The Causal Relationship between the Financial Account and the Current Account: The Case of Turkey

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Abstract

Financial account is known to serve to finance the current account imbalances. Yet, financial globalization seems to have changed this causality at least for some of the developing world countries. The aim of this paper is to analyze the interrelationship between the financial account, its components and the current account for Turkey. Results of the unit root tests reveal that the variables are naturally cointegrated as they are all integrated of order I (0). Granger causality analysis under VAR framework discloses the existence of a unidirectional causality that runs from financial account to current account. The analysis also depicts that amongst the components of financial account there is a unidirectional causality that runs from fdi, equities and bank liabilities to current account. The results demonstrate that capital inflows cause current account deficits and that the current account sustainability may be achieved via better management of financial account in Turkey. The short term bank liabilities should be further discouraged. Also, the financial market development should be further encouraged for the economy to increase its absorption capacity of massive financial account inflows.

Keywords: International Investment; Long-Term Capital Movements; Current Account Adjustment; Short-Term Capital Movements; International Lending; Open Economy Macroeconomics; Granger causality

JEL Classification Codes: F21; F32; F34; F41; C32

1. Introduction

The dynamics, determinants and consequences of current account balances are an important topic in open economy macroeconomics. It is more so than ever due to the current account imbalances which is one of the main reasons behind the global crisis. Yet, the studies that investigate the interrelationship between the current account and the financial account have been rather scarce.

Financial account, in other words, the savings of other countries, comprises foreign direct investments, portfolio investments and other investments, the latter mainly as bank loans. Foreign capital that flows to EMEs helps these countries to have an access to international financial markets.¹ Net foreign capital inflows lead, however, to an appreciation of the nominal and real exchange rate which renders imports cheaper and exports expensive. This, in turn creates competitiveness losses and consequently current account deficits, unless the financial inflows

¹ Ventura (2001) and Kraay et al. (2005) suggest that the diversification of “country portfolio” may lead to current account deficits.
are purchased by the Central Bank for reserve hoarding with complete sterilization. A persistent current account deficit, then, creates sustainability problems in the external balance of the countries. This is how financial flows cause current account deficits.

On the other hand, current account deficits are the result of trade deficits, with imports being more than exports. This causes foreign capital inflows to finance the trade deficit. According to the intertemporal current account balance model, advocated by Obstfeld and Rogoff (1996) among others, capital flows to finance the current account deficit, which by definition is the negative difference between domestic savings and investments. This is how current account causes financial inflows. Previous research depicts that it is also possible to have bidirectional causality or no causality between the financial account and the current account of a country.

The boom and bust cycles in capital inflows caused a series of currency attack and consequent currency crises in EMEs through the last decade of the 20th century. Actually current account deficits have been one of the most important leading indicators of crises in EMEs, including Turkey, particularly in 1994 and also 2001. The financial flows to Turkey in search of higher remuneration caused, in the absence of sophisticated capital markets, over investment and over consumption that gave rise to current account deterioration. Current account deficits also prepared the conditions for sudden stops and reversal of financial flows that caused financial crisis and a change of foreign exchange regime from fixed to floating. The inverse relationship (the mirror image) between current account deficit (surplus) and financial account surplus (deficit) in Turkey may be demonstrated in the following figure.

Figure 1: Current Account and Financial Account in Turkey

The aim of this paper is to investigate the causal relationship between the financial account itself as well as the components of the financial account and the current account in Turkey. To that end, the paper first seeks for the Granger causality between the financial account and the current account. Then Granger causality tests are employed to find the causality between components of financial account, namely equities, debt, fdi, bank liabilities and the current account. The paper is motivated, to the best knowledge of the author, by the non-existence of empirical investigation that searches for the causal relationship between the financial account and the current account for Turkey.

\[ \text{However, it should not be forgotten that there is a limit for sterilization as Calvo (1991) suggests. The increase in interest rates during sterilization further causes more foreign currency to inflow, deteriorating current account.} \]
The rest of the paper unfolds as follows: Section 2 reviews the previous research. Section 3 describes the data and the methodology applied for the empirical analyses. Section 4 discusses the empirical results. Section 5 comments on policy implications and concludes.

2. Previous Research
There are only a few studies that analyze the causal relationship between the financial account and the current account. Some of these studies find unidirectional causality that runs from capital account to current account or vice versa, others find bidirectional relationship, still others find no relationship. Morande (1988) finds unidirectional causality that runs from capital account to current account for Chile. Forogue and Veloce (1990) empirically proves the existence of bidirectional causality between the financial and the current accounts for Canada. Fry et al. (1995) find that some developing countries have unidirectional, some have bidirectional and still some have no causality between the financial and the current accounts. Yet, no predominant tendency is captured in their analysis of 46 developing countries. Wong and Carranza (1999) find, on the other hand, that before 1989, with the restricted capital mobility, current accounts used to Granger cause financial accounts. However, after 1989, in the countries examined, namely Argentina, Mexico, the Philippines and Thailand, financial inflows are found to Granger-caused current account deficits. Guerin (2003) broadly suggests that the causality is from current account to net capital inflows in developed countries and from net capital inflows to current account in developing countries. Yet, there are outliers to both of the groups and for some countries there exists no causality.

Yan (2005) finds that the causality is mostly from the financial account to the current account in the developing countries, and mostly from the current account to the financial account in the developed countries analyzed. Yan (2007) suggests that the financial account Granger cause or, following Goldstein (1995), ‘push’ current account imbalances in developing countries. Yan (2007) also finds that there are different causal relationship between the current account and the financial account components of FDI, portfolio investment and other investment between countries. Yan and Yang (2008) find that foreign capital inflows either cause savings or investments in developing countries but not in developed countries. They explain this decoupling with the sophistication level of the financial system to absorb the foreign capital inflows, the ‘pull’ or ‘push’ factors behind the capital inflows and the adjustment process of the current account reversals which are abrupt for developing countries and rather moderate for the developed world.

Yan and Yang (2009) claim, on the other hand, that capital inflows cause serious current account deteriorations in EMEs, but not in industrialized countries, yet with different implications when net and gross foreign capital inflows are considered. With gross foreign capital inflows, that is to say by only taking the liabilities into account for the financial account, the causal relationship is lost for industrialized countries but strengthened for EMEs. They also find that after the Asian crises in 1997, the negative relationship between the current account and the financial account changed into a positive relationship due to the reserve hoarding in the EMEs to self-insure themselves against crises. Also, their empirical testing with the control variables show that financial development seem to play an important role concerning the causal relationship between the financial account and the current account. The findings of Yan and Yang (2009) are in line with i.e. Chinn and Prasad (2003), who find that the depth and sophistication of the financial system has an important impact on the current account of developing countries while no significant effect is evidenced for the developed world. This implies that capital inflows to an unsophisticated, shallow financial market in a developing country may cause current account deterioration.

Kim and Kim (2010) empirically prove, however, that there is bidirectional causality between the capital account and the current account for Korea. Lau and Fu (2011), on the other hand, empirically

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3 Yan (2007) also claims that the policy response towards financial inflows may change the direction of causality in the short term for the developing countries.
provide evidence for the period of 1987Q1-2006Q4 that in the four crises affected East Asian countries of Indonesia, the Philippines, Korea and Thailand, the current account Granger causes the financial account. Their investigation also depict that as the components of financial account, FDI has a positive relationship with current account; whereas financial account and its remaining components of private investments and other investments have a negative relationship with the current account.

Turkey liberalized its financial account fully by the end of 1980s. The financial inflows mostly driven by the push factors have caused two devastating financial crises, one in 1994 and the other in 2001, in Turkey. Today, the current account deficit of Turkey prevails, with limited reserve hoarding by the Central Bank of Turkey. However, so far the interrelationship between the financial account and the current account in Turkey has not attracted much of academic attention. Under these conditions, the inconclusiveness of the empirical analyses as well as the importance of current account sustainability necessitates the topic to be empirically investigated for the case of Turkey.

3. Data and Methodology

The paper utilizes quarterly data covering the period 1987Q1-2010Q4. All the data are collected from International Financial Statistics (IFS) of International Monetary Fund (IMF). The data for current account (CA), financial account (FA), foreign direct investments (FDI), equity investments (EQ), debt (DEBT) and bank liabilities (BNKL) are scaled down by the Gross Domestic Product (GDP) data which also comes from IFS4.

The paper investigates first the existence and the direction of causality between FA and CA for Turkey. To that end, first the causality between the two components of Balance of Payments (BOP); FA and CA, as demonstrated in the following equation, is examined, wherefor a BOP balance, CA and FA should have opposite signs:

\[ \text{BOP} = \text{CA} + \text{FA} \]  

Then the relationship between CA and the components of FA, namely FDI, EQ, DEBT and BNKL, as depicted in the following equation, is examined.

\[ \text{CA} = \alpha + \text{FDI} + \text{EQ} + \text{DEBT} + \text{BNKL} + \epsilon \]  

where, the right hand indicators replace FA of the first equation, \( \alpha \) proxies for the constant and \( \epsilon \) stands for the error term.

The paper employs the Augmented Dickey & Fuller (ADF) and Phillips & Perron (PP) unit root tests to search for the integration level for FA and CA as well as for FDI, EQ, DEBT and BNKL. (Dickey and Fuller, 1981; Phillips and Perron, 1988). The integration level is searched to verify that the variables are not integrated of order two, I(2) or higher. On the other hand, when the variables are integrated of order zero, I(0), it means that the variables are naturally cointegrated. In the case of natural cointegration, there is no need to carry a cointegration test before Granger causality analysis.

As the next step, the paper runs the Granger causality tests under the vector autoregressive (VAR) framework at level forms as the variables are all integrated of order I(0). The existence of a statistically significant F-test would be enough to infer causation from X to Y in equation 3 and from Y to X in equation 4, as expressed below:

\[
\log Y_t = a + \sum_{i=1}^{p} \alpha_i \log Y_{t-i} + \sum_{j=1}^{q} \beta_j \log X_{t-j} + \mu_t \\
\log X_t = b + \sum_{i=1}^{r} \gamma_i \log Y_{t-i} + \sum_{j=1}^{s} \delta_j \log X_{t-j} + \upsilon_t
\]

where \( \mu_t \) and \( \upsilon_t \) are serially uncorrelated white-noise residuals and \( p, q, r \) and \( s \) are the lag lengths.

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4 Gross foreign capital inflows are used, that is to say, only the liabilities are taken into account for fdi, equities, debt and banks.
4. Results and Discussions

Table 1 illustrates ADF and PP unit root test results for CA and FA as well as for FDI, EQ, DEBT and BNKL. All the variables are stationary at level I(0), according to both the ADF and the PP tests except for FDI. According to ADF unit root test, FDI is integrated of order one, I(1) and according to PP unit root test, I(0). Due to the inconclusiveness, Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test is employed. The results of KPSS test lend support to the results of PP test which suggests that FDI is I(0).

Table 1: ADF and PP Tests for Unit Root

<table>
<thead>
<tr>
<th>Statistics (Levels)</th>
<th>fa</th>
<th>ca</th>
<th>bnkl</th>
<th>eq</th>
<th>debt</th>
<th>fdi</th>
</tr>
</thead>
<tbody>
<tr>
<td>τ (ADF)</td>
<td>-4.80*</td>
<td>-4.84*</td>
<td>-5.85*</td>
<td>-8.30*</td>
<td>-7.04*</td>
<td>-2.26</td>
</tr>
<tr>
<td>τ (ADF)</td>
<td>-4.41*</td>
<td>-4.56*</td>
<td>-5.77*</td>
<td>-7.98*</td>
<td>-7.08*</td>
<td>-1.90</td>
</tr>
<tr>
<td>τ (ADF)</td>
<td>-3.47*</td>
<td>-0.44</td>
<td>-5.56*</td>
<td>-6.89*</td>
<td>-6.45*</td>
<td>-1.18</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-5.78*</td>
<td>-4.43*</td>
<td>-7.99*</td>
<td>-10.08*</td>
<td>-5.57*</td>
<td>-2.40</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-6.40*</td>
<td>-6.45*</td>
<td>-7.08*</td>
<td>-5.87*</td>
<td>-6.45*</td>
<td>-2.40</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-6.57*</td>
<td>-6.91*</td>
<td>-7.08*</td>
<td>-6.45*</td>
<td>-6.91*</td>
<td>-2.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statistics (First Differences)</th>
<th>Δfa</th>
<th>Δca</th>
<th>Δbnkl</th>
<th>Δeq</th>
<th>Δdebt</th>
<th>Δfdi</th>
</tr>
</thead>
<tbody>
<tr>
<td>τ (ADF)</td>
<td>-11.22*</td>
<td>-7.20*</td>
<td>-13.63*</td>
<td>-10.67*</td>
<td>-11.04*</td>
<td>-12.39*</td>
</tr>
<tr>
<td>τ (ADF)</td>
<td>-11.28*</td>
<td>-7.25*</td>
<td>-13.69*</td>
<td>-10.73*</td>
<td>-11.04*</td>
<td>-12.46*</td>
</tr>
<tr>
<td>τ (ADF)</td>
<td>-11.34*</td>
<td>-7.20*</td>
<td>-13.76*</td>
<td>-10.79*</td>
<td>-11.10*</td>
<td>-12.51*</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-14.34*</td>
<td>-37.42*</td>
<td>-19.69*</td>
<td>-43.08*</td>
<td>-24.71*</td>
<td>-20.92*</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-14.47*</td>
<td>-30.76*</td>
<td>-19.64*</td>
<td>-43.28*</td>
<td>-24.90*</td>
<td>-21.04*</td>
</tr>
<tr>
<td>τ (PP)</td>
<td>-14.54*</td>
<td>-23.74*</td>
<td>-19.72*</td>
<td>-41.99*</td>
<td>-25.12*</td>
<td>-21.15*</td>
</tr>
</tbody>
</table>

Note: τ represents the model with a drift and trend; τ is the model with a drift without trend; τ is the model without a drift and trend. Lag lengths are chosen by Schwarz Information Criterion (SIC). * *, ** and *** denote rejection of the null hypothesis at 1%, 5% and 10% levels respectively.

There is no need to employ cointegration analysis before the Granger causality analyses as all the variables are integrated of order I(0), hence naturally cointegrated. So, as the next step, the Granger causality analyses are run under the VAR framework for the cointegrated variables to search for the direction of causality. The Granger causality tests are carried for up to 3 lags in line with Pindyck and Rubinfeld (1991) who suggest that it is best to run the test for a few different lags to assure that the results are not sensitive to the lag length choice. Results of the VAR analysis in Table 2 suggest unidirectional causality from FA to CA. Results of VAR further depict unidirectional causality from FDI, EQ and BNKL to CA. The signs of the coefficients are negative as would be expected. That is to say, financial account and all its components Granger causes current account deficit. However no Granger causality is depicted between DEBT or in other words bond holdings and CA. This last result is in line with the low level of securitization, hence underdevelopment of financial markets in Turkey.

Table 2: Granger Causality Tests under VAR

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>FA and CA</th>
<th>CA and EQ DEBT BNKL FDI</th>
</tr>
</thead>
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<tr>
<td>FA does not Granger cause CA</td>
<td>3.32***</td>
<td>6.33***</td>
</tr>
<tr>
<td>CA does not Granger cause FA</td>
<td>2.77***</td>
<td>0.01</td>
</tr>
<tr>
<td>CA and EQ DEBT BNKL FDI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQ does not Granger cause CA</td>
<td>5.08***</td>
<td>5.06***</td>
</tr>
<tr>
<td>DEBT does not Granger cause A</td>
<td>0.01</td>
<td>0.13</td>
</tr>
<tr>
<td>BNKL does not Granger cause CA</td>
<td>5.10***</td>
<td>4.30***</td>
</tr>
<tr>
<td>FDI does not Granger cause CA</td>
<td>3.51***</td>
<td>5.00***</td>
</tr>
</tbody>
</table>

Note: *, ** and *** denote significance respectively at 1%, 5% and 10% levels.

Note: Turkey ranks 44th amongst 54 countries in the Financial Development Index of Roubini and Bilodeau (2009).
5. Concluding Remarks and Policy Implications

Financial account is known to serve to finance the current account imbalances. Yet, financial globalization seems to have changed the causality at least for some of the developing world countries, including Turkey. The empirical investigation first depicts that there is Granger causality that runs from financial inflows to current account deficits in Turkey. Further analysis carried with the components of financial account show that there exists Granger causality that runs from fdi, equities and bank liabilities to current account deficits. The results demonstrate that capital mobility cause current account imbalances in Turkey. The results of the empirical investigation suggest that the current account sustainability may be provided via better management of financial account in Turkey.

In terms of policy implications, first it should be recognized that rather than ‘pull’ factors, it is the ‘push’ factors that cause financial account inflows to Turkey. It means that capital inflows to Turkey, not because of improved domestic conditions in Turkey but because of the external factors such as low remuneration elsewhere or recession in the home country as noted by Yan and Yang (2008). Second, bank liabilities may be more closely watched by the Banking Regulatory and Supervisory Agency (BRSA) and the short term bank liabilities may be further discouraged by the Central Bank. Third, the financial market development should be further encouraged in order for the economy to increase its absorption capacity of massive financial account inflows.

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References


