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First Version: November 2019

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Financial Cycles of the Turkish Economy: How Will It End This Time?¹

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Abstract

This paper identifies financial cycles in the Turkish economy and performs an economic analysis based on these cycles. It also provides predictions on the future path of the country's economy. The paper asserts that the Turkish economy has recently completed a long financial cycle and is presently in a phase of deleveraging. It is unlikely that this deleveraging will lead a quick recovery of the kind experienced in past recessions. A presumably long period of slow growth appears only to be avoidable by means of a change in the country's economic growth regime.

1. Introduction

The main purpose of this study is to provide predictions on the future course of the Turkish economy based on an analysis of financial cycles. This paper focuses on financial cycles rather than business cycles. Whereas the later are typically measured using output data, the former are measured using a number of alternatives related to credit, asset, and equity prices. A large amount of research into business cycles has already been performed; however financial cycles have recently been gaining increasing academic attention.

Financial cycles can last much longer than business cycles. Whereas business cycles, as traditionally measured, tend to last for up to eight years, financial cycles are typically found to last around 15 to 20 years, and appear to have grown in amplitude over the past approximately 40 years (Borio et al., 2018). The difference in length between the two types of cycles implies that a financial cycle can span more than one business cycle. As a result, although financial cycle peaks tend to precede recessions, not all recessions are preceded by financial cycle peaks. It has also been found that deep financial imbalances cause recessions to be longer and deeper (Jorda et al., 2011, Claessens et al., 2011, 2012). Jorda et al. (2011) find that recessions associated with financial crises lead to deeper slumps and sharper turnarounds than normal recessions.

Financial cycles are found to be so different to business cycles that many researchers (e.g., Runstler, 2016) claim that a separate macro prudential stabilization policy from classical monetary and fiscal policy is justified. Some research has found credit growth to be the single best predictor of financial instability (Jorda et al., 2011, Schularick and Taylor, 2012).

¹ It will appear in "Turkish Economy at Crossroad", edited by A.S. Akat and S. Gursel, World Scientific. I am grateful to the editors of this volume, Asaf Savas Akat and Seyfettin Gursel, for their useful comments and suggestions that have helped in improving the content of the paper. The usual caveat applies.

The idea that the financial system is able by itself to generate boom and bust cycles by means of endogenous credit bubbles goes back to the work of Minsky (1977).² The credit-based perspective on long-run economic fluctuations has gained importance in recent years, particularly following the global financial crisis of 2008, and financial crises have come to be seen as “credit booms gone wrong” (Schularick and Taylor, 2012).

The present study follows this tradition and asserts that financial cycles are important variables in assessing economic conditions and in forecasting the future course of the economy. This paper first attempts to identify the past financial cycles of the Turkish economy, then based on an economic analysis of these cycles, past recessions, and some additional data, observations are presented and predictions for the future course of the economy are made.

The analysis presented in this paper indicates that the Turkish economy has completed one lengthy financial cycle. However, the recession that Turkey is currently going through has not proven to be deeper than the country’s past recessions. On the contrary, it has been milder than previous recessions, as the latest GDP growth data indicate, and seems very unlikely to go on longer than the normal length of past recessions. Neither has it led to deeper slumps or stronger turnarounds than experienced during normal recessions, as documented by Jorda et al. (2011). So what is happening? Is Turkey experiencing an unusual end to the financial cycle or is the country not yet at the end of the current cycle? When the recession ends, will a quick recovery follow, despite corrections in financial cycle variables (i.e., credit, debt etc.)?

This paper argues that a quick recovery is unlikely. The analysis presented below suggests that a long period of slow growth is awaiting. One way of minimizing the output cost of this predicted low growth period appears to be boosting net exports and increasing foreign demand to boost growth, as this has already been helpful in reducing the output cost thus far. This paper also draws attention to the conditions that led to Turkey’s successful recovery after the 2001 crisis, and compares them with current conditions in order to provide some useful recommendations for how the recovery can be assisted. Finally, we answer affirmatively the question of whether Turkish Economy is at a crossroad, in the sense that Turkey will now either enter a period of slow growth until the deleveraging process is completed, or change its growth model from internal demand oriented to foreign demand oriented.

2. Identifying “Financial Cycles” of the Turkish Economy

Much less research has been performed into financial cycles than business cycles, and hence no consensus has been reached on the variables and patterns of their changes that characterize financial cycles. As stated by Drehmann et al. (2012), there is some ambiguity in which variables may be relevant. The obvious choices are credit and asset prices, but studies differ in which other variables are asserted to be pertinent. Borio et al. (2018) measure financial cycles using a composite index incorporating real credit, credit-to-GDP ratio, and

² See Schularick and Taylor (2012) for an historical account of the credit view argument.

real house prices. Drehmann et al. (2012) use five variables claimed to characterize financial cycles, including real equity prices and an index of aggregate asset prices, which combines residential property, commercial property, and equity prices in addition to those named above. In Kutuk et al.'s (2017) study of Turkish financial cycles, the authors use real equity prices (based on the Borsa Istanbul 100 Index) and real effective exchange rates in addition to real credit and credit to GDP ratio.

Like the aforementioned papers, the present study measures financial cycles using real credit and credit-to-GDP ratio, but also adds a new variable: foreign debt-to-GDP ratio. Although the literature acknowledges that credit has the main role in financial crises, foreign debt is also recognized to be relevant (Reinhardt and Rogoff, 2011). Jorda et al. (2011) point out that external imbalances have also played a role, but more so in the pre-WWII era of low financialization than today. In the Turkish economy, external constraints are still binding and therefore constitute an important variable (Akat and Yazgan, 2012). I exclude stock prices because of the sample's small size and volatile nature. The literature also considers real property prices to be an important variable in measuring financial cycles. In the case of Turkey, real house price data are only available for recent periods; nevertheless, more than a decade of data are available and so this study's analysis also incorporates real housing prices.

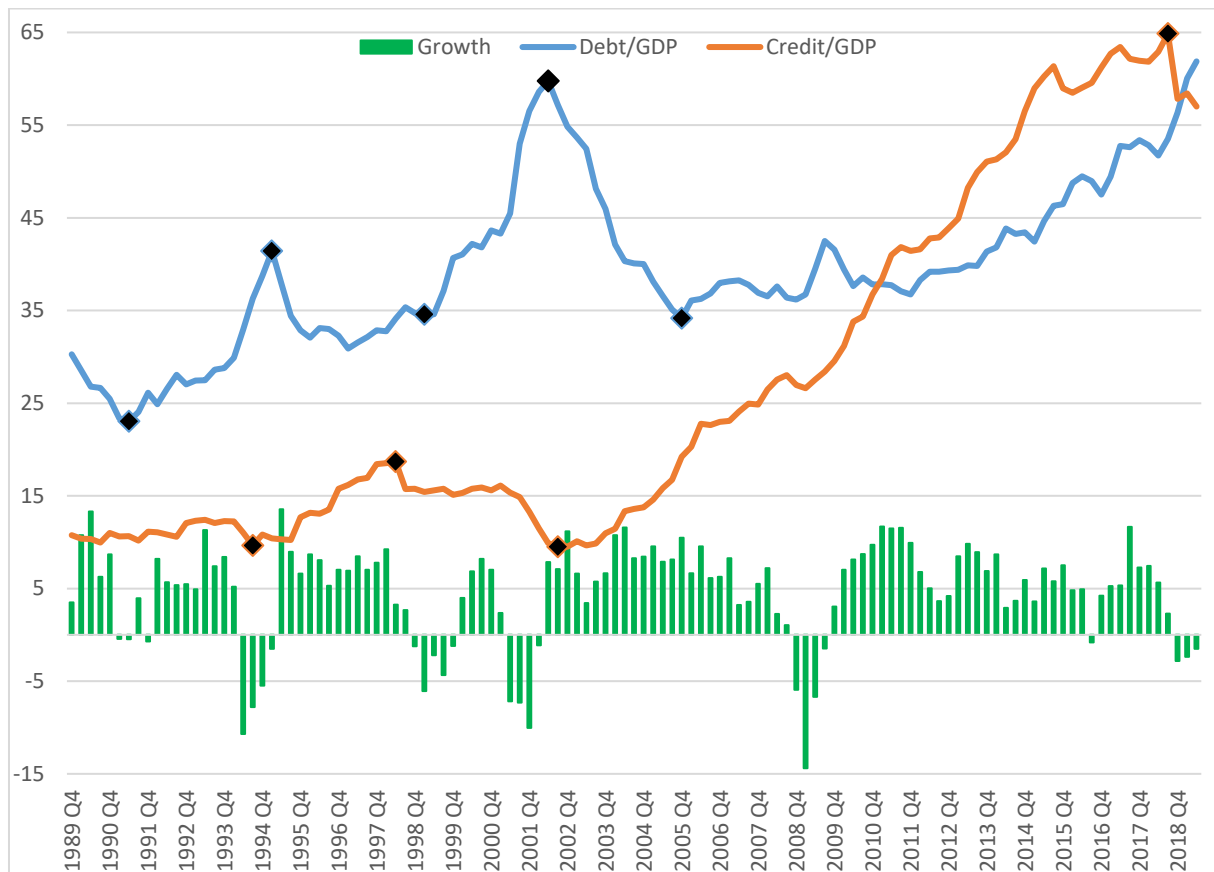
This study considers foreign debt instead of total debt (the total of foreign and domestic debt) to be the most relevant debt variable. Domestic debt is captured, to some extent, by the credit variables used in the study's model. Detailed total debt variables (denominated in both foreign and domestic currencies), disaggregated into different sectors such as households, financial and nonfinancial corporations, and government bodies, are also available (with some limitations), and so are utilized in the analysis. On the other hand, foreign debt is believed to capture external constraints and debt represents the largest part of Turkey's total foreign liabilities. Its decomposition, between private and government debt has important implications and will also be referred to where appropriate.

Figure 1 plots the quarterly debt- and credit-to-GDP ratios between 1989Q4 and 2019Q2 and year over year real GDP growth rates. Real credit (deflated by the Consumer Price Index) is not included in the figure because it closely follows the credit-to-GDP ratio and shows identical characteristics. Gross foreign debt is used to calculate the debt-to-GDP ratio.³ Non-financial private sector credit (households and corporations) issued by banks is used to calculate the credit-to-GDP ratio.⁴

³ All raw data are obtained from Turkey Data Monitor (TDM, www.tdm.com), unless stated otherwise. Where required, all further calculations are performed by the author.

⁴ Other possible methods of calculation of the credit variable include credit issued to the non-financial private sector by all categories of lender (not only banks), credit issued to households from all categories of lender, and credit issued to non-financial corporations (excluding households) from all categories of lender. These data, and the credit variable data used in this study (i.e., credit to non-financial private sector from banks), are available from Bank of International Settlements (BIS) database. The credit variable data used in this study is deemed to be reliable because the BIS and local sources produce similar values; hence this variable is preferred to others. However, the other credit variables are also utilized later in this paper.

Figure 1. Debt- and credit-to-GDP ratios



Note: Ratios and growth rates are measured as year over year (YoY) figures.

We observe that including the recent recession, there have been five episodes of recession during the period sampled. These episodes are shown as negative blocks in the (year over year) growth rate data in Figure 1. The exact dates are indicated in Table 1. There are three recessions with a duration of four quarters and one with a duration of five quarters; the most recent recession is ongoing at time of writing, and therefore its total duration is not known.

One of the purposes of this paper is to form a prediction of the duration and depth of this recession. The output costs of recessions, labelled as “depth” in Table 1, is calculated as the (year over year) average growth rate of the recession (a negative value) multiplied by its length. There length of the gap between the 1998Q4–1999Q4 and 2001Q2–2002Q1 recessions is only five quarters. This unusually small duration between the two recessions and the relatively small cost of the first of the two leads us to take the view that the two periods constitute a single larger and bigger recession. By summing the depth and duration of these consecutive contractions we can identify a recession with a duration of nine quarters and a depth of 40.7, which is the largest ever recorded for Turkey. The two periods can therefore be treated as a single recession.

Table 1. Recessions

Period	Time since previous recession	Duration	Depth
1994Q2–1995Q1	-	4 Quarters	-6.37x4=-25.5
1998Q4–1999Q4	16Q	5 Quarters	-3.0x5=-15
2001Q2–2002Q1	5Q	4 Quarters	-6.4x4=-25.7
2008Q4–2009Q3	36Q	4 Quarters	-7.1x4=-28.5
2018Q4– ?	37Q	3+ Quarters (ongoing)	-2.2x3=-6.6 (ongoing)

Note: Growth rates refer to year over year (YoY) growth rates.

Figure 1 shows the peaks and troughs of credit and debt cycles identified using Harding and Pagan’s (2002) algorithm. In applying this algorithm, one must specify the time duration and amplitude (or phase) boundaries to be used by the algorithm to distinguish short-term fluctuations from long-term cycles. Tables 2 and 3 provide more details about these cycles, including their phases of contraction and expansion, together with their starting and ending levels, durations, and amplitudes. Amplitudes are defined as changes from trough to peak (expansion) or peak to trough (contraction). In the following discussion the term of cycle is used interchangeably for expansion and contraction phases, but not for the “complete” cycle, which can be measured either from peak to peak or trough from trough.

2.1. Credit cycles

Table 2 describes Turkey’s credit cycles. The most noticeable observation from Table 2 is the presence of a very long expansionary credit cycle (period of leveraging) starting shortly after the end of the 1998Q4–2002Q1 recession. This cycle ends in 2018Q3 and lasts 64 quarters (i.e., 16 years). It seems likely that this is the longest duration for any cycle (business or financial) in the economic history of Turkey. Although we do not undertake the task of identification of business cycles within our data⁵, we can easily observe the limit for an expansionary business cycle in the period of our sample is of 37 quarters (9.2 years), because this is the longest duration between two recessions, as indicated in the second column of Table 1. Moreover, even a visual review of GDP figures easily confirms that such periods should be of shorter length. These findings are in line with those of other studies, which find that business cycles are considerably shorter, ranging from 2 to 8 years, whereas financial cycles range from 8 to 20 years and typically contain a number of business cycles, and hence at least one period of recession (see Drehmann, 2012, Borio, 2018). In Turkey’s case, the

⁵ For an analysis of synchronization of business and financial cycles in Turkey see Akar (2016).

financial cycle identified above (based on credit-to-GDP ratio) incorporates the 2008Q4-2009Q3 recession and appears to end in 2018Q3.

Table 2. Credit cycles

Period	Nature	Duration	Starting Level	Ending Level	Amplitude
– 1994Q3	Deleveraging	-	-	10 %	-
1994Q3– 1998Q2	Leveraging	15 Quarters	10 %	19 %	9.0 %
1998Q2– 2002Q3	Deleveraging	17 Quarters	19 %	9 %	9.2 %
2002Q3– 2018Q3	Leveraging	64 Quarters	9 %	65 %	55.7 %
2018Q3– ?	Deleveraging	4+ Quarters (ongoing)	65 %	-	-

Although Harding and Pagan’s algorithm indicates 2018Q3 to be the end of the previous leveraging phase, given the available data it is still possible that, as in 2009Q1 and 2016Q1, the decline in 2018Q3 may constitute only a correction and not the end of the cycle. If so, the credit-to-GDP ratio should rapidly return to its level prior to the recession. In this scenario, the recession starting in 2018Q4 would not constitute the end of this cycle; instead, credit would start to grow again and GDP growth would resume quickly and accelerate. In the alternative scenario, if 2018Q3 is the end of the cycle, the correction will take longer and even if the recession ends in its typical timeframe (four quarters)⁶, the subsequent growth will remain weaker than in the first scenario. Below we discuss these possibilities in further detail.

2.2. Debt cycles

Turning attention to foreign resource constraints, Table 3 illustrates the properties of recent debt cycles. Unlike the single long credit cycle observed after the 1998Q4–2002Q1 recession, Harding and Pagan’s algorithm shows two distinct debt cycles taking place after 2002. The more recent and longer expansionary cycle which starts in 2005Q4, has not yet terminated. At time of writing, the current duration of this cycle is 55 quarters (13.75 years). Although the debt-to-GDP ratio has not started to decline following the ongoing recession, it is very likely that Turkey is close to the end of this cycle because private sector companies have already given some indications of deleveraging.⁷ A sharply increasing debt-to-GDP ratio is

⁶ The depth of the current recession appears to be milder than previous recessions. According to the figures in Table 1, the average depth of a four-quarter recession can be estimated to be around 25 cumulative percentage points.

⁷ Foreign Exchange Assets and Liabilities of Non-Financial Companies figures published by the Central Bank of the Republic of Turkey indicate that deleveraging of non-financial private corporations have already started.

also typical of other recessions such as 2001, especially when recessions are associated with sharp currency devaluations (or depreciations) as also seen in the most recent period. This phenomenon magnifies the contraction in GDP, as denominated in foreign-currency, caused by recessions; hence, the debt-to-GDP ratio continues to rise during recessions.⁸

Table 3. Debt cycles

Period	Nature	Duration	Starting Level	Ending Level	Amplitude
– 1991Q2	Deleveraging	-	-	23 %	-
1991Q2– 1995Q1	Leveraging	15 Quarters	23 %	41 %	18.4 %
1995Q1– 1999Q1	Deleveraging	16 Quarters	41 %	35 %	6.8 %
1999Q1– 2002Q2	Leveraging	13 Quarters	35 %	60 %	25.2 %
2002Q2– 2005Q4	Deleveraging	14 Quarters	60 %	34 %	25.6 %
2005Q4– ?	Leveraging	55+ Quarters (ongoing)	34 %	-	-

The first of the two debt cycles after the 1998Q4–2002Q1 recession starts in 2002Q2 and ends in 2005Q2. This corresponds to a relatively short deleveraging period (14 quarters or 3.5 years), during which time the debt level shrank from 59.8 percent of GDP in 2002Q2 to 34.2 percent of GDP in 2005Q4. Similar to the credit cycle, the last debt cycle overlaps the 2008Q4-2009Q3 recession, which indicates that the recession has caused a correction in both ratios and has not affected the overall cycles. The recession affects the two ratios in opposite directions, and the “cyclical” effect of the recession is more apparent in the debt cycle than the credit cycle; whereas the debt-to-GDP ratio shows sharper increases, the credit-to-GDP ratio declines gently. This more pronounced behavior of the foreign debt ratio, in general, can be attributed to the effect of depreciations in the value of the Turkish Lira that are associated with recessions. Although almost all foreign debt is denominated in foreign currency, credit balances are generally denominated in local currency. Hence, unlike debt-to-GDP ratio, credit-to-GDP ratios should be expected to decrease during recessions. The discrepancy in the behavior of two ratios can be aggravated depending on the extent of depreciations.

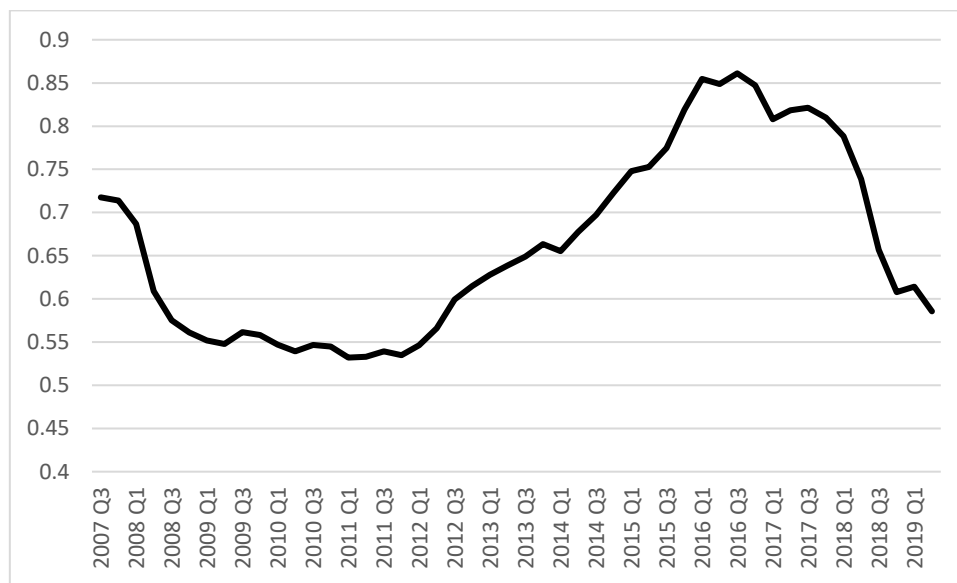
These figures move from -222 Billion United States Dollars net foreign exchange position in January 2018 to a net position of -184 Billion by July 2019. Net foreign exchange position is calculated by taking difference between total foreign exchange assets and liabilities of non-financial companies.

⁸ On the other hand, if we consider instances of sharp depreciation to be the result of overvaluation of the Turkish Lira, the sharp reduction in the debt-to-GDP ratio during the period 2002Q2–2005Q4 can be partly explained by the appreciation of the Turkish Lira.

2.3 Real estate cycles

In this subsection we focus on real estate prices. The longest available data set on Turkish real estate prices is the Real Estate Investment & Development Information Network (REIDIN) Residential Property Price Index (RPPI) housing price index. The index is a composite index of house prices for seven of the largest cities in Turkey. Data are available from June 2007. To obtain real house prices we deflate house price index figures using the consumer price index.⁹ Figure 2 illustrates the real house price data.

Figure 2. Real house prices



Applying Harding and Pagan's algorithm identifies the real house prices cycles illustrated in Table 4. Similar to credit and debt cycles, available data do not support the expectation that the 2008Q4–2009Q3 recession altered the course of real house price cycles. The decline in the real house price index started before the crisis in the fourth quarter of 2007. The index stagnated during and after the crisis until it began to increase in the first quarter of 2011. It could be argued that the drop in real house prices in 2007Q4 may have been corrected earlier in the absence of the crisis. Unfortunately the absence of data before 2007Q3 prevents us examining economic trends over a longer period of time in order to explore this issue further. However it seems plausible that although the crisis may have suppressed an earlier correction in the house prices, the expansionary period in the housing cycle can be attributed to the high levels of global liquidity and associated expansion in domestic credit in the period after the crisis. The housing cycle starts later, ends earlier, and remains weaker than the credit cycle. This result is expected, because whereas our credit variable is based on

⁹ Data are available on monthly basis; for consistency with the other data in this study, these data are converted into quarterly averages. We note that a cycle analysis performed using monthly figures yields identical results.

credit to non-financial private corporations, property prices are affected by credit to the household sector. Data on household debt and credit are sufficient only to derive limited conclusions, but as discussed below, they indicate that household deleveraging started at the same time as the end of the real house price cycle, although credit to households started to contract earlier.

Table 4. Real house price cycles

Period	Nature	Duration	Starting Level	Ending Level	Amplitude
- 2011Q1	Deleveraging	-	-	0.53	-
2011Q1- 2016Q3	Leveraging	22 Quarters	0.53	0.86	0.33
2016Q3- ?	Deleveraging	12+ Quarters (ongoing)	0.86	-	-

3. Expansionary Deleveraging, De-dollarization, and Credibility: 2002Q2-2005Q2

The above analysis of financial cycles has revealed two distinctive behaviors in terms of debt and credit cycles in the period after the 1998Q4–2002Q1 recession; we observe a single long expansionary credit cycle, and one contractionary and one expansionary debt cycle occur in this period. The contractionary debt cycle, 12 quarters long, running from 2002Q2 to 2005Q2, corresponds to the period of the stabilization program that followed the recession. In terms of behavior of macroeconomic variables, this period is an interesting one and deserves closer focus.

In terms of debt-to-GDP ratio, the stabilization program that followed the 2001 crisis brought about a fast and sizeable deleveraging, especially in the public sector. During the cycle of 2002Q2–2005Q2, while the debt-to-GDP ratio was rapidly decreasing, the proportion of total foreign debt represented by public debt reduced from 67 percent to 55 percent.¹⁰ During this time the public debt-to-GDP ratio shrank from 39.2 to 20.1 (a relative change of 49 percent), and the private debt-to-GDP ratio declined more gently, from 20.6 to 16.5 (a relative change of 20 percent). Therefore, the private sector deleveraged less than the public sector in terms of foreign debt.

Considering the expansionary behavior of the credit-to-GDP variable (which increased from 9.9 to 15.8) during this debt cycle, we can state that the greatest share of the burden of deleveraging fell on the public sector, rather than the private sector. It should also be noted that this period was accompanied by an appreciation in the value of the Turkish Lira, and

¹⁰ The proportion attributable to public debt continuously declined until the 3rd quarter of 2016, at which time it stabilized at around 30 percent, and has recently risen to 32 percent.

real appreciation increased by 35 percent from its value in January 2003, which contributed to the reduction of the foreign debt-to-GDP ratio.

Interestingly, during this cycle of debt deleveraging, annual growth averaged 7.7 percent, which marked one of the most rapid growth periods in Turkey's economic history. Moreover, this rapid growth was mainly driven by rapid increases in total factor productivity (Atiyas and Bakis 2014; Atiyas and Bakis, Chapter 3 in this volume; Acemoglu and Ucer, Chapter 2 in this volume). The period also witnessed a structural change, i.e. reallocation of labor from low productivity agriculture to higher productivity services and industry, which contributed this rapid increase in productivity (Rodrik, 2010; Atiyas and Bakis, 2014, 2015; Guncavdi and Bayar, Chapter 5 in this volume).

This expansionary deleveraging debt cycle also corresponds to Turkey's most successful period of disinflation; inflation fell to 7.7 percent in 2005 from its level of around 68 percent in 2001. The appreciation of the Turkish Lira in this period also played a major role in the process of disinflation (see Benlialper and Comert, 2015).¹¹ Despite real appreciation, this period witnessed intensification of the industrialization process, in parallel to the structural change mentioned above. The share of total employment represented by the manufacturing sector, one of the measures of industrialization, recorded significant increases during this period (see Guncavdi and Bayar, Chapter 5 in this volume). On the other hand real appreciation did not prevent the surge in exports neither in quantity nor in quality. Turkey's merchandise exports and its share in world exports increased rapidly in this period with significant ameliorations in their technology contents (Acemoglu and Ucer, Chapter 2 in this volume).

What could be behind this extraordinary performance? Acemoglu and Ucer (2015; Chapter 2 in this volume) suggested it was due to the role of institutional reforms implemented during this period. In fact this period was characterized by significant improvements in both political and economic institutions (Acemoglu and Ucer, 2015; Chapter 2 in this volume). Here, I would like to mention the role of the rapid de-dollarization as one of the key factors that made this astonishing outcome possible. Dollarization, measured by the share of total deposits represented by foreign currency deposit, reduced from 55 percent in 2002 to 34 percent in 2005.¹² De-dollarization, on the other hand, was a consequence of successful disinflation and increased confidence in the Turkish Lira that disinflation created. The issue underpinning all of these was the credibility of the 2001 stabilization program. The effect of its credibility and the associated confidence in the Turkish Lira made real appreciation of the Lira possible, which in turn, contributed a favorable environment for foreign debt servicing

¹¹ Benlialper and Comert (2015), in their study focusing on the period between 2002 and 2008, indicated that appreciation of the Turkish Lira was tolerated during this period, whereas depreciation was responded to aggressively by Turkey's central bank. It is well known that due to Turkish production's dependence on imported inputs, exchange rate depreciation becomes inflationary via a pass-through mechanism. Moreover, because currency depreciation erodes confidence, worsening inflation expectations, and has the potential to leading to a depreciation-inflation spiral, the central bank acting in favor of appreciation of the Turkish Lira is an expected result. We comment further on this issue later in this paper.

¹² This ratio continued to decrease until the beginning of 2013, at which time it stood at 28%. It then started to increase again, and has recently nearly attained the levels it reached at around the time of the 2001 crisis.

together and strong GDP growth. This period demonstrates how a credible disinflation program backed by institutional reforms (Acemoglu and Ucer, 2015; Chapter 2 in this volume) can create rapid growth and deleveraging at the same time.

4. Credit Driven Growth, Recession, and the Surge of Inflation

Having analyzed a successful deleveraging period, I now examine the period after 2006. This period corresponds to the long credit and debt cycles documented above, and hence to periods of leveraging in both credit and debt. In this section I provide an overview of some macroeconomic developments that have occurred during these long expansionary cycles.

As mentioned above both of these cycles overlap the 2008 global financial crisis. Although the output cost of the recession following this crisis, i.e. 2008Q4-2009Q3 recession, (see Table 1) was the largest of the recent recessions, its effect on the financial ratios considered here remained limited. In other words, the recession did not cause an interruption in the expansionary debt and credit cycles. The two ratios continued to increase after some minor corrections, especially in the case of the credit-to-GDP ratio. The recession did not affect the upward trend of the credit cycle; the trend becomes even stronger after a small drop in the ratio during the recession. Due to this increasing trend, first in credit ratio and later also in debt ratio, a quick recovery followed the recession and growth accelerated rapidly (see Figure 1). This quick recovery and the record high growth rates achieved during 2010 and 2011 that followed the recovery were related to the large increase in credit.

The credit expansion was, in turn, related to the surge of capital flows into emerging markets, followed by massive expansionary monetary policies in developed economies (quantitative easing etc.). Baskaya et al. (2017) and Giovanni et al. (2017) show how capital inflows to Turkey lowered real borrowing costs and fueled credit expansion after the 2008 global financial crisis (see also Guncavdi and Bayar, Chapter 5 in this volume). In this time, the economy experienced record high current account deficits and the described surge in foreign debt.

Even though the rate of growth started to decline in the third quarter of 2012, this credit fueled growth continued until 2018Q3 (despite some fluctuations).¹³ At this point it is worthwhile to mention a change in Turkey's economic policy that was designed as a response to accelerating credit growth and sharp widening of the current account deficit in the years 2010 and 2011. To react to these developments the Central Bank of Turkey and the economy administration focused on policies to neutralize the effects of the surge in capital flows, seeking to contain increases in credit and to cool down the overheated economy. The main aim was to increase the resilience of the economy to adverse external financial shocks

¹³ The coup attempt of 15th of July 2016 caused a slight interruption in positive growth during this period. Apart from this event, the fluctuations in growth rates are mainly attributable to the global financial situation and to internal policy decisions.

and to prevent boom-bust cycles amplified by so called sudden stops (sudden reductions in net capital flows).

The monetary policy was gradually redesigned and a macro-prudential policy approach became dominant concentrating on financial stability and limiting excessive credit growth (Kara, 2012, 2016a, 2016b). Because the widening current account deficit and the surge in credit were the main concerns, the macro-prudential policy concentrated on simultaneously containing credit and the current account deficit. The policy makers prioritized policy tools targeting credit to households, because of its close relationship with Turkey's current account deficit. Credit to private corporations was regarded as less important, because its link to the current account deficit seemed to be weaker (Kara, 2016a, p.131).¹⁴ How instrumental were these macro-prudential measures? While the measures were effective in terms of reducing the current account deficit (see Figure 5 below) and slowing down the economy to some extent, Figure 1 (and Figure 4 below) shows that the credit-to-GDP variable used in this study did not appear to be influenced. This issue is investigated further in the following section.

Turkish economic growth has always been, to large extent, driven by domestic demand (consumption), and external demand has never been the driver of growth.¹⁵ As such, growth has always been constrained by the availability of domestic credit and foreign resources. In consequence, investments have been directed to the service sector (or to non-tradable sectors, i.e., those whose outputs cannot be sold in other countries) rather than to industry (or tradable sectors). During the recent period of credit-driven growth the economy became even more service sector oriented. An increasingly large share of investment was directed to non-tradable sectors, such as big construction/infrastructure projects intended to meet the increasing domestic demand. The share of total employment attributable to the manufacturing sector¹⁶, as well as some other industrialization measures, have fallen steadily since 2008 (see Guncavdi and Aylin, Chapter 5 in this volume). As documented by Atiyas and Bakis (Chapter 3 in this volume), Acemoglu and Ucer (Chapter 2 in this volume) total factor productivity ceased to derive growth and some indicators of technological upgrading such as technology content of exports have started to deteriorate.

4.1 Exchange Rate Shock, The Surge in Inflation and Term Premium Jump

In August 2018, the Turkish Economy was hit with a severe exchange rate shock, triggered by a diplomatic dispute between the USA and Turkey. At the end of the July, on the 31st TL/USD exchange rate was approximately 4.9, based on the daily average. On the 13th August, however, 1 USD was worth 6.89 Turkish Lira (TL), indicating 40 percent loss its value in less than two weeks' time. Moreover, according to intraday figures, on this day it remained at around 7.2 for some time, registering a jump of as much as 20 percent in a day.

¹⁴ Aliogullari et al. (2015) indicate that in Turkey, whereas consumer loans are closely linked to the current account deficit, the association between commercial loans and the current account deficit seems to be weaker.

¹⁵ A period of a few years during the 1980s stands as an exception.

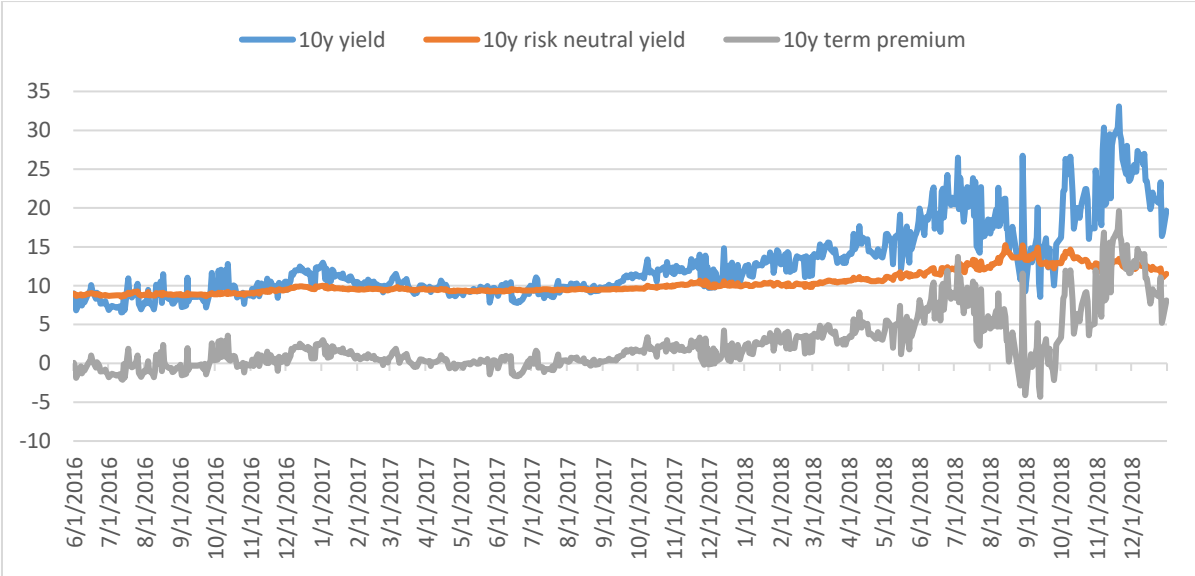
¹⁶ This share had been on a steadily increasing trend until 2006, and particularly so between 2002 and 2006.

The Lira appreciated later but remained highly volatile for a long time. It has only recently stabilized around a level, 25-30 percent depreciated compared to its value at the beginning of August. This sharp devaluation of TL has induced a surge in inflation which has appeared to be somehow persistent despite weak domestic demand.¹⁷

The shock was triggered by a diplomatic dispute between the USA and Turkey concerning a US pastor detained by Turkey due to allegations of spying. The reaction of the financial markets indicated that they did not perceive the issue as temporary dispute between two long-allied and friendly countries, but rather regarded it as a serious issue with the potential to damage relations permanently. The fear of a structural shift in the relationship between the USA and Turkey, together with the anticipated dire consequences for financial markets, resulted in an immediate slump in consumer and investor confidence, and constituted a large negative shock for the balance sheets of the heavily indebted private sector. The economy entered recession immediately, during that very quarter.

To evaluate the importance of this adverse shock, I use the estimated term premium and risk-neutral rate (or average expected short term rate) calculated using fixed coupon government bond yields. Using the approach of Adrian, Crump, and Moench (2013), Yavuz and Yazgan (2019) provided estimates of term premiums and risk-neutral yields on government bonds for a selection of emerging market countries including Turkey. Figure 3 illustrates the 10-year government bond yield for Turkey and its decomposition into term premium and risk-neutral rate, using daily data.¹⁸

Figure 3. Risk neutral rate and term premium of 10-year government bond yields



¹⁷ Nevertheless, it is worthwhile noting that the depreciation of the TL had started earlier; at the beginning of 2018 the TL/USD exchange rate was around 3.77. Compared to its value of 4.90 at the beginning of August, this implies that in 7 months, the depreciation of Turkish Lira had already reached almost 30 percent of its value at the start of the year.

¹⁸ We have presented data starting from June 1st, 2016. Earlier data are available, but show the same pattern and do not contribute meaningfully to the present discussion.

The 10-year yield is selected for analysis because it is representative of long term expectations; however, data for 2-year bonds reveal a similar pattern. For the emerging markets considered in Yavuz and Yazgan (2019), 10-year yields are generally driven by the term premium component; i.e., variations in the bond yields are mainly attributable to fluctuations in term premiums. Hence, the changes in bond yields reflect the market perception regarding future uncertainty, and they seem to be unaffected by changes in average expected short rates. The risk-neutral yields, i.e., the average short term expected rates, in general remain relatively much less volatile than term premiums and show limited variation. Turkey is differentiated from the other countries in the study in the period from the second half of 2018 in terms of the behavior of both risk-neutral yields and the term premium component. Both components, and especially the term premium, become very volatile from June 2018. The movement in risk-neutral rate can be associated with sharp increases in expected inflation as a result of the exchange rate shock in August, whereas the movements in the term premium reflect the volatility in market perceptions of future uncertainty.

Reflecting on this behavior of the term premium, it can be argued that the financial market's concern regarding the risk of the Turkish government defaulting on its debt widely fluctuated during this period. Financial markets are notorious for erratic behavior and large amplitudes in valuations, and the present example certainly fits this description. Among the emerging markets considered by Yavuz and Yazgan (2019), a comparably high level of volatility in the term premium associated with an increase in the risk-neutral rate can only be found in Russia at the end of 2014 and the beginning of 2015, which corresponds to the period of the USA and European Union's sanctions against the Russian government. It should also be noted that the volatility in term premium and the increase in risk-premium in Russia during that period remain significantly lower than those in Turkey described above.

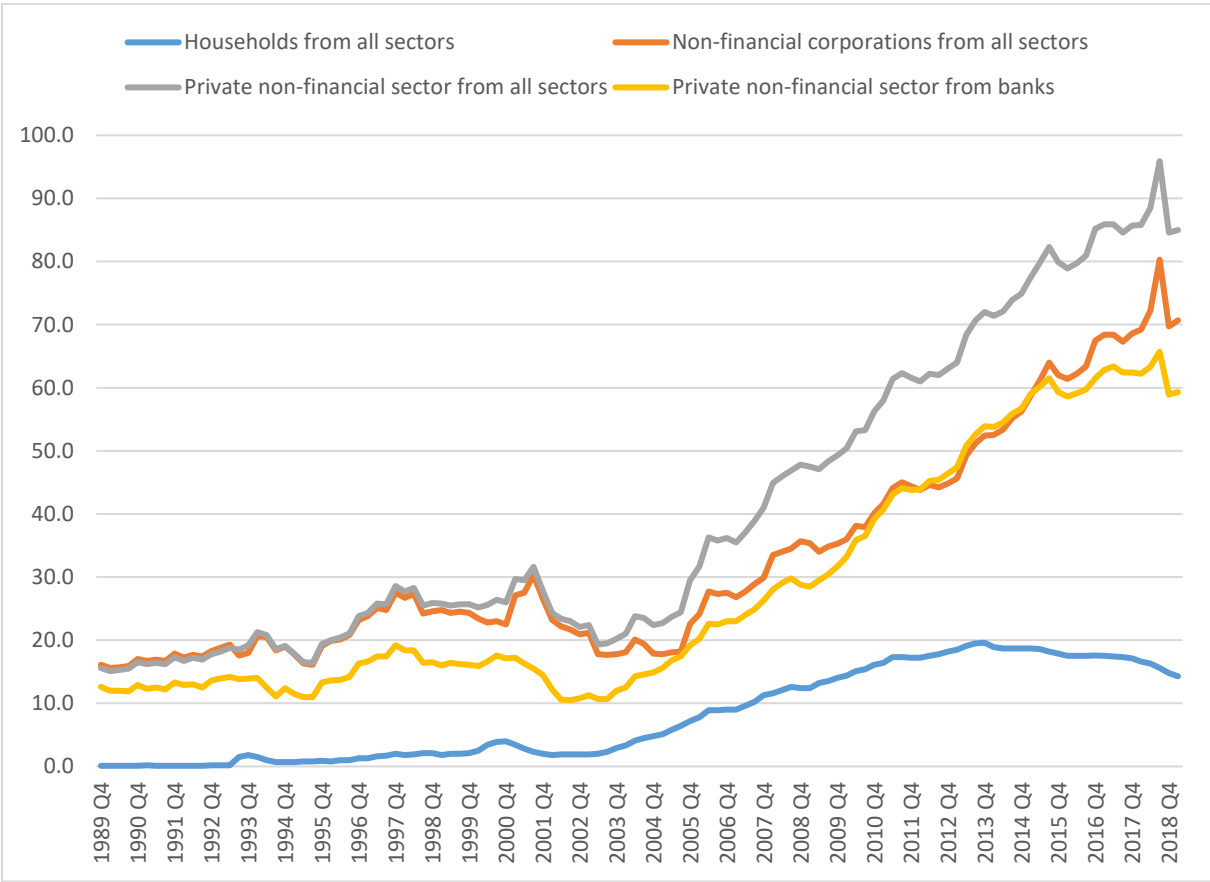
5. Has Deleveraging Started? Who is Deleveraging and Who is Not?

The recession that started in 2018Q4 heralded the end of credit cycle and probably the end of the recent regime of relatively high growth. The average growth rate over the 64 quarters-long credit cycle was greater than 5.9 percent, despite the presence of the severe recession of 2008Q4–2009Q3. Although the current debt cycle is already 55 quarters long and is still ongoing according to the data presented above, as discussed above, signs now indicate that it is in its final phase and will soon come to an end. Therefore, some deleveraging processes should already have started. The question is which actors are deleveraging which are not. First we consider the decomposition of our credit variable, then we examine the overall indebtedness of Turkey's main sectors.

Whereas the debt-to-GDP ratio calculation encompasses the foreign debt liabilities of all sectors, both private and public, the credit-to-GDP ratio calculation used in the above analysis encompasses only the non-financial private sector, which consists of households and non-financial corporations. We can further decompose credit data using the Bank of

International Settlements (BIS) database. BIS provides credit-GDP ratio data for credit to households (including non-profit institutions serving households) from all sectors, including domestic banks, other domestic financial corporations, non-financial corporations, and non-residents. In contrast, the credit to non-financial private sector data used previously in this study encompasses only domestic banks. Credit-GDP ratios calculated based on credit to the non-financial sector and credit to non-financial corporations (excluding households) from all sectors are also provided by BIS. Figure 4 illustrates these three additional credit-to-GDP ratios. For comparative purposes, Figure 4 also includes the credit-to-GDP ratio used in Figure 1 and the earlier analysis.¹⁹

Figure 4. Credit-to-GDP ratios



Regarding cycle properties, all credit variables show the same characteristics except for the credit-to-GDP ratio for households. In other words, all data series follow the same cycle dates as shown in Table 4.2, except for credit to households. As is apparent from Figure 4, the expansionary credit cycle for households does not end in 2018Q3, as is the case for the other three credit series, but at a much earlier date, 2013Q4. Although the other three series share same cycle dates, as illustrated in Table 4.4, there are some differences between the

¹⁹ To be consistent with the other measures we recalculated this variable using BIS data. The data are only available up to 2019Q1.

credit-to-GDP ratio for non-financial private credit from domestic banks and the credit-to-GDP ratio for non-financial corporations' credit from all sectors.

The difference may be due to either the borrower side (households) or lender side (banks). In terms of deleveraging behavior it does not matter where the difference comes from because the conclusion remains unaltered. Non-financial corporations began deleveraging or became constrained in credit in 2018Q3, whereas households started this process earlier, in 2013Q3. So why did households start deleveraging earlier than private corporations? The answer lies in the macro-prudential policies implemented in 2011 that are discussed in the previous section. As mentioned, the economic administration gave the priority to measures aimed at constraining over-borrowing in consumer credits. The difference in the timing of deleveraging behavior suggest that these measures were successful in constraining households credit, as targeted, without constraining credits to non-financial firms.

To measure the extent of the ongoing deleveraging process, we now consider another data set, provided by the Central Bank of the Republic of Turkey (CBRT), featuring figures showing the level of indebtedness of specific sectors. The dataset provided by CBRT is named Financial Accounts: Total Debt of Sectors. Table 4 illustrates the ratios of total debt (i.e., the sum of utilized loans and issued debt securities) to GDP for separate sectors.

Table 4. Total debt-to-GDP ratios of residents' sectors

	Non-Financial Corporations	Financial Corporations	Central Government	Households
2010Q4	41.69%	14.37%	47.69%	16.74%
2011Q4	44.28%	17.84%	40.08%	17.12%
2012Q4	52.28%	21.62%	33.84%	19.59%
2013Q4	61.82%	26.23%	30.51%	17.80%
2014Q4	67.40%	26.71%	30.54%	17.56%
2015Q4	61.82%	26.23%	30.51%	17.80%
2016Q4	67.40%	26.71%	30.54%	17.56%
2017Q4	68.25%	28.39%	30.20%	16.98%
2018Q1	69.17%	28.41%	29.64%	16.60%
2018Q2	72.20%	29.61%	29.33%	16.30%
2018Q3	79.79%	33.80%	32.32%	15.53%
2018Q4	69.13%	29.24%	30.04%	14.70%

2019Q1	70.32%	29.07%	31.28%	14.24%
2019Q2	69.09%	29.81%	34.12%	13.90%

Consistent with the credit-to-GDP data described above, non-financial corporations increase their leverage from the start of the sample period until 2018Q3, at which time they sharply deleveraged. Although to a lesser extent, financial corporations also experienced some deleveraging at that time. For the non-financial private sector, the data seem to indicate that deleveraging has started and is expected to continue further to complete the contractionary credit (and debt) cycle. On the other hand, for households, the data show that deleveraging started long before the 2018Q4 recession.

6. What's Next? If Deleveraging, How Long and to What Extent?

Predictions on the evolution of the current recessions will be critically dependent on predictions on the behavior of the credit cycle, and will be affected by the movements of credit and debt variables. The credit-to-GDP ratio reached its maximum in 2018Q3, at a high of 65 percent. After three quarters of the recession it fell to 57 percent in 2019Q2. The 2008-2009 crisis involves a quick recovery, or a "V" type exit from recession. With the help of global ultra-loose monetary policies, the credit-to-GDP ratio recovered from 28 percent after a small correction in the credit. A comparison with the 2001 crisis may not be helpful because the latter was a period with much weaker private sector credit conditions however it also involves a "V" type quick recovery.

As we know from the available data, the economy is presently in the third quarter of a recession and the output costs of these three quarters have been much milder than costs during the 2008 -2009 recession (see Table 4.1).²⁰ So, is achieving a "V" type quick recovery time, as was achieved in late 2002 and 2009, even easier?

Recent data on private credits signal some expansion, especially from consumer sides undertaking in the third quarter of 2019. Thanks to these recent increases it seems likely that the duration of the present recession can be restricted to three quarters, which is less than typical 4-quarter duration of recessions according to our data. This seems to be the likely outcome of the present recession because the rate of contraction has started to diminish in 2019Q2. Furthermore, GDP growth nowcasts indicate that Turkish economy will achieve, albeit small, positive growth rate in the third quarter of but a reasonable growth in fourth quarter of 2019 thanks, partly, to base year (quarter) effect.

Although these figures are interpreted as somehow optimistic in the sense that they may overshoot actual rates for reasons stated below, some smaller but positive growth especially in the fourth quarter is very likely. These nowcasts are based on the model of Modugno et al. (2016) (see also Soybilgen and Yazgan, 2016; 2018) and are published by the web side

²⁰ However the loss in the employment seems to be at least as costly as in previous recessions.

www.nowcastturkey.com (or www.simditahmin.com, in Turkish). The nowcasts published on the web site are immediately updated as soon as new data on a variable, in the predictor list of the model, are released. The underlying model that generates these nowcasts was updated after the revision of Turkish GDP at the end of 2016. The updated model, as outlined by Soybilgen and Yazgan (2018), gives more emphasis on credit variables among model predictors. This update has provided more accuracy to the model compared to the initial one in Modugno et al. (2016), where the model was constructed using the pre-revision GDP data. The “optimistic nowcasts” generated by the model of Soybilgen and Yazgan (2018) reflects the assumption that credit channel will work this time as in previous cases. However this time credit and link growth link cannot perform as well as in the past.

For a “V” type quick recovery to be possible and downturn to continue with accelerating growth, the credit-to-GDP ratio needs to rise quickly, up to a level of 65 percent again and even further. International comparisons indicate that the credit-to-GDP ratio can attain a figure even higher than 100 percent, based on emerging markets averages according to BIS data. Hence, an increase to 65 percent and higher in the credit-to-GDP ratio is technically possible for an emerging market country such as Turkey.

However, there are two main difficulties related with achieving this level of ratio. First, as stated by post-Keynesian monetary theorists, creating credit by means of the banking system has no technical boundaries (see Wener, 2016, among others), but does have some other boundaries related with business, especially investors sentiments. Even if credit is available, investors may prefer to delay making investments due loss of confidence in the business environment. The sharp increase in the volatility of term premiums (and the risk-neutral rate), as discussed above, is an indicator, among others, that confidence has not yet been restored. Second, the availability of credit is to some extent is dependent on the foreign finance constraint. The foreign debt-to-GDP ratio is at its historically highest level of 60 percent as of 2019Q1. This ratio should be reduced, because it implies an unsustainable level for an emerging market country. Most deleveraging should come from the private sector because this sector holds a large portion of the total foreign debt, which is in contrast to the 2001 crisis. Hence the private sector’s balance sheets should undergo greater deleveraging and repayment of foreign debt. This would leave a weak private sector with low levels of appetite and capability to make new investments. Under these circumstances credit expansions relying mostly on consumers²¹ may have some positive effects on growth but may remain insufficient in the absence of investment motives.

7. A Look at Flow Variables

So far, all analysis has been based on the behavior of stock variables. We will now take a short look at flow variables, such as current accounts and investments. As a matter of national accounting identities, a country’s current account balance is identical to its savings gap, i.e., the difference between its savings and investments. In other words, the share of

²¹ As shown above consumers’ balance sheets are not as constrained as private firms.

investments that cannot be financed by domestic resources should be financed by foreign resources. Figure 5 displays Turkey’s current account deficit, investments (including stocks), and savings-to-GDP ratios.

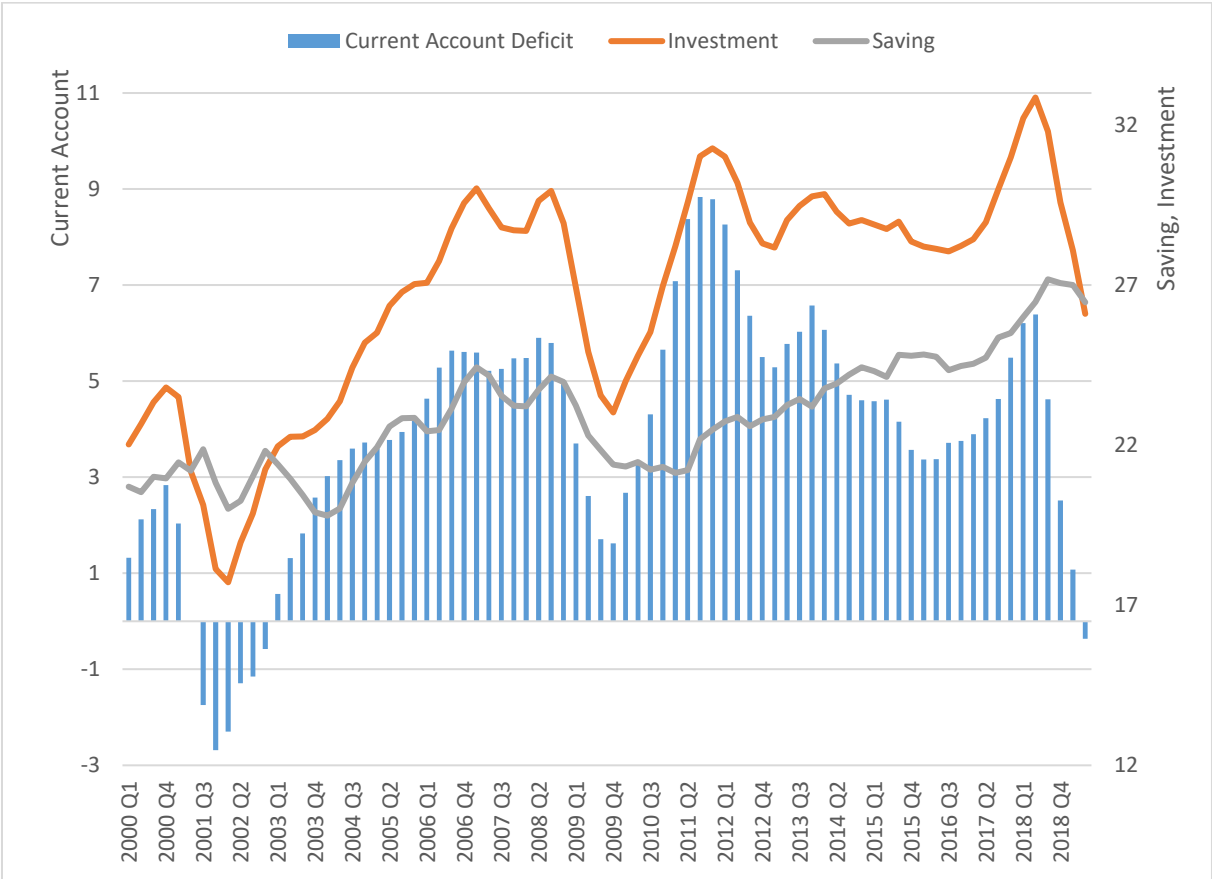


Figure 5. Current account, investments, and savings to GDP ratios

The current account deficit has recently turned into a small surplus, achieved in the second quarter of 2019 after three quarters of deceleration. As can be observed from Figure 5, during 2008-2009 the current account deficit decelerated in six consecutive quarters, but never turned into a surplus. Hence, the economy did not pay back its foreign liabilities during the crisis; on the contrary, although the percentage reduced, it continued to accumulate new foreign liabilities. This is consistent with our earlier findings on the debt cycle, which was not disrupted by the 2008-2009 crisis. The situation was quite different in 2001; there was a current account surplus for six consecutive quarters until the beginning of 2003. This is also consistent with the characteristics of the debt cycle as discussed above. However, what is common to both the both 2001 and 2009 crises is that the current account deficit rapidly increased as the economy emerged from recession. Considering the fact that in the present crisis, the debt-to-GDP ratio has not yet started to decline, but will have to sooner or later, the net current account position is expected to stay in surplus for at least a few more quarters.

On the other hand, the investment ratio started to fall before the beginning of the recession, and has been declining for four consecutive quarters since 2018Q3, reducing from 33 percent (2018Q2) to 26 percent (2019Q2). In both the 2001-2002 and 2008-2009 crises, this ratio declined for five consecutive quarters, from 30 percent (2008Q3) to 23 percent (2009Q4), and from 24 percent (2000Q4) to 18 percent (2002Q1). Based on the above analysis of the credit cycle and ongoing deleveraging process of the real sector firms, we can anticipate that the decrease in the investment ratio will also continue for at least a few more quarters.

Then what is next? Will the current account and investment ratios accelerate rapidly, as in 2002 and 2009? Investment being constrained by credit, and current account being constrained by foreign debt, the rapid increase in both ratios seems unlikely. In 2002 and 2009, when quick recoveries were witnessed, the indebtedness of the private sector was significantly lower. Hence when credit was available, as indeed it was in both of these episodes, the private sector quickly increased investment. At the present level of indebtedness, it would not be easy for the private sector to do the same this time. As mentioned above, financial constraints are not the only barrier to rapid recovery; restoration of confidence is equally important.

8. Final Words: Is Turkey at a Crossroad?

Quick recovery requires a small correction in the foreign debt ratio, which in turn causes rapid increases in current account deficit and credit ratios after some corrections. The above analysis implies that such an outcome is unlikely. If Turkey is in the half way through (credit) or in the beginning of (debt) the process of deleveraging, the debt and credit contractionary cycles will continue for some time in the future. It is relevant note that the above mentioned literature on financial cycles documents that recessions at the end of financial cycles are deeper than those that occur in the middle of cycles. As mentioned above, the current recession is expected to end in the third or at least in the fourth quarter of 2019,²² but this does not seem to bring a quick recovery. The output cost of the current recession has thus far remained low (see Table 4.1). Growth will be positive but is expected to be considerably low for some time. Several studies have indicated that credit booms weaken output in the medium term (Mian et al., 2017; Lombardi et al., 2017), and weaken productivity growth (Borio et al., 2016), there is no reason not to expect the same outcome from the Turkey's current financial cycle. Acemoglu and Ucer (Chapter 2, in this volume) and Atiyas and Bakis (Chapter 3, in this volume) document low productivity characteristics of the economic growth associated with this financial cycle of Turkey.

The length of this period of slow recovery will determine the depth of the current recession. So far in this study, the depth of recessions has been measured by the cumulative negative GDP growth rates. Although this methodology could be a fairly accurate approximation in the case of "V"-type recoveries, it underestimates the costs of recessions because it fails to

²² Base year effect will also play an important role in reasonably high growth outcome in the fourth quarter.

account for the cost of associated low growth periods. Can the process of recovery be made relatively fast? Because fast growth driven by credit- and debt-fueled domestic demand does not seem to be possible this time, can external demand-driven growth be possible? During the present recession, one of the reasons Turkey is undergoing such a “shallow” recession is the positive contribution of net exports. Net exports, due to a large fall in imports and some increase in exports, have been able to contribute meaningfully to the growth thus far. If a continuous increase in net exports is possible, and especially if this increase comes predominantly from an increase in exports rather than a fall in imports, the output cost of the recession should remain low and some economic growth may resume.

This would require a change in the long-established credit driven growth regime of Turkey and a return to a process of industrialization that may help productivity increases. Another positive contribution may come from re-establishing damaged confidence, which is evidenced by the abrupt movements in the term premium. The need for structural and institutional reforms are emphasized by several authors in (and out of) this volume to achieve quality growth with increases in productivity.

For this purpose, a close look at the policies and reforms implemented during the expansionary deleveraging period after the 2001 crisis may be beneficial. During this period, the effect of reforms and credibility associated with successful disinflation made strong recovery possible at the same time as deleveraging in foreign debt was taking place. As discussed above, this period was very different to the quick recovery after the 2009 crisis, especially in terms of the nature of the growth (see Acemoglu and Ucer, Chapter 2; Pamuk, Chapter 1, in this volume). Is Turkish economy at a crossroad? It seems that the answer is yes. If the country chooses a future direction based on a new growth regime, re-creation of business confidence for new investments, restoration of institutional framework and implementing required reforms, Turkey may achieve a path of sustainable growth. Otherwise, as explained above, the outcome may be a long period of slow growth of the kind that Turkey has not experienced before.

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