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Özgür Orhangazi and Gökçer Özgür

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Capital flows, finance-led growth and fragility in the age of global liquidity and quantitative easing: The case of Turkey

Özgür Orhangazi

Kadir Has University, Istanbul

ozgur.orhangazi@khas.edu.tr

Gökçer Özgür

Hacettepe University

gozgur@hacettepe.edu.tr

Abstract: Capital flows to the "developing and emerging economies" (DEEs) have surged in the 2000s. After a brief interruption during the 2008 global financial crisis, quantitative easing policies led to even stronger capital flows. This is reminiscent of the earlier capital flow waves that ended with financial crises. At the end of those waves, DEEs ran into problems due to three main issues: high government borrowing requirements, fixed exchange rate systems, and/or weak banking sectors. Turkey is a case in point. After capital account liberalization in 1989, it ran into crises in 1994, 1998 and 2001. Since then, the government borrowing requirement has gone down, the banking sector has been reformed and a more flexible exchange rate system adopted. However, we argue that, first, a capital-inflows-dependent, finance-led growth model emerged in the 2000s. Second, we show that this model led to an accumulation of fragilities both in the external accounts and within the domestic economy. As such, "*this time is different*" for the Turkish economy as the fragilities do not originate from these three issues, but rather from the dependence of the economy on foreign capital inflows and private sector credit expansion. Our analysis reveals three particular issues: First, similar to the earlier experiences of both Turkey and other DEEs, the economy is still subject to a sudden stop risk. In fact, the risk is now higher as the country received record volumes of capital inflows, mostly in the form of short-term investments. Second, a main difference this time around is that the private sector (both banks and nonfinancial corporations) has significantly increased its foreign exchange borrowing and is now faced with a large net open position, increasing the risk of a currency mismatch. Moreover, the nonfinancial corporate sectors' foreign-currency-denominated debt to the domestic banking sector renders both sectors fragile at the same time. Third, the capital-inflow-dependent, finance-led growth model led to a significant expansion in credit to the private sector. The banking sector's credit to deposit ratios climbed up, nonfinancial corporations' debt to tangible asset ratios and household debt ratios rapidly increased, leading to an accumulation of a range of financial fragilities in the economy.

Keywords: Turkey, financial fragility, financial crisis, global liquidity, quantitative easing, capital flows, credit expansions, credit booms

JEL classification codes: E44, F3, F32, F65, O52

Capital flows, finance-led growth and fragility in the age of global liquidity and quantitative easing: The case of Turkey

1. Introduction

"Developing and emerging economies" (DEEs), since the early 1980s, have experienced waves of capital inflows followed by sudden stops/reversals. These sudden stops/reversals –combined with high government borrowing requirements, weak and fragile bank balance sheets, and/or fixed exchange rate regimes accompanied by low foreign exchange reserves– led to a series of financial crises. By the early 2000s, most DEEs adopted policies to bring down government borrowing requirements through primary budget surpluses, reformed banking sectors, switched to (more) flexible exchange rate regimes and increased their foreign exchange reserve accumulation. Around the same time, a new wave of capital flows took off, triggered by the exceptionally low interest rates and the expansion of liquidity in major advanced economies. This boom in capital flows was interrupted around late 2008-early 2009, during the height of the global financial crisis. The quantitative easing (QE) policies and the near zero interest rates in advanced economies caused this interruption to be brief and since mid-2009 capital flows to the DEEs have surged again (Akyüz 2015). From 2009 to the end of 2012, the gross capital flows to the DEEs reached almost 4.5 trillion US dollars – around half of global capital flows (Lagarde 2015). These flows, in some cases, not only led to widening current account deficits and over-appreciating currencies but also fueled domestic economic activity, especially through credit or asset market booms. The Federal Reserve's (Fed) tapering announcement in 2013 revealed the fragile state of these economies as capital inflows slowed down, currencies went into a free fall, stock markets tumbled and some central banks rushed to increase interest rates to defend currencies and re-attract capital inflows. The Fed's follow-up announcement declaring that even though the QE was coming to an end, the interest rate increases were still far away relaxed the tensions to a certain extent, but the dangers and fragilities for a number of DEEs became quite apparent and resurfaced in 2015 as the Fed's interest rate increase was thought to be imminent. A debate emerged on the fragilities that have been building up in these economies and whether it was the QE policies to blame or the policies of the DEEs, who stuck with financial liberalization policies and did not take the necessary precautions (e.g. Krugman 2014, Rodrik 2014). More recently, the IMF (2015) in its *Global Financial Stability Report* warned that the appreciation of the US dollar and an increase in interest rates pose serious challenges for financial stability in DEEs (p. xii).

Turkey is a case in point. Following the 2001 crisis, the government brought budget deficits under control through primary budget surpluses and extensive privatizations, reformed the banking system in an effort to increase its resilience, moved to a more flexible exchange rate regime and began increasing its foreign exchange reserve accumulation. It received large amounts of capital inflows and after a brief interruption at the time of the global financial crisis, these inflows reached record levels. A long period of economic growth (only interrupted in 2009 by the global crisis; see Table 1), strong bank balance sheets, low levels of government debt, a flexible exchange rate system together with high foreign exchange reserves made the economy seem less vulnerable and more stable compared with the earlier era. However, we argue that, first, a capital-inflows-dependent, finance-led growth model emerged in the 2000s. We show that post-2001 growth has been dependent on short-term capital inflows and the emergence of an increasingly financialized economy, in which growth came to depend more and more on the expansion of private sector debt and asset price appreciation. Strong capital inflows and external debt accumulation fueled the domestic credit expansion and asset price appreciation. Second, we show that this model led to an accumulation of fragilities both in terms of the external accounts and within the domestic economy. As such, "*this time is different*" for the Turkish economy as the fragilities do not originate from public sector debt, weak bank balance sheets or a fixed exchange rate regime, but rather from the dependence of the economy on foreign capital inflows and private sector credit expansion.

Our analysis below reveals four particular issues: First, similar to the earlier experiences of both Turkey and other DEEs, the economy is still subject to a sudden stop risk. In fact, the risk is now higher as the country received record volumes of capital inflows, mostly in the form of short-term investments. Second, a main difference this time around is that the private sector (both banks and nonfinancial corporations) has significantly increased its foreign exchange borrowing and is now faced with a large net open position, increasing the risk of currency mismatch. Moreover, the nonfinancial corporate sectors' foreign currency denominated debt to the domestic banking sector render both sectors fragile at the same time. Third, a capital-inflow-dependent, finance-led growth model, in which credit growth, asset prices and industrial activity is mainly driven by capital inflows has emerged. Fourth, this regime led to a significant expansion in credit to the private sector. The banking sector's credit to deposit ratios climbed up, nonfinancial corporations' debt to tangible asset ratios and household debt ratios rapidly increased, leading to an accumulation of a range of financial fragilities in the economy.

The case of Turkey is not *sui generis* as reflected by its inclusion in the "fragile five" at the end of 2013, together with Brazil, India, Indonesia, and South Africa. While Brazil, India and

Indonesia (and some other countries such as Uruguay and Peru) used some form of regulations on capital flows to limit short-term inflows and prevent the build-up of fragilities, Turkey committed itself to a fully liberal financial account and only later attempted to impose some domestic "macro-prudential policies." It was argued in general that the DEEs were now more resilient to external shocks compared with the earlier era since they had moved to more flexible exchange rate systems, had higher foreign exchange reserves and better fiscal positions. Yet, as Akyüz (2015) points out, almost all DEEs are now vulnerable to financial shocks. The Turkish case is also important since the performance of the Turkish economy in the 2000s has been considered quite successful by many and was even presented as a model for others. For example, the World Bank's 2013 Turkey Country Report stated that "Turkey's rapid economic and social progress holds many useful lessons for policy makers in other emerging markets and has been an inspiration to reformers, particularly in the Middle East and North Africa" (p.2). While Sachs (2013) argued that this economic performance was remarkable, Colombo (2014), writing in *Forbes*, began with "the explosive rise of Turkey's economy in the past decade is one of the most fascinating growth stories of all time." In fact, when we look at the post-1980 performance of the economy, stability does seem exceptional. Following the crisis of the import substitution industrialization strategy, an export-oriented growth strategy was put in place in the 1980s. This was followed, in 1989, by financial account liberalization, after which Turkey experienced bouts of speculative capital inflows followed by sudden stops and financial crises. Reversal of capital flows led to a banking and currency crisis in 1994. The contagion effects of the 1997 Asian crisis and the troubles in the Russian economy a year later led to the 1998 crisis. In 2000, an IMF-directed exchange-rate-based stabilization program was launched with the main aim of controlling high inflation. While the program targets were met, the dependence of the program on short-term capital inflows resulted in a major crisis at the beginning of 2001 (Orhangazi 2002, Dufour and Orhangazi 2009). After this crisis, orthodox stabilization policies were followed based on tight monetary policy and inflation targeting and primary budget surpluses supported by large and widespread privatizations. Inflation was brought under control but with high interest rates and an overvalued exchange rate. The success of disinflation, a relatively healthy banking sector together with a low government budget deficit made the economy seem strong and stable. Economic growth has been driven by a boom in consumption and construction, which in turn depended on credit growth and asset price increases. However, the fragile nature of this performance became clearly visible by the second half of 2013. The Turkish lira began losing value after the Fed's announcement in May signaling the end of quantitative easing. The lira lost about 30 percent of its value, forcing the Central Bank to sharply increase interest rates at a

midnight emergency meeting in January 2014. This time the World Bank (2014) stated that "looking two to three years ahead, Turkey may have to settle for a period of modest growth, as higher global interest rates and risk re-pricing increase the cost of external financing" and added "Turkey's dependence on external financing and the corporate sector's large open foreign exchange position are the main risks to the baseline economic outlook" (p. 1). By the second half of 2015, the expectation of an imminent interest rate increase by the Fed coupled with domestic political instability led to another sharp decline in the currency's value and a significant deterioration of economic conditions.

The rest of the paper is organized as follows. In the next section, we show that capital inflows increased rapidly in the 2000s and were composed of mostly short-term flows, especially after the introduction of QE. This led to a widening of the current account deficit and a rapid accumulation of external debt by the private sector. In the third section, we present evidence on the finance-led nature of domestic growth in this era and underlie the role of capital inflows in this process. To that end, we employ first a financial balances approach and then a VAR analysis. In the final section, we discuss the implications of these analyses and emphasize that "*this time is different"* as the external fragilities of the economy are intertwined with new sources of domestic fragility. We argue that unlike previous periods of crises, we are now faced with a new and more complicated situation.

2. Capital inflows and external fragilities

Turkey has received increasing amounts of capital inflows since 2002 and especially after QE began in the US. As the volume of these inflows greatly expanded, their composition has changed over time, affecting both the external fragility of the economy as well as domestic dynamics. Foreign direct investment (FDI) flows constituted a large portion of these inflows in 2002 - right after the 2001 crisis, mostly due to the "fire sale" prices of assets (Dufour and Orhangazi 2009)- and then again during 2006-2008 due to the high volume of privatizations. That is, a significant portion of the FDI involved was not greenfield investment but acquisitions of domestic firms and assets, including banks. Table 1 presents total capital inflows as well as FDI and portfolio and other short-term investments as a percentage of the total. A significant jump is observed in portfolio investments with the introduction of QE, and portfolio investment plus external debt constitute more than 80 percent of capital inflows since 2010.

The boom in portfolio investment and external debt had three closely interrelated effects on the economy: First, it led to a widening of the current account deficit (section 2.1). Second,

external debt accumulation by the private sector has reached unprecedented levels, accompanied by a steady worsening of the international investment position (sections 2.2 and 2.3). Third, the surge in capital inflows fueled a credit boom in the economy (section 3.2).

<Table 1: GDP growth and capital inflows>

2.1 Widening current account deficit

The size of the current account deficit is a conventional indicator of the external fragility of an economy as countries with large current account deficits are typically more vulnerable to external shocks. Since the capital account liberalization of 1989, chronic current account deficits have been a major source of concern for the Turkish economy. The current account gave surpluses only around the crisis years of 1994, 1998 and 2001. However, these chronic deficits began rapidly widening after 2002 and the current account deficit as a percentage of GDP reached the record level of 9.7% in 2011, as presented in Table 2. Unlike the previous crisis years, even the 2009 recession did not create a current account surplus this time, although the deficit narrowed. The persistence of the deficit is due to the structure and composition of the country's trade with the rest of the world. Table 2 presents some indicators of this: The export-import ratio, despite tentative increases due to financial crises and currency depreciations, remained below one most of the time. The country's dependence on imported capital goods, intermediary products and energy items is the main reason behind this picture. For example, in 2014 intermediary products constituted 73 percent of the total imports, capital goods 15 percent and consumption goods 10 percent. Energy imports such as oil and natural gas were more than 20 percent of the total imports. On the export side, even though Turkey has managed to update its product variety and adapted itself, to a certain extent, to changes in the world economy, the ranking of the country in the vertically integrated global production chains has not changed much. The export sector specialized in mid-level technology products with relatively low market growth potential (Taymaz *et. al* 2011). Furthermore, exporting sectors remained dependent on imported energy as well as imported intermediary and capital goods. This creates a challenge as it becomes difficult, if not impossible, to increase exports without a corresponding rise on the import side. As a result, the economy's competitiveness in international markets depended on declining labor costs and currency depreciation (Table 2) but whatever contribution these have made has been limited and short-lived.

<Table 2: Current account balance and related >

The important point we would like to make here though is the following: The structure and the composition of trade can explain why Turkey has experienced chronic current account deficits, but in order to explain the rapid widening of this deficit since the mid-2000s, we need a second factor: the role of the increasing capital inflows. This is where the peculiarity of the recent period is manifested: Whereas in the earlier periods, economic growth was responsible for the rise in imports and current account deficits and hence the need for foreign capital inflows (mostly as foreign debt), now capital inflows became *autonomous* from the current account as these flows are determined by the international financial system.[1] Surges in capital inflows boosted domestic demand and economic growth and these developments gave way to rises in imports and current account deficits.[2] In other words, the causation ran from increasing capital inflows to widening current account deficits via the appreciation of the currency (which limits exports and increases imports) and increased domestic economic activity (which requires higher imports – see Section 3 below for a more detailed discussion of this relationship).

2.2 External debt accumulation by the private sector

While the fragility created by the short-term nature of capital inflows and persistent current account deficits exhibits a continuity with the earlier periods, there is a significant difference as well. As the increased capital inflows led to larger current account deficits, the private sector has accumulated unprecedented amounts of external debt. Table 3 presents external debt indicators. The total external debt reached 339 billion dollars, close to 50 percent of the GDP, by the end of 2014. A major difference is that the government's external debt constitutes only about a quarter of the total external debt and in this period the private sector's external debt accumulation has accelerated and its short-term component has also increased. The short-term external debt of the private sector as a percentage of its total external debt reached 40 percent. The banking sector together with the nonbank financial institutions accumulated around 138 billion dollars of external debt by the end of 2014.

<Table 3: External debt accumulation>

The rapid rise in the external debt stock of the nonfinancial corporations is striking.[3] Table 4 shows the foreign exchange position of the nonfinancial corporate sector. The net foreign exchange position has worsened over time, accelerating after 2009. Similarly, the short-term component of the open position rapidly increased after 2009. This process was accompanied by liability dollarization as the nonfinancial corporate sector's borrowing in foreign currency from the domestic banks and other financial institutions also increased from a mere 600 million US dollars in 2002 to more than 170 billion US dollars by the first quarter of 2015. While in the short-run these corporations make significant gains from low interest rates on foreign exchange borrowing compared with borrowing in domestic currency, this situation makes their balance sheets directly vulnerable to any sudden stops or reversal in capital flows.

<Table 4: Net foreign exchange position of nonfinancial corporations>

2.3 Central bank reserves and the international investment position

These developments have long term implications as well. Over time, there has been a steady worsening of the international investment position (IIP) of the country. IIP, which shows the difference between the economy's financial assets and liabilities with respect to the rest of the world, is adjusted for changes in exchange rates and market values and it gives a better idea about the external fragility of the economy. For example, an economy could have a decreasing external debt stock but an increasing IIP. Since the early 2000s, the IIP of Turkey showed an almost secular decline (Table 5). By the end of 2013, Turkey's IIP stood at around 400 billion dollars, increasing from around 85 billion dollars in 2002. A large IIP deficit makes countries more vulnerable to foreign exchange shocks.

As the capital inflows supported domestic economic growth (see Section 3 below), the policy-makers chose economic growth in the short-term at the expense of accumulating fragilities in the medium- to long-term. Shying away from any type of capital controls, the main tools available to the central bank remained interest rates and limited foreign exchange market interventions. In the 2000s, it has been a common feature of DEEs to accumulate large amounts of foreign exchange reserves as a precaution (Dufour and Orhangazi 2009). Turkey followed suit and after the 2001 financial crisis the Central Bank began accumulating larger amounts of foreign exchange reserves. When the 2001 crisis hit the economy, the Central Bank had around 30 billion dollars of reserves. By 2013 this amount had risen to as high as 140 billion dollars. However, this impressive rise in reserves needs to be put in context as it was accompanied by increases in

capital inflows and the external debt stock. In fact, the reserves at the end of 2014 were just about sufficient to cover the total short-term external debt. A more crucial issue here is the difference between the Bank's gross and net reserves. Part of the problem is due to the high dollarization of bank deposits (close to 50 percent) as the gross reserves of the Central Bank includes required reserves originating from foreign exchange denominated deposits. Özmen (2015) estimates that at the end of 2014, close to a third of the Central Bank's reserves consisted of the required reserves of the banks. Moreover, since the end of 2011, the Central Bank began accepting foreign exchange or gold in lieu of required reserves originating from domestic currency denominated deposits – the so-called "reserve option mechanism." Again, Özmen (2015) estimates that another one-third of the Central Bank's reserves are composed of these reserves. If we deduct the net foreign exchange liabilities of the Central Bank from the total foreign exchange reserves the net reserves are only around 34 billion dollars in 2015. At the end of 2013, for example, around 57.7 billion dollars of the Central Bank reserves were required reserves held in foreign exchange by the banking sector.

<Table 5: Central bank reserves and international investment position>

To sum up this section, Turkey has received large volumes of short-term capital inflows, especially since the introduction of the QE policies. The economy has become more dependent on these inflows as indicated by the widening current account deficit. In addition to the size of the capital inflows, there are four points in this regard that make the new era different: First, the private sector has accumulated large amounts of external debt that render it directly vulnerable to exchange rate movements as well as changes in the volume of the inflows. Both the financial sector and the nonfinancial corporate sector now faces currency mismatch risks, in addition to the interest risk. Second, the risks are significant for the nonfinancial corporate sector as their payment ability depends heavily on their export performance.[4] Firms could become extremely vulnerable due to both the maturity and exchange rate mismatch in their balance sheet due to sharp fluctuations in the exchange rate with implications for firm profitability as well as investment behavior.[5] Furthermore, the short-term component is worrisome as the private sector's ability to meet its payment obligations is prone to changes in the exchange rate as well as the interest rate. Third, these risks in the nonfinancial corporate sector are directly threatening for the domestic financial sector as the NFCs also heavily borrowed in foreign currency from the domestic financial sector. Fourth, the dispersion of external debt among banks, nonbank

financial institutions and nonfinancial firms makes it more difficult to contain the effects of negative shocks and makes the chain reactions increasingly unforeseeable. The limits of this set-up have not been tested yet, although the second part of 2013 showed its fragility. Since then the rapid depreciation of the currency could only partly be halted by large Central Bank foreign exchange interventions and a dramatic rise in the interest rates in early 2014. Yet, the first half of 2015 showed that the risks are increasing.

3. Finance-led domestic growth

3.1 Expansion of credit and debt

Before 2000, most of the domestic debt was accumulated by the government in Turkey. Government budget deficits seen as being responsible for the economic woes of the country prior to 2000 were brought under control following the 2001 crisis. Turkey has implemented an IMF program which, among other things, prioritized decreasing the government debt through primary budget surpluses and widespread privatizations. At the end of 2013, government domestic debt stock stood at 25 percent of the GDP whereas total government debt stock, including both domestic and external debt, amounted to about 40 percent of the GDP. While the government borrowing needs declined, the post-2001 Turkish economy has been characterized by a steady expansion of credit and finance-led economic growth. Total bank credit to the private sector rose from 10 percent of the GDP in 2002 to 62 percent by the end of 2013 (Table 6). The average annual growth rate of bank credit between 2003 and 2013 was 36.4 percent whereas in the same period the nominal GDP's average annual growth rate was 14.8 percent. The sharp decline in the interest rates due to the global environment and increasing capital inflows has been a major contributor to this trend.

<Table 6: Domestic credit expansion>

The financial balances approach provides us a useful framework to examine the changing composition of debt in the economy. This approach is built on standard macroeconomic identities, where each economic sector can spend less than its income (save), or more than its income (borrow) (Parenteau, 2004). A deficit spending sector will issue new liabilities and a surplus sector will increase its assets. At the aggregate level "the financial balance equation simply requires the net nominal saving of all macro sectors to sum to zero, since in the aggregate, total

income must still equal total expenditure, total investment must equal total saving, and for each borrower there must be a lender" (Parenteau, 2004: 54). Take the basic national accounting identity:

$$Y \equiv C + I + G + NX \quad \textbf{(1)}$$

where Y is GDP, C is consumption, I is investment, G is government spending, and NX is net exports. This identity also allows us to identify three sectors: the private sector (C + I), the government (G), and the external sector (NX) (Dos Santos and Silva 2010: 3). These sectors have transfers among themselves and we can identify these transfers in the following manner in order to move from the national income identity to the financial balances equation:

$$Y - T - TR_{PE} \equiv C + I + G + TR_{GE} - T + NX - TR_{PE} - TR_{GE} \quad \textbf{(2)}$$

where T is taxes paid by the private sector to the government net of transfers, TR_{PE} is net unilateral transfers from the private sector to the external sector, and TR_{GE} is net unilateral transfers from the government sector to the external sector. Readjusting identity (2) we reach the following:

$$(Y - T - TR_{PE} - C - I) + (T - G - TR_{GE}) \equiv (NX - TR_{PE} - TR_{GE}) \quad \textbf{(3)}$$

The expression on the left-hand side of identity (3) shows the disposable income minus final expenditures of the private sector and the government sector; and the right-hand side expression shows the current account balance. In other words,

Private Financial Balance + Government Financial Balance ≡ Current Account Balance **(4)**

or,

Private Financial Balance + Government Financial Balance + Rest of the World Financial Balance □ 0 **(5)**

The financial balances show that one sector's deficit must be financed through at least one other sector's surplus. We can interpret the financial balances in identities 3 to 5 as *net acquisition of financial assets* (Zezza, 2009: 15). Consequently, if one sector is increasing (decreasing) its liabilities, at least one other sector must be decreasing (increasing) its liabilities or increasing (decreasing) its assets. Running a deficit/surplus in a single year, is not a source of instability; however, chronic deficits imply a build-up of liabilities, which can lead to financial fragility for that sector. Yet, all the flow of funds of a sector has a counterpart in at least one other sector; and the financial balances are equal to zero at the macro level.[6] According to identity (4), if a government reduces its deficit in an economy with rising current account deficits, the inevitable outcome will be growing deficits for the private sector. It may look like a wise decision for households and firms to run deficits and invest in a growing economy with the hope of higher levels of revenues in the future; but such expected revenues may not get realized with growing current account deficits, higher tax payments and lower government spending. Figure 1 shows the financial balances of private and government sectors as well as the current account deficit as a percentage of GDP. After 2001, the financial balance of the government improved significantly, yet with rising current account deficits, these developments meant growing deficits for the private sector of the Turkish economy.

<Figure 1: Financial balances>

Four points are need to be made here: First, compared with many advanced economies and with the historical numbers for Turkey, the government debt to GDP ratio is relatively low. Yet, compared with similar DEEs, where the average is around 35 percent, this ratio can still be considered high compared to Brazil, Indonesia, India, south Africa as well as the DEE average (Özmen 2015: 47). However, one should always keep in mind that these ratios can rapidly increase when faced with financial instability as private debt turns into public debt through bail outs. The history of financial crises shows that private sector debt is assumed by the governments in the face of instability.

Second, a salient feature of the 2000s is the sharp increase in the borrowing of households. The ratio of household debt to household disposable income has surpassed 50

percent from a level under 10 percent in 2003 – more than a sevenfold increase (CBRT 2014) The fastest increasing component of household debt has been consumer credit followed by housing loans (Karaçimen 2014a: 163). The increased indebtedness of households was accompanied by a rapid increase in household leverage. The ratio of financial liabilities to assets increased from 8.5 percent in 2003 to 59 percent in 2012 (*ibid*). Consequently, the debt servicing burden, defined as interest payments to household disposable income has also increased. As Karaçimen (2014a) notes "For a time, it appeared that Turkey's growing consumer credit market would mainly serve the middle- and upper-income households because they have stable incomes. ... However, over the last decade, consumer credit has increasingly penetrated into the daily lives of low-income households and increasingly been used to pay everyday expenses..." (p. 164). The total amount of outstanding consumer credit at the end of 2002 was around 2 billion TL and at the end of 2013 around 248 billion TL, amounting to a 53.2 percent annual growth rate. Credit card debt grew annually at 30.9 percent. Consumer credit plus credit card debt as a percentage of GDP at the end of 2013 stood at 21 percent. An important indicator is the debt to disposable income ratio. Starting from 4.3 at the end of 2002, this ratio has reached 55.2 percent at the end of 2013.[7]

Third, for the nonfinancial corporate sector, we have pointed out above the fragile situation created by the increase in the sector's foreign currency denominated liabilities. When we look at this sector's total financial liabilities as a percentage of its tangible assets, we observe a secular decline from the 2001 crisis to the mid-2000s. However, this trend is abruptly reversed in the mid-2000s, and the ratio starts increasing and approaches 100 percent by the end of 2012, implying an increase in financial liabilities which is not converted into investment in tangible assets.

Finally, when we look at the banking sector, we see that it has rapidly increased its credit capacity and the total banking sector credit as a percentage of deposits reached 111 percent by the end of 2014, from its post-2001 crisis low of 26 percent. Credit expansion above and beyond deposits show that banks themselves have been borrowing to lend. Banks' short-term borrowing to finance long-term credit such as housing carries inherent risks. Moreover, capital adequacy ratios have been falling since 2009, from 20.6 to 15.9 in 2014 (Özmen 2015: 18) as a result of the rapid credit expansion and as recently noted by the IMF (2015) "more than half of the bank loan books consists of loans to firms, rendering them more exposed to corporate weakness particularly in Nigeria, Peru, Turkey and Ukraine" (p. x). In Turkey, around 60 percent of bank loans are loans to firms, which directly renders the banking sector vulnerable to a potential instability in the corporate sector (*ibid*).

3.2 Credit expansion and economic growth

The analysis above, together with the financial balances approach, reveals how patterns of debt stock changed in the Turkish economy with rising current account deficits/increasing capital inflows. Capital inflows also have a direct effect on credit expansion and economic dynamics as well. In this finance-led growth model, capital inflows and credit growth are the main drivers and asset prices as well as industrial activity follow. Capital inflows contributed to the expansion in the bank credit to the private sector through two channels. First, capital inflows contributed to asset value appreciation, increasing the net worth in the economy that could be used as collateral and hence led to increased borrowing. Capital inflows have a positive effect on asset prices, which leads to an appreciation of asset values. Consequently leverage ratios decrease and net worth increases, enabling further borrowing. Figure 2 shows that credit expansion has been accompanied by a rise in the stock market index. At the same time, change in new bank credit to private sector as a percentage of the GDP (credit acceleration)[8] is closely correlated with the industrial production index. While capital flows contribute to declining interest rates, declining interest rates enable firms to borrow more. Second, a portion of these inflows went directly into the banking system and got converted into credit. This is a common phenomenon in a number of DEEs. Akyüz (2012) notes that surges in capital flows to DEEs led to credit and asset bubbles. Accordingly, credit expansions can occur when domestic banks borrow from abroad and use these funds for domestic lending and in this case, full sterilization of currency market interventions may not be possible and capital inflows lower long-term interest rates (p. 113). Clearly, this process has its own dangers since a reversal of capital flows has the potential to create a credit crunch as well as asset deflation which might have significant macroeconomic consequences (pp. 113-4).[9] The expansion of credit contributed to the increase in the current account deficit discussed above through its expansionary effect on demand and production due to the import-dependent nature of production. Capital inflows led to real currency appreciation, which by making imported capital goods and intermediary products cheaper further contributed to the widening current account deficit.

<Figure 2: Capital inflows, credit acceleration, asset prices and industrial production>

To further evaluate the link between capital inflows, domestic credit expansion, industrial activity and asset prices we employ a vector autoregression (VAR) model:

$$X_t = \Phi_1 X_{t-1} + \ldots + \Phi_k X_{t-k} + u + \varepsilon_t \quad \textbf{(6)}$$

where X is a vector of endogenous variables, u is a vector constant, ε is a vector of error terms. In vector X we include credit accelerator (CRA)[10], change in capital inflows normalized by the GDP (DCAPINF), change in the stock market index (DBIST) which is the stock price index of Turkey, and change in the industrial production index (DIND). Our quarterly sample covers the period between 1988 and 2014 and all data are taken from the Electronic Data Delivery System of the Central Bank of the Republic of Turkey. ADF and KPSS tests did not reveal any unit root patterns. We used Schwarz information criterion (SC) and found lag length to be 1. Figure 3 displays the impulse response functions of our endogenous variables.

<Figure 3: Impulse response functions>

As expected the credit accelerator responds positively to a change in capital inflows for four quarters. The stock market index (DBIST) also changes positively for two quarters; and similarly change in the industrial production index is positive for four quarters. Interestingly, the responses of DCAPINF to DBIST and to DIND are not statistically significant; hence, the argument that higher levels of economic activity in asset markets or industry attracts capital inflow is not supported by the impulse response analysis. On the other hand, the credit accelerator (CRA) responds positively to a change in stock market prices (DBIST) which is intuitively understandable as higher stock prices mean higher collateral.

To summarize, all the credit and borrowing numbers indicate an economy fueled by the expansion of credit. The novelty of the era is that while in the pre-2000 period most of the borrowing was done by the government, recently private sector debt accumulation has gained more importance. Both NFC and household debt stocks increased quite rapidly. Long periods of rapid credit growth are likely to produce fragility especially when the credit growth rate exceeds the GDP growth rate for a long time. Here, what matters is not the rate of debt to GDP but whether it keeps growing. What is important for economic growth is the availability of new borrowing. If this possibility disappears, it could lead to deleveraging.

4. Concluding remarks

Since the capital account liberalization of 1989, Turkey has been subject to boom-bust cycles as a result of capital inflows and sudden reversals. High government borrowing requirements and weak bank balance sheets together with attempts at fixed exchange rates constituted the main weaknesses in the economy during times of crises. Since the 2001 crisis, government borrowing requirements have been brought under control through primary budget surpluses and privatizations, the banking sector has been reformed and a more flexible exchange rate regime has been put in place. Starting in 2002 Turkey began receiving large amounts of capital inflows. Briefly interrupted by the global financial crisis of 2008, these inflows have reached record levels since the introduction of QE policies in the US. We argued in this paper that, first, a capital-inflows-dependent, finance-led growth model emerged in the 2000s. We showed that post-2001 growth has been dependent on short-term capital inflows and the emergence of an increasingly financialized economy in which growth came to depend more and more on the expansion of private sector debt and asset price appreciation. Strong capital inflows and external debt accumulation fueled the domestic credit expansion and asset price appreciation. Second, we showed that this model led to an accumulation of fragilities both in terms of the external accounts and within the domestic economy. Our analysis revealed three particular issues: First, similar to the earlier experiences of both Turkey and other DEEs, the economy is still subject to a sudden stop risk. In fact, the risk is now higher as the country received record volumes of capital inflows, most of which consisted of short-term investments. Second, a main difference this time around is that the private sector (both banks and nonfinancial corporations) has significantly increased its foreign exchange borrowing and is now faced with a large net open position increasing the risk of currency mismatch. Moreover, nonfinancial corporate sectors' foreign currency denominated debt to the domestic banking sector render both sectors fragile at the same time. Third, the capital-inflow-dependent, finance-led growth model led to a significant expansion in credit to the private sector. The banking sector's credit to deposit ratios climbed up, nonfinancial corporations' debt to tangible asset ratios and household debt ratios rapidly increased, leading to an accumulation of a range of financial fragilities in the economy.

It is important to highlight that the case of Turkey is no *sui generis*. As the IMF (2015) noted in its *Global Financial Stability Report* "… reduced liquidity in both the foreign exchange and fixed-income markets, as well as the changing composition of the investor bases in these markets, has added frictions to portfolio adjustments. The resulting tensions in global financial markets have increased market and liquidity risks, given that sudden episodes of volatility could become more common and more pronounced" (p. ix) and "rapidly depreciating exchange rates have

increased pressures on firms that borrowed heavily in foreign currencies and have sparked significant capital outflows for several emerging markets" (p. ix). It also cites Turkey, together with Nigeria, India and Brazil among the countries that have a large share of corporate debt-at-risk. While most of the worry is about the end of the QE policies and an imminent increase in the interest rates in the US, as Akyüz 2015 puts it "... even without a significant tightening of monetary policy in the US, asset and credit bubbles may well come to an end with a bust a la Minsky as balance sheets adopt smaller margins of safety and the system becomes endogenously fragile. This time instability may not be as short-lived as that caused by the Lehman collapse because the government has already used up its ammunition in moderating financial shocks. In some ways the international financial system appears to be more fragile today than it was in the build-up to the Lehman crisis, in large part because of the attempt to solve a crisis caused by excessive debt by creating even more debt" (p. 57).

"*This time is different*" for the Turkish economy as the source of fragilities do not originate from public sector debt or a fixed exchange rate regime, but rather from the dependence of the economy on foreign capital inflows and private sector credit expansion. Containment of a negative shock is more difficult as the fragilities do not lie only in the government budget or the banking sector but are more dispersed in the economy. Given the finance-led nature of economic growth, even in the absence of a shock, a slowdown in credit growth is likely to lead to negative consequences for the economy. All this makes it fundamentally more difficult to foresee chain reactions and increases the possibility of a prolonged slowdown accompanied by corporate as well as individual bankruptcies and debt deflation. The accumulation of fragilities in this capital-dependent finance-led growth model may give way to a financial crash or a prolonged slowdown, depending on how capital flows evolve. Reversal of capital flows, bust of the credit boom, problems in banks, NFCs or household debt payments could each lead to different results. A caveat is in order, though. We have presented a macro analysis using aggregated data. Aggregated data may hide as much as they reveal. For example, weaknesses in balance sheets of systemically important financial institutions or nonfinancial corporations may disappear in aggregation. A failure in one systemically important institution might trigger a chain reaction in institutions that otherwise seem healthy. Finally, further studies for DEEs would help us to see if we are to be faced with a fourth generation of financial crises in the DEEs.

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	Real GDP growth rate	Net private capital inflows (million USD)	FDI as a % of net private capital inflows	Portfolio and other investment as a % of net private capital inflows
2000	6.77	9,584	1.17	98.83
2001	-5.70	-14,557	-19.61	119.61
2002	6.16	1,172	80.12	19.88
2003	5.27	7,162	17.06	82.94
2004	9.36	17,702	11.33	88.67
2005	8.40	42,685	21.01	78.99
2006	6.89	42,689	45.12	54.88
2007	4.67	49,287	40.46	59.54
2008	0.66	34,761	49.77	50.23
2009	-4.83	9,879	71.18	28.82
2010	9.16	60,099	12.67	87.33
2011	8.77	67,039	20.59	79.41
2012	2.17	71,068	12.91	87.09
2013	4.20	72,721	12.14	87.86
2014	2.90	43,058	12.75	87.25

Table 1: GDP growth, capital inflows and current account

Source: CBRT Electronic Data Delivery System

	Current account balance as a % of GDP	Export Import ratio	Components of imports		Real exchange rate 2003=100	Real unit labor cost **
			Capital and intermediary goods as a percentage of total imports	Energy items as a percentage of total imports *		
2000	-3.7	0.8	86.9	17.5	-	136.5
2001	1.9	1.1	90.0	20.1	-	135.6
2002	-0.3	1.0	89.3	17.9	-	127.2
2003	-2.5	1.0	88.1	16.7	100.05	124.1
2004	-3.6	0.9	87.1	14.8	103.23	109.2
2005	-4.4	0.9	87.5	18.2	112.90	103.0
2006	-6.0	0.8	88.1	20.7	111.17	99.4
2007	-5.8	0.8	88.6	19.9	119.14	99.3
2008	-5.5	0.8	89.0	23.9	118.45	96.8
2009	-2.0	1.0	85.8	21.2	110.35	101.5
2010	-6.2	0.8	86.4	20.7	120.71	100.0
2011	-9.7	0.7	87.4	22.5	106.43	88.5
2012	-6.2	0.8	88.3	25.4	109.21	93.3
2013	-7.9	0.8	87.7	22.2	107.51	95.8
2014	-5.8	0.9	88.0	22.9	102.31	100.2

Table 2: Current account balance and related
Sources: Columns 1 and 5: CBRT EDDS; columns 2, 3 and 4: TSA; column 5: AMECO
Notes: * The share of mineral fuels, oils and etc. as a % of total imports. ** Real unit labor costs: total economy (2010=100) (Ratio of compensation per employee to nominal GDP per person employed.) (QLCD)

	Total external debt stock as a percentage of GDP	Government external debt stock*	Banking sector external debt stock*	Nonfinancial corporate sector external debt stock*	Short-term external debt stock*
2000	44.47	50,081	19,991	31,410	28,301
2001	57.94	47,129	10,189	30,345	16,403
2002	55.75	64,533	8,490	30,736	16,424
2003	47.56	70,844	11,589	33,168	23,013
2004	41.08	75,668	18,674	40,111	32,203
2005	35.37	70,411	29,793	45,680	38,914
2006	39.32	71,587	42,464	62,235	42,853
2007	38.68	73,525	47,340	91,869	43,145
2008	38.45	78,306	53,973	112,627	52,519
2009	43.77	83,482	49,772	105,145	48,990
2010	39.90	89,081	75,331	102,478	77,247
2011	39.23	94,238	80,148	105,735	81,596
2012	42.99	103,983	99,106	111,644	100,226
2013	47.39	115,863	129,468	117,904	130,489
2014	49.22	118,639	138,390	117,431	131,863

Table 3: External debt
Sources: CBRT EDDS and Treasury
Note: * in million USD

	Net foreign exchange position	Short-term foreign exchange position	Domestic borrowing in foreign currency
2002	-6,538	-	600
2003	-18,415	-	18,158
2004	-18,934	-	20,458
2005	-21,680	-	26,429
2006	-28,482	-	34,804
2007	-53,587	-	46,323
2008	-70,579	-3,660	48,066
2009	-70,158	2,502	50,333
2010	-91,879	1,005	81,887
2011	-122,305	-14,162	102,292
2012	-139,196	-12,092	121,842
2013	-174,226	-16,659	155,164
2014	-182,107	-12,450	171,705
2015Q1	-177,452	-10,586	170,185

Table 4: Net foreign exchange position of nonfinancial corporations

Source: CBRT

Note: in million USD

	International investment position	Gross Central Bank reserves	Net central bank reserves *
2000	-98,281	34,159	2,469
2001	-85,369	30,192	-14,864
2002	-85,509	38,051	-4,386
2003	-105,582	44,957	-2,126
2004	-127,970	53,785	544
2005	-174,534	70,045	11,980
2006	-205,538	92,436	16,644
2007	-313,688	111,017	30,312
2008	-199,771	116,899	34,199
2009	-276,187	112,233	35,541
2010	-361,567	110,032	48,648
2011	-314,526	110,515	39,172
2012	-422,619	137,492	45,160
2013	-393,535	147,862	36,836
2014		148,102	38,843

Table 5: International investment position and central bank reserves

Source: CBRT EDDS

Note: Calculated by subtracting the foreign exchange liabilities of the Central Bank from the total reserves reported in Column 2.

	Bank credit to private sector as a percentage of GDP	Real interest rate	Government debt as a percentage of GDP	Nonfinancial corporate sector's financial liabilities as a percentage of its tangible assets	Banking sector credits as a percentage of deposits	Household debt as a percentage of GDP
2000	16.0	-16.9	40.6	96	43.3	-
2001	13.6	41.8	75.0	101	32.0	-
2002	9.8	18.8	70.6	87	26.8	2
2003	11.3	19.7	66.1	75	35.1	3
2004	14.2	15.1	59.5	55	44.4	5
2005	19.8	6.8	52.3	62	55.1	7
2006	23.7	8.6	46.7	82	62.9	9
2007	27.2	10.0	41.7	78	69.8	11
2008	29.7	8.8	39.6	90	68.2	12
2009	32.9	6.4	48.2	78	67.8	13
2010	41.1	-0.1	44.3	87	80.6	15
2011	46.9	2.3	40.6	97	91.7	17
2012	51.3	-0.1	40.5	96	97.7	18
2013	62.3	0.2	39.9	-	106.5	19
2014	65.3	0.9	-	-	111.6	19

Table 6: Domestic credit expansion

Source: CBRT EDDS

Figure 1: Financial balances as a percentage of GDP

Notes:
(1) Temporary.
(2) Gov.'t includes various branches and institutions of the public sector and transfers between these institutions are netted out. These are consolidated budget, SEE's, local authorities, revolving funds, extra budgetary funds, social security institutions, public health insurance system, and unemployment insurance.
Sources: Estimated from T.C. Kalkınma Bakanlı□ı, IMF.

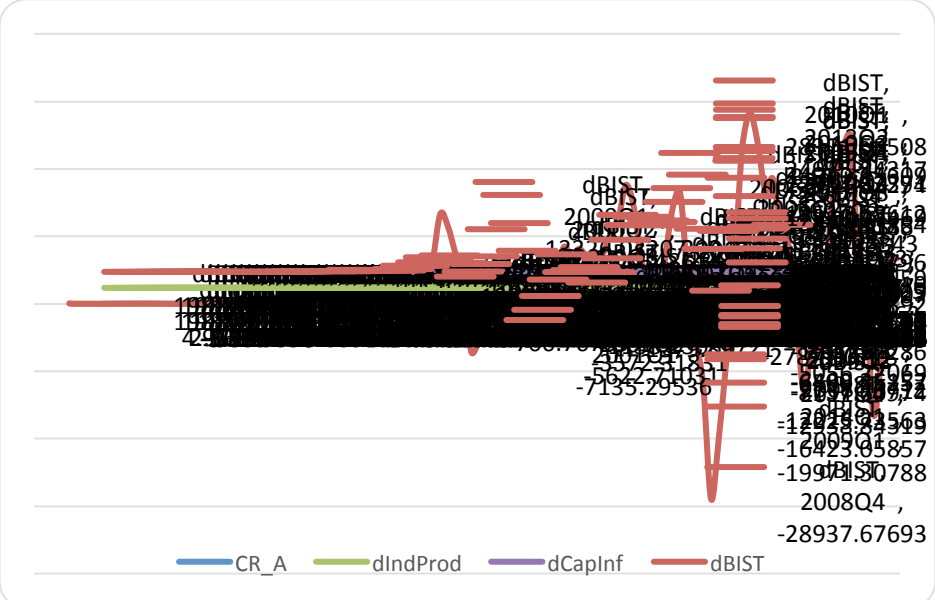

Figure 2: Capital inflows, credit accelerator, industrial production and stock market

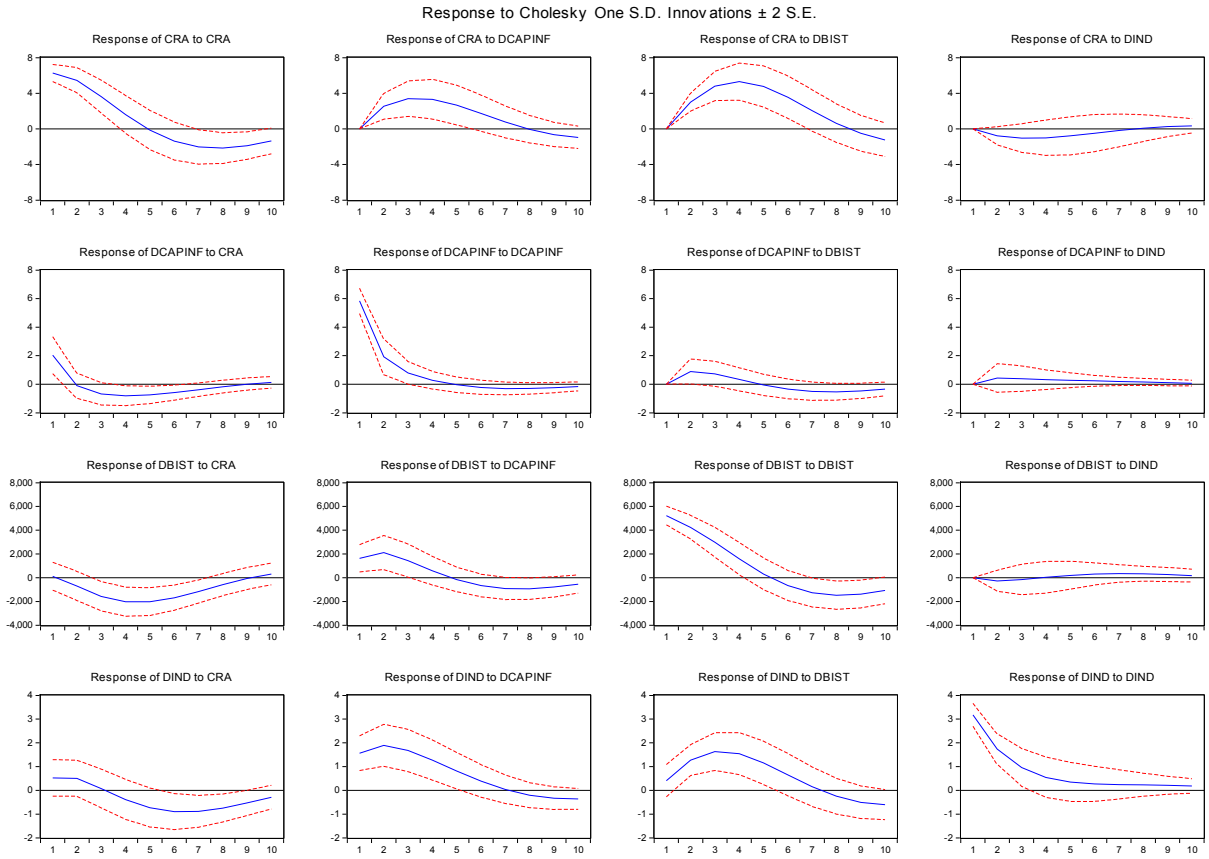

Figure 3: Impulse response functions

Endnotes

[1] Some have argued that the widening of the current account deficit was due to the declining savings rate (e.g. Rodrik

[2] See Boratav (2015: 25) for a similar argument.

[3] A law that prevented firms without a certain level of foreign exchange income to borrow in foreign currencies was abolished in 2009 (Hülagü and Yalçın 2014: 2).

[4] For a detailed study of liability dollarization in the nonfinancial corporate sector, see Alp and Yalçın (2015).

[5] The financial newspaper *Dünya* recently reported that firms with high foreign currency debt and with an open foreign exchange position have begun reporting declines in profitability. Exporting firms are suffering from currency mismatches due to the movements in the euro-dollar parity as their liabilities are in dollars whereas their export incomes are in euros (http://www.dunya.com/finans/finans-diger/tldeki-kayip-karlari-nasil-etkileyecek-260043h.htm, accessed on April 22, 2015).

[6] Godley and Lavoie (2007: 6) put the same idea for stock-flow consistent models as "everything comes from somewhere and everything goes somewhere."

[7] There are two related important points to make: First, in Turkey, employment and income insecurity are significant factors in determining the increased tendency to borrow as well as the increase in the vulnerability of the workers to debt payment problems. Second, increased borrowing by the workers also affects the capital-labor relations by operating as a labor disciplining mechanism (Karacimen 2014b)

[8] Credit acceleration was first defined in Biggs and Mayer (2010) (and also in Biggs, Mayer and Pick (2010) as credit impulse) and according to this logic the debt stock is irrelevant to explain aggregate expenditure and GDP as pointed out by Bernanke and Gertler (1995). According to this approach change in new debt (as a percentage of GDP) -or the second derivative of credit stock- is more useful to explain changes in expenditure. The term, credit accelerator is used by Keen (2011) in a similar fashion; however, Keen also proposed that credit acceleration is useful to explain changes in expenditures as well as changes in asset prices.

[9] Orhangazi (2014) finds that surges in private capital inflows are associated with periods of rapid credit expansion and Ba□kaya *et al.* (2015) find that capital flows have expansionary effects on credit and large banks tend to lend less when international liquidity dries up.

[10] The credit accelerator reflects the change in the flow of debt (Biggs *et. al.*, 2010; and Keen, 2011). For this purpose, we first defined the change in debt as the first difference of credit stock divided by GDP in order to find new credit flow normalized by GDP (equation I); and then took the difference of new credit (equation II). In this way, we can focus on change in new credit in excess of GDP.

$$\Delta D_t = \frac{Credit_t - Credit_{t-1}}{GDP_t} \quad \text{(I)}$$

$$CRA_t = 100 \times [\Delta D_t - \Delta D_{t-1}] \quad \text{(II)}$$