Analyzing The Present Sustainability Of Turkey's Current Account Position*

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I. INTRODUCTION

Although Turkey has suffered from earlier current account deficits, the current account position has worsened considerably since 2004. With current account deficits breaching the conventional threshold of 5% of GDP in the last few years, there has been a great deal of debate regarding the sustainability of Turkey's current account position and the possibility of a crisis. The primary cause for concern is that the two major crises that Turkey faced in 1994 and 2001 were preceded by high current account deficits. The current account deficits facing Turkey since 2004 are more severe than those in previous periods, yet Turkey has been able to avoid a crisis. This is because a high current account deficit alone does not necessarily imply an unsustainable external position and thus may not necessarily result in a crisis. Rather, there are a whole host of factors that impact external sustainability. This paper examines the factors that allowed Turkey to avoid a crisis from 2005 to 2007 despite having such large current account deficits and explores the sustainability of the current account position in the coming years.

A comprehensive framework for examining current account sustainability is provided by Milesi-Ferretti and Razin (1996). This framework is based

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on the willingness-to-lend and ability-to-pay model and incorporates structural factors, macroeconomic policy, political conditions and market expectations that shed light on current account unsustainability. They define an unsustainable current account deficit as one that either results in a policy reversal or a crisis. By analyzing the experiences of seven countries that faced large and persistent current account deficits, they identified the key factors that led to policy reversals or crises. We build on their framework by including global factors that can shed light on a country's current account sustainability. Using this extended framework, we examine the factors that impact current account sustainability in Turkey for the periods preceding the earlier crises. Through this discussion, we evaluate the factors that have allowed Turkey to avoid a crisis from 2005 to 2007 and examine Turkey's future vulnerability to a crisis. Our analysis shows that most of Turkey's internal fundamentals improved to allow Turkey to continue having large current account deficits. However, there is some vulnerability in the exchange rate and external debt position, which coupled with looming concerns associated with global indicators, may hurt the future sustainability of Turkey's current account position.

The paper is organized as follows: the next section provides background on crisis literature as well as discusses the Turkish current account and the crises faced in 1994 and 2001. Section 3 discusses the sustainability framework of Milesi-Ferretti and Razin (1996) and our extension of this framework. This is followed by our analysis of the indicators in this extended framework for Turkey in Section 4. Section 5 summarizes and concludes.

II. BACKGROUND

Turkey suffered two major crises in 1994 and 2001.[1] High current account deficits have been associated with these crises. As noted by

[1] We focus on financial and currency crises only. Thus, we do not discuss the economic crisis of 1999, when Turkey's real GDP growth was -4.71%.

Milesi-Ferretti and Razin (1996), conventional wisdom suggests that a current account deficit-to-GDP ratio of 5% or higher implies that the current account is unsustainable.[2] Figure 1 maps out Turkey's current account-to-GDP ratio from the first quarter of 1992 to the third quarter of 2007. Prior to both crises, Turkey's current account deficit-to-GDP ratio breached the 5% sustainability threshold. In the second quarter of 1993, the current account deficit-to-GDP ratio was over 5% but fell to a little below 3% before again increasing to 3.4% in the last quarter of 1993. The current account deficit-to-GDP ratio was even worse in the year prior to the 2001 crisis. In 2000, except for the third quarter, the current account deficit-to-GDP ratio exceeded the 5% threshold and was above 6% in the second quarter. High current account deficits therefore are a sign of vulnerability.

Ozatay (2000) notes that high current account deficits in Turkey were not a trend prior to the two crises, but rather a one-shot problem. The temporary deterioration of the current account balance prior to the two crises can be seen in Figure 1. However, while Turkey's current account imbalance may have been temporary earlier, that has not the case in recent years. Turkey's current account balance has worsened considerably since 2003 as can be seen in Figure 1. The current account deficit-to-GDP ratios in several quarters from 2004 onwards have far exceeded the 5% threshold, with the ratio exceeding 10% in the second and fourth quarters of 2006. This suggests that Turkey's weakening current account position is more severe and reflective of a deteriorating trend rather than a temporary problem. Thus, there is concern about Turkey's vulnerability to a crisis.

However, even a persistently high current account deficit is not necessarily unsustainable. Milesi-Ferretti and Razin (1996) have shown that Australia had a high and continuous current account deficit for a long period without

[2] There is disagreement with this idea in the literature. For example, in their study of 117 crashes for 105 countries, Frankel and Rose (1996) conclude that high current account deficits are not associated with crashes.

facing a crisis. In Turkey's case, Ogus and Sohrabji (2006, 2008) have shown that the trend in a deteriorating current account position in the early 2000s may not imply unsustainability due to economic reforms. Using an intertemporal benchmark model and stationarity tests, they showed a structural break in the deviation of actual and optimal net external liabilities since 2001. This indicates that while the external position was unsustainable from the 1990s to mid-2000s as a whole, there was a change in Turkey's external position following the 2001 crisis. This period coincides with exchange rate and financial sector reforms undertaken in Turkey. Thus, high and increasing current account deficits alone do not reveal the whole story about current account sustainability and an examination of all the factors that impact the current account is necessary.

There are several factors that contribute to current account unsustainability. Chiodo and Owyang (2002) summarized the literature on the different models that explain crises. They note that earlier crisis models such as Krugman (1979) and Flood and Garber (1984) focused on weakened fiscal conditions such as high fiscal deficits, interest payments and debt. In Turkey's case, Ozatay (2000) highlighted both the size and the method of financing fiscal deficits as factors in the 1994 crisis. This was also the case for the 2001 crisis as noted in Ozatay and Sak (2002). They argued that liquidity injections from the central bank which were channeled to the government created a depreciation of the lira and the resulting crisis.

Other models such as those from Obstfeld (1994) and Eichengreen, Rose and Wyplosz (1997) have emphasized the importance of trade and investment factors that have been linked to making a country susceptible to contagion crises, as was seen during the East Asian crisis. If a country's exports decline because its trading partners are facing a crisis, then it hurts that country's trade balance and can lead to an unsustainable current account position. Similarly, a country could face a crisis through contagion capital outflows from neighboring countries. This is a crucial issue for an emerging market economy like Turkey.

Finally, fragile financial sectors are an important factor contributing to crises in later models such as Krugman (1999) and Aghion, Bacchetta and Banerjee (2000, 2001). Ozatay (2000), Alper (2001), Ozatay and Sak (2002), Arican (2005) and Togan and Berument (2007) all highlight weaknesses of the financial sector in explaining the 1994 and 2001 crises in Turkey.

Thus, to analyze whether Turkey is susceptible to a crisis, we need to examine a comprehensive list of indicators. Milesi-Ferretti and Razin (1996) provide a comprehensive sustainability framework that encompasses most of the factors discussed above. They studied the experiences of seven countries based on this framework and identified the main indicators of sustainability. They concluded that high exports-to-GDP ratios, high interest payments (debt servicing) and appreciated real exchange rates differentiate between crisis and non-crisis episodes. The rest did not show a consistent pattern for the episodes in the sample. They also emphasized external influences, the fragility of the financial sector and political instability as playing important roles. We build on their work in two ways. First we explicitly include global factors into the list of sustainability indicators. Also, we contribute five episodes of high current account deficits from Turkey to the ten episodes of the seven countries analyzed by Milesi-Ferretti and Razin (1996). Two of these are crisis episodes while the others are related to persistent current account deficits without crises. The framework used by Milesi-Ferretti and Razin (1996) and our extension are discussed in the following section.

III. FRAMEWORK FOR PREDICTING CURRENT ACCOUNT SUSTAINABILITY

Milesi-Ferretti and Razin (1996) provide a framework to examine sustainability. Their framework is based on the willingness-to-lend and ability-to-pay model which includes indicators that span structural factors, macroeconomic policy, political conditions and market expectations. They studied the experience of persistent current account imbalances in seven countries — Australia, Chile, Ireland, Israel, Malaysia, Mexico and South Korea. A country can have three types of persistent current account

imbalances. In the first case, a country can have a persistent current account deficit for several years with no policy shift or crisis, such as was the case for Australia in 1981–1994 and Malaysia in 1991–1995, implying that the current account was sustainable for those countries. Unsustainability of the current account position normally results in either a policy shift or a crisis. Thus, the second type of persistent current account deficits are those that lead to a policy reversal (such as fiscal tightening) where this policy reversal improves the current account position such as in Ireland in1979–1990, Israel in1982–1986, Malaysia in1979–1986 and South Korea in 1978–1988. Finally, a country can have a persistent current account deficit that leads to a crisis where the country is unable to meet their debt obligations, such as Chile in 1977–1982 and Mexico in 1977–1982 and 1991–1995. Policy shifts or crises are triggered by a shock that change investor expectations which in turn impact capital flows. These changed expectations are related to factors that impact either the ability or the willingness of the country to repay its debt.

Milesi-Ferretti and Razin (1996) grouped the factors that impact crises according to four broad categories: structural features, macroeconomic policy stance, political factors and market expectations. Structural features included economic growth, investment, trade, foreign investment, and external liabilities. Macroeconomic policy position considers exchange rate policy and fiscal policy. Political factors emphasized credibility, stability and market expectations, including bond prices and interest rate spreads. They modified their list of predictors for practical concerns which cover mostly structural features and macroeconomic policy indicators. The list also includes a rating for political stability and financial sector health.

We follow their modified list[3] in analyzing past crises to determine sustainability factors for Turkey's external position. We contribute five episodes from the 1990s and 2000s in Turkey to the ten episodes of

[3] We leave out political stability and financial health because of a lack of objective ratings for Turkey in the sample period.

seven countries analyzed by Milesi-Ferretti and Razin (1996).[4] Our list of structural features include real GDP growth rate, investment/GDP, real net foreign direct investment inflows/GDP, real net foreign portfolio inflows/GDP, real exports/GDP, terms of trade, real external debt/GDP, real interest rate, short-term debt/external debt and foreign exchange(FE) reserves/external debt. Macroeconomic policy indicators include the real effective exchange rate (REER) index, inflation rate,[5] fiscal deficit/GDP and interest payments/GDP. In addition, we also consider global sustainability indicators including real world GDP growth rate, real EU GDP growth rate, real world interest rates and real oil prices. All these factors are discussed in detail below.

Structural features

A higher real GDP growth rate implies that a country can sustain a higher current account deficit, both because the current account/GDP ratio will quickly decrease as well as because it indicates that the country's ability to pay should continue to increase. In addition, growth signals confidence to foreign investors who may increase their willingness to lend. Thus, growth should have a positive impact on a country's current account sustainability. By positively impacting growth, higher investment can also allow current account deficits to persist for longer periods. Higher investment/GDP ratios would thus have a positive impact on the external position of a country.

Foreign investment is also an important component of a country's current account sustainability. While higher foreign investment could have a positive impact, excessive dependence on foreign portfolio investments which tend to be short-term, increases the potential of a crisis. Thus we consider real net FDI inflows and real net FPI inflows (both measured as a percentage of GDP) separately.

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4 We do not explicitly include financial sector and political factors in the model, but we discuss these issues in our analysis of the episodes.

5 Inflation rate is not explicitly an indicator in the Milesi-Ferretti and Razin (1996) framework, but we include it because it is an important component of macroeconomic stability.

A higher real export/GDP ratio improves a country's ability to repay debt. A heavy dependence on exports increases a country's vulnerability to external shocks such as a sudden decline in foreign demand due to recessions. However, a higher level of exports obtained by improving the trade balance would thereby improve the current account position of a country. In addition, improvements in the terms of trade (defined as the ratio of the price of exports to the price of imports) help the trade balance and thus the current account position of a country.

A high level of real external debt/GDP could imply an unsustainable external position. Growth of external debt is impacted by foreigners' willingness to lend which in turn is based on interest rates. The higher the real interest rate, the greater the willingness of foreigners to continue lending. However, high debt is not the only concern. It is also important to consider the composition of debt and availability of reserves. If a country relies heavily on short-term debt (measured as a percentage of external debt), the country would be more vulnerable to a crisis. Also, a low FE reserves/external debt ratio can reduce a country's ability to stave off a crisis thus making it more vulnerable.

Macroeconomic policy indicators

Fiscal unsustainability can lead to current account unsustainability.[6] The framework uses two measures, fiscal deficit/GDP ratio and interest payments/GDP ratio, to determine fiscal unsustainability, where higher ratios of both indicate a poor fiscal position. Shaky fiscal fundamentals impact a country's ability to pay and make foreigners unwilling to lend. Thus, a weakened fiscal position has the potential to make the current account deficit unsustainable.

The exchange rate also matters for the current account position. Before the 2001 crisis, Turkey had a fixed exchange rate. A fixed regime puts a burden on foreign exchange reserves. As noted earlier, a high level of

[6] We acknowledge the two-way relation between fiscal and current account unsustainability discussed in the twin deficits literature. However, for our paper, we focus on the impact of the fiscal deficit on the current account deficit.

foreign exchange reserves reduces a country's vulnerability to a crisis. However, if the regime is fixed then there is a need for even higher levels of reserves. In addition to the regime, movement in the exchange rate is also a factor in sustainability. We capture exchange rate movements through the REER index. An increase in the index implies that the currency is appreciating, which hurts the trade position, and thus contributes to unsustainability of the current account position.

To determine macroeconomic stability, we also consider prices. High inflation rates increase macroeconomic uncertainty and result in poor allocation of resources. In addition, inflation impacts the real value of the currency. An unstable macroeconomic climate hurts the international competitiveness of a country and thus contributes to an unsustainable current account.

Global unsustainability indicators

As noted earlier, we extend the list of sustainability indicators provided by the Milesi-Ferretti and Razin (1996) framework to include global factors that impact Turkey's current account position. One of the main global factors is growth rates in the world. In Turkey's case we include both real world growth rate as well as real EU growth rate as indicators of a crisis. As Turkey's largest trading partner, economic conditions in the EU matter for Turkey. In addition, Turkey's potential accession to the EU would make the region even more important for Turkey in the future. A lower real growth rate (world growth as well as EU growth) would have a negative impact on Turkey's external position through a decline in trade and investment opportunities. Hence, a worldwide or EU recession has the potential to make Turkey's current account vulnerable to a crisis.

In addition, as shown by Frankel and Rose (1996), real world interest rates are an important determinant in current account sustainability. A higher world interest has the potential to draw resources away from a country, while lower returns in the world could lead to increased investment into the country. Thus, a higher world interest rate hurts both

a country's ability to pay off debts as well as foreigners' willingness to lend and thus impacts its current account sustainability.

Finally, we consider the impact of oil price shocks. Increases in real oil prices can slow investment and production while simultaneously increasing the import bill for an oil-importing country. Thus, high oil price increases hurt Turkey's ability to pay off its debts and thus negatively impact its current account position.

We use this extended framework to analyze sustainability indicators for the 1994 and 2001 crises in Turkey in order to shed light on its present current account position. Our analysis is spread over five phases, the first correlates to the 1994 crisis, the second correlates to the 2001 crisis and the remaining three correlate to the high current account deficit, non-crisis years of 2005, 2006 and 2007. For each phase we analyze the factors over three years and compare the average to the end-of-period data. Thus, we compare the three-year average of 1991-1993 with 1993 data to analyze the factors that impacted the 1994 crisis. Similarly, we compare 1998-2000 averages with 2000 data to study the 2001 crisis. For the remaining phases we compare three-year averages for 2002-2004, 2003-2005 and 2004-2006 with 2004, 2005 and 2006 data, respectively. This analysis shows us the factors that have helped Turkey avoid a crisis in 2005, 2006 and 2007 respectively. By comparatively analyzing the predictors in these five episodes, we can determine the factors that differentiate between crisis and non-crisis periods in Turkey. Through this, we can draw inferences of future sustainability of the Turkish current account position. Our analysis of the extended list of indicators is presented in the following section.

IV. DATA AND RESULTS

Turkish data for the series discussed in the section above are available from the Central Bank of Turkey and the Turkish Treasury Debt Management Reports (several years). Data for U.S. prices are available

from the U.S. Bureau of Labor Statistics. Data for global factors such as world and EU growth, world interest rates and oil prices are available from the IMF International Financial Statistics database and the World Economic Outlook database. Since we analyze sustainability indicators for the past crises to draw conclusions for the current situation, we use data from 1991-2006. We consider annual data for all series.

Data for Turkey's current account position is presented in Table I (Panels A and B for crisis and non-crisis periods, respectively). Data for factors that impact a country's current account position are presented in Tables II and III (again, Panels A and B for crisis episodes and non-crisis episodes, respectively). Table II focuses on Turkish sustainability indicators from the framework provided by Milesi-Ferretti and Razin (1996). Table III provides information on our extension of the framework which includes global sustainability indicators.

Turkey's 1994 crisis

Of the structural features, there are two factors that stand out in the 1994 crisis: the short-term debt position and the foreign reserves position. Radelet and Sachs (1998) note that these were a concern for countries in East Asia prior to the Asian financial crisis. The short-term debt-to-external debt ratio worsened considerably just prior to the crisis with the 1993 ratio at 26.56%, representing a 30% increase from the three-year average of 20.89% (Table II, Panel A). Adding to the vulnerability was the poor foreign reserves-to-external debt position, which was less than 10% for the three years prior to the crisis. Taken together, it implies a poor short-term debt-to-foreign reserves position. This indicates vulnerability to a crisis. Radelet and Sachs (1998) highlighted this as a concern for countries in East Asia prior to the Asian financial crisis. They reported that the short-term debt-to-foreign reserves ratios in the year preceding the Asian crisis for Indonesia, Thailand and South Korea were 170%, 120% and 200%, respectively, indicating weak foreign exchange positions in these countries. The average ratio for Turkey for 1991-1993 was 230% and even worse,

294%, in the year immediately preceding the crisis, 1993. These high and increasing ratios implied significant vulnerability for Turkey prior to the 1994 crisis.

All the macroeconomic policy indicators played a major role in the 1994 crisis. Similar to the conclusion of Milesi-Ferretti and Razin (1996) for Mexico's 1982 crisis, Ozatay (2000) argues that fiscal imbalances contributed to Turkey's 1994 crisis.[7] As can be seen in Table II (Panel A), the average fiscal deficit/GDP ratio was high at 5.48% for 1991-1993 and worse in 1993 at 6.75%. The same trend is observed in the interest payments/GDP ratio which increased from an average of 4.47% for 1991-1993 to 5.85% in 1993 alone.

Related to the poor fiscal position was the macroeconomic instability observed in both the inflation rate and exchange rates. High inflation rates have been associated with crises for Turkey as noted by Togan and Berument (2007). From Table II (Panel A) we see that the average inflation rates (based on CPI) for 1991-1993 were very high at 68.09% and stayed high in 1993 at 66.10%. Besides signaling poor allocation of resources, high inflation rates also impact the real value of the country's currency.

Milesi-Ferretti and Razin (1996) note that overvaluation of the currency played a major role in Chile and Mexico's crises (1982 for both countries). This can be observed in Turkey's case as well. As reported in Table II (Panel A), the average REER index for 1991-1993 was 117.83 but increased to 125.70 in 1993, representing an appreciation of the lira. Lira appreciation was a concern in the 1994 crisis as noted by Celasun (1998) and Ozatay (2000).

In addition, there was one factor from the global sustainability indicators which impacted Turkey in this period. As Milesi-Ferretti and Razin (1996)

[7] Ozatay (2000) also argues that there were several domestic debt policy mistakes including the cancellation of accumulated debt and the introduction of a tax on government securities during this period which contributed to the 1994 crisis.

highlight the impact of a world recession in the 1982 Mexican crisis, we find that the poor growth performance in the EU was a factor for Turkey in the 1994 crisis. Average real EU growth rate that was 0.43% for 1991-1993 turned negative in 1993 to -0.20% (Table III). Although world real growth rates were steady, the slowdown in the EU region, which was and continues to be a major trade and investment partner, adversely impacted Turkey during this period.

In addition to the above, Turkey suffered from problems in the financial sector. Milesi-Ferretti and Razin (1996) emphasized the importance of a weak financial sector in the crises of Chile (1982) and Mexico (1982 and 1994). Similarly, Ozatay (2000), Arican (2005) and Togan and Berument (2007) highlighted the problems of Turkey's financial sector in the 1994 crisis.

Turkey's 2001 crisis

Fiscal unsustainability once again played a major role in the 2001 crisis. Ozatay and Sak (2002) noted that similar to the 1994 crisis and the Chilean experience reported in Milesi-Ferretti and Razin (1996), a poor fiscal position was a factor in the 2001 Turkish crisis. This can be seen in the data in Table II (Panel A) where both interest payments/GDP and fiscal deficit/GDP ratios were high and increasing. The fiscal deficit/GDP ratio was higher compared with earlier periods at an average ratio for 9.92% in 1998-2000 and 10.65% in 2000. However, it should be noted that in fact Turkey was running a primary surplus in this period. The high fiscal deficit ratios were linked to high interest payments due to accumulated debt. The average interest payments/GDP for 1998-2000 was 14.03% and higher in 2000 at 16.41%. Given the lower fiscal deficit/GDP ratios compared with the interest payments/GDP ratios, this suggests that the period had an improved fiscal policy position despite worsened fiscal fundamentals.

Inflation rates were also high. The average rate of 68.14% for 1998-2000 was similar to the rates observed prior to the 1994 crisis. However, the

rate in 2000 at 54.92% indicated a slight improvement. The REER index also increased with an average of 131.93 for 1998–2000 and 147.60 in 2000. The significant increase in the index in 2000 just before the 2001 crisis suggests that exchange rate appreciation played a major role in the crisis as it did in the 1994 crisis.

Of the structural features, we find that similar to Chile's crisis in 1982, as noted in Milesi-Ferretti and Razin (1996), high external debt had a major role in the 2001 Turkish crisis. Table II (Panel A) shows that average real external debt-to-GDP ratio was 50.28% in 1998–2000 and higher at 55.94% in 2000.

In addition, Turkey saw a slight worsening in its terms of trade position during this period. Milesi-Ferretti and Razin (1996) found this to be an important indicator in the Chilean crisis of 1982. From Table II (Panel A), we find that the terms of trade were 1.06 in 1998–2000 but lower at 1.00 in 2000. While this is indeed a worsening in the terms of trade position, given the very small changes, we do not feel that this was an important indicator in the 2001 crisis.

Of the global sustainability indicators, world interest rates and oil prices had an impact on Turkey. High world interest rates, especially in relation to domestic interest rates, were a factor identified by Milesi-Ferretti and Razin (1996) for both Chile in 1982 and Mexico in 1994. From Table III (Panel A) we see that real world interest rates were 5.91% in 1998–2000 and increased to 6.65% in 2000. It is important to note that the real interest rates in Turkey for the same periods were 14.02% and -12.21%. The big spread between world and Turkish interest rates in 2000 was an important factor in the 2001 crisis. As noted by Ozatay and Sak (2002), we also find high oil prices to be a concern in this period. From Table III (panel A) we see that real oil prices were $17.79 for the 1998–2000 period and significantly higher for 2000 at $25.79.

Once again weakness in the financial sector, as identified by Milesi-Ferretti and Razin (1996) as an important predictor, played a role in the

2001 crisis. Alper (2001), Ozatay and Sak (2002), Arican (2005) and Togan and Berument (2007) have all emphasized the importance of a weak financial system in Turkey as a factor in the 2001 crisis. Contributing to the problems in the financial system was the timing of capital account liberalization, which could partly be attributed to outside pressures from the IMF, as noted by Alper and Onis (2002), as well as internal political problems. Further, Alper and Onis (2003) highlighted weakness in political structure, such as lack of accountability and transparency in a financially-liberalized environment, as leading to recurring financial crises.

Non-crisis periods (2005, 2006, 2007) in Turkey

To discuss the present current account position in Turkey, we study three phases: 2002-2004, 2003-2005 and 2004-2006. The current account deficit-to-GDP ratio was deteriorating for these phases as can be seen from Table I (Panel B). However, the deterioration, which was much more acute than in the crisis periods (Table I Panel A), did not lead to a crisis in 2005, 2006 and 2007. To understand the factors that allowed Turkey to avoid a crisis despite a severely deteriorating current account position, we analyze the three categories of factors below.

Structural features

Turkey experienced high levels of economic growth in the non-crisis periods. From Table II (Panel B) we see high average real GDP growth rates for the three non-crisis episodes (greater than 7% in all cases). The end-of-period rates were higher than the averages except in the last episode. However, at 6.10% the growth rate in 2006 still indicated a healthy economic position. It is important to note that Turkey had high growth rates in the years immediately preceding both crises (8.04% and 7.36% in 1993 and 2000, respectively). However, while these growth rates were high and similar to the rates observed in non-crisis periods, the conditions are not equivalent. The earlier growth rates were a cause for concern for Turkey at that time since they represented dramatic increases from the period average. Specifically, the 1993 growth rate was

61% higher than the three-year average for 1991-1993 of 4.98% while the 2000 growth rate represented a 285% jump from the three-year average for 1998-2000 at 1.91%. The latter jump is extreme because the 1999 recession in Turkey significantly lowered the three-year average. Nevertheless, the rapid increase in growth represents an overheating concern for the Turkish economy in both cases. The non-crisis episodes differ from earlier periods because they represent sustained high growth rates for the entire period and thus are not indicative of structural problems in the Turkish economy.

By contributing to growth, investment (measured as a percentage of GDP) increases the potential of a country to repay debts. Like Milesi-Ferretti and Razin (1996), we do not find this factor be a determinant of crises. Nevertheless it is important to note that the investment/GDP ratio was higher for the three non-crisis phases compared with the crisis episodes (Table II Panels A and B). There was a drop in the ratio for the last non-crisis episode (2004-2006), but the decline is very slight. Thus, investment-wise, Turkey was in a stable position.

As we noted earlier, for foreign investment, the type of investment matters for vulnerability where direct investment suggests lesser vulnerability and portfolio investment suggests higher vulnerability. Milesi-Ferretti and Razin (1996) find that both direct investment and portfolio investment flows are not major predictors of crises in their sample. We conclude the same for Turkey, which showed very low inflows (as a percentage of GDP) for both types of investment. Despite this conclusion, it is important to note that both FDI and FPI positions are healthier today in Turkey. Average real net FDI inflows/GDP increased for the three non-crisis phases, reaching the highest average and end-of-period ratios in the last phase (2004-2006) at 2.75% and 5.05% respectively. The real net FPI inflows/GDP increased between the first and second non-crisis phases, reaching a high of 3.86% in 2005 but declining in the last non-crisis phase (2004-2006) to an average ratio of 2.84% and an end-of-period ratio of 1.94%. What is most important to

note is that while FPI inflows exceeded FDI flows in the first two non-crisis phases, the trend is reversed in the last phase. Thus, presently Turkey's foreign capital inflow activity shows that it is less vulnerable to international speculative activity.

Exports have been an important indicator of sustainability. Milesi-Ferretti and Razin (1996) identified a low amount of exports as a major factor in Chile's and Mexico's 1982 crisis as well as Mexico's 1994 crisis. In addition, Milesi-Ferretti and Razin (1996) also discussed how Malaysia's high exports-to-GDP ratio of 82% in 1994 was an important factor in improving the trade and thus current account position. From Figure 2 we see that Turkey's real export-to-GDP ratio has been on a general upward trajectory since 1990. There were slight fluctuations around the 2001 crisis, but they have steadied since then and exports continued to increase until 2006. From Table II (Panel B) we see that the real export/GDP ratios were steady at approximately 30% for the three non-crisis periods, with the highest ratios in the last phase at 30.21% (average for 2004-2006) and 30.66% (in 2006). Given the high growth rates in GDP, the high and improving export-to-GDP ratios in Turkey represent a healthy export position for Turkey.

The terms of trade for all the non-crisis periods were worse than those observed in earlier periods in Turkey. Moreover, there was deterioration even within the non-crisis periods. After a slight improvement from the first non-crisis phase to the second, there was a worsening of the terms of trade position in the third phase. At 0.97 for 2006, the terms of trade were at the lowest they had been compared to any other year in the sample period. The decline in terms of trade represents a significant deterioration compared with the 1994 phase, but only a slight deterioration from the 2001 phase. Since the export position is healthy, we can conclude that this factor does not reflect vulnerability in Turkey's current account position.

Turkey's external debt position is an important measure given that it was a major factor in the 2001 crisis. As noted earlier, the real external

debt/GDP ratio was an average of 50.28% for 1998-2000 and 55.94% for 2000 (the year immediately preceding the crisis). The debt position further worsened during the crisis, reaching 75.52% in 2001. The average real external debt/GDP ratio reduced dramatically in the first non-crisis phase from an average of 61.40% in 2002-2004 to 54.32% in 2004 alone. This trend further improved in the next phase where the average for 2003-2005 at 54.34% reduced to 48.54% in 2005. Unfortunately, the last phase saw a worsening of this position. The average for 2004-2006 was 52.41% but was higher at 54.37% in 2006. The fact that these ratios are high and increased in the 2004-2006 period to levels similar to the 1998-2000 period suggests that there is some vulnerability in the external debt position.

Real interest rates reached a low of -12.21% in 2000, but rose dramatically to nearly 30% during the crisis in 2001. This rise reflected the premium necessary to attract foreign investment into Turkey. Since that period, real interest rates declined reaching an average rate for 2004-2006 of 9.33% (the lowest average for all non-crisis periods). At 7.75%, the 2006 rate was only slightly higher than the 2005 rate at 7.50%, which is the lowest for the entire period. Despite the significant decline in interest rates in the non-crisis periods, it is important to note that the rates were higher than world interest rates (Table III, Panel B), which made Turkey an attractive investment opportunity for foreign investors and thus helped finance the current account deficit.

Heavy dependence on short-term debt makes a country more vulnerable to a crisis. Radelet and Sachs (1998) note that short-term debt has been a major factor in the case of East Asia. We also conclude that it was a factor in Turkey's 1994 crisis. The amount of short-term debt as a percentage of external debt was higher in the period leading to the 1994 crisis than in the 2001 crisis, but was not a major cause for either crisis. From Table II (Panel B) we can see that the average short-term debt/external debt ratio increased in the first and second non-crisis phases. The ratio for 2004 was 19.83% which was a 22% increase from

the three-year average of 16.15% for that episode. Similarly, the ratio at 21.98% in 2005 was a 15% jump from the three-year average in 2003-2005 of 19.25%. The last non-crisis period saw a small improvement from an average ratio of 20.71% in 2004-2006 to 20.33% in 2006. What is important to note is that all ratios in the non-crisis periods reflect an improvement over the short-term debt position prior to crises. Thus, Turkey is in a better short-term debt position today.

It is also important to highlight the healthier foreign reserves position in Turkey. The FE reserves/external debt ratios for the non-crisis phases were much healthier compared with both crises periods. Moreover, the ratio increased over the three non-crisis episodes with the best position observed in the last non-crisis episode. At 28.25% the FE reserves/external debt ratio for 2006 was slightly higher than the three-year average for 2004-2006 at 26.42% and significantly improved[8] over the entire sample period (Table II, Panels A and B). This healthier foreign reserves position implies that Turkey was better able to withstand capital outflows. In addition, it is also useful to consider the ratio of short-term debt to foreign exchange reserves. As noted earlier, this was a concern in countries in East Asia prior to the Asian financial crisis, as reported in Radelet and Sachs (1998). We saw even worse ratios in Turkey prior to the 1994 crisis where the average for 1991-1993 was 230% and was 294% in 1993. While the ratio had considerably improved prior to the 2001 crisis, the ratios were still above 100%, at an average of 106% for 1998-2000 and 113% for 2000, and thus continued to indicate a problematic foreign exchange position. The ratios for all three non-crisis phases were below 100%, with the biggest improvement observed in the last (2004-2006) period. The average foreign reserves/short-term debt ratio for that period was approximately 78% and improved in 2006 to 72%. This means that Turkey would have enough foreign reserves to cover short-term debts if there were a sudden capital outflow.

[8] The ratio in 2005 was slightly higher at 28.62%.

Milesi-Ferretti and Razin (1996) emphasized the importance of exports and external debt among structural features. From the above discussion, we see that exports have improved while external debt poses some vulnerability. In addition, other structural features, particularly the short-term debt and foreign reserves positions, have improved in the most recent period.[9] Thus, based on structural features we find that despite some vulnerability in external debt, Turkey's current account position was better in the period 2005-2007.

Macroeconomic policy indicators

One important change in the latest period occurred in the exchange rate regime in Turkey. Following the 2001 crisis, Turkey's exchange rate regime shifted from a fixed (managed float) to a floating regime. In addition to the efficiency benefits of a currency being market-determined, another major advantage for Turkey in this period since the change, compared to earlier periods, is the decreased burden on foreign exchange reserves. This change, combined with an improved foreign reserves position discussed earlier, shows that Turkey is in an even better position to allay the fears of anxious investors and avoid or withstand a crisis.

Following the shift to a floating exchange rate regime, the REER index increased significantly over the three non-crisis phases (Table II, Panel B). The average REER index for the 2002-2004 period was 136.40 and higher in 2004 at 143.20. The second non-crisis phase (2003-2005) showed an even bigger increase with the average at 151.73 and the end-of-period index at 171.40. The REER index continued to be high in the last phase at 158.23 for the 2004-2006 average and 160.10 for 2006. This increase represents an appreciation in the real effective exchange rate and presents a concern for current account sustainability. Milesi-Ferretti and Razin (1996) highlighted overvaluation as a major predictor

[9] There was a worsening of the terms of trade position, but we conclude that it was not a significant factor adding vulnerability to the current account position.

for both Chile and Mexico in the 1982 crises in those two countries. Thus, this movement in the REER suggests vulnerability for Turkey.

The REER index has appreciated far beyond the levels seen prior to either crisis. Part of the appreciation in the index is related to dollar depreciation in that period. The rest is related to conditions within Turkey. Since Turkey has suffered from an overvalued lira in the past, there is a concern that the appreciating REER could make the external position vulnerable. However, Togan and Berument (2007) argued that strong productivity growth can offset the negative impact of an appreciating real exchange rate. According to Morgan Stanley reports,[10] Turkish total factor productivity growth in the 1990s was 0.5% and jumped to 4.8% in the post-crisis periods. This positive structural change can partly explain why the rapidly appreciating real exchange rate was not associated with a balance of payments crisis in the mid-2000s.

Moreover, it is important to differentiate between appreciation and overvaluation. While there may be some overvaluation, the high levels of the index suggest an overvaluation so intense that it should reduce exports in Turkey. From Figure 2 we see that the real export-to-GDP ratio has been on an upward trajectory and has been steady since 2002 when the REER index was continuously appreciating.

As noted earlier, the REER index was highest in 2005 at 171.40. This represents an increase of 19.69% over the previous year. For the same periods, the real export-to-GDP ratio declined slightly from 30.40% in 2004 to 29.56% in 2005. While there is a decline in the ratio, it should be noted that real GDP grew by 7.38% in 2005. Thus, real exports grew in 2005 despite the approximate 20% appreciation in the REER. Therefore, the appreciating REER is not associated with a deteriorating export position.

[10] Serhan Cevik (March 30, 2006) "Turkey Productivity Revival".

While we cannot rule out any overvaluation in the lira, there is reason to believe that some of the increase in the REER index is related to an adjustment of changed fundamentals in the Turkish economy in the 2000s compared with the mid-1990s (1995 is the base year for the REER index). Thus, although the numbers suggest considerable exchange rate vulnerability in the Turkish current account position, this turned out to be a lesser concern in the present period and allowed Turkey to avoid a crisis from 2005 to 2007.

Fiscal unsustainability was identified as a major predictor in the Chile (1982) crisis by Milesi-Ferretti and Razin (1996). As discussed earlier, fiscal unsustainability was also a concern for Turkey in the prior two crises. The two measures of fiscal unsustainability are interest payments/GDP and fiscal deficit/GDP. From Figure 3 we see that the trend in both measures deteriorated until 2001. However, we find improvements in both these measures in the present period in Turkey. High interest payments/GDP ratios, which were a concern prior to both crises, continuously improved over the three non-crisis phases (Table II, Panel B) with the most significant improvement seen in the last phase. The average ratio for 2004-2006 was 9.73% and lower in 2006 at 6.70%. These ratios are worse than for the period leading to the 1994 crisis but show marked improvement compared with the period leading to the 2001 crisis. We conclude that while these ratios are high, they show improvement in the fiscal position in Turkey.

The other measure of fiscal unsustainability is the size and increase in fiscal deficits as a percentage of GDP. High fiscal deficits, which were an important predictor in Chile's crisis according to Milesi-Ferretti and Razin (1996), were also a concern for Turkey in earlier crises. We observe improvement in the fiscal deficit/GDP ratio in all non-crisis periods (Table II, Panel B). Similar to interest payments, the biggest improvement can be seen in the last phase with the average fiscal deficit/GDP ratio for 2004-2006 at 3.22% and only 0.96% for 2006. Not only are these ratios significantly lower than previous periods but they fall within the EU

Maastricht Treaty threshold requirement of less than 3%. Given interest payment/GDP ratios for the same periods, we see that Turkey was running a primary surplus in all non-crisis periods just as it did prior to the 2001 crisis (Table II, Panels A and B). However, both interest payments and fiscal deficits as a percentage of GDP are much improved in these non-crisis periods compared to the 2001 crisis. Thus, the non-crisis periods reflect an overall improved fiscal environment for Turkey.

Fiscal restraint has also improved the inflation position in Turkey. While Turkish inflation rates ranged from over 50% to over 100% during crisis episodes, the inflation rates for all the non-crisis episodes were significantly lower (Table II, Panels A and B). The biggest improvement is seen in the last phase[11] where the average inflation rate for 2004-2006 was 8.81% and slightly higher at 9.61% in 2006. It should be noted that the inflation rate has continuously exceeded its target. In 2006 for example, the inflation rate of 9.61% was nearly twice its target which was set at 5%.[12] Nevertheless, these inflation rates show a marked improvement in macroeconomic conditions in Turkey.

Malaysia's experience with fiscal restraint between 1979 and 1986, as discussed in Milesi-Ferretti and Razin (1996), offers a cautionary tale for Turkey. An increase in the fiscal deficit/GDP ratio in Malaysia from 6.6% in 1980 to over 17% in 1982 prompted a fiscal tightening program. This reduced the fiscal deficit-to-GDP ratio significantly to 6% in 1984. However, due to other factors, including problems in the financial sector and depreciation of the real exchange rate, Malaysia's fiscal tightening policy resulted in a sharp decline in growth. Thus, while fiscal restraint can be a valued goal, it has the potential to hurt Turkey.

However, in Malaysia's case, it was a combination of several factors together with the fiscal tightening that hurt economic growth. Those factors include depreciation of the exchange rate and weaknesses in

[11] Although it should be noted that at a rate of 6.25%, 2005 was the year of the lowest inflation.

[12] Central Bank of Turkey Inflation Report.

financial sector. While the financial sector has been weak in Turkey for most of the sample period, Ogus and Sohrabji (2008) and others highlight the reforms in this sector following the 2001 crisis. Also, there has been no indication of depreciation in the lira and thus we conclude there is less of a concern regarding fiscal tightening alone as leading to a decline in growth.

Overall, economic performance during non-crisis periods reflect an improved macroeconomic environment in Turkey. The fiscal position which was a concern in both the earlier crises was healthier and reflects an improving trend in the non-crisis periods. The high and rising real effective exchange rate (REER) over the three non-crisis periods is troubling. However the upward trajectory of exports (during the same periods) suggests that even if the lira is overvalued, it is much less than indicated by the sharp increases in the REER index. Also, inflation was significantly lower in non-crisis periods compared with crisis episodes, even though it exceeded the targets. Thus, we conclude that despite some vulnerability, there is improvement in Turkey's macroeconomic policy indicators which allowed Turkey to avoid a crisis from 2005 to 2007.

Global sustainability indicators

Just as a global slowdown impacted Mexico in the 1982 crisis, as discussed in Milesi-Ferretti and Razin (1996), an EU slowdown hurt Turkey in 1994. However, strong global growth made this a non-crisis period for Turkey. Both real world growth rates and real EU growth rates were healthy and increasing for all the non-crisis phases with the highest level observed in the last non-crisis period (Table III, Panel B). Looking forward though, the global slowdown in 2008 will definitely have an impact on Turkey.

As noted earlier, the high world real interest rates played a role in the 2001 crisis. At 6.65% in 2000, the world interest rate was significantly higher than the Turkish real interest of -12.21%. However, the spread in

the interest rates was not a concern in the non-crisis periods. The average real world interest rate was high in 2002-2004 at 5.11% but fell dramatically in 2004 to 1.79%. The rates increased over the next two phases with the highest rates seen in the last one. At 5.27% in 2006, the real world interest rate was at its highest for the non-crisis periods. As noted earlier, there was a declining trend in Turkish real interest rates over the three non-crisis periods. Despite this, Turkish interest rates exceeded world interest rates for all years in the non-crisis periods (Table II, Panel B). Higher domestic interest rates compared with foreign interest rates combined with the appreciating real exchange rate increased returns for foreign investors. This allowed Turkey to attract high levels of foreign investment and thus incur high current account deficits in the non-crisis periods.

Oil prices certainly impacted Turkey in the 2001 crisis. The prices were far higher in the non-crisis periods and increasing as can be seen from Table III (Panel B). The average real oil price increased over the three non-crisis periods. The average price was $25.48 in 2002-2004 which rose to $32.11 in 2004. The increase was even more dramatic for the second non-crisis period where the average was $32.66 for 2003-2005 and significantly higher at $41.55 in 2005. The last phase had the highest prices for the entire period with an average of $40.72 for 2004-2006 and $48.50 in 2006. Although this reflects vulnerability, Turkey's robust growth suggests that it was a lesser concern in these periods. Moreover, high exports may have dampened the negative impact of a large import bill due to high oil prices.

Most of the global sustainability indicators were healthy in the non-crisis periods. While oil prices were a concern, high growth suggests otherwise. Also, high exports counteracted the concern of a growing import bill due to high oil prices. However, in coming years, increasing oil prices will add to the vulnerability facing Turkey. This, combined with the problems associated with slowed global growth, makes Turkey more economically vulnerable in the future. The looming U.S. recession and

slower world growth could hurt exports from Turkey. Some of that concern may be counteracted by interest rate cuts in the US which will increase the spread between Turkish interest rates and world interest rates and thus help attract more investment into Turkey. However, that may not be sufficient to reduce the negative impact of a global slowdown. In that case, the increasing import bill through higher oil prices that was counteracted by strong export performance in earlier periods could become a major problem as well. Thus, while we can conclude that based on global sustainability indicators, Turkey's current account position was healthy for the non-crisis periods and thus allowed Turkey to avoid a crisis from 2005 to 2007 that may not hold for the coming years.

Based on the above analysis of the three categories of factors, we find that internally and globally Turkey had an improved current account position since the 2001 crisis until 2007. Except for oil prices, all global factors helped Turkey to achieve this. In addition, most of the structural features and macroeconomic policy indicators have improved. Of particular importance are the improved export position, foreign reserves position and fiscal position, all of which are better than they were prior to the earlier crises. Moreover, the improvement reflects a steady trend over the three non-crisis periods. Of the indicators that show vulnerability, external debt and the movement in the REER index stand out. External debt appeared to be improving initially, but worsened in the last non-crisis phase. The lira was continuously appreciating (worsening) over the non-crisis episodes. However, as noted earlier, the appreciation was not necessarily reflective of a severe overvaluation given the upward trajectory of real exports. Thus, we conclude that despite some vulnerability, overall improvement in internal and global factors explains why Turkey was able to sustain higher current account deficits without facing a crisis from 2005 to 2007.

Future sustainability is threatened by a few factors. The worsening trend of external debt and appreciation of the lira remain as concerns. In

addition, there has been a relaxation of the fiscal stance in Turkey.[13] Fiscal restraint was an important factor in improving the current account position in non-crisis periods; reversal of this position, therefore, makes Turkey more vulnerable in the future. Finally, there are external factors, such as a global slowdown and increasing oil prices, which add to the future vulnerability in the current account position. Both these factors have the potential to counteract the improvement in the export position. Given Turkey's dependence on the global economy, the impending global slowdown and high oil prices, combined with the weaknesses in the real exchange rate and external debt position, will hurt the future sustainability of Turkey's current account position.

V. CONCLUSION

In this paper we analyze the present sustainability of Turkey's current account using the framework provided by Milesi-Ferretti and Razin (1996). Their modified list of sustainability predictors fit into two broad categories: structural features and macroeconomic policy indicators. We extend their framework to include a third category, global sustainability indicators. Just as they do, we analyze specific episodes to determine which factors played a role in current account unsustainability. While they analyzed ten episodes for seven countries, we focus on five episodes in Turkey only. Of the five episodes, two are the periods leading to the 1994 and 2001 crisis, which comprises 1991-1993 and 1998-2000. A comparative analysis of these two periods with three non-crisis episodes (2002-2004, 2003-2005 and 2004-2006) shed light on why Turkey was able to avoid crises in 2005, 2006 and 2007 respectively. This analysis also allows us to make inferences about future sustainability.

Based on our analysis, we conclude that most of Turkey's structural features and macroeconomic policy indicators improved in the non-crisis

[13] Statement by the IMF Staff Mission to Turkey (Press Release 7/239), October 23, 2007.

periods. Of the structural features, Milesi-Ferretti and Razin (1996) emphasized the importance of low exports in predicting crises in Chile and Mexico in 1982 and Mexico again in 1994. In addition, they also highlight the role of increased exports in Malaysia's sustainable current account episode of 1991-1995. Turkey's export position has been on an upward trend over the non-crisis episodes with the export/GDP ratio reaching 30.66% in 2006. This helps the trade balance and thus improves the current account position in Turkey.

However, Turkey has some vulnerability in the external debt position which is another major factor emphasized in sustainability literature. This was an issue for Chile in 1982 as noted in Milesi-Ferretti and Razin (1996) and was also a major factor in the 2001 crisis in Turkey as discussed earlier. While the real external debt/GDP ratio had begun improving from the first non-crisis episode, the trend was reversed in the last non-crisis period. The ratio in 2006 is only slightly lower than the 2000 level prior to the second crisis. Thus the external debt position is a weakness for the Turkish economy.

None of the other structural features played a major role for the episodes analyzed by Milesi-Ferretti and Razin (1996). This is similar to our analysis of Turkey's prior crises. Nevertheless, it is important to point out that all the structural features improved in the most recent period. Of particular importance is the improved foreign exchange position where the ratio of short-term debt to foreign reserves was less than 100% in the non-crisis periods, reaching 72% in 2006.

All the macroeconomic policy indicators such as fiscal indicators and exchange rate movements played a major role in earlier crises. The fiscal position in the non-crisis periods have steadily improved and by 2006 the fiscal deficit/GDP ratio had declined to less than 1%. Similarly interest payments/GDP ratios are lower compared with the period leading to the 2001 crisis. In 2006, at 6.70% the ratio was its lowest for the non-crisis periods, although this was higher than the pre-1994 crisis ratio.

Nevertheless, together these two factors show an improved fiscal position in the non-crisis periods.

The switch in the exchange rate regime (from fixed to floating) has improved Turkey's position in some ways. The shift to a market price for the lira has had a positive impact on resource allocation. In addition, it has reduced the burden on foreign reserves (needed to defend the lira). Unfortunately, the regime shift has also been associated with a continuous appreciation. The REER index in the non-crisis periods was much higher than it was prior to both crises. This was the main cause for concern among macroeconomic policy indicators. However, as noted earlier, appreciation of the real effective exchange rate is not by itself a problem since it includes dollar depreciation and changed fundamentals in the Turkish economy. Given the increasingly healthy export position, we can conclude that even if the lira is overvalued, it may not be to the extent as indicated by the high and increasing REER index numbers.

Our overall conclusion based on structural and macroeconomic policy indicators is that there is some vulnerability in the external debt and exchange rate position. However, there have also been some improvements in exports and the fiscal position. Thus, the present periods showed less overall internal vulnerability compared with crisis periods and explains why Turkey was able to avoid a crisis from 2005 to 2007.

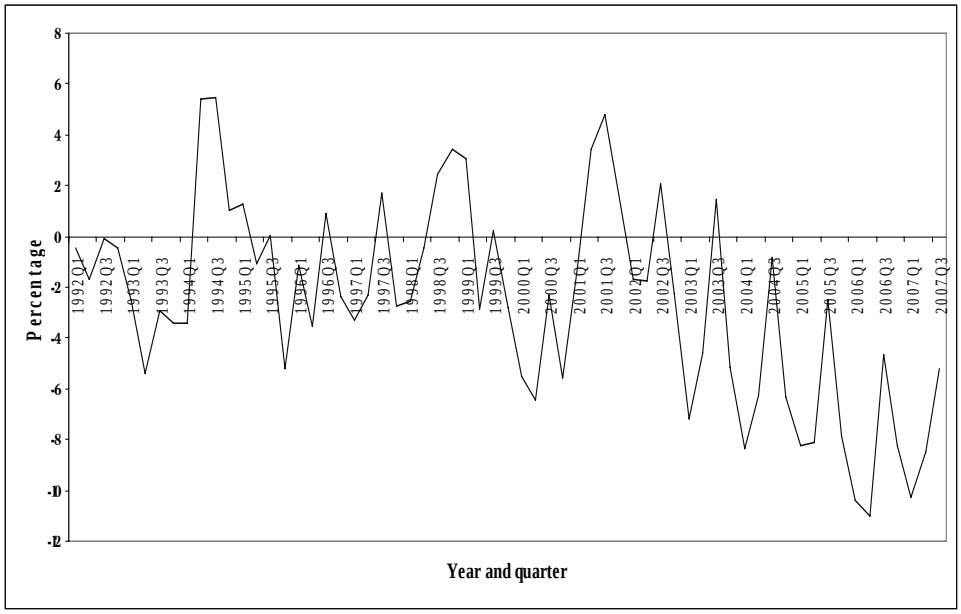
Furthermore, the present periods were also related to stability in the global sustainability indicators. Aside from oil prices, the global indicators helped rather than hurt Turkey's current account position. Thus, based on internal and external factors, Turkey was able to manage higher current account deficits since 2003 without facing a crisis in 2005, 2006 and 2007.

However, future sustainability of the current account is of concern. Turkey is vulnerable due to a continued weak external debt position. Also, the recent relaxation of the fiscal position is a cause for concern in

coming years. Moreover, the U.S. recession in 2008 and consequent global impact signal concerns for Turkey. As noted earlier, Turkey's export performance has been strong for this period and is a major factor in the improved current account position. A potential global slowdown threatens Turkey's healthy export position. In addition, high oil price which increase the value of imports, becomes a bigger concern if exports decline.

The above problems are heightened by the weak exchange rate position. We believe that the negative impact of the appreciating lira may have been counteracted in the non-crisis periods by improvements in other internal fundamentals and global factors. However, deterioration in the global economy will heighten the concerns with an appreciating lira. Given, Turkey's dependence on the global economy and the impending global slowdown, Turkey may be unable to sustain these high current account deficits in the future without significant policy changes.

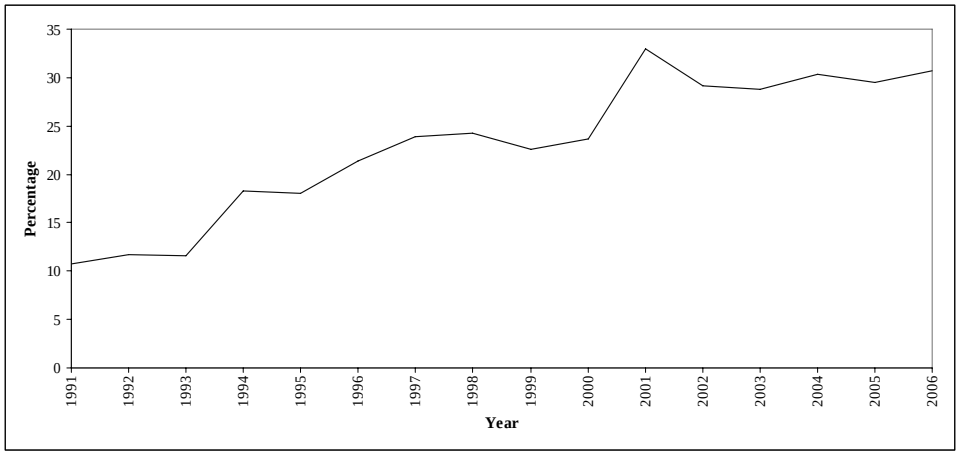
Figure 1. Turkey's current account balance to GDP ratio (quarterly data from 1992:Q1 — 2007:Q3)



Source: Central Bank of Turkey

Note: The GDP series is expressed in current Turkish lira and the current account balance was in US dollars. To make the two series comparable, the current account series was converted to Turkish lira (using the indicator selling nominal exchange rate from the Central Bank of Turkey). The above series is the ratio of current account to GDP in percentage form.

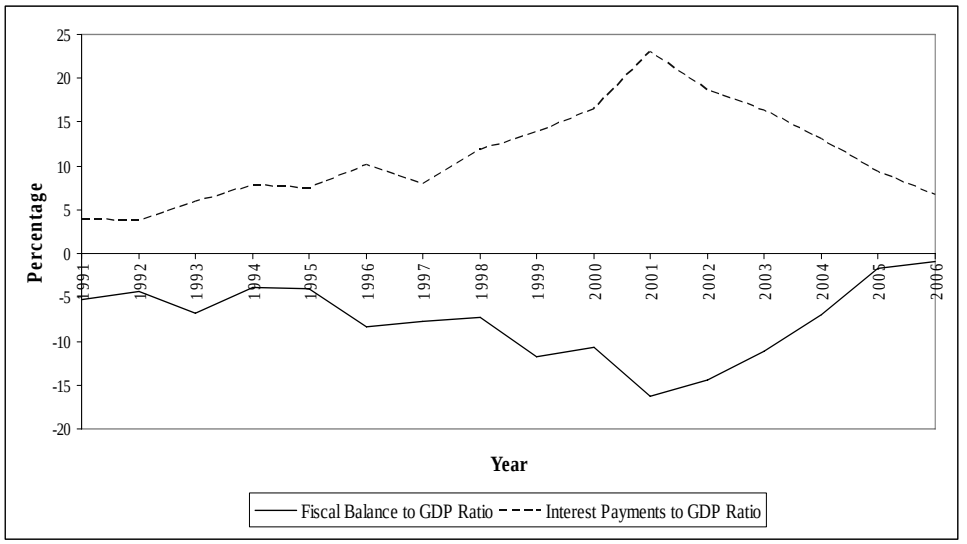
Figure 2. Turkey's real exports to GDP ratio (annual data from 1991 — 2006)



Sources: Central Bank of Turkey, U.S. Bureau of Labor Statistics

Note: The above series is the real exports-to-GDP ratio. The GDP series was expressed in Turkish lira and export series in US dollars. To find the real export series, we first computed a real exchange rate based on the nominal exchange rate times the ratio of the foreign to domestic price index. For the foreign price index we used the U.S. CPI (2003 as the base year). The nominal exchange rate was the indicator selling rate and the domestic price index was the Turkish CPI (author calculations for 2003 as the base year). To compute real GDP, we used nominal GDP deflated by the Turkish CPI with 2003 as the base year. The above series is the ratio of the real export-to-GDP in percentage form (in 2003 prices).

Figure 3: Turkey's fiscal balance to GDP ratio and interest payments to GDP ratio (annual data from 1991 — 2006)



Sources: Ratios for 1991–1993 are as reported in Alper and Onis (2003). These were for fiscal balance and interest payments as a percentage of GNP. The authors converted these numbers to fiscal balance and interest payments as a percentage of GDP. The rest of the data is available from the Central Bank of Turkey

Note: All series (fiscal balances, interest payments and GDP) are expressed in Turkish lira. The above series are the ratios of fiscal balance to GDP and interest payments to GDP in percentage form.

Table I: Turkey's current account position

Panel A: Crisis periods	1994 crisis			2001 crisis		
	1991–1993 (average)	1993	1994	1998–2000 (average)	2000	2001
Current account/GDP (%)	-1.06	-2.83	1.64	-1.47	-4.64	2.25

Panel B: Non-crisis periods	2005 non-crisis		2006 non-crisis		2007 non-crisis	
	2002–2004 (average)	2004	2003–2005 (average)	2005	2004–2006 (average)	2006
Current account/GDP (%)	-3.15	-5.27	-5.09	-6.66	-6.76	-8.34

Sources: Central Bank of Turkey, U.S. Bureau of Labor Statistics

Note: The above series is the real current account balance-to-GDP ratio. The GDP series was expressed in Turkish lira and the current account balance was in U.S. dollars. To find the real current account balance, we first computed a real exchange rate based on the nominal exchange rate times the ratio of the foreign to domestic price index. For the foreign price index, we used the U.S. CPI (2003 as the base year). The nominal exchange rate was the indicator selling rate and the domestic price index was the Turkish CPI (author calculations for 2003 as the base year). To compute real GDP we used nominal GDP deflated by the Turkish CPI with 2003 as the base year. The above series is the ratio of the real current account balance to GDP in percentage form (in 2003 prices). The negative numbers indicate a current account deficit.

Table II: Turkey's sustainability indicators affecting its current account position

Panel A: Crisis periods	1994 crisis			2001 crisis		
	1991–1993 (average)	1993	1994	1998–2000 (average)	2000	2001
Real GDP growth rate (%)	4.98	8.04	-5.46	1.91	7.36	-7.50
Investment/GDP (%)	16.75	19.50	15.95	18.06	18.51	11.17
Real net FDI inflows/GDP (%)	0.34	0.27	0.35	0.13	0.05	1.90
Real net FPI inflows/GDP (%)	1.06	1.72	0.72	-0.28	0.48	-3.00
Real exports/GDP (%)	11.32	11.54	18.24	23.51	23.69	32.96
Terms of trade	1.15	1.19	1.14	1.06	1.00	0.98
Real interest rate	-	-	-	14.02	-12.21	29.34
Real external debt/GDP (%)	29.59	30.57	41.47	50.28	55.94	75.52
Short term debt/external debt (%)	20.89	26.56	16.86	22.56	23.88	14.44
FE reserves/external debt (%)	9.05	9.03	10.41	21.38	21.18	16.63
REER index	117.83	125.70	95.70	131.93	147.60	116.30
Fiscal deficit/GDP (%)	5.48	6.75	3.90	9.92	10.65	16.27
Interest payments/GDP (%)	4.47	5.85	7.71	14.03	16.41	23.02
Inflation rate (%)	68.09	66.10	106.26	68.14	54.92	54.40

Panel B: Non-crisis periods	2005 non-crisis		2006 non-crisis		2007 non-crisis	
	2002–2004 (average)	2004	2003–2005 (average)	2005	2004–2006 (average)	2006
Real GDP growth rate (%)	7.56	8.93	7.37	7.38	7.47	6.10
Investment/GDP (%)	18.86	21.98	20.37	20.53	20.70	19.58
Real net FDI inflows/GDP (%)	0.57	0.68	1.24	2.51	2.75	5.05
Real net portfolio inflows/GDP (%)	1.14	2.71	2.53	3.86	2.84	1.94
Real exports/GDP (%)	29.45	30.40	29.60	29.56	30.21	30.66
Terms of trade	0.99	1.02	1.01	1.01	1.00	0.97
Real interest rate	12.71	12.76	12.26	7.50	9.33	7.75
Real external debt/GDP (%)	61.40	54.32	54.34	48.54	52.41	54.37
Short term debt/external debt (%)	16.15	19.83	19.25	21.98	20.71	20.33
FE reserves/external debt (%)	22.20	22.39	24.80	28.62	26.42	28.25
REER index	136.40	143.20	151.73	171.40	158.23	160.10
Fiscal deficit/GDP (%)	10.89	7.04	6.63	1.67	3.22	0.96
Interest payments/GDP (%)	16.03	13.12	12.93	9.38	9.73	6.70
Inflation rate (%)	26.95	10.58	14.04	6.25	8.81	9.61

Sources: All Turkish data unless otherwise noted are available from Central Bank of Turkey. Data for U.S. CPI was obtained from U.S. Bureau of Labor Statistics.

Notes:

- Real GDP growth rate was calculated from GDP at 1987 prices.
- Net FDI inflows, net portfolio flows and Exports were expressed in U.S. dollars. As with the current account, we computed the real value of each of these variables and express them as a percentage of real GDP using the same methodology discussed earlier.
- Terms of trade are defined as the ratio of the price index of exports to price index of imports reported in the IMF International Financial Statistics database. The base year for the two indices is 2000. The original data was quarterly data which was averaged by the authors to make it annual data comparable to other series. If the terms of trade exceeds 1 it implies a better terms of trade position.
- The real interest rate is the cost of domestic borrowing from Domestic Debt Management Reports by the Turkish Treasury (several reports from 2002-2007).
- External debt, short term debt and foreign exchange reserves data is available from IMF International Financial Statistics database. All series were expressed in U.S. dollars. To determine the real external debt-to-GDP ratio, we used the same methodology discussed earlier for the real current account balance-to-GDP ratio.
- The REER (real effective exchange rate) index as reported by the Central Bank of Turkey uses CPI with 1995 as the base year. An increase in the index indicates an appreciation in the lira.
- Fiscal deficit-to-GNP ratio and interest payments-to-GNP ratio for 1991 to 1993 are reported in Alper and Onis (2003). These were converted to fiscal deficit and interest payments as a percentage of GDP. For the rest of the years, the ratios are calculated from data on fiscal deficits, interest payments and GDP from the Central Bank of Turkey.
- Inflation rate uses the CPI index. Data reported had different base years for the different years, so all indices are recalculated for 2003 as the base year.

Table III: Global sustainability indicators affecting Turkey's current account position

Panel A: Crisis periods	1994 crisis			2001 crisis		
	1991–1993 (average)	1993	1994	1998–2000 (average)	2000	2001
Real world growth rate (%)	2.13	2.40	3.80	3.73	4.80	2.50
Real EU growth rate (%)	0.43	-0.20	2.80	3.27	3.90	2.10
Real world interest rate (%)	4.46	3.41	5.07	5.91	6.65	3.73
Real oil prices	20.89	18.38	17.15	17.79	25.79	20.95

Panel B: Non-crisis periods	2005 non-crisis		2006 non-crisis		2007 non-crisis	
	2002–2004 (average)	2004	2003–2005 (average)	2005	2004–2006 (average)	2006
Real world growth rate (%)	4.13	5.30	4.73	4.90	5.20	5.40
Real EU growth rate (%)	1.83	2.60	2.00	1.90	2.57	3.20
Real world interest rate (%)	5.11	1.79	2.26	3.76	3.61	5.27
Real oil prices	25.48	32.11	32.60	41.55	40.72	48.50

Sources: All data are available from IMF International Financial Statistics database and World Economic Outlook.

Notes:

- The real world interest rate series is the 6 month LIBOR for U.S. dollars.
- Real oil prices are measured as 1997 U.S. $ per barrel.

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