Current Account Balance Implications of Consumer Loans: The Case of Turkey

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Abstract: This paper analyzes the impact of consumer loans on the current account balance of Turkey over the period 2000q1-2013q1. Consumer loans are decomposed into sub-categories as real estate loans, vehicle loans and other loans to investigate their individual effects on the current account balance. Depreciation rate, real interest rate and GDP growth rate are also included in the model. Existence of the long-run equilibrium relationship among the variables is analyzed by bounds test developed by Pesaran et al. (2001). The estimated long run coefficients indicate that real estate loans and other loans which have increased dramatically after the recent global financial crisis, have significant negative effect on the current account balance. Moreover, depreciation of the Turkish Lira and increase in the interest rates deepen the current account deficit in Turkey. The results may provide important implications for the authorities in similar capital importing developing economies. The polices to encourage domestic investment and demand to avoid recession may create financial fragilitiy problems and lead to current account imbalances.

1. Introduction

The dynamics of current account deficit have been frequently analyzed in the economics literature. The undesirable experiences of developing economies with the balance of payment crises over the 1990s made the subject more popular. Turkey, one of these developing countries, has a chronic current account deficit problem. Traditionally low savings ratio resulted in dependence on speculative financial flows in the Turkish economy to finance the investments necessary for economic growth. The saving-investment gap, the structural dependence of Turkish industrial production on imported intermediate goods together with the boosting private consumption have been the primary source of this deficit.

Global financial crisis following the end of 2007 resulted in a sharp slow down in developed economies. The authorities in these countries have initiated loose monetary policies to restore economic growth. The newly created funds flew into the developing and emerging economies in search of quick and high return. Turkey, one of these emerging economies, witnessed significant increase in the funds accumulated in the financial system. The loan growth rate in the Turkish banking system has reached 26.5 percent by September 2010 which was far more than the growth rate in the EURO area (2.4 percent) and the USA (0.6 percent)[1]. However, the outcome of the boosting demand was dramatic increase in the current account deficit over the recovery period. By November 2010, Central Bank of the Republic of Turkey (CBRT) has taken some macroprudential policy measures with a special emphasis on loan growth. CBRT aimed to curb the consumer loan growth rate, to increase the savings ratio and to decrease the dependence on foreign resources to eventually minimize the effects of global financial crisis and to solve the chronic current account deficit problem of Turkey. Hence, there is a significant negative relationship between the current account balance and loan standards. Over the periods

where loan standards were tightened by the CBRT, Turkish economy has witnessed improvement in the current account balance. Table 1 and Figure 1 below indicate this negative movement from the beginning of 2000s.

In the literature there exists some research on the relationship between consumer loans and the current account balance. Some of these studies such as Kasa (1998), Kunieda and Shibata (2005), Telatar (2011), Togan and Berument (2011), Mangir and Erdogan (2012) and Gocer et al. (2013) find that consumer loans lead to significant increase in the current account deficit. However, these studies do not analyze the impact of loans at a decomposed level. Different from these studies, Buyukkarabacak and Krause (2009) focus on the effects of household and firm credit on the trade balance of 18 emerging economies and find that household credit is negatively but firm credit is positively correlated with the trade balance. Keeping in mind the experience of Turkish economy with the recent global financial crisis and the policies adopted by the authorities to tighten the loan standards, this paper aims to analyze the relationship betweeen the consumer loans and the current account balance in Turkey over the period 2000-2013. To provide a more detailed analysis, consumer loans are decomposed into real estate loans, vehicle loans and other loans[2]. This paper aims to contribute to the existing literature in two ways. First, Turkey is one of the mostly affected periphery economies from the financial crisis. Hence analyzing the implications of the policies taken by the authorities in such an emerging economy by establishing the link between the consumer loans and current account balance may provide a benchmark for similar economies. Second, to the author's best knowledge, this is the first study that investigates the link between consumer loans at a decomposed level and current account balance in Turkey using an econometric model.

The rest of the paper is organized as follows: The methodological issues and data are discussed in Section 2. Empirical results are presented in Section 3 and the last section is devoted to conclusion.

2. Method and Data

Theory of international economics simply defines current account balance as net exports plus net income from abroad. Hence the main determinants of current account are real exchange rate and domestic disposable income (Krugman and Obstfeld, 2003). Moreover, current account deficit can be also expressed as the difference between national savings and investment. Hence, current account deficit may be a measure of savings-investment gap in an economy. In the literature it is mentioned that consumer loans, to the degree that they do not grow at the expense of domestic saving may provide a potential for economic growth. However, if they grow at the expense of domestic savings, then the economy may become capital importing dependent on foreign investments (Feldstein, 2006). Hence loosening or tightening loan standards may have potential implications on the current account balance. Moreover, the impact of consumer loans on the current account balance may differ according to their types. In this paper, taking into account this linkage for the Turkish economy the following model is used:

$$CAB_t = \alpha + \beta V_t + \gamma H_t + \delta OTH_t + \theta EXC_t + \mu RINT_t + \pi GDPGR_t + \varepsilon_t \qquad (1)$$

CAB, V, H and OTH are current account balance, vehicle loans, real estate loans and loans for individual expenditures for durables, professional needs, education, vacation at time t, as a percentage of gross domestic product (GDP), respectively. EXC indicates the depreciation of the national currency (Turkish Lira-TL) per US dollar RINT measures the real interest rate as defined by Buyukkarabacak and Krause (2009). The last variable is the national income growth,

denoted by GDPGR, percentage change in GDP[3]. All variables are expressed quarterly and cover the period 2000q1-2013q1. The descriptive statistics for the variables are presented in Table 2.

In order to analyze the long term relationship between time series variables, one should first discover whether the relationship is spurious nor not. To that end first unit root and cointegration tests should be performed. In the literature there are two types of unit root tests: Tests controlling structural breaks and tests that do not control structural breaks. Unit root tests controlling structural breaks have an advantage of avoiding the false conclusion that a series is nonstationary due to structural break(s) embodied. According to the level of integration of the series, the proper cointegration methodology is chosen. If all series are found I(1), then Engle and Granger (1987) cointegration test or Johansen and Juselius (1990) maximum likelihood test of cointegration can be applied. However, if some series are stationary, I(0), while some are I(1), then these tests cannot be applied. Pesaran et al. (2001) suggest using the bounds test of cointegration in this case. Bounds test is based on the following unrestricted error correction model (UECM) in Equation 2:

$$\Delta CAB_t = \alpha_0 + \sum_{i=0}^{n} \alpha_{1i}\Delta V_{t-i} + \sum_{i=0}^{n} \alpha_{2i}\Delta H_{t-i} + \sum_{i=0}^{n} \alpha_{3i}\Delta OTH_{t-i} + \sum_{i=0}^{n} \alpha_{4i}\Delta EXC_{t-i} + \sum_{i=0}^{n} \alpha_{5i}\Delta RINT_{t-i} + \sum_{i=0}^{n} \alpha_{5i}\Delta GDPGR_{t-i} + \sum_{i=1}^{n} \alpha_{5i}\Delta CAB_{t-i} + \beta_1 CAB_{t-1} + \beta_2 V_{t-1} + \beta_3 H_{t-1} + \beta_4 OTH_{t-1} + \beta_5 EXC_{t-1} + \beta_6 RINT_{t-1} + \beta_7 GDPGR_{t-1} + \varepsilon_t \tag{2}$$

Bounds test rests on the Wald F-statistic obtained from null hypotheses $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ versus the alternative $H_a: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq 0$. The critical values of the test is provided by Pesaran et al. (2001). Rejection of the null hypothesis implies that there is a long-run relationship between the variables. Subsequent to the finding that series are cointegrated, autoregressive distributive lag (ARDL) error correction model and short-run coefficients can be estimated.

3. Empirical Results

In order to analyze the stationarity problems of the series, first Augmented Dickey Fuller (ADF) (1979) unit root test is performed. The results are provided in Table 3.

The traditional ADF unit root test results indicate that not all series have the same order of integration. Moreover, there results are inconclusive about some series. Hence, under the suspicion of an endogenous break in the series, ZA test is performed and results are reported in Table 4.

The results obtained from the ZA test indicate that V, OTH and EXC are stationary at level with structural break while the other varaiables have a unit root. In order to investigate the long-run relationship between the variables, it will be appropriate to use bounds test of cointegration since the series have different order of integration. To this end, the UECM denoted in Equation 1 is used. The optimal lag length is determined as 4 using the Akaike Information Criteria (AIC) following Hendry (1995). The test results reported in Table 5 indicate that F-statistic is above the upper critical bound at each significance level, therefore CAB, consumer loans and the other control variables have a long-run equilibrium relationship[4].

After finding out that the relationship between the series is not spurious, the estimation of the long-run parameters and short-run error correction term will provide valuable information to generate policy implications. The long run coefficients are reported in Table 6.

The results reported in Table 6 indicate that real estate loans, other loans, depreciation of the TL and real interest rate have statistically significant effect on the current account balance in Turkey over the sample period. Over the period that this study focuses on, Turkey experienced current account deficits except three quarters in the year 2001. Hence, the negative coefficient of real estate loans indicate that, one percent increase in the real estate loans to GDP ratio has led to a 2.79 percent increase in the current account deficit expressed as a percentage of GDP. However, the impact of other loans on the current account balance has been negative but smaller relative to the impact of the real estate loans. This result is not surprising since over the sample period, particularly following the monetary expansion after the global financial crisis the real estate demand in Turkey increased dramatically. The credit expansion was the main source of this boom and the major source of the credit expansion was the flow of foreign funds to Turkey. The downward pressure on the exchange rate was another side effect of the inflow of foreign funds. Overall, the outcome was the deterioration in the savings rate and finally increase in the dependence on foreign resources. This has led to worsening in the current account balance. By the end of 2010, CBRT has adopted some precautionary measures through increasing the required reserve ratio and decreasing the short-term interest rates. The objective of this policy has been to deter the entry of foreign funds and curb the loan growth. Finally, the growth of real estate loans declined to 14 percent in 2012 from 35 percent in 2010[5].

Table 6 indicates that depreciation in TL and decline in the real interest rate have negative and significant coefficients. Intermediate goods are one of the major items in the total imports in Turkey. Hence, depreciation in TL leads to increase in the total value of imports. This structural problem of the Turkish economy is one of the main factors behind the trade deficit and eventually the persistent current account deficit in Turkey. The negative coefficient of the real interest rate is also not surprising. Over the sample period, Turkey frequently witnessed inflow of foreign funds seeking quick and high profit. In comformity with the findings of Togan and Berument (2011), the major reason behind the credit growth has been the foreign capital flows to Turkey. Consequently, this mechanism ended up with increased consumption, lack of savings and deepening current account deficit in the Turkish economy.

In short run there can be some deviations from the equilibrium relationship established among the series. To this end, analyzing the speed of recovery due to a deviation from equilibrium is important to ensure the stability of the long run relationship. The equilibrium correction form of the ARDL model is estimated using the one lagged error term obtained from the estimation of the long run equation. The results presented in Table 7 indicate that the equilibrium correction coefficient is negative and significant as expected. The value of the coefficient, -0.480, implies that it takes about two quarters for the series to adjust to their long run equilibrium after a deviation in short run.

The results are in comformity with the findings from the previous studies. Even these studies (see for example Telatar (2011), Togan and Berument (2011), Mangir and Erdogan (2012), Gocer et al. (2013)) use consumer loans at an aggregate level instead of decomposing, the common focus is the relationship between the loan standards, consumer loans and the impact on the current account balance. Similar to the results of this study, they also find that the impact of the consumer loans on the current account balance is large and significant. Hence, policymakers should keep in mind this link while establishing policies through adjusting loan standards.

4. Conclusion

Current account deficit has been a chronic problem of the Turkish economy. The dependence of manufacturing industry on the imported inputs and investment goods has created trade deficits. Savings-investment gap, due to low savings ratio, accompanied these deficits. Hence, economic growth had to be financed by foreign resources which in turn led to current account imbalances. This structural problem became significant particularly after the global financial crisis. Turkish financial system, similar to other emerging economies, experienced dramatical increase in the liquidity due to flow of foreign funds into the country. The reflection of this excess liquidity was the sudden increase in the consumer loans. CBRT, with the fear of financial fragility and worsening of the current account balance, started to imply a new monetary policy aiming to restrict the loan growth by the end of 2010. This process attracted the researches to analyze the relationship between the consumer loans and current account deficit. To this end this paper also focuses on this relationship and differs from the previous studies since it explains the relationship by decomposing the consumer loans for the first time comprising Turkish economy and aims to provide policy implications for the authorities in countries with similar economies.

In order to analyze the stationarity properties of varaibles that are collected for the period 2000q1-2013q1, ADF unit root test and the ZA unit root test with an endosgeneous structural break are applied. Finding out that the series have different order of integration, the bounds test for cointegration developed by Pesaran *et al*. (2001) is used. The long-run coefficients estimated after concluding that there is a long run equilibrium relationship betweeen the variables provide important information about the link between the consumer loans and the current account deficit. The results indicate that real estate loans have created the largest impact on the worsening of the current account balance. Particularly after the expansion of liquidity after the global financial crisis, real estate loans incerased dramatically in Turkey. However, this created negative effect on the savings ratio and led to increasing dependence on froeign resources to meet the finance for the new invetsment demands. Similarly, over the sample period, other loans have increased at the expense of higher current account deficits. Depreciation of the Turkish Lira and the real interest rate are the other two variables that have significant but negative effect on the current account balance.

These findings provide important information for the policymakers in the similar capital importing developing countries about the policies to be followed over the economic recovery periods. With the fear of recession, the expansionary monetary policies may lead to financial fragility and also the danger of balance of payments crisis. While the authorities are encouraging domestic demand, the savings propensity may be affected negatively. Making a domino effect, the current account balance may worsen. Hence, the most important point for such economies should be encouraging the saving through diversifying saving opportunities and efficiently supervising the financial system to discourage credit booms.

Endnotes

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Table 1. Current Account Balance, Trade Balance and Consumer Loans in Turkey

	CAB	Real Estate Loans	Vehicle Loans	Other Loans	Total Consumer Loans
2000	-10.53	0.40	1.40	1.60	3.41
2001	2.77	0.02	0.11	0.33	0.47
2002	-0.31	0.07	0.34	0.53	0.94
2003	-2.94	0.17	1.03	1.09	2.30
2004	-4.49	1.07	3.70	3.59	8.37
2005	-5.85	1.99	1.05	0.67	6.06
2006	-7.43	2.05	0.70	0.08	5.48
2007	-7.93	1.84	0.61	0.19	5.91
2008	-7.53	1.61	0.52	0.30	5.81
2009	-2.26	2.22	0.51	0.01	6.94
2010	-7.32	2.89	0.70	0.26	9.37
2011	-10.24	2.29	0.61	0.43	8.69
2012	-5.96	2.00	0.52	0.73	7.88
2013*	-8.02	3.44	0.84	1.43	12.17

Note: CAB: Current Account Balance; all variables are measured as a percentage of GDP.*Figures for 2013 reflect the first quarter of the year.
Source: CBRT (Central Bank of the Republic of Turkey) and TBA (Turkish Banking Association)

Figure 1. Trends in Current Account Balance and Consumer Loans
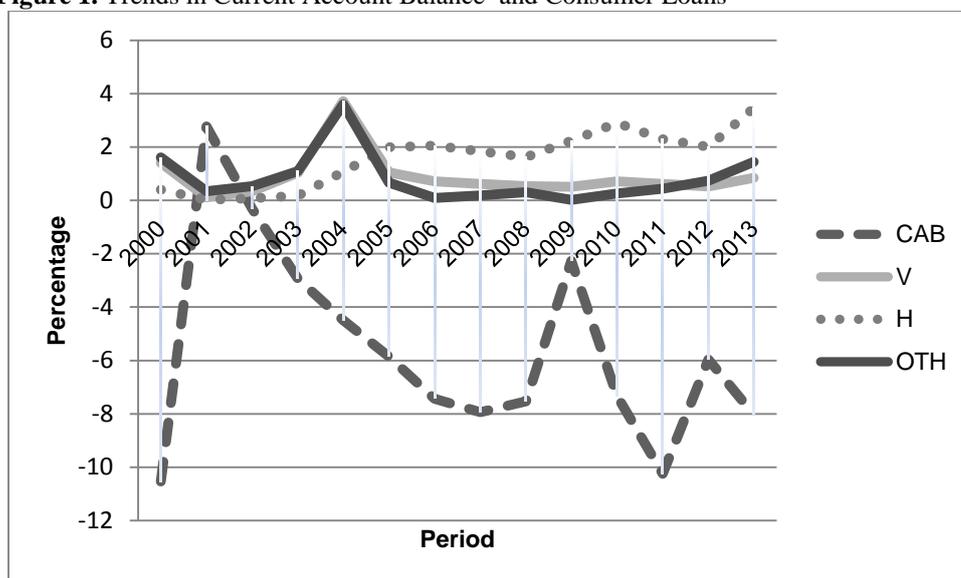
Note: CAB: Current Account Balance, V: Vehicle Loans, H: Real Estate Loans, OTH: Other Loans; all variables are measured as a percentage of GDP.*Figures for 2013 reflect the first quarter of the year.
Source: CBRT (Central Bank of the Republic of Turkey) and TBA (Turkish Banking Association)

Table 2. Descriptive Statistics

	CAB	V	H	OTH	EXC	RINT	GDPGR
Mean	-5.07	0.97	1.30	0.80	2.97	25.09	1.75
Median	-5.64	0.61	1.46	0.36	0.96	13.83	-2.13
Minimum	-15.10	0.08	0.01	0.00	-11.03	-1.09	-15.54
Maximum	5.21	5.08	3.68	4.60	51.08	173.77	21.71
Std. Dev.	4.46	1.00	1.13	1.06	10.07	26.61	11.55
# of obs.	53	53	53	53	53	53	53

Table 3. Unit root test results: ADF

		μ_u	μ_t	*Conclusion*
CAB	L	-2.82 (4)	-3.15 (4)	I(1)
	FD	-3.87** (3)	-3.72** (3)	
V	L	-3.78* (1)	-3.74** (1)	I(0)
	FD	-5.72* (2)	-5.66* (2)	
H	L	-1.87 (0)	-3.35 (4)	I(1)
	FD	-4.45* (4)	-4.38* (4)	
OTH	L	-3.14**(2)	-3.10 (2)	I(0)/I(1)
	FD	-4.11* (1)	-4.12* (1)	
EXC	L	-5.15* (0)	-5.32* (0)	I(0)
	FD	-6.78* (3)	-6.72* (3)	
RINT	L	-2.94(4)	-3.40** (4)	I(0)/I(1)
	FD	-9.85* (0)	-9.95* (0)	
GDPGR	L	-3.23(4)	-3.22**(4)	I(0)/I(1)
	FD	-23.27(2)	-23.54* (2)	

Note: μ_u and μ_t denote model with only intercept and model with intercept and trend, respectively. L and FD indicate "level" and "first difference" of the series. Lags are chosen according to the AIC and provided in parantheses.*and ** represent significance under 1 and 5 % level. I(.) indicates the order of integration. Critical values are based on MacKinnon (1991). I(0)/I(1) implies inconclusive result.

Table 4. Unit root test results: Zivot-Andrews Test [1]

	TB	δ	θ	γ	*k*	*Conclusion*
CAB	2008Q3	-0.66	3.49**	-0.04	4	I(1)
		(-3.49)	(2.45)	(-0.36)		
V	2004Q4	-0.41**	0.33*	-1.11*	1	I(0)
		(-5.50)	(3.57)	(-4.30)		
H	2005Q1	-0.96	-8.83*	-0.01	4	I(1)
		(-4.84)	(-4.09)	(-0.26)		
OTH	2005Q2	-0.64*	1.08*	-2.13*	2	I(0)
		(-6.17)	(2.74)	(-3.61)		
EXC	2002Q1	-1.04*	-25.97*	-2.72	0	I(0)
		(-6.97)	(-3.38)	(-1.57)		
RINT	2003Q4	-0.56	-6.30*	0.74	4	I(1)
		(-4.18)	(-2.52)	(1.25)		
GDPGR	2006Q3	-1.56	-3.89	-0.16	4	I(1)
		(-3.74)	(-1.80)	(-1.00)		

Note: Critical values are taken from Zivot and Andrews (1992) .*and ** represent significance under 1 and 5 % level. The numbers in parantheses are t-statistics and *k* is the lag length. The break dates are reported in the column *TB*. I(.) indicates the order of integration.

Table 5. Bounds Test Results

Model	F-statistic	10%		5%		1%	
		I(0)	*I(1)*	*I(0)*	*I(1)*	*I(0)*	*I(1)*
$F(CAB|V, H, OTH, EXC, R, GDPGR)$	4.593*	2.12	3.23	2.45	3.61	3.15	4.43

Note: * represents significance at 1 % confidence level. The critical values are obtained from Pesaran *et al.* (2001, Table C1, Case III, p. 300).

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[1] Zivot-Andrews unit root test is based on the following model C as specified by Zivot and Andrews (1992): $y_t = \alpha + \beta t + \theta DU_t + \gamma DT*_t + \delta y_{t-1} + \sum_{j=1}^{k} \varphi \Delta y_{t-j} + \varepsilon_t.$

Table 6. Long run coefficients

Dependent variable: **CAB**	**Coefficients**	**t-statistics**
Variables		
V	0.73	0.84
H	-2.79*	-8.36
OTH	-1.47***	-1.86
EXC	-0.07**	-2.12
RINT	-0.06*	-5.36
GDPGR	0.05	1.27
F statistic	2.61 (Prob.: 0.03)	
LM test (**2**)	0.59 (Prob.: 0.56)	
Ramsey RESET Test (**1**)	0.57 (Prob.: 0.45)	

Note:*, ** and *** represent significance under 1, 5 and 10 % level. I(.) indicates the order of integration.

Table 7. Equilibrium correction form of the ARDL model (3,4,4,3,4,3,3)

Dependent Variable: ΔCAB_t		
Variable	**Coefficients**	**t-statistics**
Constant	-0.131	-0.315
ΔCAB_{t-1}	0.056	0.225
ΔCAB_{t-2}	0.166	0.860
ΔV_t	0.176	0.109
ΔV_{t-1}	-2.127	-1.556
ΔV_{t-2}	0.485	0.372
ΔV_{t-3}	-2.426*	-2.658
ΔH_t	-1.608**	-2.547
ΔH_{t-1}	1.776	1.113
ΔH_{t-2}	0.336	0.338
ΔH_{t-3}	0.860	1.361
ΔOTH_t	-0.538	-0.387
ΔOTH_{t-1}	2.466**	2.270
ΔOTH_{t-2}	1.365**	2.376
ΔEXC_t	-0.067	-1.306
ΔEXC_{t-1}	-0.001	-0.010
ΔEXC_{t-2}	0.012	0.272
ΔEXC_{t-3}	0.032	0.902
$\Delta RINT_t$	-0.077***	-1.824
$\Delta RINT_{t-1}$	0.048***	1.742
$\Delta RINT_{t-2}$	0.037	1.453
$\Delta GDPGR_t$	0.129***	2.026
$\Delta GDPGR_{t-1}$	0.078*	2.943
$\Delta GDPGR_{t-2}$	0.065	1.015
ECM_{t-1}	-0.480**	-2.109
F statistic	3.556 (Prob.: 0.000)	
LM test (**2**)	2.389 (Prob.: 0.115)	
Ramsey RESET Test (**1**)	3.028 (Prob.: 0.100)	

Note: *, ** and *** represent significance under 1, 5 and 10 % level.

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[1] CBRT Financial Stability Report, December 2010.

[2] Other loans include porfessional aids, educational funds, vacational funds etc.

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[3] Data on consumer loans are taken from the Turkish Banking Association current account balance (CAB) and GDP data are taken from the Central Bank of Republic of Turkey. Interest rate series are obtained from the IMF International Financial Statistics Database.

[4] In order to assure that there are no specification errors in the estimated UECM, Ramsey RESET test is performed. With probability value 0.768, there is no evidence of model misspecification. The estimation results are available form the author upon request.

[5] Turkish Banking Association Statistical Database