deterministic role in current account by affecting the distribution of production and consumption between domestic and foreign goods.

Since it is one of the most important topics in the macroeconomic literature, there are a lot of theoretical and empirical studies on what causes current account imbalances. The basic approach to this question is to start out with the determinants of the variables in the equation (2.4). According to the new open macroeconomic theory, the demand for a country's exports is a function of the level of income in the rest of

[2] "Tradables" are goods that could be quickly transformed into exports when there is a collapse in domestic demand. Thus, a better term for "tradables" in this context is "exportables".

[3] The measurement of RER as shown in the equation of (2.8) and (2.9) and thus the evaluation of its meaning in Turkey is consistent with the definition of RER by IMF. However, contrary to Turkey and IMF, in most of the countries, RER is defined as the (E * (P^F / P)) and thus a decrease in RER means domestic currency appreciates in real terms.

the world (GDP^F) and the real exchange rate (RER) whereas the import demand of a country is a function of domestic income (GDP) and RER.

$$CA_t = X_t\,(GDP^F{}_t,\, RER_t) - M_t\,(GDP_t,\, RER_t) + r_t\,NFA_t \qquad (2.10)$$

Thereby, as can be seen in the equation (2.10), current account is a function of the levels of domestic and foreign incomes, real exchange rate and net factor payments. As the level of domestic income increases, the import demand of the residents increases causing deterioration in the current account. Similarly, as the level of income in the rest of the world increases, the current account improves due to the increase in the world demand to the country's exports.

Nevertheless, the relationship between current account and real exchange rate is not as clear cut as the relationship between current account and income levels. Different approaches to current account in the international economics literature define the relationship between real exchange rates and current account in different ways.

As it is stated before, devaluation (or depreciation) of the domestic currency reduces the outflows of foreign currency by decreasing the domestic demand for imported goods. This is called as the "foreign exchange saving effect" of devaluation. Similarly, the effect of an increase in the world demand for the exports of a country in case of a devaluation is called as the "foreign exchange earning effect". However, devaluation has two opposite effects on export income. First of all, devaluation reduces the foreign exchange income from a given amount of exports by making the exported goods relatively cheaper. This is the negative effect of devaluation on export income. On the other hand, devaluation increases the world demand for the exports of the country, causing an increase in export income. Thereby, the net effect of devaluation on export income depends on the relative weights of these two contrary effects. If the increase in the demand for exported goods is higher than the decrease in the prices of exports, then devaluation increases the export income. This relation is also same for imports. If the decrease in the demand for imported goods is higher then the increase in their prices then devaluation decreases the import expenditures. In this context, the size of the foreign exchange saving and earning effects depend on the demand elasticities of imports (e_m) and exports (e_x), which

show the decrease in the domestic demand for imports and increase in the world demand for exports respectively in the face of a given devaluation.

In this context, according to the so-called Marshall-Lerner condition in the international economics literature shown in (2.11), if the sum of demand elasticities of imports and exports is equal to or bigger than unity assuming that the supply elasticities of exports and imports are infinite, the depreciation of domestic currency improves the trade balance and thus current account.

$$e_m + e_x \geq 1 \qquad (2.11)$$

The "elasticities approach", which evaluates the effects of a devaluation on exports and imports, assumes that the Marshall-Lerner condition holds and thus a devaluation that causes a decrease in the real exchange rate improves the current account.

On the other hand, "J-curve hypothesis" states that the immediate and final impacts of real exchange rate fluctuations can be different from each other. Accordingly, as an immediate response to the real exchange rate depreciation, current account can deteriorate contrary to Marshall-Lerner model, since the adjustment of export and import demands to price changes takes time. However, as the time passes, export demand increases and import demand decreases causing an overall improvement in current account.

The "absorption approach", on the other hand, explains the effects of a devaluation (depreciation) on current account through the changes it creates on national income and total spending (absorption). As it is stated before in equation (2.5), a CAD implies that a country spends for consumption, investment and government purchases more than it produces. Therefore, in order to decrease the CAD, either the absorption should decrease or national income should increase. In this context, the changes in relative prices emanated from devaluation (or depreciation) decrease the demand for imported goods as stated before and thus the total domestic expenditure, giving rise to an improvement in the current account. Additionally, real depreciation of domestic currency causes both the expenditures to shift from imported goods to domestic goods and, the idle sources (in case of underemployment in the economy)

to be allocated to exports sector due to the increased demand for exported goods, stimulating the real domestic income together with the exports. Thus, according to the absorption approach, devaluation is expected to have two different impacts on expenditures. One of them is a directional change in expenditures and the other one is a decrease in the amount of expenditures, both of which have an improving effect on current account.

On the other hand, the intertemporal approach to current account, which extends the absorption approach through its recognition that private saving and investment decisions, and sometimes even government decisions (Obstfeld and Rogoff, 1994) are based on intertemporal factors such as life cycle considerations and expected returns on investment projects (Edwards, 2004), suggests that the direction of the relationship between the real exchange rate and current account is ambiguous.

A number of empirical studies have also been made on the determinants of current account and the relation between real exchange rate and current account. In their study on the determinants of current account in industrialized countries, Debelle and Faruqee (1996) and Debelle and Galati (2005) discloses that real exchange rate is significantly relevant with the current account in the short-term. According to the study of Calderon, Chong and Loayza (2002), a depreciation of the domestic currency has the result of reducing the current account deficit, although the effect is economically small. The authors find that a 10% depreciation of the real exchange rate leads to a current account deficit reduction of only 0.57 percentage points. The results of the study made by Erkılıç (2006) for the case of Turkey strongly suggest that real effective exchange rate together with the lagged current account deficit and growth rate are statistically most significant variables to explain the determinants of current account deficit in Turkey. On the other hand, in their empirical study, Obstfeld and Rogoff (1994) conclude that the relation between real exchange rate and current account is positive but weak, and hence ambiguous, supporting the intertemporal approach to current account. Freund (2000), who analyzes the current account adjustment in developed countries, finds that the depreciation of real exchange rate causes a J-curve effect on trade balance whereas Calderon at al (2002) obtain no evidence in support of the J-curve hypothesis. Nonetheless, the recent

country experiences explicitly indicate that the real depreciation of domestic currency causes the current account to improve or vice versa.

2.1.3. Current Account Sustainability

It is important to ask whether economic authorities should be concerned if a country runs large current account deficits. In this context, many studies have been made in order to search the effects of large current account deficits and whether they have been related with the currency crises of 1990s and 2000s, bringing the sustainability problem into foreground. Sustainability is important particularly in the countries having an external debt, since the sustainability of current account deficits means the same with the sustainability of external debt (Uygur, 2004).

It is often argued that there is a threshold level of sustainable "current account over GDP ratios". For example, by analyzing the 25 episodes of current account reversals that occurred between 1980 and 1997 in industrial countries, Freund (2000) identifies a 5 % "current account over GDP threshold" beyond which current account reversals typically tend to happen. On the other hand, Dornbush (2001) calculates the same ratio as 4% claiming that a rapid real appreciation of minimum 25% over two or three years together with a current account deficit exceeding 4% of GDP will certainly take the country to the red zone. However, Milesi-Ferretti and Razin (1996) state that it is difficult to identify a specific threshold ratio for sustainability such as 5 percent, beyond which a current account deficit tends to reverse. Instead, they identify a list of sustainability indicators such as exchange rate policy, the maturity and components of external debts, trade openness, the health of the financial system and the levels of savings and investment. According to this study, foreign investors' confidence to the ability and willingness of a country to pay its external debts and in this context political instability and policy uncertainty in those countries also play an important role in determining the sustainability of CADs. Similarly, the results of GS-SCAD (Goldman Sachs - Sustainable Current Account Deficit) model applied to developing countries, come to the conclusion that it will be misleading to rely on general fixed sustainability ratios such as %4-5 and that such threshold ratios can change depending on the macroeconomic conditions of each country (Babaoğlu,

2005 and Edwards, 2001). Özmen (2004b) has also showed that the same level of current account deficits can cause different results in different countries or in the same country at different periods, making void the suggestion of a critical CAD threshold, which is valid for every condition and every country. In this study, Özmen finds out that the sustainable level of CAD is not invariant to institutional and financial structures, exchange rate regimes, macroeconomic policy stance and the order of the international financial system. While the better governance and macroeconomic stance increases the ability of an economy to sustain CAD, the presence of original sin[4] decreases this ability. In light of these findings, Özmen claims that "the fear of CAD" should be replaced by "fear of structural vulnerabilities" as the elimination of vulnerabilities can make a country to sustain higher CAD. In this context, Özmen (2004a) gives the examples of Portugal and Greece where the current account deficits increased from 2-3% and 1-2% in 1990s to 10% and 6-7% in 2000, respectively, suggesting that as the financial system develops, financial constraints decrease and the facilities of borrowing increase in a country, the sustainable level of current account deficit also increases.

When it comes to the relation between the exchange rate policy and sustainability, the widespread view in the literature tells that under the floating exchange rate regime, as the current account deficit increases, the exchange rate will automatically make the necessary changes to hold the current account deficit at sustainable levels. In parallel with this view, Özmen (2004b) suggests that the exchange rate flexibility puts a discipline on current account deficit not to deviate systematically from its equilibrium path. Likewise, Fischer (2002) utters his belief on that the shift towards flexible exchanges rates precludes some type of crises and hence reduces the frequency of crises. However he declares that external financing (or in other words debt sustainability) crises and as a result exchange rate crises can still occur in a flexible exchange rate regime, if international markets conclude that a country's debt situation is not sustainable - as in the case of Brazil in 2001. Finally, whatever the foreign exchange regime is, as Özmen (2004b) emphasizes, in a financially open

[4] Original sin is defined as the inability of a country to borrow abroad in its own currency. For a detailed information, go to Eichengreen, Hausmann and Panizza (2003)

economy, the source of the CAD and the institutional structure of its financing is important in its sustainability.

In the sense of the relation between the source of current account deficits and their sustainability, economists have reached different conclusions. Sachs (1981) emphasizes that if the large current account deficit in a country is a result of an increase in investments and if the fiscal accounts are balanced and the private savings are not decreasing then there is no cause for concern or for policy action since these new investment opportunities reflect fast growth rates and thus higher exports. This view is also referred to as "Lawson's Doctrine" in the literature since it became popular with the former Chancellor of the Exchequer Nigel Lawson. By going one step forward, Corden (1994) declares that if the large current account deficits do not stem from the public sector and rather if it results from a shift in private sector behavior – from either a rise in private investment or a fall in private savings - it should not be a matter of concern at all (Edwards, 2004 and Uygur, 2004).

On the other hand, Fischer (1988, 2002) and Freund (2005) have taken a different position stating that large current account deficit is a sign of clear danger. Nevertheless, after the crises in Brazil, Mexico and Chile which arose while both the current account deficits and investments were increasing in 1980s, most of the economists including the ones in International Monetary Fund (IMF) started to defend that wherever it takes its roots, a current account deficit, which is increasing or expected to increase and seemed as unsustainable, can be a significant cause of crisis and has to be monitored carefully. Coherently, according to Obstfeld (2004), almost any foreign borrowing can trigger government budgetary intervention and public-sector liability, so the distinction between purely private and public foreign borrowing is not a sharp one in practice, discrediting the Lawson's doctrine.

Moreover, according to Milesi-Ferretti and Razin (1996), although high levels of savings and investments can improve the sustainability of the external position assuming that the investments are necessarily growth enhancing and that they strengthen the ability to repay external debts, inefficient selection of the investment projects due to the market distortions and political priorities can skew the

investments towards the non-traded goods sector, failing to enhance the country's ability to generate future trade surpluses and therefore to improve the sustainability.

As Özmen (2004b) suggests, the sustainability of current account deficits is determined not only by the repayment ability of the countries and by the source of the deficits, but also by the lending conditions and the willingness of the international financial system to finance these deficits. In this context, one of the most important issue in the sustainability of current account deficits is that how these deficits are financed and whether this financing is sustainable or not. According to the findings of Debelle and Galati (2005), as the volatility of the components in the capital account decreases, the probability of sustaining large current account deficits increases. Nevertheless, in his study in 1994, Fischer predicted the Mexican crises correctly months before the crisis by evaluating the size and the financing of the current account deficit. According to Fischer (1994), since Mexican current account deficit was huge and being financed largely by portfolio investment, which can turn around very quickly, Mexico would have no choice but to devalue in case of a sudden stop or an outflow of these investments. Also, while evaluating the sustainability, it should be taken into account that the financing and sustainability of current account deficits is an intertemporal phenomenon and external imbalances of a country cannot be financed forever by the foreign sources. Hence, as Özmen (2004b) stresses, instead of the level of CAD per se, the vulnerabilities of an economy to a reversal of international capital flows should be the main cause of concern about the sustainability of CAD. Correspondingly, Edwards (2004) finds that major reversals in current account deficits have tended to be strongly associated with the sudden stops which will be explained in detail in the next section.

2.2- Capital Account and Sudden Stops: The Theory

In this section, after a short revision of capital account, the concept of sudden stop is described and the sources of sudden stops and their effects on economy are examined together with the policy suggestion in the literature against them.

2.2.1- Capital Account

As already stated in equation (2.1), a current account deficit must be met either by a capital account surplus or by a decrease in the foreign exchange reserves. Mainly the capital account is composed of two types of capital flows: long term and short term capital flows. Long term capital flows are the capital flows with a maturity of more than a year and can be classified as foreign direct investments (FDI)[5], portfolio investments (investments in foreign bonds and equities) and official capital flows. On the other hand, short term capital flows are the flows with a maturity of less than one year. Hence, the capital account covers a variety of financial flows, which have in common the acquisition of assets in one country by residents of another. However, among these capital flows, countries favor FDI, because they usually are not subject to rapid reversals associated with changes in investor sentiment. Moreover, they also contribute to the growth process in the economy, especially if they are in the form of greenfield investments that create new production capacity and new employment opportunities. On contrary, short-term capital inflows and portfolio investments, which are called as "hot money" in the literature, can be quickly reversed when a country is hit by an adverse macroeconomic shock, amplifying the shock's macroeconomic effect. (Köse and Prasad, 2004).

Starting in 1989-90 there was a huge increase in capital flows to emerging economies. According to IMF figures, net capital flows to emerging and developing economies went from 29 billion US dollars in 1989 to 224 billion US dollars in 1996, an eightfold increment in a very short period of time and as of the end of 2007 they reached to a record level of 605 billion US dollars as seen in Figure 2.1. Nonetheless, due to the original sin and debt intolerance of the international financial system, the developing countries had to finance their current account deficits mostly by short-term capital inflows, which are, as stated above, very sensitive to the developments in the country and can move quickly into and out of the country (Özmen, 2004b) despite some improvements in this financing structure due to the macroeconomic

[5] According to the definition of Central Bank of the Republic of Turkey (CBRT), foreign direct investment is the category of investments that reflects the objective of a resident entity in one economy to obtain a lasting interest in a direct investment enterprise located in another economy, by controlling the management of the enterprise. In this context, direct investment occurs when the investor owns 10 percent or more of the ordinary shares in the enterprise.

stability achieved in recent years. The volatile structure of the capital flows can also be seen in the Figure 2.1 with decreases for the years following the 1997 Asian and 1998 Russian crisis. Therefore, rapid and immediate outflows of capital or in other words sudden stops become one of the most important concerns of developing countries.

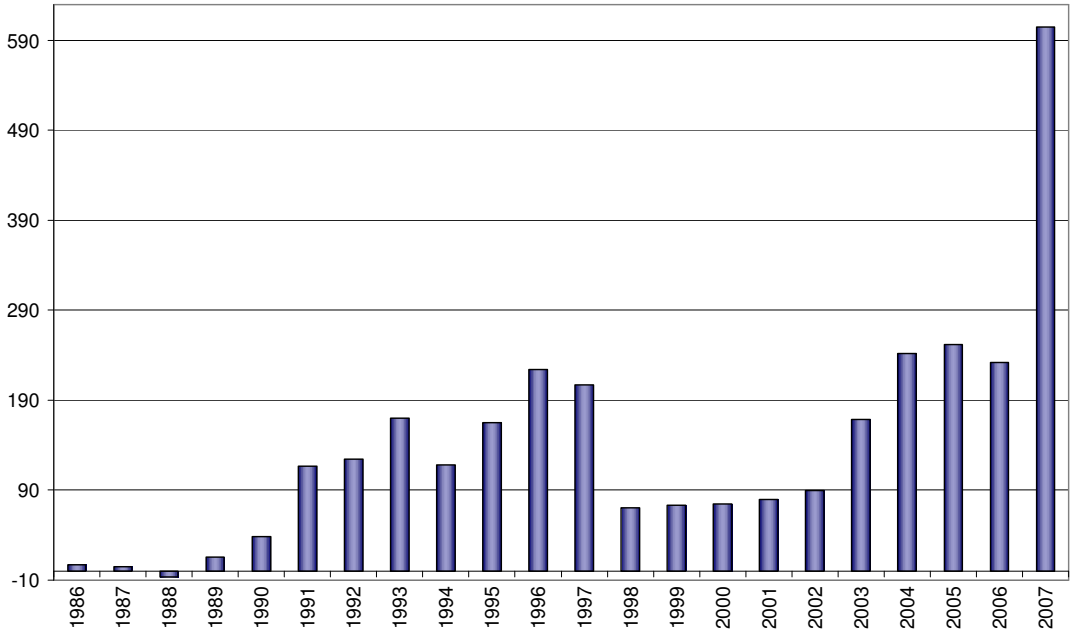

Figure 2.1 – Real Private Capital Flows to Developing and Emerging Countries* (1986 – 2007, billion USD)

* Developing and emerging countries compromise the countries in Africa, Central and Eastern Europe, Commonwealth of Independent States and Mongolia, Developing Asia, Asean-5 (Indonesia, Malaysia, Philippines, Thailand and Vietnam), Middle East and Western Hemisphere.

Source: IMF

2.2.2- Sudden Stops

"It is not speed that kills, it is the sudden stop"

Dornbusch et al (1995)

The expression of "sudden stop" was first suggested and the phenomenon highlighted in Dornbusch, Goldfajn and Valdes (1995). Sudden stops can be described as the abrupt and significant reductions in foreigners' demand for the country's assets, in other words, in the flow of international capital to the country. As Calvo and Reinhart (2000) and Chari *et al*. (2005) highlights "large and highly

unexpected" are the two defining characteristics of what the literature calls sudden stop.

Some quantifying definitions have also been made for sudden stops in various studies in order to distinguish the sudden stops from modest decreases in capital flows. For example Catao (2006) defines a sudden stop as a drop in capital flows from peak to trough of no less than 2 standard deviations of respective series from a linear trend and / or any drop that exceeds 3% over a period shorter than 4 years. He times the beginning of a sudden stop as the year when capital inflows peak and the end when capital flows renew relative to trend without dropping back to its lowest level within a 4-year period. Calvo, Izquierdo and Mejia (2003a) identify sudden stops as occurring when capital flows to a country contain a year-on-year contraction of the capital account two standard deviations below its sample mean. They assume that the sudden stop begins when the annual change in capital flows falls one standard deviation below the mean and ends when the annual change is less than one standard deviation below the mean. They further restrict the cases to those in which capital outflows are accompanied by a contraction in output. Guidotti, Sturzenegger and Villar (2004) differentiate this definition slightly by restricting the country sample to those cases in which the capital account contraction exceeds 5 percent of GDP to avoid including countries that display minimal changes in the capital account which are larger than one standard deviation owing to the countries' low volatility. The empirical analysis based on these definitions highlight some important features of sudden stops.

First of all, Guidotti *et al*. (2004) show that sudden stops have been a relatively common phenomenon since the early 1980s, with 4–8 percent of all countries usually suffering from such an episode each year and in peak years this proportion may even reach one out of seven. Also empirical studies in the literature highlight that sudden stops are a much more common feature of the developing countries.[6] Correspondingly, Calvo and Reinhart (2001) show that, on the whole, sudden stop is absent in advanced countries. Secondly, as Calvo *et al.* (2004) bring out, sudden stops seem to come in bunches, grouping countries together that are different in

[6] Calvo, Izquierdo and Talvi (2003b), Calvo, Izquierdo and Mejia (2004), Calvo and Talvi (2005)

many respects such as fiscal stance, monetary and exchange rate arrangements. In other words, sudden stop episodes tend to occur around the same time, and in countries including both the crisis-prone economies and fundamentally strong developing economies such as Chile and Singapore. For example sudden stops in emerging markets (EMs) are mostly materialized around the 1994 Tequila, 1997 East Asian and 1998 Russian crises whereas sudden stops in developed countries are centered on the 1993 The European Exchange Rate Mechanism (ERM) crisis. Bunching is particularly striking around the time of the Russian crisis of August 1998. Within one year before and after the Russian crisis, countries like Argentina, Chile, Colombia, Ecuador, Indonesia, Korea, Peru, Thailand, Turkey and the Philippines, which were quite heterogeneous in terms of their fiscal stance and other macroeconomic measures, were all in a sudden stop phase, making it hard to argue that there was a common flaw in fundamentals driving these episodes, other than the fact that they are all EMs. (Calvo *et al.*, 2004) Hence, it can be adduced that the "bunching" of countries is another important characteristic of sudden stops. Finally, in addition to being a relatively common phenomenon, sudden stops are extremely large and lead to major adjustments in current accounts and real exchange rates; and the effects of the sudden stops in developing countries are much more dangerous than in developed ones because of some structural vulnerabilities of these countries.

2.2.2.1- The Effects of Sudden Stops

In their study on sudden stops and fiscal sustainability in Argentina, Calvo *et al.* (2003a) define sudden stops as the shocks to credit that generate real effects, with long-run outcomes. Coherently, according to Calvo *et al.* (2004), a sudden stop reflects large and unexpected falls in capital inflows that have costly consequences in terms of disruptions in economic activity.

A capital-inflows episode is a period during which capital account (KA) shows a sharp and sustained increase. As can be seen from the equation (2.12), in a non-monetary economy, this capital inflow episode is also a period of high CAD.

$$KA_t = CAD_t \tag{2.12}$$

Accordingly, a decline in capital inflows that reduces the capital account of the country corresponds with a contraction in current account deficit. In other words, as pointed out by Edwards (1999), a reduction in foreigners' net demand of a country's assets will result in a decline in that country's sustainable current account deficit, forcing it into adjusting. If this reduction in foreigners' demand for the country's assets is abrupt and significant – that is, if the country faces with a "sudden stop" reflecting the disruption in international credit markets - it is very likely to observe a major current account reversal. More precisely, if the financing of the current account deficit stops, the full amount of that imbalance needs to be cut. Indeed, it is not uncommon to see an abrupt adjustment towards current account balance within a year following the Sudden Stop. For example, the adjustment of the current account deficits of the key Latin American economies, which are faced with a sudden stop aftermath the Russian Crisis in 1998, was on average equivalent to 6.3 percentage points of their GDP reaching a zero balance by the end of 2000 and turning to a surplus of 1.3 percent of GDP in the year ending 2002, according to the study of Calvo *et al*. (2003a, 2005). In another study Guidotti *et al*. (2004) analyze 265 cases in which a current account reversal followed the sudden stop in both developed, developing and poor countries and finds that the adjustment of the current account appears to be large and very fast, with an average of 10 percent of GDP in the first year. Thus, the authors conclude that if the economy cannot use its own reserves or obtain assistance from international financial institutions in sufficient amounts, then the issue is not whether a sudden stop would cause an adjustment, but by how much and with what consequences.

In this context, the empirical studies[7] in the literature show that a sudden stop, causing a reversal in current account, will bring about a fall in aggregate demand and a possibly large decrease in the RER. The "absorption approach" mentioned in chapter 2.1 gives us the logic beneath it. According to this approach, by deriving from the equation (2.5),

$$CAD_t = (C_t + I_t + G_t) - GNP_t \qquad (2.13)$$

[7] Calvo (1998), Calvo and Reinhart (2000), Calvo and Talvi (2005), Calvo *et al.* (2004), Edwards (2001), Freund (2005), Milesi-Ferretti and Razin (2005)

where ($C_t + I_t + G_t$) is equal to aggregate demand. Hence, a sudden contraction in the current account deficit following a sudden stop necessitates a sharp decline in aggregate demand unless there is an offsetting increase in GNP. The decline in demand, in turn, lowers the demand for tradables and non-tradables. As Calvo and Reinhart (2000) express, the excess supply of tradables can be shipped abroad, but the non-tradables are, by definition, bottled up at home and thus, its relative price will have to fall resulting in a real depreciation of the currency. On the other hand, the decrease in the aggregate demand makes the output of non-tradables to fall causing a collapse in growth and employment. Also, according to the new open macroeconomic theory as can be seen from the equation (2.10), the slowing income growth and real depreciation constitute a significant part of current account reversal. In this context, we can say that the abrupt reversal in current account deficit, following the loss of access of domestic economic actors to the international financial system, is associated with a large real depreciation, fast contraction of aggregate demand and major financial disruptions, leading to decreases in the prices of financial assets.

Correspondingly, according to the observation of Calvo *et al.* (2004), only 37 percent of all depreciation episodes in developing countries were not associated with a sudden stop. In her study on current account reversals in developed countries, Freund (2005) finds that as a counterpart of the current account reversal, the domestic money depreciates in real terms of about 10 percent over a period of three years. In another empirical analysis by Milesi-Ferretti and Razin (1999) comprising 105 low- and middle-income countries, it is seen that the real exchange rate increase prior to the reversal and fall the year of the reversal with a median nominal depreciation of 53 percent, and do not recover within the three-year period. However, it is clear that the required real exchange rate depreciation in case of a sudden stop is determined by the net foreign asset position and current account of the country (Obstfeld, 2004). Besides, according to Freund (2005), the nominal depreciation is in general substantially greater than the real depreciation, causing the adjustment process to involve relatively high inflation in most of the countries.

Additionally, the empirical analyze of Edwards (2001) on current account deficits in a sample of 120 countries finds evidence that current account reversals lead to lower

per-capita GDP growth. But, on the other hand, Milesi-Ferretti and Razin (1999) find that although declining real income growth is a significant part of the adjustment process among industrialized countries, there is not a strong relationship between income growth and the current account adjustment in non-industrialized countries. One possible explanation they introduce for this difference is that in industrialized countries, pressure groups may work to limit exchange rate adjustments, forcing real income to do much of the work of external adjustment.

Also, there may be some differences in adjustment processes among emerging countries in the aftermath of a sudden stop. As Guidotti *et al.* (2004) highlight, a comparison of Asian and Latin American countries shows that the former tend to adjust to a sudden stop via fast export growth; as a result, Asian recessions have been short-lived and recoveries swift. In contrast, adjustment in Latin American economies has occurred via import and demand contraction, while exports have remained stagnant even in the wake of significant exchange rate devaluations, causing the recessions to be large and long-lived.

A monetary economy differs from the "real" one in that, instead of identity (2.12),

$$KA_t = CAD_t + \Delta R_t \qquad (2.14)$$

where ΔR_t stands for accumulation of international reserves at time t. One key difference here is that a slowdown in capital inflows could now be met by a loss of reserves instead of lower current account deficits. As Calvo and Reinhart (2000) highlights, in practice, both take place. Hence, it can be claimed that sudden stops are also typically accompanied by large contractions in international reserves. The loss of international reserves cushions the output and credit collapse associated with the contraction in the current account deficit. However, as the sudden stop phenomenon lingers on, international reserves will be depleted, increasing the country's financial vulnerability. Since reserves will not typically be enough to sustain a current account deficit for a long time, this is in principle a losing strategy if sudden stop events are highly persistent.

In order to check to what extent countries have used reserves to smooth out the effect of a sudden stop on the current account deficit, Calvo *et al.* (2004) examine the

behavior of foreign reserves in the neighborhood of sudden stops. Despite being a losing strategy, many countries have engaged in reserve loss strategies to sustain exchange rates and avoid abrupt current account adjustment, perhaps in the hope that sudden stops would be reversed. They find on average 35.7 percent reserve loss from peak to trough within the Sudden Stop phase for each country in their sample of 32 developed and developing countries.

In this context, whenever capital flight emerges, the question of the exchange rate regime is immediate. As Dornbusch (2001) states, under fixed exchange rate regimes that means how much reserves the central bank has and is willing to commit; under managed or flexible rates it means how far and fast the rate will depreciate. However Calvo *et al.* (2003a) declare that the long run outcomes of sudden stops are independent of nominal exchange rate arrangements, although short-run dynamics can vary substantially depending on nominal arrangements.

As Calvo (1998) emphasizes, if the country is committed to a fixed (or semi-fixed) exchange rate, international reserves will fall precipitously in order to preserve the foreign exchange rate. Correspondingly, this mechanism makes the central bank vulnerable to a speculative attack, resembling a currency crisis. The moment this is perceived by the public, they will lower their demand for assets denominated in domestic currency and try to convert dollar-denominated liabilities into domestic-currency denominated liabilities, exacerbating the fall in capital inflows. In fact, the study of Milesi-Ferretti and Razin (1999) on 105 low- and middle-income countries denotes that in the whole sample, although the exchange rate is pegged 69 percent of the time, a number of countries abandon the exchange rate peg the year of the crisis, and a few more the following year. Besides, since these reactions are taking place against a background of tighter international credit, they are likely to further increase all interest rates inside the country: both dollar and domestic currency interest rates. According to the study of Calvo *et al.* (2004), real interest rates rise sharply in the neighborhood of a Sudden Stop, on average 3900 basis points, particularly so for EMs with an average of 4670 basis points.

On the other hand, in a flexible exchange rate regime, changes in capital account must be offset mostly by changes in the current account causing a high real

depreciation, as stated before. However, this high real depreciation affects the inflation and output negatively. Thus, in respect of the observation of Caballero and Krishnamurty (2002), the knee-jerk reaction of a central bank, which is concerned with inflation and output, to the outflow of capital is raising domestic interest rates. Raising interest rates reduces the exchange rate depreciation with limited effects on output beyond the impact of the external constraint. However it is worth to note that during a sudden stop monetary policy loses its potency, since the principal constraint on output in case of a sudden stop is a shortage of external resources, although the main effect of domestic money is on agents' domestic borrowing capacity.

Additionally high interest rates following the sudden stop deteriorate the public finance. As cited by Dornbusch (2001), besides high interest rates, the deterioration in public finance also arises from the fall in tax revenues because of a drop in output during a sudden stop period and from the bailing out of banks by the government if the sudden stop is accompanied by a currency crisis.

Another impact of sudden stops that is specified by Calvo (1998) is that they may result in bankruptcies, and destruction of human capital and local credit channels. To put the case more clearly, sudden stops are likely to generate across-the-board bankruptcies and the sudden emergence of bankruptcies puts into question not only the solvency of the directly affected firms, but also the other firms which are actually or potentially connected with them through the credit channel. Consequently, more information is needed to assess firms' creditworthiness and, as a result, human capital devoted to production is diverted to financial matters, depressing physical capital's average and marginal productivities (Calvo, 1998). Similarly, in another study, Calvo and Reinhart (2000) suggest that the capital inflow slowdown or reversal could push the country into insolvency and drastically lower the productivity of its existing capital stock as a result of large unexpected swings in relative prices and costly bankruptcy battles.

Finally, as Calvo (2003) and Bordo (2006) claims, financial crises may be one of the deleterious effects of sudden stops. Similarly, Calvo (2001) highlight the fact that recent financial crises affecting emerging economies have been accompanied by a major cutback in capital inflows as happened in Brazil in 1998, Argentina in 2001

and Turkey in 2001. In principle, a reversal in capital flows can cause a currency crisis. However, in their study on the relation between currency crises and current account reversals, Milesi-Ferreti and Razin (1999) conclude that currency crises have a tenuous relation with current account reversals with only less than one-third of all current account reversals were preceded by a currency crisis. On the other hand, Calvo and Reinhart (2000) show that nearly all the banking crises in their sample of 15 emerging countries are associated with a negative reversal in capital inflows and while in most cases the banking sector problems begin before the sudden stop, the abrupt capital flow reversal deepens the financial sector problems. Also, as stated by Bordo (2006), empirical studies in the literature that take the fallout from the 1998 Russian debt default, which ended a protracted period of capital flows from the advanced countries to the emerging markets (see Figure 2.1), as a template for their analysis, provide a convincing case for the importance of systemic sudden stops as the key cause of severe financial turbulences in developing countries.

Russian crisis triggered a cutback in lending to emerging markets, even if to the ones that had no meaningful financial or trading ties with Russia. As Calvo and Talvi (2005) posit, this contagion effect of the crisis likely came via the common creditor channel, whereby the balance sheets of highly leveraged investors in emerging markets were negatively impacted by losses from the Russian default, leading to a liquidity crunch and a general sell off of EM bonds across the board at fire sale prices to meet margin calls. An alternative systemic explanation that they bring for the widespread effect of the Russian crisis is Reverse Moral Hazard. According to this explanation, the IMF refusal to bail out Russia sent a strong signal to the market that the IMF would no longer support blanket bailouts. This, in turn, increased the perceived risk of investing in developing countries and orchestrated a run out of developing country securities. Thus, following the Russian crisis, interest rate spreads for emerging economies skyrocketed and the value of collateral bottomed out, increasing the external financing cost and signaling the unsustainability of outstanding debt stock. Also the currency devaluation exacerbated the situation by increasing private debt ratios even further. The result was a sudden stop in external financial flows and domestic bank credit flows. This shock led to current account reversals in many countries, a depreciation in nominal and real exchange rates and a

decline in growth rates of real GDP as specified above. In fact, GDP growth in seven major Latin American countries (LAC-7)[8] fell from a yearly average of 4.4 percent in the period between 1991 and the second quarter of 1998, when international financial resources were abundant and cheap, to 0.5 percent between 1999 and 2002 after the sudden stop according to Calvo and Talvi (2005). Moreover, Bordo (2006) denotes that sudden stops with financial crises produced twelve times greater output losses than those without in the recent period.

2.2.2.2- The Sources and Triggers of Sudden Stops

Money . . . has oppressed nearly all people in one of two ways:
either it has been abundant and very unreliable, or reliable and very scarce.
John Kenneth Galbraith

Any shock that pushes the economy beyond the critical debt level would trigger a sudden stop. It can be an external factor such as changes in international interest rates, the violent swings in the risk appetite of financial markets or contagion effect as was the case in Latin America following the Russian crisis, but it can also be an internal factor like a domestic political or corporate governance scandal that leads foreign investors to change their evaluation of the country's future prospects (Calvo, 2003; Guidotti *et al*., 2004; Milesi-Ferretti and Razin, 1998). Nevermore, the studies[9] that analyze the past experiences conclude that developments at the center of capital markets rather than domestic policies were key in producing a sudden stop in capital flows to developing economies. According to Caballero and Panageas (2005), there is extensive evidence that in many circumstances the main culprit of the sudden stop is not the country itself but the international financial markets' response to shocks only vaguely related to the country's actions. This diagnosis also explains the feature of "bunching of the countries that are different in many respects" of the sudden stops. However, as Calvo and Talvi (2005) suggest, although the root cause of sudden stops

[8] LAC-7 includes the seven major Latin American economies, namely, Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela.
[9] See Caballero and Krishnamurty (2003), Cabalero and Panageas (2005), Calvo (2005)

must lie in common external factors, external does not necessarily mean that capital inflows are independent of domestic fundamentals.

Domestic policies and fundamentals play an important role in determining the possibility of experiencing a sudden stop and the strength of the effects of it. According to Calvo (2005), robust economic fundamentals and appropriate domestic policies increase the resistance of the countries against sudden stops. Calvo and Talvi (2005) explain this fact with a metaphor of a cold spell. A cold spell affects different people in different ways: some catch a mild cold, while others end up at the hospital, depending on the physical strength or fragility of the person affected. Similarly, a sudden stop in capital flows originating in external factors can have very different impacts depending on the strength or the vulnerability of each economy.

Correspondingly, the country experiences show that, as it is expected, due to their weaker domestic fundamentals, capital reversals and current account adjustment in developing countries seem to be much more substantial than in developed ones. Moreover, Calvo (2001) claims that sudden stops are not experienced by developed countries, where the crises have been accompanied by an expansion of credit, rather than strong contraction as in the case of the emerging economies. On the other hand, unlike their more developed counterparts, EMs routinely lose their access to international capital markets. The finding of Guidotti *et al.* (2004) in their study on sudden stop episodes in both developed and developing economies, about that the middle-income emerging economies are most prone to suffer from a large sudden stop, also supports this concept. In these economies, current account behavior is molded by the availability of capital flows that is called as the "capital account dominance" by the Goldfajn (2004). The costs of adjustments are high in an environment of capital account dominance since goods and labor markets tend to adjust slower than capital markets. Also, as stated by Calvo and Reinhart (2000), given the common reliance on short-term debt financing, the public and private sectors in developing countries are often asked to repay their existing debts on short notice, increasing the need for abrupt adjustment. In fact, according to the study of Calvo *et al.* (2004), the average increase from trough to peak in the current account balance is of 6.1 percent of GDP in EMs, while it is only 1.1 in developed economies.

Furthermore in a developing economy, foreign savings can substitute the domestic savings, increasing the vulnerability of the economy to a sudden stop. In this case, the country is caught to the sudden stop with a very low savings ratio increasing the cost of adjustment. Besides, as Inan (2006) denotes, since their money are not convertible in international markets and in general they finance their current account deficit with foreign borrowing causing an increase in exchange rate risk, developing countries suffer more from the sudden stops.

Accordingly, it can easily be claimed that the economic performance after a sudden stop can differ dramatically across countries, depending on certain country characteristics. The two most important characteristics of developing countries that causes them to be more vulnerable to sudden stops relative to developed countries can be listed as the relative closedness and liability dollarization

Openness is defined by Calvo *et al.* (2003b) as the share of tradable goods output[10] relative to domestic absorption of tradable goods. As Calvo and Talvi (2005) states openness is an essential link in the chain mapping an external liquidity shock to a financial crisis and an economic collapse. The degree of openness is related with the sensitivity of the real exchange rate to capital flow reversals. In a closed economy, the change in the real exchange rate to accommodate a sudden stop in capital flows is larger than in an open economy. This relation will be detailed in section 4. Calvo and Talvi (2005) give the example of Chile and Argentina as a proof of this fact. Chile's economy prior to the Russian crisis and the sudden stop was approximately 50 percent more open than that of Argentina. Therefore, although Argentina's current account deficit prior to the sudden stop was smaller than Chile's (4.7 percent versus 6.5 percent), due to its relatively closed economy Argentina would have required a larger real depreciation than Chile in order to eliminate the current account deficit.

On the other hand, liability dollarization as a result of the "original sin" that developing countries face with, causes large financial currency mismatches in both the private and public sectors, whose revenues are in local currency. The increasing exchange rate risk taken as a result of this currency mismatch increases the risk perceptions of the lenders, strengthening the possibility of experiencing a sudden

[10] More specifically, output that can be transformed into exports rapidly.

stop. Also, as Calvo *et al*. (2003b) explain, this currency mismatch between revenues and liabilities can easily lead to financial distress following the depreciation of real exchange rate coming with sudden stop, as balance sheets deteriorate dramatically with the increased value of loans, which usually give rise to bankruptcies in these non-dollar earning sectors. This can contribute to a banking crisis as the collaterals backing bank loans deteriorate. In such a case, public sectors usually feel as if they have to bail out banks and/or the corporate sector as happened in the recent crises. The materialization of contingent liabilities of this sort together with the big real exchange rate swings and high dollarization in public debt, send the debt to GDP ratios to skyrocketing levels, lead to a debt crisis for governments and even can cause the bankruptcy of the public sector accounts (Calvo *et al*., 2003b; Bordo, 2006). Besides, both the banking and debt crises can generate currency crises as international reserves, which serve to back the banking system's liabilities as well as the government's balance sheet, are threatened (Dooley, 2000; Mishkin, 2001). Hence, while under normal circumstances, a real devaluation would be part of the solution for an economy that requires substantial external adjustment, under extensive liability dollarization it becomes a part of the problem rather than the part of the solution. (Calvo and.Talvi, 2005)

In short, while trade closedness increases the required real exchange rate adjustment in case of a sudden stop, liability dollarization amplifies the negative consequences of this adjustment. Thus, as Calvo *et al.* (2004) imply, these two factors together represent a dangerous financial cocktail for both the private and public sectors. For example the Argentine crisis of 2001 incorporated many of these elements. As Calvo *et al*. (2003b) define, it was extremely closed to international trade, highly indebted and has a high degree of dollarization in both the private and public sectors causing large financial currency mismatches. By contrast, Chile, which was both more open and whose economy was much less dollarized, experienced a serious current account correction and slowdown in growth following the sudden and severe interruption in capital inflows as a result of Russian crisis, but no financial crisis and economic collapse (Calvo and Talvi, 2005). Coherently, Guidotti *et al*. (2004) find that open economies that do not show much liability dollarization recover fairly quickly from the output contraction that comes with the sudden stop, whereas countries with

liability dollarization recover more slowly. According to their study, open Chile should grow 4 percentage points more in the aftermath of a sudden stop crisis than closed Brazil.

Besides, Caballero and Krishnamurty (2003) observe that the countries, which have been unsuccessful in fighting with inflation causing a lack of credibility in their monetary policies, are also more prone to sudden stops. However, there is still a group of countries for which the problem of high and unstable inflation is no longer present but the problem of sudden stops persists such as Brazil, Chile, Mexico, Turkey and many of the Asian and Eastern European economies.

Calvo and Reinhart (2000) show that many of the emerging countries having experienced a surge in capital inflows in 1990s are also listed as having suffered an abrupt capital account reversal and correspondingly needed a severe adjustment in the current account. Thus, it can be claimed that the higher the size of the capital inflows, the higher the vulnerability to the sudden stops. By taking the environment of capital account dominance in developing countries into account, this argument leads us to the result of that as the current account deficit increases, the country becomes more open to sudden stops. In her study on current account reversals, Freund (2005) also cites the current account as the main predictor of a reversal. Furthermore, according to that study, strong GDP growth in the current year and an increase in international reserves of the country tend to reduce the likelihood of having a current account reversal in the following year.

Also as Calvo (1998) states, debt maturity structure is relevant in assessing the potential reversal of capital flows. The shorter is the residual maturity structure of a country's debt, the more fertile will be the ground for a sudden stop crisis. Similarly, Calvo and Reinhart (2000) cites that large current account deficits are to be feared, irrespective of how they are financed, but particularly so, if they are financed by short-term debt. For example following the Russian crisis, the sudden reversal in capital inflows which fall from 100 billion US dollars (or 5.5 percent of GDP) prior to the Russian crisis to 37 billion dollars US (or 1.9 percent of GDP) one year later, is largely explained by the collapse in non-FDI flows.(Calvo and Talvi, 2005)

In this context, according to the observations of Mody and Murshid (2002) in their study on 60 developing countries, the developing countries with weak fundamentals are more successful in attracting so called "hot money" investments, which are ready to leave the country immediately in case of a negative event, rather than the long-termed foreign investments that is going to strengthen the relation between foreign capital and domestic investment. This fact also brings another explanation to the question of why the developing countries are more open to sudden stops and their negative effects.

In their study on the relation between exchange rate regimes and sudden stops, Razin and Rubinstein (2005) find that fixed or semi-fixed exchange rate regimes that increase the probability of domestic agents to borrow in foreign currency also increases the probability of sudden stops. On the other hand, the model of Calvo (2003) shows that the roots of a sudden stop may rest on fiscal dysfunction and be totally divorced from exchange rate policy.

Lastly, Caballero and Krishnamurty (2003) states that underlying weaknesses in the domestic financial sector and limited integration with world financial markets make emerging economies vulnerable to "sudden stops" of capital inflows.

Most of these factors that make developing countries more vulnerable to sudden stops are the results of domestic policies as Calvo *et al.* (2004) state; hence by implementing appropriate policies oriented to these deficiencies in the economy, their resistance against the negative effects of sudden stops can be increased.

2.2.2.3- Policy Implications for Sudden Stops

As also considered in Calvo, Izquierdo and Talvi (2006) that examine the recovery process in all emerging market sudden stop episodes from 1980 to the present, Calvo (2005) suggests that systemic sudden stops are preventable accidents. Naturally, how to prevent sudden stops and increase the resistance of the economy against their destructive effects depends on how one interprets the reasons behind sudden stops. As discussed in the previous chapter, since both the external and domestic factors play a critical role in sudden stops, policies to avoid sudden stops and mitigate their

effects must involve both domestic and global components as also implied by Calvo (2005).

First of all, Calvo (1998) claims that the financial sector is at the center of the action and directly, or indirectly, must be the key to the solution. Correspondingly, the empirical research of Calvo (2005) suggests that it is essential to reduce financial vulnerabilities in order to be protected from sudden stops and its deleterious effects.

Early liberalization of undeveloped financial systems is one of the most important components of financial vulnerabilities. According to Calvo (1998), in such systems liberalization may generate large international capital inflows that are likely to take the form of short-term credit which are easily reverted and could cause serious financial trouble. Therefore financially closed and underdeveloped systems should not be encouraged to liberalize the financial sector instantenously. Instead, financial reform should be gradual and policymakers should keep an eye on firms' leverage ratios (i.e., bond/equity ratios).

In this context, as Calvo and Talvi (2005) emphasize, a common and misleading intuition is that if one prevents short-term capital from flowing in by imposing capital controls, then capital will not rush out, and a sudden stop will thus be prevented. However, capital outflows can take place even in the absence of short-term capital inflows and lower capital inflows rather than capital outflows can also cause a sudden stop. Thus, a sudden stop would take place even if FDI slows down (as happened in Peru in 1998), even though FDI is the polar opposite of hot money. Also Calvo and Talvi (2005) give the example of Chile that casts serious doubts on the effectiveness of controls on capital inflows. Following the Russian crisis in 1998, Chile suffered the largest sudden stop in Latin America, despite having imposed controls on capital inflows. Furthermore, in a financially liberalized economy, the expectation that capital controls will be executed in order to avoid a sudden stop may exacerbate the extent of the sudden stop (Calvo and Talvi, 2005; Calvo, 1998). Hence, Calvo and Reinhart (2000) suggest that while capital controls appear to influence the composition of flows away from short maturities, they are not likely to be a long-run solution to the problem of sudden capital flow reversals.

Secondly, as Guidotti *et al*. (2004) highlight, because of the negative role of liability dollarization during the sudden stops, the domestic-currency denomination of financial sectors should be encouraged through appropriate prudential policies. In this context, the so-called "carrot and stick approach" in the literature[11], which consists of regulations that encourage the use of domestic currency and punish the use of foreign currency, can be implemented.

As a part of the "carrot and stick approach", a possible regulation that has received attention is to try to steer the domestic financial system away from indexing to a foreign currency and towards some domestic price level such as consumer price index (CPI) (Calvo and Talvi, 2005). The Chilean UF (*Unidad de Fomento*) is a successful example of domestic price level indexation in Latin America that allowed Chile to carry out a large real devaluation after 1998 without disrupting the domestic capital market.

Besides, in order to discourage the domestic economic agents to borrow in foreign currency, levying a tax on foreign currency denominated debt can be come into force. However, as Calvo (2005) implies this is not easy to implement and it may have a negative impact on growth. Similarly, imposing higher capital adequacy ratios to non-dollar earners for foreign loans and setting the capital adequacy ratio for each firm according to their ratio of foreign currency denominated debt to foreign currency denominated assets can be a part of the solution to the liability dollarization. Furthermore, increasing the amount of liquid assets that should be hold, as the foreign currency denominated debt increases, and decreasing or eliminating the insurance on foreign currency deposits are other policies proposed to fight against the liability dollarization.

However, as Calvo and Talvi (2005) denote, forceful de-dollarization can result in a drastic shrinkage of the financial system and a reduction in the maturity of deposits. Therefore, as Ize and Levy Yeyati (2005) suggest, before launching an overly ambitious policy agenda, one should make all the necessary researches to understand the roots of dollarization and the implications of policy reforms made against it (Yılmaz, 2006a).

[11] For the broad discussion, see Levy Yeyati (2003)

Another policy that is suggested to discourage foreign-exchange-denominated borrowing is allowing the exchange rate to float. By using cross-country data for the banking sector, Arteta (2002) has found that more volatile exchange rates reduce the share of the foreign currency denominated loans and deposits, thus contributes to prevent dollarization. However, Calvo and Reinhart (2001) claim that this policy resulting in a highly volatile real exchange rate may have negative effects on trade and output. Moreover, as Calvo (2005) emphasize if the economy initially exhibits large and unhedged liability dollarization, real exchange rate volatility may cause serious financial distress. We will discuss the choice of exchange rate regime in detail later in this chapter.

On the other hand, as a global policy measure against the liability dollarization and systemic shocks in EMs, Eichengreen and Hausmann (2003) propose that the multilateral institutions should lend a portion of their funds to EMs in inflation-indexed instruments denominated in domestic currency of each country. These multilateral institutions, in turn, will issue debt instruments backed by a basket of these inflation-indexed instruments that will be sold to institutional investors. The implied basket will suffer less from idiosyncratic risk, and therefore, may enjoy higher liquidity than the country-specific bonds while decreasing the liability dollarization in that country (Calvo and Talvi, 2005).

About the issue of choosing the appropriate exchange rate regime in order to avoid from sudden stops and its negative effects, traditional theory[12] teaches that the choice of a foreign exchange regime ought to be a function of the nature of shocks: If the shocks are mostly real, float; otherwise fix the exchange rate. However, sudden stop shocks contain both real and nominal components, so the choice of the exchange rate regime becomes more complex (Calvo and Reinhart, 2000). In this context, Calvo (2003) points that since a sudden stop is essentially a real shock, one might reason that floating would be optimal, at least until the dust settles. However, the country experiences show that the optimal exchange rate regimes can be different among the countries according to their economic structure and fundamentals. Besides the

[12] For a simple presentation of this theory, see Calvo (1999).

exchange rate regime that should be implemented in order to prevent a sudden stop and in order to mitigate its destructive effects after a sudden stop can also differ.

Exchange rate flexibility could play a useful role in the countries that are not extremely closed to international trade, not highly indebted and do not have large financial currency mismatches, as was the case of Chile (Calvo *et al*., 2003b), since as stated above, it discourage the currency mismatches in the balance sheets of private sector by transferring the exchange rate risk on private portfolios. Moreover, as pointed in the concept of sustainability before, exchange rate flexibility puts a discipline on current account deficit not to deviate systematically from its equilibrium path (Özmen, 2004b). On the other hand, as Yılmaz (2006a) denotes flexible exchange rate regimes provide more room for monetary policy that enables to respond to external shocks freely. Coherently, Guidotti *et al.* (2004) show that economies that choose a floating exchange rate and are relatively open are likely to grow fastest in the aftermath of a sudden stop, on average, 4 to 6 percentage points more than those that do not float.

On the other hand, in extremely closed and highly indebted countries with a high degree of de facto dollarization causing large financial currency mismatches, a floating exchange rate is of little help and may even aggravate the crisis by increasing the deleterious balance sheet effects of sudden stops (Calvo *et al.* 2003, Calvo and Talvi 2005). In a highly dollarized economy, if the central bank lets the exchange rate to float, since there will be no loss of international reserves, the entire adjustment in case of a sudden stop will fall on the current account calling for a sharp real depreciation. As a result firms saddled with dollar debts may be forced into costly asset liquidation, provoking sizable income redistribution including bankruptcies in the non-tradable sector causing a "fear of floating" phenomenon. Hence, the central banks in dollarized economies will have incentives to follow an expansionary policy that places some of its international reserves in private hands, particularly in the non-tradable sector's, if the main objective is bankruptcy prevention. In short, subject to having enough international reserves, pegging the exchange rate may be a desirable choice of policy in a highly liability dollarized country, in order to slowdown the relative price adjustment once a sudden stop is detected.

However, Calvo (2003) has some serious doubts about that the central bank credit is the best way to help the private sector during a sudden stop, since he thinks that the new domestic credit will likely go to the public sector slowing down the desirable adjustment in government expenditure and to the multinational firms that have access to international credit markets. Hence, domestic credit expansion may drain international reserves from the central bank without substantially relieving the pressure on the balance sheets. In sum, as Calvo (1998) denotes, even though the ability to release international reserves could soften the effects of a sudden stop in capital inflows, recent experience backed by basic economic reasoning, suggests that doing it properly could be a major feat. This also explains why, during a sudden stop, governments might be driven to adopt heterodox policies such as controls on capital outflows as in Malaysia in 1998, socialization of private debts as in Chile in 1982-83 or controls on the direction of bank credit as in Brazil in 2002. (Calvo, 2003)

Besides, if the country is committed to a fixed or semi-fixed exchange rate, the central bank of the country becomes more vulnerable to a speculative attack, which aggravates the capital outflow. If the resulting drop in international reserves is high enough, a currency crisis together with a balance of payments crisis can ensue.

Correspondingly, as it is stated before, Razin and Rubinstein (2005) find that the exchange rate regimes that increase the probability of domestic agents to borrow in foreign currency, increase the probability of sudden stops. And, as Calvo and Reinhart (2000) point, liability dollarization is partly a result of fixed exchange rate regimes, magnified by the overconfidence and moral hazard problems that pegging may bring about. Accordingly, the study of Razin and Rubinstein (2005) concludes that floating exchange rate regimes can decrease the sudden stop risk, although not eliminate it, on condition that it decreases the domestic agents appetite to borrow in foreign currency. If it is unsuccessful in preventing the liability dollarization, the expected benefits of floating exchange rate regime decrease substantially. In this context, Calvo and Reinhart (2000) propose that sterilized intervention policies during the capital inflow period should be discouraged, since these operations typically place more short-term debt in the hands of the private sector and provoke the economic actors to increase their exchange rate risk, by stabilizing the exchange rate.

Also, as Calvo *et al.* (2003a) state, introducing regulations aiming to increase trade openness is an appropriate policy action against the deleterious effects of sudden stops not just because it reduces the size of RER swings after a sudden stop, but also because a higher share of tradable sectors in output composition may reduce the currency mismatches in private sector balance sheets. This reduces the vulnerability of the banking sector following a sudden stop, as well as the size of potential bailouts that may worsen the fiscal position of the country.

Another important policy implication that is underlined by the country experiences, in order to decrease the vulnerabilities against sudden stops, is implementing a sound debt management policy and improving the fiscal institutions (Calvo, 2003; Bordo, 2006).

As a part of sound debt management, first of all as Calvo *et al*. (2003b) point, governments should decide on lower debt levels based on their degree of openness and liability dollarization in order to create the necessary space for the public sector to respond in times of crisis while securing sustainability.

Also, if one of the triggers of sudden stops is short term debt, then it is obvious that EM governments should adopt more conservative debt management strategies and lengthen the maturity of their debt in order to decrease the vulnerability to liquidity shocks. In this regard, a tax on short-term borrowing can be implemented. Here, as Calvo and Reinhart (2000) emphasize, taxing all short-term borrowing rather than taxing just the foreign short-term borrowing may be a preferable strategy, since domestic short-term debt is also an implicit claim on the reserves of the central bank. In the case of banks, this strategy can be implemented through high reserve requirements for shorter maturity deposits, irrespective of the currency of denomination of the deposit. While a prudent public debt management strategy is necessary to strengthen the country against sudden stops, it is doubtful that it is sufficient to solve it.

Besides, as a part of improving fiscal institutions, efforts should be made to create markets for the issuance of debt in domestic currency not indexed to the exchange rate as stated in the dedollarization strategies above. In this context, debt should be

issued under the terms that eliminate incentives to inflate it away through money creation such as CPI indexing (Calvo *et al.*, 2003b).

In brief, as Bordo (2006) points, the development of a domestic bond market based on a broad based and efficient tax regime, together with a sound banking system are the key elements to the creation of financial stability which is crucial for a reliable access to the world capital market. Also holding large international reserves and having robust export capacity sufficient to service hard currency debt help. Moreover, as Caballero, Cowan and Kearns (2004) point out, being able to hedge currency risk with derivatives and thus building a sound and well processed derivative market are important but that in turn requires a minimum of country and currency risk.

In the context of implementing either tight or expansionary policies following a sudden stop, there are different views depending on the structure of each economy and the degree of being affected from sudden stops. In a non-dollarized economy without a large debt stock and a big budget deficit, expansionary policies may be a better policy response to the output collapse that comes with a sudden stop. However, as Calvo (2005) points, expansionary policies may be counterproductive if the government is also subject to sudden stop. Clearly, under those circumstances, lowering taxes or raising public expenditure is out of the question unless the government resorts to some kind of capital levy, like debt repudiation or a higher inflation tax.

On the other hand, as Calvo (1998) states, pro-cyclical policies following a sudden stop, can further deepen the output collapse prophesy. More clearly, while tight fiscal policy depresses the relative price of non-tradables further, likely contributing to deeper and more widespread bankruptcies, tight monetary policy aggravates the credit destruction problem. However, if tight fiscal and monetary policies improve the economy's credibility and facilitate the access of the private sector to the capital markets, then it can be stated as a desirable policy action.

As can be understood from the above discussion, standard policies are not very effective in case of sudden stops unless some form of new credit is made available

(Calvo and Talvi, 2005). Thus policy alternatives such as building contingent credit lines from international institutions or a War Chest of international reserves come to order in some countries. Contingent credit lines, which were implemented by Argentina and Mexico, are effective complements of international reserves. However they tend to dry up as crisis looms and the amounts are typically insufficient to prevent a sharp current account adjustment. On the other hand, in building a War Chest such as Chilean Copper Stabilization Fund, which is supposed to move in the same direction with the business cycle, the basic idea is to minimize adjustment costs during downturns, and, especially, avoid having to implement tight fiscal policy during recessions. According to Calvo and Talvi (2005), one problem with War Chests is that the ruling party may have strong incentives to violate its operating rules and sacrifice the War Chest for the sake of popularity at the polls.

In light of these arguments and country experiences, it seems that a reasonable course of action would be implementing a fiscal policy that does not further constrain aggregate demand in the short run while moving towards a balanced budget, and a monetary policy aimed at price stability.

Given its success in various kinds of economies, inflation targeting policy can be a good policy choice in order to maintain price stability and increase the credibility of the country once the pre-conditions of this policy is met. In this context, in their study on implementation of inflation targeting in countries whose main macroeconomic concern is sudden stops, Caballero and Krishnamurty (2003) suggest to modify the inflation targeting framework by including state-contingent inflation targets (low during good times and high during bad times), targeting a measure of inflation that overweights non-tradable inflation (which will reduce the central bank's incentive to increase the interest rates during crisis since the exchange rate pass-through is lower for non-tradables) and choosing an appropriate weight for the stock of reserve holdings (which will help the central bank to internalize the effects of its exchange rate interventions on the private sector's incentives of taking exchange rate risk).

In short, in order to save from sudden stops and its destructive effects, a country should maintain fiscal, financial and price stability. Indeed, as Bordo (2006) denotes

what EM countries really need to do to protect themselves from sudden stops is to grow up and become an advanced country. They should learn from the experience of countries that were the emergers of a century ago and are now advanced. In this context, as explained by Caballero *et al.* (2004), EMs need to develop country trust which relies on sound institutions based on the deep fundamentals of the rule of law and stable political system, and currency trust which is based on the ability to adhere to a credible nominal anchor.

Another policy suggestion as an additional insurance against sudden stops is to conduct an agreement with IMF. In their study on 35 sudden stop cases in 24 countries, Eichengreen, Gupta and Mody (2006) observe that in the countries that implement an IMF-supported economic stability program, sudden stops are fewer and generally less severe. As Dornbusch (2001) explained, the IMF's role is twofold. First it offers a commitment device for governments to underwrite a stabilization strategy that is known to work, increasing the credibility of the country. Second, it offers temporary credits and debt reorganization and thus helps to stem the outflows. Emergency financial assistance can reassure individual investors about the country's continued ability to finance its international transactions and reduce their incentive to liquidate their positions. However, according to the findings of Eichengreen *et al.* (2006), this form of insurance works best for countries with strong fundamentals. In his words, "*If country fundamentals are weak, IMF financial assistance may only come in the front door and go out the back door with no impact on the incidence of the sudden stop*". This fact again highlights the importance of strengthening the economic fundamentals with appropriate policies towards financial, fiscal and price stability.

Finally, since EMs have a very limited set of policies for preventing sudden stops and alleviating their effects, especially when they emanate from malfunctioning of the global capital market, some global policy measures such as creating a global central bank in order to manage global liquidity problems are also suggested. Unfortunately, as Calvo and Talvi (2005) specify, because of the national constraints, such a project will be full of forbidding regulatory problems for the member countries. Therefore, a more modest proposal of creating an Emerging Market Fund (EMF) which would attempt to stabilize the price of EM bonds in case of a global

liquidity crunch, is made by Calvo (2002). As Calvo (2005) cites, institutions like the EMF play the role of lenders of last resort and would thus be close relatives of national central banks. However, as specified by Calvo (2005), international arrangements like the EMF require full and credible support by the involved sovereign countries. Additionally, as expressed before, necessitating the multilateral institutions to invest a portion of their funds to domestic currency denominated debt instruments of EMs, is also suggested as a global policy aiming to decrease the liability dollarization in those countries and increase the liquidity of their domestic debt instruments.

2.3. Summary

A variety of studies have been made and different views are brought forward about the sustainability of CADs. According to widely accepted view in the literature, it is misleading to identify a general fixed threshold ratio, which is valid for every condition and every country as some studies do, and thus the sustainable level of CAD for each country varies depending on the macroeconomic conditions of each country. Besides, the sustainability of CADs also depends to the lending conditions and the willingness of the international financial system to finance these deficits.

In this context, sudden stops can be described as the large and highly unexpected falls in the capital inflows to a country. The empirical analysis show that sudden stops have tend to occur around the same time in countries that are different from each other in many respects. Thus "bunching" of countries is an important characteristic of sudden stops, indicating that developments at the center of international capital markets rather than domestic policies are key in producing a sudden stop. However, they are a much more common feature of developing countries and the effects of sudden stops in those countries are much more dangerous because of some structural vulnerabilities. Sudden stops force the current account to adjust to the new levels of capital and this reversal of current account is associated with a large real depreciation, reserve losses, fast contraction of aggregate demand causing a collapse in growth and employment and decreases in the prices of financial assets. The adjustment process also brings relatively high inflation and a

deterioration in the public finance. Additionally, sudden stops may result in bankruptcies, destruction of human capital and local credit channels, and may even cause a financial crisis.

Although the root cause of sudden stops generally lie in common external factors, domestic fundamentals and policies are also important. The two most important characteristics of developing countries that cause them to be more vulnerable to sudden stops relative to developed countries can be listed as the relative trade closedness and liability dollarization. While trade closedness increases the required RER adjustment in case of a sudden stop, liability dollarization amplifies the negative consequences of this adjustment through the currency mismatches it creates in the balance sheets of economic agents. Besides, implementation of fixed or semi-fixed exchange rate regimes, failure in fighting with inflation causing a lack of credibility in policies implemented and attracting a very high level of capital with a short maturity are observed to increase the vulnerability of the countries to sudden stops.

In this context, both domestic and global policies are called for to increase the stability of EMs while allowing them to reap the benefits of financial globalization. Also, since traditional fiscal and monetary stabilization policies do not seem very effective in case of sudden stops, they need to be complemented with structural policies that help to lower domestic financial vulnerabilities, especially in economies suffering from a high incidence of liability dollarization. (Calvo, 2005)

CHAPTER 3

THE DEVELOPMENTS IN THE TURKISH ECONOMY

3.1. Policy Implementations and General Outlook of Turkish Economy

A new era for the Turkish economy has started with the full liberalization of capital account movements and removal of the entire controls over foreign exchange transactions in 1989. However, since capital account was opened without taking appropriate measures to upgrade banking and financial market supervision and regulation, to adopt international auditing and accounting standards, to strengthen corporate governance and shareholder rights and to modernize bankruptcy and insolvency procedures (Ersel and Togan, 2004), macroeconomic imbalances and thus the vulnerability of the economy to both external and domestic shocks had increased. As a result, until 2001 unstable and low growth rates, large fiscal deficits, high public sector debt burden, high and volatile inflation rates and massive dollarization together with financial sector instability had become the main features of the economy. In order to overcome inflation and to achieve macroeconomic stability, many stabilization programs, of which one of the pillars was pegged exchange rate regime, had launched in this period. However, all of these programs were either interrupted or abandoned, preventing Turkey to achieve price stability and sustainable growth rates and causing loss of confidence to economic policies. Besides, the weaknesses listed above contributed substantially to the balance of payments crisis of 1994 and 2001 that increased the vulnerability of the economy further, together with the contagion effects of Asian and Russian crises in 1997 and 1998.

After a decade of failed reforms and deteriorated macroeconomic performance, Turkey entered the millennium under a new exchange rate based disinflation program which was put into effect in December 1999 (Pamukcu and Yeldan, 2005), in order to recover the negative effects of the Russian crisis in 1998 and the severe earthquakes in 1999 on the economy, and in order to strengthen the economy against

new shocks. IMF was involved with both the design and supervision of the program. This program that aimed to reduce the inflation rate to a single digit by the end of 2002, had three main pillars: a tight fiscal policy that consists of increasing the primary surplus, realizing the structural reforms and accelerating the privatization; income policies compatible with the targeted inflation, and finally fiscal and monetary policies focusing on the low inflation target (Erçel, 1999; CBRT, 2000). In the context of this program, the daily values of the foreign exchange basket, composed of 1 US dollar and 0.77 euro, for the 12-month period were pre-announced in line with targeted inflation. Here, it is worth to note that, this program was different from the previous programs in the sense that it was planning to allow the exchange rates to float freely in a band that would be enlarged gradually beginning from May 2001, and would finally end up with a floating exchange rate regime at the end of the third year after the attainment of single digit inflation rates (Serdengeçti, 2001). In line with the pre-announced target values of the currency basket, maximum limits for the item of net domestic assets and minimum limits for the item of net international reserves in the balance sheet of the Central Bank of the Republic of Turkey (CBRT) were imposed. Correspondingly, CBRT announced that it is ready to buy all supplied foreign exchange at the predetermined exchange rate, meaning that it would inject TRY to the market only in exchange of foreign currency (Erçel, 1999). However, this implementation that makes the capital inflows to be the source of the liquidity generation mechanism had increased the dependency of the economy to the speculative short-term foreign capital flows and thus constituted the main weakness of the program by leaving the economy defenseless against speculative runs and sudden stops (Pamukcu and Yeldan, 2005).

In the first half of 2000, the program seemed to be successful in increasing the stability of the economy by decreasing the inflation rates (as seen in Figure 3.1) together with the interest rates, and increasing the domestic demand and growth rates. However, since the monthly inflation rates did not decrease as fast as the program forecasts, TRY appreciated above the expectations in real terms. The appreciation of RER together with the quick recovery in domestic demand, the increase in energy prices and the change in the Euro/US dollar parity caused the current account to increase rapidly above the forecasts, increasing the concerns about

its sustainability and financing. Besides, the capital inflows started to decrease in the second quarter of 2000, due to increased risk perceptions of foreign investors against developing countries following the negative economic developments in Argentina. The resulting decrease in the liquidity had caused an increase in the interest rates, deteriorating the financial structure of the banks having maturity mismatches in their balance sheets and increasing the concerns about the health of the financial sector. Following the seizure of a medium-sized bank by Savings and Deposits Insurance Fund (SDIF) in November 2000 due to its liquidity problem, the country experienced a financial crisis with a capital outflow of 6 billion US dollar in a month. Despite the measures and additional financial support from IMF to carry on the program, the rising risks in the banking sector, the quickened current account deficit and the delay of the structural reforms aimed at shaping the expectations raised the concerns about the sustainability of the program, giving rise to a speculative attack to the currency in February 2001. As a result interest rates sky rocketed and international reserves declined rapidly causing Turkey to experience a severe currency crisis. On 22nd of February 2001, Turkish lira was allowed to float freely with a resulting nominal depreciation by 40% in a single day and by 57% in four days.

2001 crisis had become an important cornerstone for the macroeconomic policies implemented in Turkey. A new economic program called "Strengthening the Turkish Economy – Turkey's Transition Program", was announced in May 2001 with an aim of decreasing the ratio of public debt to GNP to sustainable levels, fighting against inflation with tight monetary and fiscal policies backed up by structural reforms, and achieving the sustainable growth. In order to achieve these key objectives of the program, the program entailed the implementation of the multi-pronged agenda consisting of continued sizable public sector primary surplus, maintaining a well-functioning floating exchange rate regime under which price stability is the overriding objective of the monetary policy, completion of the banking sector restructuring and enhancing the role of private sector in the economy (Serdengeçti, 2002). On the monetary policy front, CBRT was granted its independence from political authority, and restoring and maintaining the price stability in the domestic markets has been set as the primary mandate of CBRT by its Law. In accordance with the floating exchange rate regime implemented, CBRT made public that it does

not have any commitment about the level of exchange rates. Instead, the short-term interest rates, which have been determined according to the future prospect of consumer price inflation, have become the main policy instrument of CBRT in achieving price stability. In this context, first the implicit inflation-targeting (IT) regime, which was a preparatory period for the full-fledged IT regime, was implemented. In this transition period, base money was used as a temporary anchor together with the short-term interest rates and the pre-conditions of implementing a successful IT regime such as absence of fiscal dominance, low levels of inflation and macroeconomic stability were tried to be fulfilled. Thanks to the implementation of tight monetary and fiscal policies, the inflation rates in this period were realized below the targets, which were set by the government and CBRT, as shown in Figure 3.1. After 35 years of high and chronic inflation, the single digit inflation was reached together with a considerable and uninterrupted growth (Figure 3.2). The average annual growth in the period between 2002-2008 has realized as 6.4 percent while the cumulative real growth since 2001 has reached to 50 percent. The progress made towards stability provided a significant decline in nominal and real interest rates. The borrowing requirement of the public sector and thus the fiscal dominance has decreased as a result of disciplined fiscal policies and high primary surpluses. A steep decline in the public and external debt ratios has occurred. Not only the level but also the structure of the public debt has improved with a longer maturity and a lower level of foreign currency denominated or indexed domestic debt. Harmonization with the floating exchange rate regime increased, financial markets became deeper and the financial sector became less fragile with the help of structural reforms in these areas. All these improvements in the economy provided the favorable environment for a successful currency reform and six zeros were dropped from TRY in January 2005. The favorable global liquidity conditions together with the European Union (EU) and IMF anchors also contributed a lot to these achievements. These developments also pointed that the pre-conditions of the full-fledged IT regime have been met to a large extent. As a result, Turkey adopted full-fledged IT regime in 2006 as it was planned[13].

[13] For a detailed information about the framework of the inflation targeting regime in Turkey, see CBRT (2005).

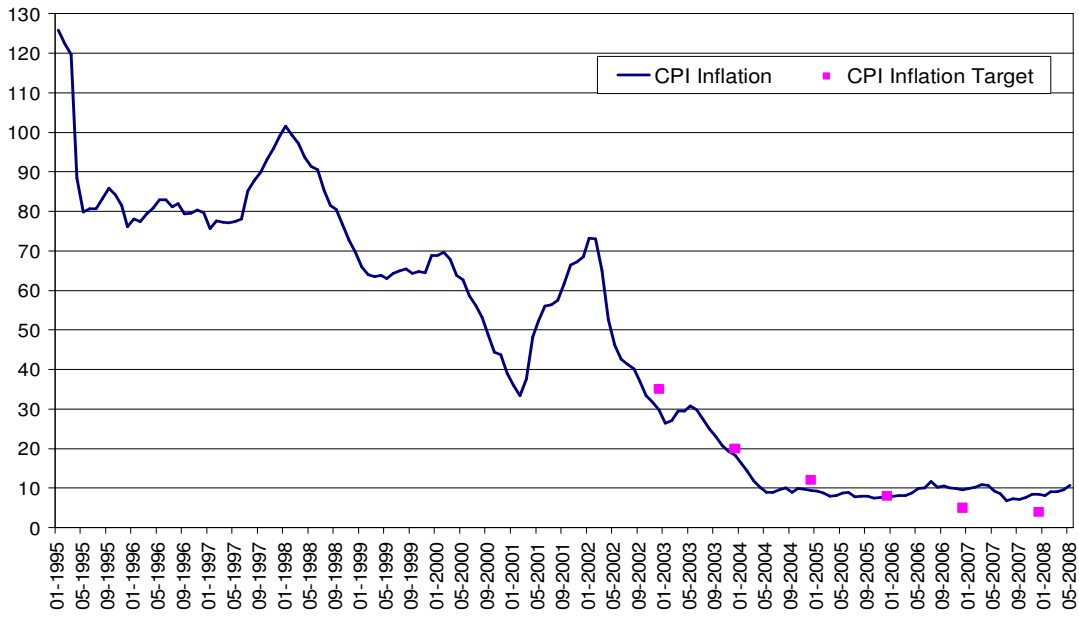

Figure 3.1 – CPI Inflation* and Inflation Targets (January 1995 – June 2008, Percentage)

* Before 2005, 1994=100 index of CPI, for 2005 and onwards 2003=100 index of CPI are used.

Source: Turkish Statistical Institute (TSI), CBRT

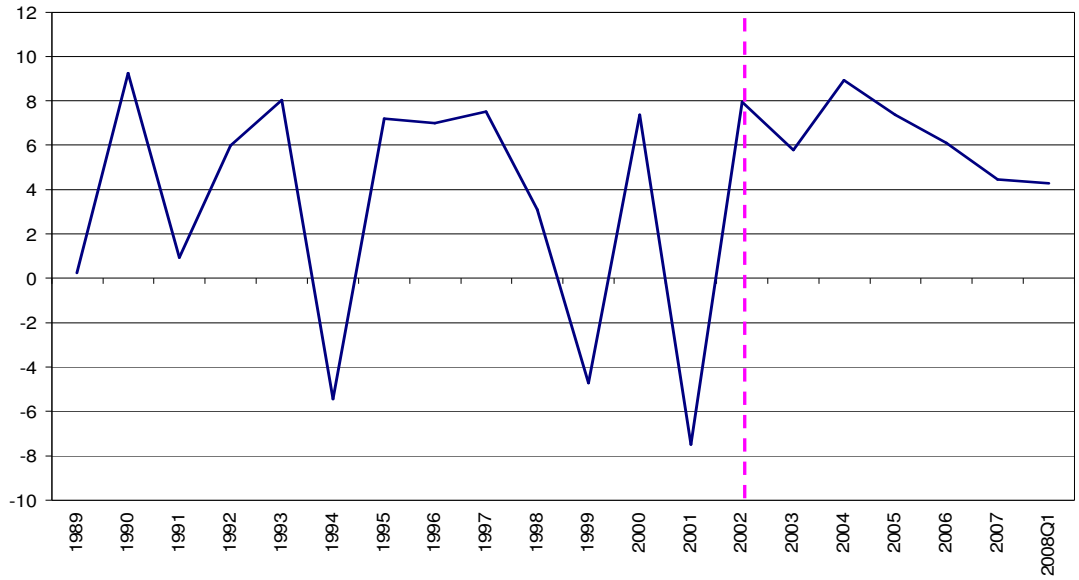

Figure 3.2 – Real Gross Domestic Product (GDP) Growth (1998Q1 – 2008Q1, Annualized, Percentage)

* GDP data series were revised upwards in the fourth quarter of 2007. Thus the new series of GDP are used for 2007Q4 and 2008Q1.

Source: TSI

However, the increase in food prices as a result of the decrease in its supply due to the bad weather conditions and the increase in global oil prices together with the depreciative effects of global financial fluctuations on TRY has caused the consumer inflation rates to realize above the targets since 2006 (Figure 3.1). As of May 2008, the inflation rate has returned to double digits. All these recent developments in the inflation front have caused the inflation target of 4 percent for 2009 and 2010 to become meaningless. Accordingly, CBRT revised its inflation targets upwards on the basis of its evaluation on that rising food and energy prices may be reflecting a structural change in global economic environment rather than temporary cyclical factors and even under the maintenance of a cautious policy stance, reaching the 4 percent target is likely to take an extended period (CBRT, 2008).

Besides, the high and uninterrupted growth rates achieved since 2001, the meteoric rise in energy prices especially in crude oil prices and the appreciation of TRY following the recovery of the economy has caused the current account deficit to increase (Yılmaz, 2006b) and reached to record high levels with 43 billion US dollar as of May 2008 annually. Although the achievements towards macroeconomic stability and favorable global liquidity conditions improved the financing quality of these deficits with the increased share of FDI and other long-term capital inflows in total financing, concerns have started to rise about their sustainability. The turbulences in the global financial markets experienced since 2006 has increased these concerns. Especially the credit crunch, that started in August 2007 in US mortgage markets and spread to whole economy in time affecting the investors, institutions and countries all over the world, particularly in USA and Europe, has increased the risk aversion of international investors and the risk premium of developing countries, causing a deterioration in the external financing conditions of developing countries. Correspondingly, the level of net capital inflows has decreased and the quality of it has deteriorated in Turkey exacerbating the concerns and debates about the sustainability of recently high current account deficits. Also, the constitutional court case deliberating the closure of the ruling Justice and Development Party (AKP) has increased the uncertainty and worries of the foreign investors about the political stability and the implementation of structural reforms, triggering a withdrawal of foreign investors from the domestic markets.

Consequently, though there is not a significant worsening in the macroeconomic background, Turkey has affected more strongly from this turmoil than other developing countries due to the worsening domestic political and economic conditions, increasing the concerns about the financing of the large current account deficit and the possibility of a sudden stop.

3.2. Evaluation of Chosen Indicators for Turkey

Due to the increased concern about the financing of large current account deficits, the macroeconomic indicators that seems as related with the resilience of the Turkish economy to sudden stops such as openness, dollarization, the structure of current account deficit and its financing and real exchange rates are evaluated in this section.

3.2.1. Openness

As stated in chapter 2, openness of a country is an essential link in the chain mapping an external liquidity shock to a financial crisis, since it is related with the sensitivity of the real exchange rate to capital flow reversals. The country experiences show us that the more open a country is to international trade, the lower the real exchange to accommodate a sudden stop in capital flows. Thus measurement of openness of Turkey can guide us in evaluating the strength of the impact of a possible sudden stop on RER and thus on the whole economy.

A common measure of the openness of a country in the literature is the share of the sum of imports and exports of a country to its GDP. The calculation of this ratio for Turkey as shown in Figure 3.3 shows that openness has been in an increasing trend since 1990, meaning that the depreciating effect of sudden stops on RER is decreasing.

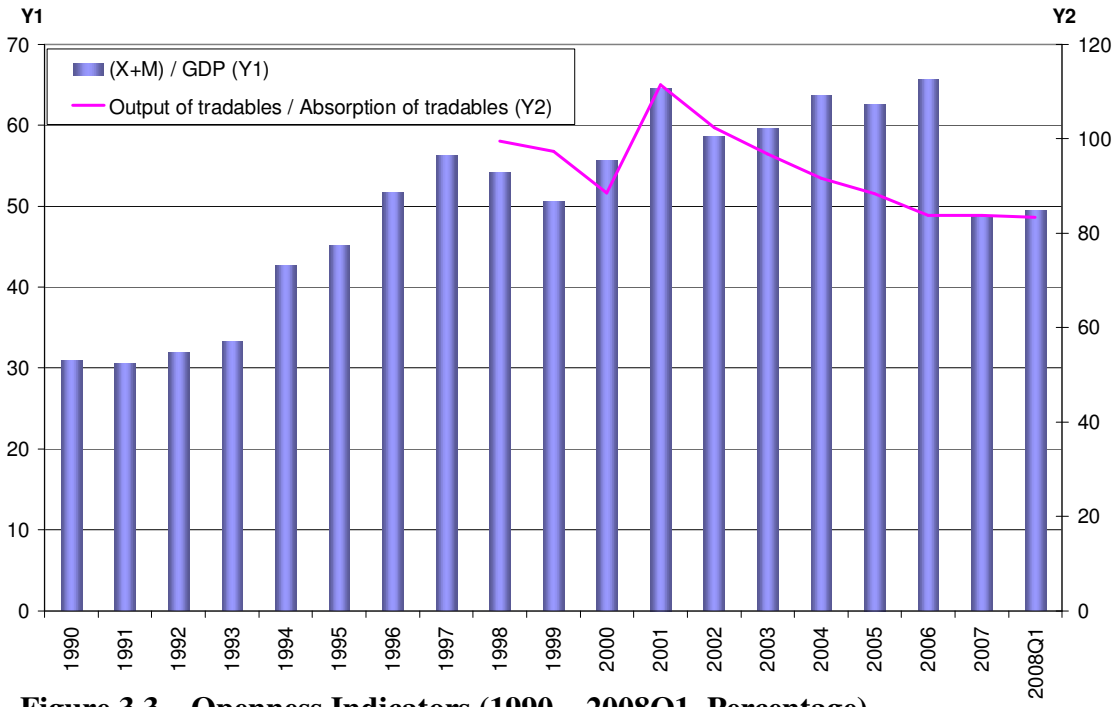

Figure 3.3 – Openness Indicators (1990 – 2008Q1, Percentage)

Source: TSI, CBRT

Here it is worth to note that the increase in the openness indicator in 2001 takes its root from the sharp decrease in the GDP during the crisis period. Similarly, the decrease in the indicator in 2007 and in the first quarter of 2008 despite the record high levels of imports and exports reflects the upward revision of GDP data. Thus the increase in this openness indicator can be emanated from a relatively high increase in imports or a decrease in GDP both of which exacerbate the negative impact of a sudden stop on RER and thus on economy rather than decreasing it. Therefore, this indicator of openness is thought to be misleading. Instead, Calvo et al (2003) define the openness of a country as the share of tradable goods output relative to domestic absorption of tradable goods and used this ratio as a measure of the vulnerability of RER to sudden stops. The higher the ratio, the higher the demand for tradables met by the domestic output of tradables and hence the lower the necessary change in the RER following a sudden stop. Since this ratio is thought to be a better measure of the impact of sudden stops on RER, it is also calculated for Turkey. As can be seen in Figure 3.3, this second openness indicator decreased to one of its lowest levels in 2000 due to the high demand for imported goods triggered by high growth rates, but increased again over 100 percent with the sharp decrease in domestic demand to both

imported and domestic goods during the 2001 crisis. However, the recovery from the crisis has brought an increase in the absorption of tradables relative to the domestic supply of these goods, causing a continuous decrease in the indicator referring that the required RER adjustment in case of a sudden stop is increasing.

3.2.2. Dollarization

As the indicators of dollarization in Turkey, the share of the foreign exchange (FX) deposits to total deposits in the banking sector, the share of FX denominated domestic credits to total domestic credits of the banking sector and the share of FX denominated and indexed debt of the government in its total domestic debt stock are calculated and presented in Figure 3.4.

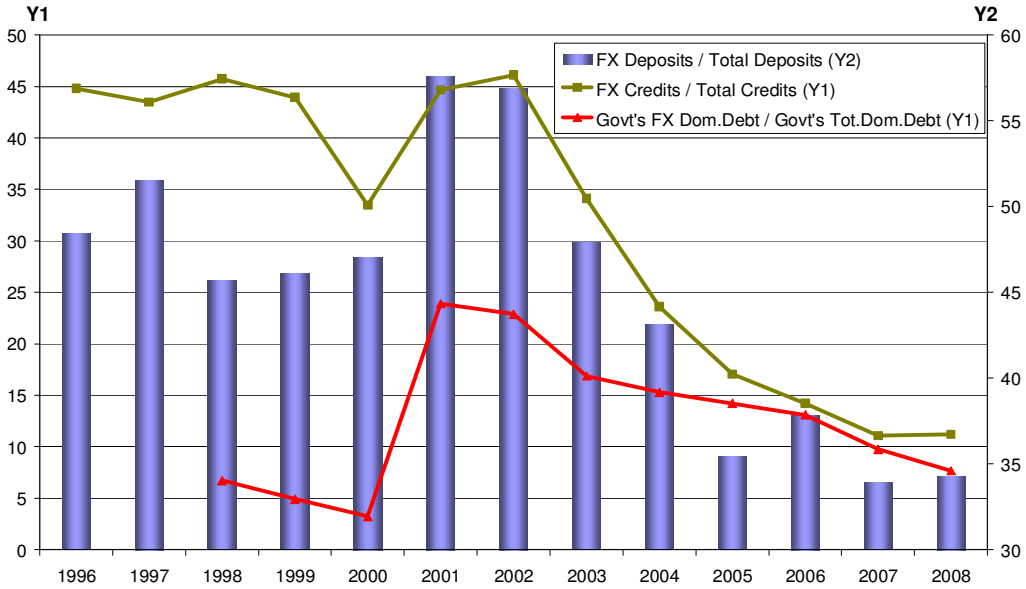

Figure 3.4 – Dollarization Indicators (1996 – 2008*, Percentage)

* As of the first six months of 2008.

Source: CBRT, Undersecretariat of Treasury of the Republic of Turkey

Beginning from 1983, in which Turkish residents were allowed to open foreign exchange deposits, the volume of foreign currency denominated deposits had started to increase, reaching to its highest level with 57.6 percent in 2001. Similarly as of 2001, the share of foreign currency loans in the total loans given by the banking sector reached to 44.6 percent, while the share of foreign currency denominated and indexed debt of the government in its total domestic debt increased to 23.9 percent.

As a result, Turkey became one of the most dollarized economies in the world as of 2001 (Yılmaz, 2006a).

Dollarization in Turkey had taken its roots from political and macroeconomic instability with fixed or predictable exchange rate regimes, inefficient and currency-blind market regulations such as blanket guarantee on foreign exchange deposits and lack of credibility of economic policies. Accordingly, Yılmaz (2006a) draws attention to the fact that foreign exchange deposits rose significantly even the real rates of return on them were lower than that on the Turkish currency deposits, indicating that the high inflation and inflation uncertainty and the resulting lack of confidence to TRY had given rise to an escape from domestic currency.

However, following the progress in both macroeconomic and political stability after the 2001 crisis thanks to the tight fiscal and monetary policies and structural reforms including the banking sector reform that aimed to strengthen the regulation, supervision and financial structure of the sector, the credibility of TRY has started to increase. Particularly, the decrease in the inflation rates to single digit numbers as a result of implementation of IT regime has played a big role in this credibility gain by erasing the uncertainty about the inflation rates and averted the erosion in the purchasing power of TRY. Besides, the currency reform made in 2005 has solidified the credibility of TRY in both internal and external markets. Moreover, by transferring the exchange rate risk from government to market, the floating exchange rate regime has increased the sentiment of the economic agents to the exchange rate risk in their balance sheets. The agents that are aware of that the exchanges rates are no longer fixed and can change in any time according to the demand and supply conditions in the market, started to decrease their unhedged exposure to foreign currency assets by selling them or by using hedging instruments and derivatives market better. In this context, the opening of the Turkish Derivatives Exchange Market in February 2005 had played a crucial role in decreasing the dollarization by presenting an alternative way of protecting from exchange rate risk without holding foreign currency assets or debt. Consequently, the desire and the need to invest in foreign currency in order to hedge the value of wealth decreased significantly and investors have started to increase the share of Turkish currency assets in their portfolios (Yılmaz, 2006a). This trend can be seen in Figure 3.4 with the sharp fall in

each of the three indicators. The share of foreign currency denominated deposits in total deposits and the foreign currency loans in total loans decreased to 33.94 percent and 11.09 percent respectively in 2007. Similarly the share of foreign currency denominated and indexed debt of the government in total domestic debt decreased to 9.76 percent in the same period and reached to 7.65 percent in the first half of 2008, also reflecting the improvement in the structure of domestic debt.

Despite decreasing, the level of dollarization and the propensity to dollarize is still high in Turkey due to the bad memories of the past inflationary and unstable economic environment. Therefore, as Yılmaz (2006a) states, even a small threat to the macroeconomic stability or any kind of internal or external development that increases uncertainty perceptions can easily lead to a deterioration in expectations and give rise to an increase in dollarization. The slight increase in the foreign currency deposits and credits ratio to 34.3 percent and 11.21 percent respectively in the first seven months of 2008 as seen in Figure 3.4 following the global financial turmoil has been a concrete proof of this fact.

Furthermore, as shown in Figure 3.5, despite the declining tendency, liability dollarization of the real sector that is calculated as the share of foreign exchange liabilities to total liabilities of this sector, is still high with a level 68.3 percent as of the end of 2006, imposing a significant level of exchange rate risk and leading to the persistence of exchange rate sensitivity in the economy. However, it is worth to note that the low and further decreasing ratio of foreign currency denominated liabilities to total liabilities in the sectors with no export revenues and in the small sized companies, which are considered to be more vulnerable to exchange rate risks, has decreased the vulnerability of the economy to the exchange rate shocks, relative to pre-2002 period (CBRT, 2006). Nevertheless, further declines in this ratio and currency mismatches in the balance sheets of the real sector are necessary for the health of the economy in the face of a sudden stop.

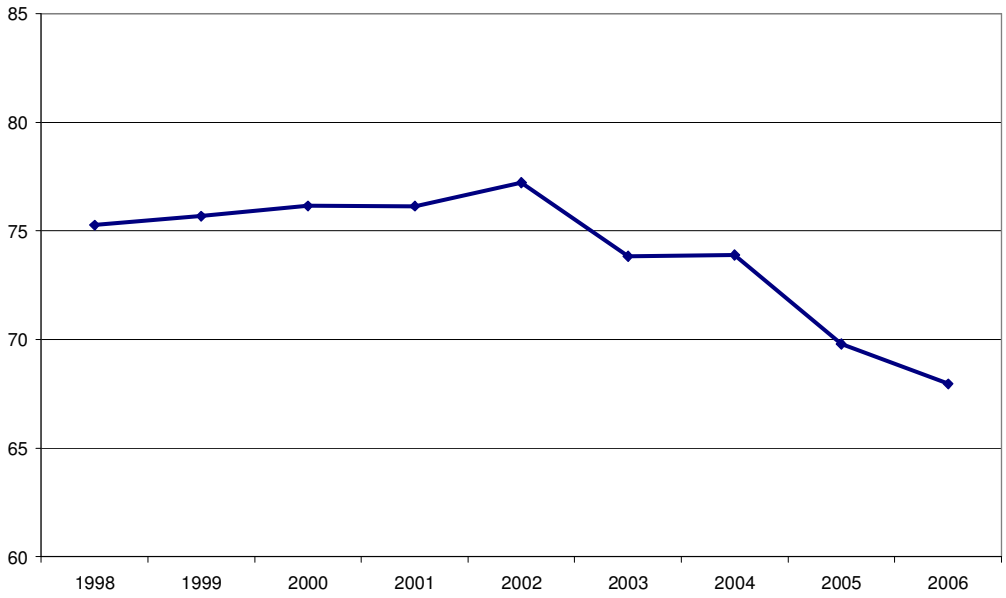

Figure 3.5 – Liability Dollarization in the Real Sector (1998 – 2006, Percentage)
Source: CBRT Company Accounts

3.2.3. Current Account

When the current account deficits of Turkey are analyzed, it is seen that Turkey is a country that always runs current account deficits except the crisis periods as shown in Figure 3.6. In this context, it can be claimed that current account deficits have a cyclical structure, increasing in high growth periods and decreasing in stagnation periods, particularly during the crisis periods (see Figure 3.8). Focusing on the recent period, in parallel with the high growth rates experienced since 2002, the current account deficit has increased to record levels both in nominal terms and as a share of GDP (see Table 3.1 and Figure 3.6). The high dependence of domestic production to imported investment and intermediate goods, and the real appreciation of Turkish lira that shifts the increased demand from domestic goods to imported goods have strengthened this deficit-increasing effect of high growth rates. Moreover, record increases in the global energy and commodity prices have become the biggest contributors to the deterioration in the current account deficit. According to a special country report of Fitch (2008), the surge in global oil prices accounts for the widening of the CAD particularly in 2008 and the CAD that excludes fuels is just 8 billion US dollar rather than 43.1 billion US dollar in the 12 months to May 2008.

Also, a report of Raymond James (2008a) highlights that as a result of the rise in FDI inflows, the increasing dividend transfers from Turkey to abroad, which are tripled in the last three years as shown in Table 3.1, have also added to the deterioration in CAD. As a result of all these facts, the current account deficit has reached to its highest levels with 37.7 billion US dollar in 2007 and 21.5 billion US dollar in the first five months of 2008. The decrease in the share of current account deficit to GDP that is observed in Figure 3.6 for 2007 and for the first quarter of 2008 is mainly emanated from the upward revision of GDP data in the last quarter of 2007. To make its effect more clear, if the revised data had been used for 2006, the ratio would have been 6.48 percent rather than 7.91 percent shown in the figure.

Table 3.1 – The Sub-Items of Current Account

(million US Dollars)	2002	2003	2004	2005	2006	2007	2008
CURRENT ACCOUNT	**-626**	**-7515**	**-14431**	**-22137**	**-31893**	**-37753**	**-43137**
Net Exports of Goods and Services	1495	-2978	-9939	-17716	-27110	-32846	-18982
Net Income Payments	-4554	-5557	-5609	-5875	-6691	-7143	-7475
Net Income from Direct Investment	-108	-440	-799	-850	-1039	-2085	-2539
Transfer Payments	2433	1020	1117	1454	1908	2236	2370

Source: SIS, CBRT

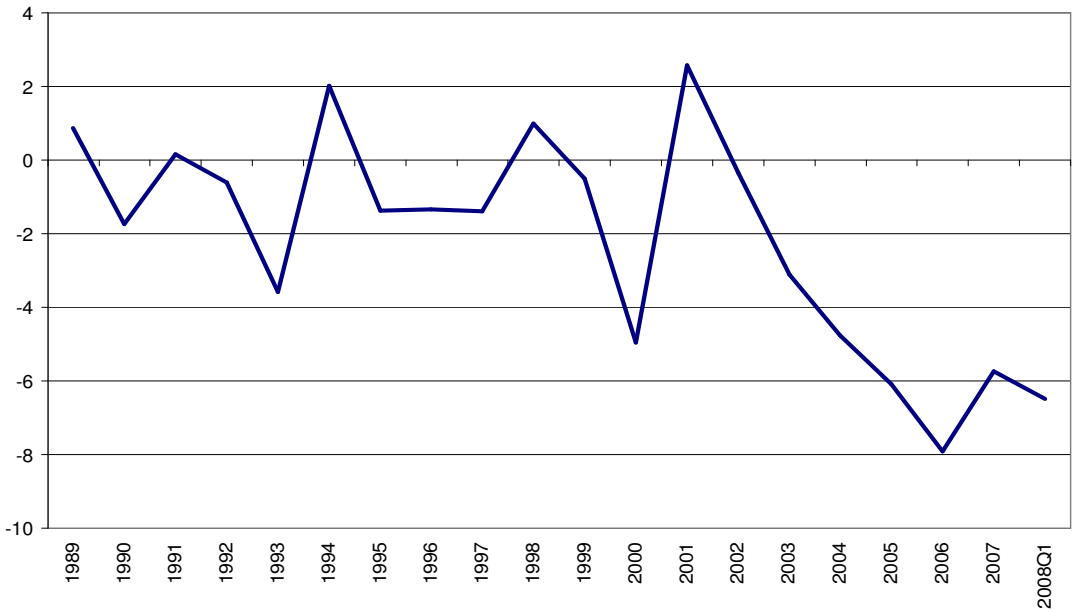

Figure 3.6 – The Ratio of Current Account to GDP (1989– 2008Q1, Percentage)

Source: CBRT, TSI

Despite the increase in current account deficits, the reasons and financing of current account deficit, which are very important in evaluating the sustainability of current account deficit and the risks imposed by it to the economy, are different from the pre-2001 period. As can be seen from Figure 3.7, while in the pre-2001 period the current account deficit took its roots from the negative public savings-investment gap which was increasing continuously, after 2001 this negative gap started to decrease and turned to positive together with an opposite change in private sector savings-investment gap causing the private sector's negative gap to become the main cause of the current account deficits in recent years. Also before the 2001 crisis, both total domestic investments and savings displayed a downward trend. However, following the tight monetary and fiscal policies together with high growth rates experienced after the crisis, the current account deficit has emerged in an environment where both domestic savings and investments have been increasing. In this framework, current account deficit in the recent years emanated from the faster increase in total domestic investments relative to the increase in total domestic savings.

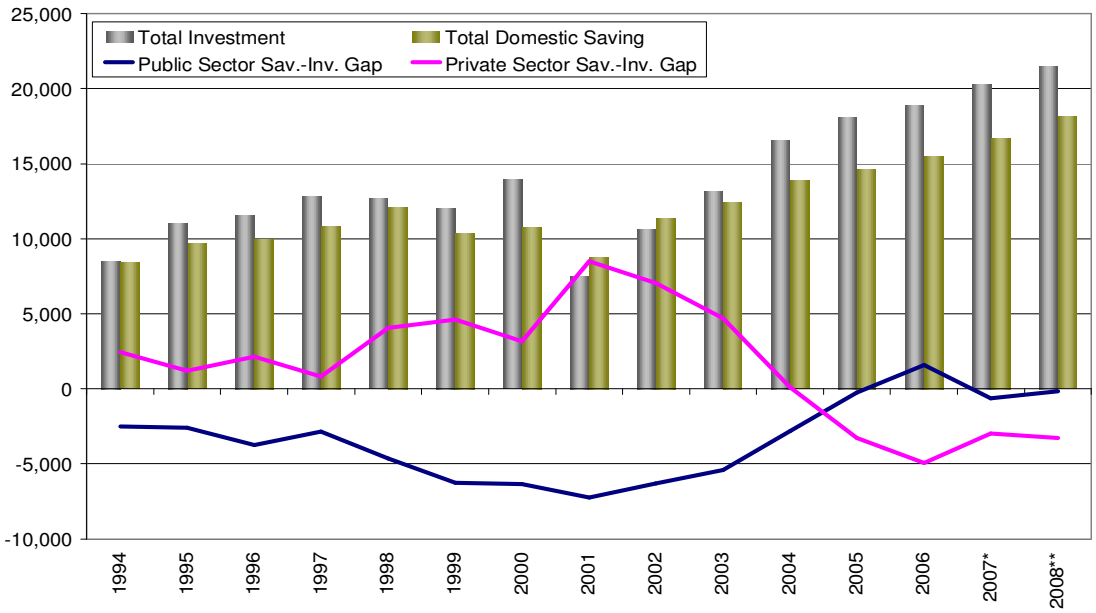

Figure 3.7 –Domestic Savings and Investments (1994– 2008, Billion TRY)

* Realisation estimate

** Program Target

Source: State Planning Organization (SPO)

When we look at the reasons of the change in net savings of public and private sector, it is obvious that the increase in the net savings of public sector is a result of the tight fiscal policies implemented. On the other hand, about the decrease in net savings of private sector different factors have been effective. First of all, the appreciation of TRY following the recovery of the economy after the crisis has contributed a lot to the decrease in net savings of private sector. Also İnan (2006) claims that, as experienced in other developing countries, with the maintenance of macroeconomic stability in a great extent, the foreign savings that flow in to Turkey could have substituted the domestic savings and become another reason of the decrease in net domestic savings. He supported this view with his finding of high negative correlation between these two series.

Moreover, when the components of imports are examined as in Table 3.2, it is seen that the share of consumption goods in total imports has always remained limited and the increase in imports has been mainly emanated from the imports of investment and intermediate goods, causing the domestic production capacity of Turkey to increase, which is a good development for the sustainability of CADs. However, as cited by Babaoğlu (2005), besides the composition of imports, the sectors in which these imported investment and intermediate goods are used are also very important. High investment in the non-tradable goods sectors temporarily boosts domestic demand but does not improve the productive capacity in exporting and import-competing sectors significantly whereas private sector investment in tradable goods sectors contributes to reducing the CAD (World Bank, 2008). According to World Bank (2008), although investment in non-tradable sectors has historically been significantly larger than investment in tradable sectors, a significant shift in the composition of investment towards tradable sector has taken place in Turkey since 2001. Despite still being low compared to fast growing countries and new EU members, this is a positive process for the sustainability of CADs in Turkey.

Table 3.2 – Imports by Classification of Broad Economic Categories

% of total imports	2002	2003	2004	2005	2006	2007	2008
Capital Goods	16.3	16.3	17.8	17.4	16.7	15.9	13.5
Intermediate Goods	73.0	71.7	69.3	70.1	71.4	72.7	75.5
Consumption Goods	9.5	11.3	12.4	12.0	11.5	11.0	10.6

Source: TSI

In summary, looking at the change in the causes of current account deficit, based on Lawson's Doctrine, it can be suggested that current account deficit is not a problem anymore due to the fact that now the private sector's investment expenditures, which exceed the savings, are at the center of the increase in CADs. However Brazil, Chile and Mexico faced with crisis in such a situation in 1980's as it is stated before in Chapter 2. Therefore, although the change in the reasons of current account deficit reflects a healthier and less vulnerable economy, if Turkey faces with a sudden stop due to a deterioration in whether local or global conditions, a serious balance of payments correction will become essential, bringing serious consequences for the economy. Nevertheless the ratio of CAD to net international reserves, which is one of the indicators of the country risk, has been pursuing an increasing trend since 2001 reaching to its record level with approximately 40 percent as of May 2008 despite the increase in the reserves. The increase in this ratio indicates the risks tied to CADs are rising. However, it should be noted that the import coverage ratio of international reserves, which is another indicator of country risk and a measure to calculate the adequacy of international reserves that shows for how long the international reserves of the country can cover for the imports without any external financing, has still maintain its high levels with 7.3 months which is well above the 3 months ratio that is stated by the IMF as the adequate level of international reserves. In light of these remarks, the structure of the financing of CAD has a critical importance.

3.2.4. The Financing of Current Account: Capital Account

As seen in Figure 3.8, high growth rates, high current account deficits and high net financial inflows have come hand in hand in Turkey. This trend can be read as high current account deficits that exists as a result of high growth rates in the country have necessitated high capital inflows to the country and the foreign investments have not hesitated to enter to the country in the high growth and high real interest rate environment. On the other hand, Pamukcu and Yeldan (2005) and Yeldan (2006) have interpreted this relation from international financial inflows to growth and current account deficit. According to them, growth in Turkey has been mainly driven by the massive inflows of foreign capital, which was lured by the high real rates of return. In turn the high growth rates have caused the current account deficits to

increase due to the high dependence of domestic production to imported goods. Thus it can be claimed that there is a bilateral relationship between growth rates and global financial inflows. Whatever the direction of the relation is, as stated by Standard&Poor's (2008a), the massive capital inflows together with high current account deficits has subjected the relatively shallow Turkish domestic and foreign exchange markets to pronounced downswings when foreign investors withdraw their funds en masse in response to either changing global liquidity conditions or perceived increase in domestic risks. Coherently, as seen in Figure 3.8, in 1994, 1998 and 2001, net international financial flows to the country decreased very rapidly and passed into negative territory causing the slowdown of the economy with negative growth rates in 1994 and 2001 and the CADs to turn into surpluses. In this context, we can claim that Turkey experienced three sudden stop episodes in the post-1989 period. The calculations of Varlık (2004) using the quantitative definitions of sudden stops in the literature stated in Chapter 2 also confirm this fact.

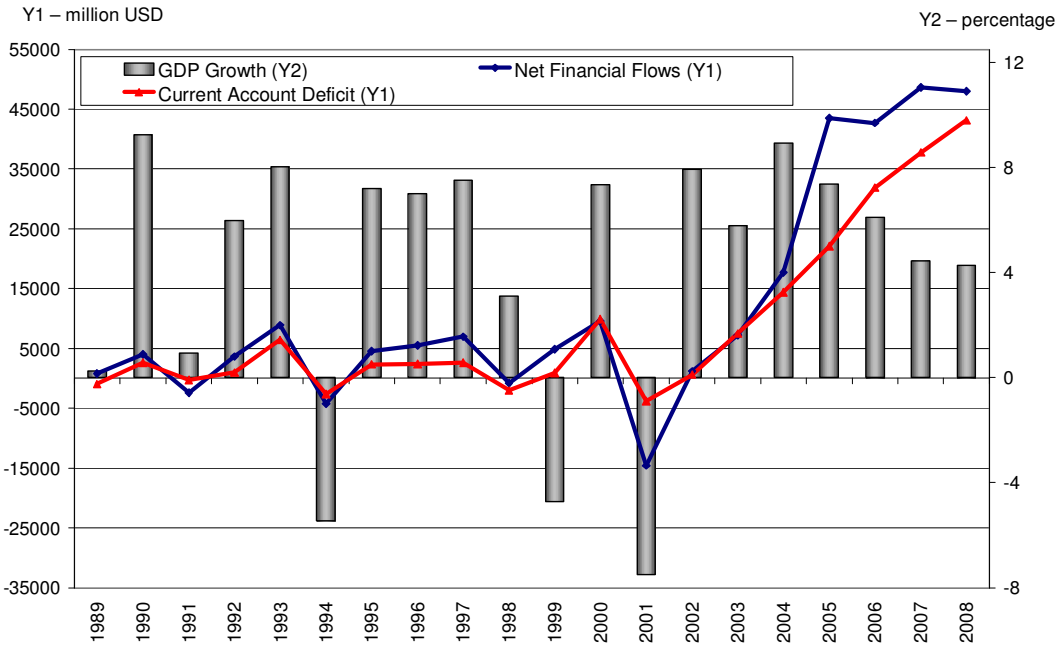

Figure 3.8 – Net Financial Flows, CAD* and Growth (1989 – 2008)**

* Positive figures indicate CADs where as negative figures refer the current account surpluses.

** Annualized percentage change as of the first quarter of 2008 for the GDP growth, first five months of 2008 for CAD and financial flows.

Source: CBRT, TSI

In this rapid reversal of capital flows, the structure of these flows played a critical role. In figure 3.9, the maturity structure of capital inflows are examined. Here the short-term capital inflows captures the short-term credits that are used by residents of Turkey including the government, CBRT and the banking sector from abroad, foreigners deposits in the banking sector and the short-term deposits of Turkish workers, who are resident abroad, in CBRT. On the other hand, the long-term capital inflows covers the long term credits used by residents from international markets, long-term deposits in CBRT and the credits used from IMF. Until 2001, the FDI inflows, which are the most stable capital items with the least probability of escaping from the country during a crisis, were very limited and the CADs were mainly financed by the short-term capital inflows that are the most volatile capital item. This type of capital can easily and very rapidly fly from the country in the crisis periods and even in case of minor unfavorable developments in the country, causing the situation to worsen. The movements in short-term capital flows during 1994 and 2001 crises and during the turmoil in the global financial markets experienced in 2006 and 2007 are the concrete proofs of the volatile structure of such flows.

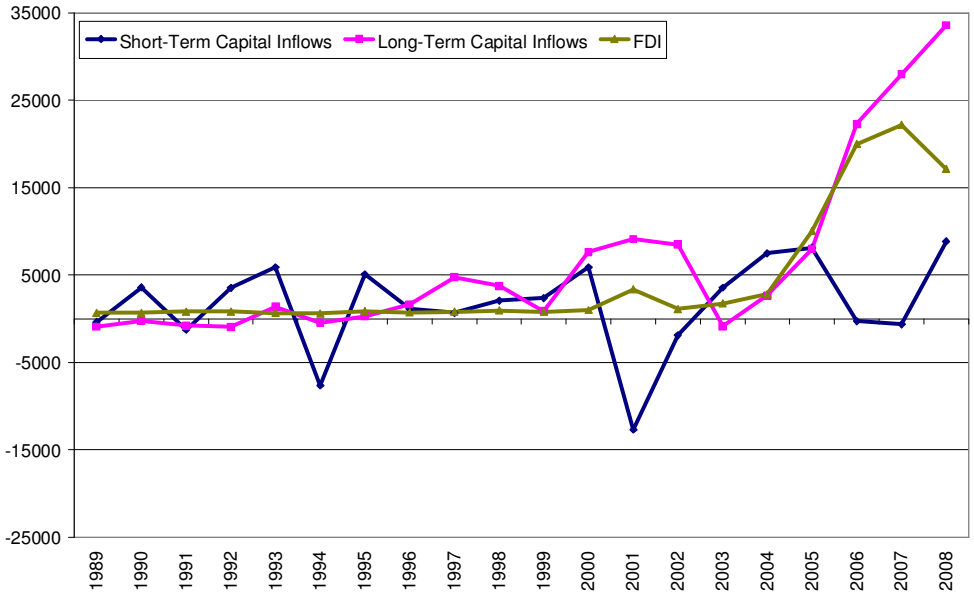

Figure 3.9 – Maturity Structure of Capital Inflows (1989–2008*, Million USD)

* Annualized as of May 2008.

Source: CBRT

On the other hand, as from 2001, the financing quality of current account deficits has improved with a significant increase in FDI and in long-term capital inflows thanks to the macroeconomic stability and the structural reforms in the country together with the IMF and EU anchors that increase the investor confidence to the country. The increase in FDI has mainly emanated from the privatization of some public institutions as a part of structural reforms and the acquirement of existing companies by foreigners, rather than the greenfield investments that create new production capacity and job opportunities, and that are the most desirable type of foreign capital. On the other hand, the striking increase in the long-term capital inflows in the last four years are achieved in an environment where the government and CBRT are saving from their liabilities to foreign creditors, Turkish workers living abroad and IMF, thanks to the increased long-term borrowing of banking sector and other sectors from abroad. In this context, the share of more stable capital items in the financing of CAD has increased sharply. Despite these improvements in the quality of financing, the slow-down in FDI in 2008 and the increased dependence to external borrowing of corporate sector in financing the continuously increasing CADs have raised the concerns one more time about the sustainability of CADs and its financing in recent years.

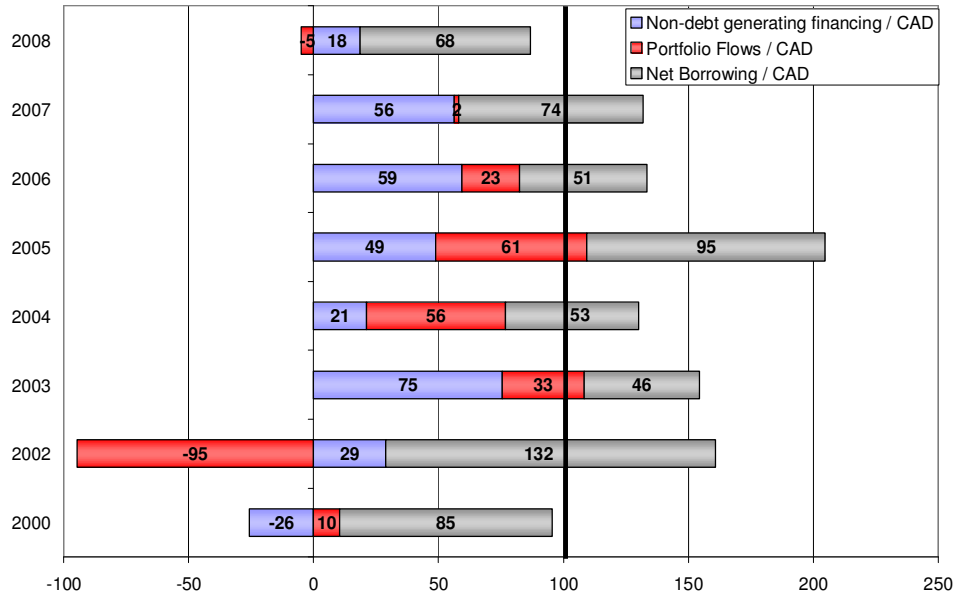

Figure 3.10 – Financing of Current Account Deficits (2000– 2008*, Percentage)

* 2001 is excluded because of being a crisis year, 2008 figure covers the first five months of the year

Source: CBRT, TSI

Accordingly, Figure 3.10 shows that beginning from 2002 non-debt generating financial inflows, which capture the FDI and net errors and omissions items in the capital account, started to finance a bigger part of CAD reflecting the improvement in the quality of financing and the capital account surpluses have exceeded the current account deficits causing an increase in reserve assets of the country. In other words, Turkey with its strong economic potential and high real interest rates was a magnet for foreign investors and was more than capable of securing financing for the large CAD (Standard&Poor's, 2008b). However, as the figure depicts, Turkey fell short of financing its CAD in the first five months of 2008 with a sharp decrease in non-debt generating financing and portfolio outflows. The credit crunch in the international financial markets that started in August 2007 in US mortgage markets and exacerbated by spreading to other sectors and countries, has played the main role in this decrease by increasing the risk perceptions of investors. According to Standard&Poor's (2008b), the withdrawal of foreign investors from the domestic market may also have been triggered by inflationary pressures and deteriorating inflation expectations, which would have eroded foreign investors' expected rates of return and also by political uncertainty, which would have raised the risk premium on government debt. Thus, Turkey should thank to external borrowing of the private sector, which is about 70 percent of CAD, for limiting the erosion in foreign reserves and preventing the abrupt adjustment in RER. Nonetheless, the increasing reliance of the Turkish corporate sector on foreign borrowings leads to a riskier balance sheet profile in this sector and increase its vulnerability to the swings in the exchange rates. Besides, in its report on Turkish capital account, Raymond James (2008b) warns on that these capital inflows could also decrease because of the recent negative developments in global liquidity conditions, and TRY could still be prone to external shocks due to the rising global risk factors and domestic political tension. Moreover, the analyze of Raymond James on total credits of the private sector shows that the largest repayment of the non-banking sector's external credits will take place in 2008-2009 period, meaning that in order to contribute the CAD financing positively they should borrow more than they repay in the 12 months ahead. However, considering the deteriorating international liquidity conditions, this could be difficult.

Table 3.3 summarizes the financing of current account deficits in terms of the sub-items of balance of payments. Here, it draws attention that foreigners' holdings of government debt securities issued in Turkey is one of the most volatile and ready to run-away capital item in the balance of payments as stated by Erkılıç (2005). These flows, which had followed a rising trend as from 2002 after the deep fall in 2000 and 2001, have started to flow out of the country beginning from 2007 due to the recent unfavorable developments in both domestic and global conditions. In considering that the government's domestic debt securities held by foreigners amounted to 29 billion USD[14] as of May 2008, the further negative developments in either domestic or global investment conditions can pose the risk of further and faster withdrawals of this capital, putting the financing of current account deficit in distress.

In short, although the rejection of the lawsuit about the closure of the ruling party AKP by the constitutional court in late July could give rise to an increase in capital inflows, especially in portfolio inflows by easing the political uncertainty in the country, concerns over the widening CAD and its financing are exacerbated by declining FDI coverage, tighter global liquidity and reduced risk appetite of foreign investors.

3.2.5 - Real Exchange Rates

Figure 3.11 summarizes the developments in the real effective exchange rate (REER) index, which is computed as the weighted geometric average of the price level in Turkey relative to the price levels in its trade partners, from 1980 to today by taking 1995 as the base year and its relation with the CAD. The increase in the index indicates a real appreciation of Turkey or vice versa, coherent with the equation 2.8. Here, it is worth to note that, as Erkılıç (2006) highlights, the health of using this index as a clear indicator of overvaluation or undervaluation of TRY is open to debate since it implies to adopt the assumption of that the RER in 1995 is the equilibrium rate.

[14] International Investment Position Report published by CBRT.

Table 3.3 – The Financing of Current Account Deficits in terms of the Sub-Items of Balance of Payments

(Million US Dollars)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008 Jan-May
CURRENT ACCOUNT	**-974**	**-6433**	**2631**	**-2339**	**-2437**	**-2638**	**2000**	**-925**	**-9920**	**3760**	**-626**	**-7515**	**-14431**	**-22137**	**-31893**	**-37753**	**-21,541**
FINANCING OF CURRENT ACCOUNT	**2164**	**8595**	**-4463**	**-93**	**938**	**3625**	**-1287**	**-377**	**12581**	**-1633**	**1403**	**3095**	**13388**	**20302**	**32066**	**36612**	**21,947**
Direct Investment, net	**779**	**622**	**559**	**772**	**612**	**554**	**573**	**138**	**112**	**2855**	**958**	**1252**	**2005**	**8967**	**19065**	**20099**	**4,390**
In Turkey	844	636	608	885	722	805	940	783	982	3352	1133	1751	2785	10031	19989	22205	6,053
Equity Capital	844	636	608	885	722	805	940	783	982	3352	617	737	1092	8134	16982	18702	5,000
Other Capital (Net)											516	16	350	56	85	551	30
Real Estate (Net)												998	1343	1841	2922	2952	1,023
Portfolio Investment, net	**2411**	**3917**	**1158**	**237**	**570**	**1634**	**-6711**	**3429**	**1022**	**-4515**	**-593**	**2465**	**8023**	**13437**	**7373**	**717**	**-1,095**
Assets	-754	-563	35	-466	-1380	-710	-1622	-759	-593	-788	-2096	-1386	-1388	-1233	-4029	-2063	-74
Liabilities	3165	4480	1123	703	1950	2344	-5089	4188	1615	-3727	1503	3851	9411	14670	11402	2780	-1,021
Equity Securities	350	570	989	195	191	8	-518	428	489	-79	-16	905	1427	5669	1939	5138	927
Debt Securities	2815	3910	134	508	1759	2336	-4571	3760	1126	-3648	1519	2946	7984	9001	9463	-2358	-1,948
General Government	2988	3903	446	933	1919	1915	-4369	3677	984	-3645	1958	3123	7984	9351	9463	-2358	-1,948
In Turkey	10	182	35	124	428	562	-3992	540	-5126	-3744	929	1614	6025	5934	6129	-3281	-1,082
Abroad	2978	3721	411	809	1491	1353	-377	3137	6110	99	1029	1509	1959	3417	3334	923	-866
Banks	43	7	-312	-212	-160	421	-202	83	142	-3	-439	-177	0	-350	0	0	0
Other Investment, net	**458**	**4364**	**-5634**	**3903**	**4301**	**4753**	**5067**	**1782**	**11801**	**-2667**	**7191**	**3425**	**4184**	**15745**	**11742**	**23828**	**17,563**
Assets	-2438	-3291	2423	-383	331	-1750	-1464	-2304	-1939	-601	-777	-986	-6955	259	-13437	-4782	-6,570
Liabilities	2896	7655	-8057	4286	3970	6503	6531	4086	13740	-2066	7968	4411	11139	15486	25179	28610	24,133
Short-term credits	4045	5572	-7611	2840	915	1626	365	2781	6666	-9810	-329	3518	7403	6085	-2839	2691	4151
Long term credits	-1362	59	-1535	-2087	-1729	490	1673	241	4382	312	2081	-453	1727	864	8093	18331	14453
IMF credits	0	0	340	347	0	-28	-231	520	3351	10230	6365	-50	-3518	-5353	-4511	-3983	2882
Currency and Deposits	154	1589	1260	2462	2567	876	2877	239	-20	-832	348	1368	647	489	4622	-3323	2,135
Reserve Assets	**-1484**	**-308**	**-546**	**-5005**	**-4545**	**-3316**	**-216**	**-5726**	**-354**	**2694**	**-6153**	**-4047**	**-824**	**-17847**	**-6114**	**-8032**	**1,089**
NET ERRORS AND OMISSIONS	**-1190**	**-2162**	**1832**	**2432**	**1499**	**-987**	**-713**	**1302**	**-2661**	**-2127**	**-777**	**4420**	**1043**	**1835**	**-173**	**1141**	**-406**

* Negative figures indicate an increase while positive figures indicate a decrease in reserve assets.

Source: CBRT, SIS

As it is indicated in Chapter 2, RER is also an indicator of the competitiveness of a country in the global goods and services market. An increase in RER decreases the competitiveness of the country by making the domestically produced goods more expensive relative to foreign goods causing the exports to decrease and vice versa. However RER is not the single competitiveness indicator. The cost of inputs, financial burdens on the producers, the cost of credit and the productivity also affects the competitiveness (İnan, 2006). In fact, despite the high real appreciation of TRY following the 2001 crisis, exports of Turkey has continued to increase thanks to the productivity increase in the manufacturing sector that has been high enough to offset the loss of competitiveness emanated from the increase in RER.

In light of these informations, according to the Figure 3.11, there is a positive relation with REER and the share of CAD to GDP. As the REER increases or in other words as TRY appreciates in real terms, the CAD ratio also increases, supporting the fact that Marshall-Lerner condition is viable for Turkey.

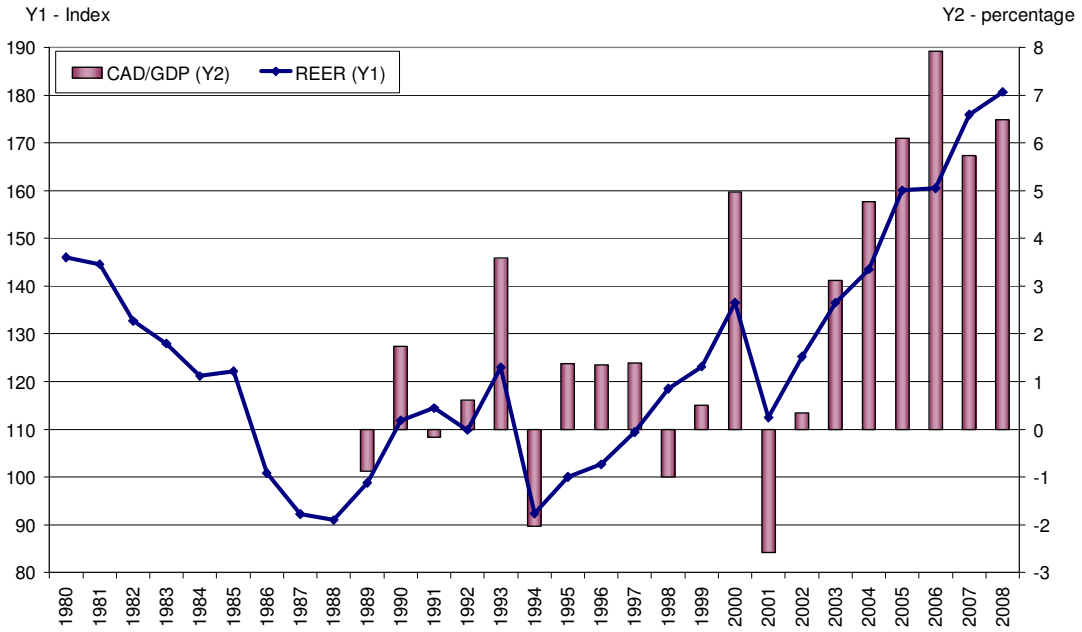

Figure 3.11 –Real Effective Exchange Rate Index (1995 = 100, CPI based, annual average) and CAD (1980-2008*)

* 2008 figures are the average of the first six months of 2008 for REER and the first quarter of 2008 for CAD to GDP ratio.

** Negative CAD/GDP figures indicate a current account surplus.

Source: CBRT

The real depreciation of TRY during 1980s as seen in the figure can be explained by the exchange rate policy pursued in that period in an aim of controlled depreciation of TRY consistent with the exports-based growth strategy. However, with the liberalization of the international capital flows, the real exchange rates started to increase indicating a relative real appreciation of TRY. This real appreciation trend continues until the 1994 crisis resulting in a devaluation and thus a real depreciation. Nevertheless the RER started to increase again with the recovery from the crisis. RER increased further in 2000, since in this period monthly inflation rates were realized above the targeted rates while the exchange rates were increased in-line with pre-announced levels, which are compatible with the targeted inflation rates stated in the exchange rate based disinflation program, rising the speculations about the (un)sustainability of the exchange rate policy. As a result of these speculations together with the fragilities in the economy mentioned previously in this section, an attack to TRY had materialized, causing a high devaluation and abandonment of fixed exchange rate regime and thereby resulting in a sharp decrease in RER. Following the 2001 crisis period, the RER started to increase again reaching record levels in its history due to the massive capital inflows to Turkey thanks to the macroeconomic stability achieved and favorable liquidity conditions in the global financial markets. Also it is worth to note that until 2006, the real appreciation of TRY realized in an environment where the domestic inflation was decreasing, whereas as from 2006 TRY has appreciated in real terms while the inflation is increasing. Thus the increase in inflation has also contributed to the RER increase in 2007 and 2008. As expected, this striking real appreciation of TRY has played one of the main roles that caused the CAD to increase to its historically record levels. Accordingly, the movements in RER will also play the main role in the adjustment process in case of a sudden stop that necessitates a serious balance of payments correction as happened in the past.

CHAPTER 4

THE MODEL AND ITS APPLICATION TO TURKEY

4.1. The Model

In order to calculate the necessary real exchange rate adjustment in Turkey in case of a sudden stop, the model of Calvo *et al*. (2003b) and Calvo *et al.* (2004) is used. This model explores the consequences of a fall in capital inflows in terms of RER behavior in a small open economy that experiences a current account deficit.

According to the model:

$$CAD = A^T + S^* - Y^T \tag{4.1}$$

where A^T is the absorption of tradable goods, S* is the net factor payments to foreigners and Y^T is the supply of tradable goods. This equation is another form of equation (2.4) where $S^* = - r_t NFA_t$ and:

$$A^T = Y^T + M - X \tag{4.2}$$

Typically, prior to a sudden stop episode the CAD is positive, and as a result of the sudden stop the full amount of that imbalance should be cut. In this case, assuming that S* and Y^T are constant, the fall in absorption of tradable goods should be equal to current account deficit:

$$-\Delta A^T = CAD \tag{4.3}$$

Thus the percentage fall in the absorption of tradable goods needed to restore equilibrium is equal to:

$$\eta = \frac{\Delta A^T}{A^T} = -\frac{CAD}{A^T} = -(1-\omega) \tag{4.4}$$

where ω is the amount of un-leveraged absorption of tradable goods which is financed by the domestic supply of tradable goods. From equations (4.1) and (4.3), it can be seen that ω is equal to:

$$\omega = \frac{(Y^T - S^*)}{A^T} \tag{4.5}$$

As can be seen from the equation (4.5), ω is related with the degree of openness which can be calculated as the share of Y^T relative to A^T. Accordingly, the lower the degree of openness and hence the lower the value of ω, the higher will be the share of absorption of tradables financed from abroad. So relatively closed economies with a small supply of tradable goods will be highly leveraged.

Now let's consider the effects of the fall in the absorption of tradable goods on the RER. According to the equations (2.8) and (2.9) that show the measurement of RER, RER depends on both the domestic and foreign price levels or with another definition on non-tradable and tradable goods' prices. Given that the price of tradable goods is determined from abroad, all we need to take into account is the behavior of the non-tradable goods market. Demand for non-tradable goods is equal to:

$$a^N = \alpha - \beta p + \delta a^T \tag{4.6}$$

where a^N and a^T are the log of demands (absorptions) for non-tradable and tradable goods respectively, p is the log of the relative price of non-tradable to tradable goods (rer), β is the price elasticity of the demand for non-tradable goods.

According to the "absorption approach" defined in Chapter 2, a sudden contraction in CAD following a sudden stop requires a sharp decline in aggregate demand which implies a fall in the demand for both tradable and non-tradable goods. Thus the expected sign of δ is positive as presented in the equation (4.6). As it is expressed by Calvo and Reinhart (2000), the excess supply of tradables can be shipped abroad, but the non-tradables are, by definition, bottled up at home and thus, its relative price will have to fall. In this context, taking the first differences in the equation (4.6), approximating the relative change in A^T by its first difference in logs and assuming

that the supply of non-tradables is constant for simplicity, the required RER change can be calculated as shown in the equations (4.7) and (4.8).

$$da^N = - \beta dp + \delta da^T \tag{4.7}$$

Since da^N is assumed to be equal to zero and da^T is equal to η, the change in the real exchange rate is equal to:

$$dp = \frac{\delta}{\beta} \times \left(- \frac{CAD}{A^T} \right) = - \frac{(1 - \omega)}{\chi} \tag{4.8}$$

where (δ/β) is equal to $(1/\chi)$. Hence, in case of a sudden stop, the change in the relative price of non-tradables to tradables (dp) and thus the change in RER depends on the price elasticity of the demand for non-tradable goods (β), the sensitivity of non-tradables demand to tradables demand (δ) and the ratio of CAD to A^T which indicates the leveraged absorption, η. In this context, one of the key element in determining the size of the required change in the RER is given by χ, which is equal to the ratio of β to δ. As can be seen from the equation (4.8), the higher the δ and the lower the β, and thus the lower the χ, the higher the required RER change. Accordingly, the higher the leveraged absorption of tradables, η (or the lower the un-leveraged absorption of tradables, ω), the higher the impact on the RER needed to restore equilibrium after a sudden stop. As Calvo *et al.* (2004) explain, the intuition is that since the supply of tradables is relatively fixed in the short run, the smaller the supply of tradables relative to domestic absorption of tradables, the larger the proportional reduction in domestic absorption of tradables required by the adjustment of the current account and thus the larger the required fall in the RER. Hence it can be claimed that ω is a good summary statistic to measure the impact on RER. However, as Calvo *et al.* (2004) emphasize, this equation is not intended to model the actual change in the equilibrium real exchange rate but, rather, the part of the total change that is likely to be very difficult for the country to prevent.

In order to calculate η and ω, Calvo *et al.* (2003b) proxy A^T by imports and Y^T by exports, assuming that all the tradables produced domestically are exported and all the tradables consumed by residents are imported. More realistically, in their study

on 32 developing countries, Calvo *et al*. (2004) compute the value of A^T as shown in equation (4.2), by proxying tradable output by the sum of agricultural and industrial output (or in another way by excluding services from total output) and by subtracting exports and adding imports to this value. Besides Calvo *et al.* (2003b) assume that the preferences are homothetic and hence δ is equal to 1, causing the χ to be equal to the price elasticity of non-tradable goods, β. Under this assumption, they take the value of χ as 0.4 which is the lowest point estimate of price elasticity in the literature because it is found that estimates of χ for developing countries are much lower than those for industrial countries, implying that sudden stops can be much more devastating for EMs.

Using the model, Calvo *et al*. (2003b) find that Argentina would have needed to depreciate its RER by 46 percent in order to bring down its current account to zero following the Russian crisis, whereas Chile which was a more open and non-dollarized economy would only have needed to depreciate its RER by 32 percent. However, while between 1998 and 2001 Chile depreciated its currency vis-à-vis dollar by about 45 percent in real terms and close a deficit equivalent to 6 percent of GDP from 1998 to 1999, Argentina depreciates its RER by only around 14 percent. Resulting decrease in the current account deficit from 4.9 percent of GDP in 1998 to 2.4 percent of GDP in 2001 clearly indicates that this depreciation was far from sufficient. The authors explain the slow adjustment of RER observed in Argentina by the combination of a fixed exchange rate and price stickiness, which retarded the adjustment of the RER.

According to Obstfeld and Rogoff (2005), the implications of the RER changes for nominal exchange rates depend on the monetary policies implemented. In this context, they consider two possibilities: that central banks stabilize the domestic CPI, and that they stabilize the domestic GDP deflator. Under CPI targeting, the monetary authorities hold overall price levels constant, so that the only source of real exchange rate change is nominal exchange rate change. As a result, nominal and real exchange rate changes are equal. On the other hand, under real GDP targeting, central banks allow the prices to change and as a result the overall price level increases following the depreciation of domestic currency after a sudden stop. By considering the

equation (2.8), it is clear that the decrease in RER (real depreciation of domestic currency) while overall price level in the country is increasing means that the change in nominal exchange rate is bigger than the change in RER[15].

4.2. Application of the Model to Turkey

By applying the model introduced by Calvo *et al.* (2003b) and Calvo *et al.* (2004), the question of what would have happened to RER if recently Turkey had faced with a sudden stop is tried to be answered. In this context, the supply and absorption of tradables is calculated by using two methods for different purposes. As a first method of calculation, as Calvo *et al.* (2004) did, tradable output (Y^T) is proxied by the sum of agricultural and industrial output[16] and absorption of tradable goods (A^T) is calculated by adding imports to and subtracting exports from this value of Y^T. From now on, this method of calculation will be called as "Method 1" and is preferred due to its more realistic approach to the calculation of A^T and Y^T. Since the GDP components, which are used to calculate the Y^T and A^T, are published quarterly, the calculations using Method 1 are made quarterly. On the other hand, in order to see and analyze the most recent situation, the same calculations are also made by using the monthly current account data, by making the simplifying assumption that Y^T and A^T are equal to exports and imports respectively as Calvo *et al.* (2003) did. Similarly, "Method 2" will state for this type of calculation.

In this context, first of all, the un-leveraged absorption of tradable goods, ω, which is financed by the domestic supply of tradable goods, for Turkey are calculated as shown in the equation (4.5). Figure 4.1 shows the movements in ω in Turkey from January 1993 to May 2008. As it is seen, Method 2 is used in deriving the graph in order to see the trend of the coefficient in a broader time period since the recently revised GDP data go back to only 1998 whereas monthly current account data can be

[15] For an analytic explanation of the effects of the changes in RER on nominal exchange rates under different monetary policies, see Obstfeld and Rogoff (2005)

[16] In detail, supply of tradables (Y*) is assumed to be equal to the sum of the agriculture, hunting and forestry, fishery, mining and quarrying, and manufacturing items of the gross domestic product (GDP) calculated by Turkish Statistical Institute (TSI).

obtained from 1992 till May 2008. Also, the data is annualized in order to distinguish the trend from seasonal movements.

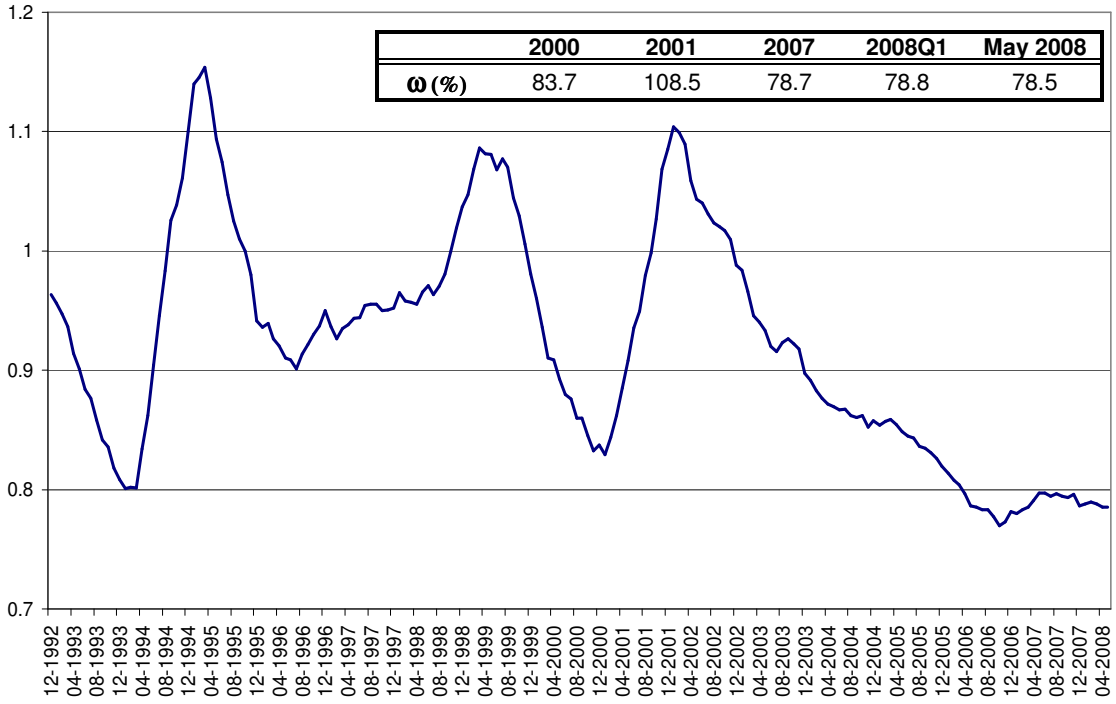

Figure 4.1 – The Un-Leveraged Absorption Coefficient (ω) for Turkey (December 1992 – May 2008, Method 2, Annualized Monthly Data)

Source: CBRT

It can be seen from the Figure 4.1 that just before the 1994 and 2001 crisis, the un-leveraged absorption coefficient, ω hit to its lowest levels and following the crisis it started to increase reaching over 1. Specifically focusing on the recent period, it is seen that at the end of 2000, with the over-valuation of Turkish Lira as a result of the monetary and exchange rate policies implemented in that period, the imports increased faster than exports and ω fell to 83.7 percent annually. However, following the banking sector shock at the end of 2000 and the financial crisis in 2001, the coefficient started to increase, reaching 108.5 percent at the end of 2001. Nonetheless, together with the appreciation of TRY and the increase in domestic demand as a result of the recovery in the economy, ω has continuously decreased back to the levels below 1 from the second quarter of 2002 till today. As a result of this decrease, as of May 2008, ω has reached to its lowest level in the period analyzed, with a level of 78.5 percent. Similarly, Table 4.1 shows the values of ω calculated by using Method 1 that uses GDP components to derive A^T and Y^T instead

of proxying them to imports and exports respectively. As it can be seen, although the calculations of Method 1 are slightly higher than the values calculated by Method 2, the trend is same with a continuous decrease in recent years. Thus, as the equation (4.8) implies, the required change in the RER following a sudden stop and accordingly the vulnerability of the economy to sudden stops have increased in the recent period.

Table 4.1 – The Un-Leveraged Absorption Coefficients (ω) for Turkey (Percentage, Method 1, Annualized Quarterly Data)

	2000	2001	2007	2008Q1
ω	89.3	107.4	81.3	81.1

Source: TSI, CBRT

Given this framework, the question of what should be the size of RER realignment in Turkey following a sudden stop that requires a full adjustment of the current account deficit is tried to be answered. As implied by the equation (2.14), net capital inflows at a certain time should be equal to the sum of current account deficit and the change in international reserves. Thus a sudden stop that decrease the net capital inflows to zero should be met either by a same amount of decrease in current account deficit without a change in international reserves or a lesser amount of decrease in current account deficit together with a position closing decrease in international reserves. Also, it is possible to meet the decrease in capital account with a same amount of a decrease in international reserves without affecting the current account. However, as it is stated before in Chapter 2, such a policy action that exhausts the international reserves can worsen the situation by increasing the possibility of a speculative attack and the vulnerability of the country against it. Thus, in calculating the necessary real exchange rate change in the face of a sudden stop in Turkey, it is assumed that pure floating exchange rate regime is implemented and therefore all the decrease in capital account surplus is met by an equivalent change in capital account deficit without a change in international reserves.

To this end, the scenario in which the net capital inflows decrease to zero is evaluated using the equation (4.8). In this context, although in their calculations Calvo *et al*. (2003b) use the lowest point estimate in the literature for χ which is 0.4

as stated above, in this study χ that shows the ratio of price elasticity of non-tradables to its sensitivity to absorption of tradables is tried to be estimated specifically for Turkey and the required RER change is measured by using these estimated coefficients.

In order to estimate χ, first of all a long-run variable space of the absorption of non-tradable goods, $z_t = (a^N, rer, a^T)$ is considered, where rer, a^N and a^T signify natural logarithms of RER, A^N and A^T, respectively. Here, A^N is calculated by subtracting the absorption of tradables that is assumed to be equal to imports from total absorption and the quarterly data from 1998:1Q to 2008:1Q are used. The integration properties and thus the stationarity of these three variables in the system individually are investigated by applying Augmented Dickey-Fuller (1981) (ADF) unit root test with the lag length (k) that is selected to remove any manifest serial correlation. The results of the test are presented in Table 4.2, suggesting that a^N, rer and a^T are integrated of order 1, I(1) and hence non-stationary in their levels but stationary in their first differences.

Table 4.2 – Augmented Dickey-Fuller (ADF) Test Statistics

	Levels		First Differences
Series	$\tau_t(k)$	$\tau_c(k)$	$\tau_c(k)$
a^N	-1.62(4)	-0.05(4)	-5.78(1)*
rer	-1.63(4)	-0.18(4)	-17.64(1)*
a^T	-2.11(4)	-0.86(4)	-4.55(1)*

Notes: The equations for τ_c contain a constant term whereas the equations for τ_t also include a linear trend. Numbers in the paranthesis are the lags (k) used in the augmentation of ADF regression. An asterisk (*) indicates that the unit root null hypothesis is rejected at the 5% level, using MacKinnon's (1991) critical values.

Since all the three variables are integrated in the same order, a simple regression of these variables can present the long-run relationship if they are cointegrated with each other. Accordingly, in order to see if there is a cointegration relation between a^N, rer and a^T, by using the Engle-Granger approach we can look at the stationarity of the residuals of the simple regression. In this context, the equation (4.8) is estimated

with the least squares for the period between 1998:1Q and 2008:1Q. The results of this regression are disclosed in the equation (4.9).

$$a^N = 8.98 - 0.4\ rer + 0.62\ a^T \quad (4.9)$$
$$(0.678)\ \ (0.178)\ \ (0.088)$$
$$R^2 = 0.79,\ \ DW = 1.88,\ \ ADF(\hat{u}) = -7.21$$

where DW is the Durbin-Watson test statistic for the detection of the autocorrelation in the residuals from the regression and ADF(û) represents the statistic of augmented Dickey-Fuller test for the non-stationarity of the equation residuals (Engle and Granger, 1987). While the DW statistic indicates that the equation residuals are not correlated, the ADF(û) statistic refers that these residuals are stationary. Alternative to ADF, the Cointegration Regression Durbin-Watson (CRDW) (Sargen and Bhargava, 1983) test also implies that a^N, rer and a^T are cointegrated with each other. Hence, the results of the regression suggest that the static equation can be interpreted as representing a long-run equilibrium relationship. Accordingly, the long run price elasticity of a^N is estimated as 0.4 with a negative sign as expected and the long-run sensitivity of a^N to a^T is 0.62. Therefore the χ coefficient that is used to calculate the necessary RER change is found to be equal to 0.65.

Considering the results of the estimation for Turkey, it is seen that the χ coefficient is higher in Turkey than what Calvo suggested for developing countries[17]. Therefore, according to the equation (4.8), the required RER change following a sudden stop in Turkey will be lower than what is suggested by Calvo. In order to see the differences, the required RER change in Turkey is calculated for both of χ coefficients, $\chi = 0.4$ and $\chi = 0.65$.

The results of the model for Turkey are summarized in Table 4.3. Here the data, which are used to calculate ω, are not annualized as in Figure 4.1 and Table 4.1 that aim to show the trend in the coefficient, and rather raw data of national and current account are used in order to see the necessary RER change just at that point of time.

[17] Here it should be considered that Calvo assumes a homothetic relation between non-tradables and tradables demand and therefore takes the coefficient of sensitivity to tradable goods demand,δ as 1 and χ as equal to price elasticity of non-tradables demand, β. In this context, Calvo's assumption on the level of price elasticity of non-tradables in developing countries is consistent with our findings for Turkey.

Table 4.3 – The Annualized Current Account Deficits (CAD) and the Required Real Exchange Rate (RER) Changes in Turkey

	2000Q4	2007Q4	2008Q1	May 2008*
CAD (billion USD)	3.01	11.61	12.02	4.64
ω (Percentage)	87.45	79.62	75.93	76.88
η (Percentage)	12.55	20.38	24.07	23.12
Required RER Change χ = 0.65 (Percentage)	-19.29	-31.35	-37.03	-35.57
Required RER Change χ = 0.4 (Percentage)	-31.35	-50.95	-60.18	-57.80

* The required RER change in May 2008 is obtained by using the ω coefficient calculated through Method 2, where as the other RER calculations are made by following the Method 1.

Source: TSI and author's own calculations

The results indicate that in case of a sudden stop in Turkey, RER is required to depreciate by 37 percent in the first quarter of 2008 in order to close the current account gap that amounts to 12 billion USD for the quarter. Similarly, using the Method 2, the necessary RER depreciation following a sudden stop is calculated as 35.6 percent for May 2008. As can be seen from the table, the necessary RER depreciation that is calculated by taking χ as 0.4 as suggested in the literature, is significantly higher than the calculations that use χ estimations peculiar to Turkey.

In order to evaluate the results of the model, the required RER changes derived from the model and the realized RER change in the 2000-2001 period are compared with each other. According to the model calculations that use the χ coefficients estimated for Turkey, in order to close the current account deficit of about 3 billion USD in the fourth quarter of 2000, the RER should have to decrease by 19.3 percent. However, in reality the CAD decreased to only 571 million USD with a real depreciation of 8.4 percent in the first quarter of 2001 whereas the model foresees a real depreciation of 15.6 percent for such a decrease in CAD. On the other hand, the calculation that takes χ as 0.4 consistent with the literature, find that for such an adjustment, the RER should depreciate more by 25.4 percent. Accordingly, the comparison of the realized

RER change with the results obtained from the model for the periods 2000 and 2001 shows that the realized change is lower than the model's calculations. This difference can be explained by the combination of a fixed exchange rate and price stickiness as Calvo *et al.* (2003b) did for the slow adjustment of RER observed in Argentina. However, because of the floating exchange rate regime that has been implemented since February 2001, it is acceptable to assume that hereafter CBRT will beware of intervening in the foreign exchange markets aggressively and thus the RER change required to close the current account gap in case of a sudden stop will probably be closer to the model's forecast.

Regarding the implications of these RER depreciations for nominal exchange rates, it is seen that nominal depreciation had always been significantly higher than real depreciation due to the high inflation particularly in the crisis periods, consistent with what Freund (2005) suggests. For example in 2001, the average nominal exchange rate depreciated by 96.1 percent annually whereas RER depreciated by only 17.6 percent. However, it can be claimed that now on the level of the nominal exchange rate depreciation will be closer to that of RER, since the implementation of IT regime is expected to limit the increase in domestic general price level following a sudden stop relative to the 2001 crisis period.

The results of this probable RER adjustment and particularly whether it will cause a financial crisis or not depend on the currency mismatches in the balance sheets of the economic agents and the level of the liability dollarization in the economy. As analyzed in Chapter 3, since the foreign currency denominated debt of the public sector has decreased significantly in nominal terms since 2001, the negative effects of such a real depreciation in TRY on public finance is expected to be in manageable levels. Also with the effective regulations and supervision of the banking sector within the context of restructuring of the sector, the currency mismatches in the balance sheets of banks have also decreased substantially relative to 2001 period. Therefore the effects of a sudden stop are expected to be milder than that of the sudden stop experienced in 2001. However, despite being decreased, currency mismatches and liability dollarization in the real sector is still high and thus a real depreciation of TRY following a sudden stop can still lead up to a financial crisis due to the resulting bankruptcies in the real sector and the increases in delinquent debts

of the real sector to the banking sector following a sudden stop. In this context, decreasing the currency mismatches further in all the sectors especially in the real sector is vital for the health of Turkish economy against the sudden stops.

CHAPTER 5

CONCLUSION AND POLICY SUGGESTIONS

The continuous widening of CADs in Turkey as from 2002 and the historically record levels it attained in May 2008 have caused the sustainability and financing of CADs and its relation with RER to become one of the most discussed and forefront issues in Turkey.

A variety of studies have been made and different views are brought forward about the sustainability of CADs. Some studies adduce magical general "current account over GDP ratios" as the sustainable level of CAD whereas some states that it is difficult and misleading to identify such a general fixed threshold ratio for sustainability, which is valid for every condition and every country, beyond which the CAD tends to reverse. According to this view that is widely accepted, the sustainable level of CAD for each country varies depending on the macroeconomic conditions of each country. In light of these findings, Özmen (2004b) claims that "the fear of CAD" should be replaced by "fear of structural vulnerabilities" as the elimination of vulnerabilities can make a country to sustain higher CADs. On the other hand, the sustainability of CADs is determined not only by the domestic macroeconomic conditions but also by the lending conditions and the willingness of the international financial system to finance these deficits. In this context, one of the most important issue in the sustainability of CADs is the structure and sustainability of the financing of these deficits. Nevertheless, Fischer (1994) predicted the Mexican crises correctly months before the crisis by evaluating the size and the financing of the current account deficit, which was huge and being financed largely by portfolio investments. Like Mexico, most of the developing countries have had to finance their CADs mostly by short-term capital inflows, which are very sensitive to the developments in the country and can move quickly into and out of the country, due to the original sin and debt intolerance of the international financial system.

Therefore, the sustainable level of CADs has remained low and sudden stops become a widespread and most alarming phenomenon in these countries.

Sudden stops can be described as the large and highly unexpected falls in the capital inflows to a country. The empirical analysis show that sudden stops have been a relatively common phenomenon since the early 1980s, particularly in developing countries and tend to occur around the same time in countries that are different from each other in many respects. Thus "bunching" of countries is an important characteristic of sudden stops, indicating that developments at the center of international capital markets rather than domestic policies are key in producing a sudden stop. However, the effects of the sudden stops in developing countries are much more dangerous than in developed ones because of some structural vulnerabilities of these countries.

Accordingly, sudden stops can have costly consequences in terms of disruptions in economic activity, especially in the countries with weak fundamentals. First of all, an abrupt and significant reduction in foreigners' net demand of the country's assets will result in a decline in that country's sustainable CAD, forcing it to adjust and moreover causing a major current account reversal. On the other hand, a reversal in the current account, following the loss of access of domestic economic actors to the international financial system, is associated with a large real depreciation, reserve losses, fast contraction of aggregate demand causing a collapse in growth and employment, and major financial disruptions leading to decreases in the prices of financial assets. The adjustment process also brings relatively high inflation in most of the countries due to the pass-through from exchange rates to domestic prices, referring that the nominal depreciation is in general greater than the real depreciation. On the other hand, higher nominal and real interest rates in the neighborhood of a sudden stop, together with the fall in tax revenues due to the drop in output, may deteriorate the public finance. Additionally, sudden stops may result in bankruptcies, destruction of human capital and local credit channels, and even financial crisis. Similarly, as Calvo (2001) highlight, the recent financial crises affecting emerging economies have been accompanied by a major cutback in capital inflows as happened in Brazil in 1998, Argentina in 2001 and Turkey in 2001.

Although the root cause of sudden stops generally lie in common external factors, domestic fundamentals and policies also play an important role in determining the possibility of experiencing a sudden stop and the strength of the effects of it. Robust economic fundamentals and appropriate domestic policies increase the resistance of the countries against sudden stops. This explains why sudden stops are more common and their negative effects on economy are much more substantial in developing countries than in developed ones. The two most important characteristics of developing countries that cause them to be more vulnerable to sudden stops relative to developed countries can be listed as the relative trade closedness and liability dollarization. While trade closedness increases the required RER adjustment in case of a sudden stop, liability dollarization amplifies the negative consequences of this adjustment through the currency mismatches it creates in the balance sheets of economic agents. In other words, although under normal circumstances, a real depreciation would be a part of the solution for an economy that requires substantial external adjustment, by increasing the net exports of the country consistent with the Mundell-Flemming model and thus supporting the growth, under extensive liability dollarization it becomes a part of the problem through its negative balance sheet and wealth effects, causing a collapse in the real investments and growth. In this context, there are some empirical findings on that fixed or semi-fixed exchange rate regimes that increase the probability of domestic agents to borrow in foreign currency and thus liability dollarization also increases the detrimental effects of sudden stops. On the other hand, the countries, which have been unsuccessful in fighting with inflation causing a lack of credibility in their monetary policies, and the countries attracting a very high level of capital and having a shorter residual maturity structure of debt are observed to be more prone to sudden stops.

In this framework, the evaluation of the developments in the macroeconomic indicators that seemed to be related with sudden stops, refers that sudden stops are still a risk factor for Turkish economy and despite decreasing, the economy's vulnerability to capital flow reversals are still high. First of all, the openness of the country that is measured as the share of tradable goods output to domestic absorption of tradable goods, has decreased continuously following the recovery from the 2001 crisis due to the fast increase in the absorption of tradables, indicating that the

required RER adjustment in Turkey in case of a sudden stop is increasing. Also, even though dollarization in Turkey is decreasing thanks to the increased credibility of TRY as a result of lower inflation rates, achievement of macroeconomic stability in a great extent and the floating exchange rate regime implemented since 2001, the level of dollarization and the propensity to dollarize is still high in Turkey due to the bad memories of the past inflationary and unstable economic environment. Therefore, even a small threat to the macroeconomic stability or any kind of internal or external development that increases uncertainty perceptions can easily lead to a deterioration in expectations and give rise to an increase in dollarization, as experienced during the recent global financial turmoil, increasing the vulnerability of the country to the deleterious effects of a potential sudden stop. Correspondingly, when the still high levels of liability dollarization in the real sector is taken into account together with the high tendency of dollarization in bad times, it can easily be deduced that a RER depreciation in Turkey following a sudden stop is still contractionary through its balance sheet effects.

On the other hand, in parallel with the high growth rates experienced since 2002 and the real appreciation of TRY, the current account deficit has increased to record levels both in nominal terms and as a share of GDP. Record increases in the global energy and commodity prices and the increasing dividend transfers from Turkey to abroad emanated from the high FDI flows into the country in recent years have also contributed to the deterioration in the CAD. As a result, CAD in Turkey has reached to its highest levels with 37.7 billion USD in 2007 and 21.5 billion USD only in the first five months of 2008. Correspondingly, the ratio of CAD to net international reserves, which is one of the indicators of the country risk, has been pursuing an increasing trend reaching to its record level with approximately 40 percent as of May 2008 despite the increase in the reserves, indicating the risks tied to CADs are rising.

However, besides the level of CAD, the structure and financing of it are also important in its sustainability. In this context, the view that is referred to as "Lawson's Doctrine" in the literature suggests that if a large CAD is taking its roots from an increase in investments and if the fiscal accounts are balanced and the private savings are not decreasing then there is no cause for concern or for policy action since these new investment opportunities reflect fast growth rates and thus

higher exports. By going one step forward, Corden (1994) declares that if the large current account deficits do not stem from the public sector and rather if it results from a shift in private sector behavior, it should not be a matter of concern at all. This is compatible with what Turkey has been experiencing since 2002 with an increasing net savings of public sector due to the tight fiscal policies implemented, and a reversal of net savings of private sector to negative territory, in an environment where both domestic investments and savings have been increasing. However, after the crises in Brazil, Mexico and Chile which arose while both the CADs and investments were increasing in 1980s, the view of that wherever it takes its roots, an increasing current account deficit can be a significant cause of crisis and has to be monitored carefully, has become widespread. This explains the reason of the increased concerns about the CADs of Turkey. In this context, although the change in the reasons of current account deficit reflects a healthier and less vulnerable economy, if Turkey faces with a sudden stop due to a deterioration in whether local or global conditions, a significant balance of payments correction will be inevitable.

Accordingly, as from the liberalization of capital account in 1989, the massive capital inflows together with high current account deficits has subjected the relatively shallow Turkish domestic and foreign exchange markets to pronounced downswings when foreign investors withdraw their funds en masse in response to either changing global liquidity conditions or perceived increase in domestic risks (Standard&Poor's, 2008a). In fact, Turkey experienced three sudden stop episodes in the post-1989 period, in 1994, 1998 and 2001 during which CADs were mainly financed by short-term capital inflows. On the other hand, as from 2001, the financing quality of CADs has improved with a significant increase in FDI and long-term capital inflows thanks to the macroeconomic stability and the structural reforms in the country together with the IMF and EU anchors that increase the investor confidence to the country. In this context, beginning from 2002 non-debt generating financial inflows started to finance a bigger part of CAD and the capital account surpluses have exceeded the current account deficits causing an increase in reserve assets of the country. However, the credit crunch in the international financial markets, the inflationary pressures and deteriorating inflations expectations together with the increased political uncertainty in Turkey in the last two years has decreased the more stable

financial inflows as from 2007 by increasing the risk perceptions of the international investors and as a result Turkey fell short of financing its CAD in the first five months of 2008 with a sharp decrease in non-debt generating financing and portfolio outflows. Accordingly, the slow-down in FDI in 2008, the increased dependence to external borrowing of corporate sector in financing the continuously increasing CADs and the reduced risk appetite of foreign investors in a tighter global liquidity environment have exacerbated the concerns about the sustainability of CADs and its financing further.

By taking all these recent developments in related indicators into account, it can be claimed that the risk of experiencing a sudden stop has increased in the last two years despite a decrease in the exposure of Turkey to the destructive effects of such a shock relative to pre-2001 period thanks to the structural improvements in the economy. In this context, the application of a model, which is introduced by Calvo *et al.* (2003b) and Calvo *et al.* (2004) for calculating the required RER change in case of a sudden stop in small open economies, to Turkey shows that the resulting adjustment process that requires the closing of all the current account imbalance will necessitate a RER depreciation of approximately 37 percent as of the first quarter of 2008 and 36 percent for May 2008, under the assumption that CBRT will not use its international reserves in order to mitigate the level and the effects of the adjustment process. This is a very high real adjustment when compared with the 2001 crisis period. However, due to the decreased financial dollarization and currency mismatches in the public and banking sector of Turkey, it can be claimed that the effects of such a real depreciation would be milder. On the other hand, despite being declined relative to the past, still high level of currency mismatches in the balance sheets of the real sector has maintained the risk of experiencing another financial crisis following a sudden stop through the resulting bankruptcies in the real sector and the increases in the delinquent debts of this sector to the banking sector. In this context, decreasing the currency mismatches further in all the sectors especially in the real sector and implementing appropriate policies oriented to the deficiencies in the economy is vital for the health of Turkish economy against the sudden stops.

In order to increase the resistance of the economy against the negative effects of sudden stops, the domestic policies that Turkey should implement can be classified as follows.

i. To continue with the implementation of disciplined monetary and fiscal policies together with structural reforms that aim to achieve price stability, fiscal stability and financial stability.

As a developing country that uses intensive capital flows and thus being exposed to sudden stops, Turkey should maintain fiscal, financial and price stability in order to save from sudden stops and its destructive effects. Implementing a disciplined fiscal and monetary policy, managing the expectations of economic agents successfully, improving the institutional structure of the economy, strengthening the fiscal positions of the financial sector and enhancing the risk management implementations are important in this context.

On the way to achieve price stability and to raise the credibility of the country, inflation targeting policy seems to be successful in Turkey by decreasing the inflation significantly. However, mainly due to the external factors, an increase in the inflation rates outstripping the targets, has been observed in the last two years. In order to avoid the loss of credibility in the policies implemented during a sudden stop, Turkey can modify the inflation targeting framework by including state-contingent inflation targets, which are low during good times and high during bad times, and targeting a measure of inflation that overweighs non-tradable inflation, which will reduce the central bank's incentive to increase the interest rates during crisis since the exchange rate pass-through is lower for non-tradables, as Caballero and Krishnamurty (2003) suggest in their study on inflation targeting countries whose main macroeconomic concern is sudden stops.

ii. To implement active dedollarization policies that aims at limiting the foreign exchange risk of economic agents.

Because of the negative role of liability dollarization during the sudden stops, the policies intending to regulate the financial system in Turkey should contain an active dedollarization strategy and the domestic-currency denomination of financial sectors

should be encouraged through appropriate prudential policies. A possible regulation that has received the greatest attention is steering the domestic financial system away from indexing to a foreign currency and towards indexing to some domestic price level such as CPI, consistent with the inflation-targeting regime. The issuance of CPI-indexed government bonds by the Treasury Secretariat in February 2007 is important in this context. Moreover, effective legal regulations aiming at preventing the currency mismatches in the balance sheets of not only the banking sector but also the real sector should be put into practice. Accordingly, the use of the Turkish Derivatives Exchange Market, which presents hedging instruments as an alternative way of protecting from exchange rate risk without holding foreign currency assets or debt, should be promoted further.

On the other hand, as a part of the so-called "carrot and stick approach" in the literature, Turkey should also evaluate the measures such as levying a tax and imposing higher capital adequacy ratios to non-dollar earners for their foreign currency denominated debts, setting the capital adequacy ratios according to the share of foreign currency denominated debts to foreign currency denominated assets, bringing a minimum maturity structure requirement for foreign currency deposits and decreasing or eliminating the insurance on these deposits. However, as Yılmaz (2006a) highlights before launching an overly ambitious policy agenda, one should make all the necessary researches to understand the roots of dollarization and the implications of the policy actions taken against it.

iii. To stick with the floating exchange rate regime in a manner to decrease the appetite of economic agents for taking exchange rate risk.

In line with the findings of Arteta (2002), Caballero and Krishnamurty (2003) and Calvo (2005) on that more volatile exchange rates reduce the share of foreign currency denominated loans and deposits in total by increasing the uncertainty in the value of these assets and thus contribute to the dedollarization process, it can be claimed that floating exchange rate regimes can decrease the sudden stop risk. Moreover, according to Ozmen (2004b), exchange rate flexibility puts a discipline on CAD not to deviate systematically from its equilibrium path and as Yılmaz (2006a) denotes, flexible exchange rate regimes provide more room for monetary policy that

enables to respond to external shocks freely, increasing the support for the implementation of floating exchange rate regime. Thus, most of the studies suggest the implementation of floating exchange rate regime against sudden stops. Accordingly, the decrease in dollarization indicators of Turkey since the implementation of floating exchange rate regime confirms this fact.

However, it should be noted that if this regime is unsuccessful in decreasing the domestic agents appetite to borrow in foreign currency, its effectiveness in avoiding sudden stops become controversial. In this context, it can be offered to discourage the sterilized intervention policies during the capital inflow period, since such interventions typically place more short-term debt in the hands of the private sector and by stabilizing the exchange rate, provoke the economic actors to increase their exchange rate risk.

iv. To introduce regulations aiming to increase trade openness.

Introducing regulations aiming to increase trade openness is an appropriate policy action against the deleterious effects of sudden stops not just because it reduces the size of RER swings after a sudden stop, but also because a higher share of tradable sectors in output composition may reduce the risk of currency mismatches in private sector's balance sheets. In this context, informing the exporters about the external markets, providing cheap inputs and credit to the tradable goods sector, introducing some tax exemptions for exporters and decreasing the bureaucracy in the exports sector are some of the regulations aiming at increasing the exports and limiting the CADs in the short term. On the other hand, long-term measures are mostly related with the development policies of the country such as increasing the production capacity of the country and enhancing the exports sector, which necessitates the use of high technology in the production, acceleration in the investments and improvement in the efficiency of economic management. (Seyidoğlu, 2001)

v. To conduct an agreement with IMF as an additional insurance against sudden stops.

As stated in most of the studies in the literature, an agreement with IMF offers a commitment device for governments to underwrite a stabilization strategy that

increases the credibility of the country, and provides temporary credits and debt reorganization that helps to stem the outflows. Therefore, such agreements are suggested as a tool of decreasing the possibility and negative effects of sudden stops. However, empirical findings claim that for such a form of insurance to work, the country should have strong economic fundamentals. Otherwise, IMF financial assistance may only come in the front door and go out the back door with no impact on the incidence of sudden stops (Eichengreen *et al.*, 2006).

With the structural improvements in the economic fundamentals following the recovery from the 2001 crisis, Turkey also enjoyed from this additional insurance that the IMF agreements provide, in attracting massive capital inflows and financing the large CADs seamlessly. However, Turkey's 19th and the last stand-by agreement with IMF was completed in May 2008 and the government authorities had declared that a new and full stand-by agreement is not necessary as Turkey's public finance no longer needs IMF financing. Instead, in order to decrease the country's risk premium, Turkey has inclined to opt for a precautionary stand-by deal, which allows for a fair degree of IMF oversight but only provides financing in emergencies. Such a deal is welcomed by various analysts due to Turkey's increased vulnerability to shifts in global liquidity conditions because of its huge CAD. However, in order to benefit from the additional insurance that this new type IMF agreement will provide, Turkey should continue to implement disciplined fiscal and monetary policies without any concession.

Finally, as Bordo (2006) denotes, like other developing countries what Turkey really needs to do to protect itself from sudden stops is to grow up and become an advanced country by learning from the experiences of developed countries. In this context, Turkey needs to develop country trust which relies on sound institutions and currency trust which is based on the ability to adhere to a credible nominal anchor, further.

REFERENCES

Alexander, S.S (1952), "Effects of a Devaluation on a Trade Balance", IMF Staff Papers Vol.2, No:2, p.263-278.

Arteta, C. O. (2002), "Exchange Rate Regimes and Financial Dollarization: Does Flexibility Reduce Bank Currency Mismatches?", International Finance Discussion Papers No: 738, Board of Governors of the Federal Reserve System, http://www.federalreserve.gov/pubs/ifdp/2002/738/ifdp738.pdf

Babaoğlu, B. (2005), "Türkiye'de Cari İşlemler Dengesi Sürdürülebilirliği" (The Current Account Deficit Sustainability in Turkey), TCMB Uzmanlık Tezi, CBRT, http://www.tcmb.gov.tr/kutuphane/TURKCE/tezler/barisbabaoglu.pdf

Bordo, M.D. (2006), "Sudden Stops, Financial Crises and Original Sin in Emerging Countries: Deja Vu?", NBER Working Paper No:12393.

Caballero, R.J. and A. Krishnamurthy (2003), "Inflation Targeting and Sudden Stops", NBER Working Paper No: 9599.

Caballero, R.J, Cowan, K. and J. Kearns (2004), "Fear of Sudden Stops: Lessons From Australia and Chile", Research Discussion Papers No: 2004-03, Reserve Bank of Australia.

Caballero, R.J. and S. Panageas (2005), "A Quantitative Model of Sudden Stops and External Liquidity Management", NBER Working Paper No: 11293.

Calderon, C.A, Chong, A. and N.V. Loayza (2002), "Determinants of Current Account Deficits in Developing Countries", Contributions to Macroeconomics, Vol. 2, Issue 1, No: 2.

Calvo, G.A. (1998), "Capital Flows and Capital Market Crises: The Simple Economics of Sudden Stops", Journal of Applied Economics Vol.1, Issue 1, p.35-54.

Calvo, G. A. (1999), "Fixed versus Flexible Exchange Rates: Preliminaries to a Turn-of-Millennium Rematch", College of Behavioral and Social Sciences, http://www.bsos.umd.edu/econ/ciecrp10.pdf

Calvo, G.A. (2001), "Capital Markets and the Exchange Rate, with Special Reference to the Dollarization Debate in Latin America" Journal of Money, Credit and Banking Vol.33, Issue 2, p.312–334

Calvo, G.A. (2002), "Globalization Hazard and Delayed Reform in Emerging Markets", Economia Vol.2, Issue 2, p.1-29.

Calvo G.A (2003), "Explaining Sudden Stop, Growth Collapse, and BOP Crisis: The Case of Distortionary Output Taxes", IMF Staff Papers Vol.50, Special Issue.

Calvo, G.A. (2005), "Crises in Emerging Market Economies: A Global Perspective", NBER Working Paper No: 11305.

Calvo G.A., Izquierdo, A. and L.F. Mejía (2003a), "On the Empirics of Sudden Stops", Presentation at *the 18th Meeting of the Latin American Network of Central Banks and Finance Ministries*, 9-10 April 2003, Inter-American Development Bank http://www.iadb.org/res/centralBanks/publications/cbm34_183.ppt

Calvo, G.A., Izquierdo, A. and L.F. Mejia (2004), "On the Empirics of Sudden Stops: The Relevance Of Balance-Sheet Effects", NBER Working Paper No:10520, May 2004, http://www.nber.org/papers/w10520

Calvo, G.A, Izquierdo, A and A.E. Talvi (2003b), "Sudden Stops, The Real Exchange Rate and Fiscal Sustainability: Argentina's Lessons", NBER Working Paper No: 9828.

Calvo, G.A, Izquierdo, A. and E. Talvi (2006), "Phoenix Miracles in Emerging Markets: Recovering Without Credit From Systemic Financial Crises", BIS Working Papers No: 221.

Calvo, G.A. and C.M. Reinhart (2000), "When Capital Inflows Come to a Sudden Stop: Consequences and Policy Options", Munich Personal RePEc Archieve Paper No:6982, http://mpra.ub.uni-muenchen.de/6982/1/MPRA_paper_6982.pdf

Calvo, G. A., and C.M. Reinhart (2001), "Fixing for your Life," in *Brookings Trade Forum 2000*, ed. by D. Rodrik and S.M. Collins, Brookings Institution Press, Washington, p.1-58.

Calvo, G.A and E.Talvi (2005), "Sudden Stop, Financial Factors and Economic Collapse in Latin America: Learning from Argentina and Chile", NBER Working Paper No: 11153.

Catao, L. (2006) "Sudden Stops and Currency Drops: A Historical Look", IMF Working Paper No:06/133.

CBRT, "Balance of Payments Statistics, Definition, Principles and the Practice in Turkey", http://www.tcmb.gov.tr/odemedenge/bopmet.pdf

CBRT (2001), "Developments in the Turkish Economy and Monetary Policy", Annual Report 2000, p.13-69.

CBRT (2005), "General Framework of Inflation Targeting Regime and Monetary and Exchange Rate Policy for 2006", December, 5, 2005, CBRT, http://www.tcmb.gov.tr/yeni/announce/2005/ANO2005-45.pdf

CBRT (2006), "Debt Structures of Companies in Turkey" in Inflation Report 2006-III, p.56-60.

Chari V.V., Kehoe, P.J. and E.R. McGrattan (2005), "Sudden Stops Output Drops", NBER Working Paper No: 11133.

Debelle, G. and H. Faruqee (1996), "What Determines the Current Account? A Cross-Sectional and Panel Approach", IMF Working Paper No:96/58.

Debelle, G. and G. Galati (2005), "Current Account Adjustment and Capital Flows", BIS Working Papers No:169.

Dickey, D.A. and W.A. Fuller (1981), "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root", Econometrica Vol.49, p.1057-1072

Dooley, M (2000), "A Model of Crises in Emerging Markets" Economic Journal Vol.110, No:460, p.256-272.

Dornbusch, R., Goldfajn, I. and R.O. Valdes (1995), "Currency Crises and Collapses", Brookings Papers on Economic Activity Vol. 26, Issue 2, p.219-294.

Dornbusch, R. (2001), "A Primer On Emerging Market Crises", NBER Working Papers No:8326.

Edwards, S. (1999), "Crisis Prevention: Lessons from Mexico and East Asia", NBER Working Paper No:7233.

Edwards, S. (2001), "Does the Current Account Matter?", NBER Working Paper No: 8275

Edwards, S (2004), "Thirty Years of Current Account Imbalances, Current Account Reversals and Sudden Stops", NBER Working Paper No:10276

Eichengreen, B., Gupta, P. and A. Mody (2006), "Sudden Stops and IMF-Supported Programs", IMF Working Paper No:06/101

Eichengreen, B. and R. Hausmann (2003), "Original Sin: The Road To Redemption" http://www.econ.berkeley.edu/~eichengr/research/osroadaug21-03.pdf

Eichengreen, B., Hausmann, R. and U. Panizza (2003), "Currency Mismatches, Debt Intolerance and Original Sin, Why They Are Not The Same and Why It Matters", NBER Working Paper No: 10036.

Engle, R. And C.W.J. Granger (1987), "Cointegration & Error Correction: Representation, Estimation and Testing", Econometrica Vol.55, Issue 2, p.251-276.

Erçel, H. (1999), "Disinflation Program for the Year 2000: Implementation of Exchange Rate and Monetary Policy", CBRT, 9 December 1999, http://www.tcmb.gov.tr/yeni/evds/yayin/iparaprog2/baskanmating.html

Erkılıç, S. (2006); "Türkiye'de Cari Açığın Belirleyicileri" (The Determinants of Current Account Deficits in Turkey), TCMB Uzmanlık Tezi, CBRT, http://www.tcmb.gov.tr/kutuphane/TURKCE/tezler/serdarerkilic.pdf

Ersel, H. And S. Togan (2004), "Foreign Exchange Regime, the Real Exchange Rate and Current Account Sustainability: The Case of Turkey", paper presented in *Economic Reform Forum (ERF) 11th Annual Conference: Post Conlict Reconstruction*, Beirut, 14-16 December 2004.

Fitch Ratings (2008), "Turkey: Deja Vu?", International Special Report, July 2008, www.fitchratings.com

Fischer, S. (1988), "Real Balances, the Exchange Rate and Indexation: Real Variables in Disinflation", Quarterly Journal of Economics Vol.103, No:1, p.110-128

Fischer, S. (1994). "Comments on Dornbusch and Werner", Brookings Papers on Economic Activity No: 1, p.304-309.

Fischer, S. (2002), "Financial Crises and Reform of the International Financial System", NBER Working Paper No:9297

Freund, C. L. (2000), "Current Account Adjustment in Industrial Countries", Development Economics Research Group (DECRG) FRB International Finance Discussion Paper No: 692, World Bank.

Freund, C. (2005), "Current Account Adjustment in Industrial Countries", Journal of International Money and Finance Vol.24, Issue 8, p.1278-1298.

Galbraith, J.K. (1977), "The Age of Uncertainty." Boston: Houghton Mifflin.

Guidotti P.E., F. Sturzenegger and A. Villar (2004), "On the Consequences of Sudden Stops" Economia Vol. 4, Issue 2, Spring 2004, pp.171-214.

IMF (2008), "IMF Executive Board Concludes Ex Post Assessment of Longer-Term Program Engagement and Ex Post Evaluation of Exceptional Access for Turkey", IMF Public Information Notice No:08/100, August 8, 2008, http://www.imf.org/external/np/sec/pn/2008/pn08100.htm

İnan, E.A. (2006), "Türkiye'de 2002-2005 Döneminde Tasarruf Dengeleri ve Ani Kesinti İhtimali" (The Balance of Savings and The Possibility of Experiencing Sudden Stops in the Period Between 2002-2005 in Turkey), Bankacılar Dergisi, No:59.

Ize, A. and E. Levy-Yeyati (2005), "Financial Dedollarization: Is it For Real?", IMF Working Paper No:187.

Kahn, Mohsin S. and Malcolm D. Knight (1983), "Determinants of Current Account Balances of Non-Oil Developing Countries in the 1970s: An Empirical Analysis", IMF Staff Papers, 30: 819-842.

Kesriyeli, M. and A.N Kıpıcı (1997), "The Real Exchange Rate Definitions and Calculations", Central Bank of Republic of Turkey Research Department, No:97/1, http://www.tcmb.gov.tr/research/work/wpaper9.pdf

Köse, M.A. and E. Prasad (2004), "Back to Basics: Liberalizing Capital Account Restrictions", http://www.imf.org/external/pubs/ft/fandd/2004/09/pdf/basics.pdf

Levy Yeyati, E. (2003), "Financial Dedollarization: A Carrot and Stick Approach", Business School Working Papers, Universidad Torcuato Di Tella, http://www.utdt.edu/Upload/CIF_wp/wpcif-082003.pdf

MacKinnon, J.G. (1991), "Critical Values for Cointegration Tests", in *Long-run Economic Relationships: Readings in Cointegration*, ed. by R.F. Engle and C.W.J. Granger, Oxford University Press, Oxford, p.267-276

Milesi-Ferretti, G.M and A. Razin (1996), "Current Account Sustainability", Princeton Studies in International Finance No:81, Princeton University, http://www.princeton.edu/~ies/IES_Studies/S81.pdf

Milesi-Ferretti, G.M. and A. Razin (1999), "Current Account Reversals and Currency Crises: Empirical Regularities", Reviewed draft of the paper prepared for the *NBER Conference on Currency Crises held in Cambridge*, February 6-7, 1998.

Mishkin, F.S. (2001), "Financial Policies and the Prevention of Financial Crises in Emerging Market Countries", NBER Working Paper No:8087.

Mody, A. and A.P. Murshid (2002), "Growing Up with Capital Flows", IMF Working Papers No:75.

Obstfeld, M. (2004), "External Adjustment", Review of World Economics Vol.140, Issue 4, 541-568

Obstfeld, M. and K. Rogoff (1994), "The Intertemporal Approach to the Current Account", NBER Working Paper No:4893.

Obstfeld, M. and K. Rogoff (2005), "Global Current Account Imbalances and Exchange Rate Adjustments", Brookings Paper on Economic Activity Vol.36, Issue 1, p.67-146.

Özmen, E. (2004a), "Cari Açık Tartışması" (Debate on Current Account Deficit), *Döviz Kuru, Cari Açık ve Politikalar Konulu Tartışmalı Toplantı*, Türkiye Ekonomi Kurumu.

Özmen, E. (2004b), "Cari Açık ve Ekonomi Politikaları Üzerine" (On Current Account Deficits and Economic Policies), İktisat - İşletme ve Finans Dergisi No:223.

Pamukçu, T and E. Yeldan (2005), "Country Profile: Turkey, Macroeconomic Policy and Recent Economic Performance", report prepared for the *Economic Research Forum 2005*, http://www.bilkent.edu.tr/~yeldane/FEMISE_Macro2005.pdf

Raymond James (2008a), "Dividend Transfers: The Cash Heads Home", July 22, 2008.

Raymond James (2008b), "Turkey – Current Account Deficit Financing 2: Hope for the Best, Plan for the Worst", July 17, 2008.

Razin, A. and Y. Rubinstein (2005), "Evaluation of Currency Regimes: The Unique Role of Sudden Stops", NBER Working Paper No: 11785.

Sachs, J. (1981): "The Current Account and Macroeconomic Adjustment in the 1970s." Brookings Papers on Economic Activity, Issue 1, p.201-268.

Sargan, J.D. and A. Bhargava (1983), "Testing Residuals from Least Squares Regression for Being Generated by the Gaussian Random Walk", Econometrica Vol.51, Issue 1, p.153-174.

Serdengeçti, S. (2001), *Remarks on Turkish Economy*, March 19, 2001, CBRT, http://www.tcmb.gov.tr/yeni/evds/konusma/ing/2001/Remarks1.html

Serdengeçti, S. (2002), "The Monetary Policy Framework", *Speech at Deutsche Bank Conference*, April 5, 2002, CBRT, Istanbul, http://www.tcmb.gov.tr/yeni/evds/konusma/ing/2002/SSDEUTSCHE44.ppt

Seyidoğlu, H. (2001), "Uluslararası İktisat Teori, Politika ve Uygulama" (The International Economic Theory, Policy and Application), Güzem Yayınları, İstanbul.

Standard&Poor's (2008a), "Republic of Turkey Outlook Revised to Stable from Negative; Ratings Affirmed", Research Update, July 31, 2008, https://www.ratingsdirect.com/Apps/RD/controller/Article?id=662774

Standard&Poor's (2008b), "Evolution of Turkey's External Balances Reinforces Negative Outlook on Sovereign Ratings", June 26, 2008, https://www.ratingsdirect.com/Apps/RD/controller/Article?id=655750

Strengthening the Turkish Economy: Turkey's Transition Program, May 2001, http://www.tcmb.gov.tr/yeni/announce/strengteningecon.pdf

Uygur, E. (2004), "Cari Açık Tartışmaları" (Debates on Current Account Deficits), İktisat, İşletme ve Finans Dergisi, No:222, p.5-20.

Varlık, C. (2007), "Türkiye Ekonomisinde Sermaye Akımlarındaki Geri Dönüşler ve Ani Durmalar" (Reversals and Sudden Stops of Capital Flows in the Turkish Economy), Ege Academic Review Vol. 7, Issue 1, p.193-216, http://eab.ege.edu.tr/pdf/7/C7-S1-M10.pdf

Yeldan, E. (2006), "Turkey 2001-2006: Macroeconomics of Post-Crisis Adjustments", Global Policy Network, November 27, 2006, http://www.gpn.org/data/turkey/turkey-analysis.pdf

Yılmaz, D. (2006a), Opening Remarks in International Conference on *Dollarization: Consequences and Policy Options*, December 14-15, 2006, Istanbul.

Yılmaz, D. (2006b), Governor's Presentation Made Before The Council of Ministers on Turkish Economy, October 30, 2006, Ankara, CBRT, http://www.tcmb.gov.tr/yeni/announce/2007/council_of_ministers_oct06.pdf