

# IS THE DEBTOR SOLVENT : THE CASE FOR TURKEY

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## **Abstract**

*There is a broad range of literature on economic crises witnessed, with the recent experiences we had in Far East Asia, Argentina, Mexico, Brazil and Turkey. Although there are still debates on the triggering mechanisms, it is a common accepted fact that, large and consistent fiscal deficits, market imperfections, over burden of foreign debt and shallow fiscal markets are among the factors contributing. As in the case of Ricardian equivalence, a debt-financed reduction in government revenue should not effect the exchange rate or the current account shows very conflicting conclusions.*

*This paper aims to explore economic growth, import demand, external debt, exchange rates and public debt linkages. Two alternative models have been explored which shows that among the given variables there is no long term impact. VAR technique had been adopted to find the impulse-response relations. For the 1990-2006 period examined data set shows that there is a meaningful linkage as hypothesized. Findings also show that there is a case of internationalization of external debt which is consistent with the Turkish experience.*

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## **INTRODUCTION**

Equilibrium models imply that the real value of debt in the hands of the public must equal the expected present-value of surpluses. Empirical models of fiscal policy typically do not impose this condition and often do not even include debt. Absence of debt from empirical models can produce non-invertible representations, obscuring the true present-value relation, even if it holds in the data (Chung et al., 2007). There is a broad range of literature on economic crises witnessed, with the recent experiences we had in Far East Asia, Argentina, Mexico, Brazil and Turkey. Although there are still debates on the triggering mechanisms (Burnside, Eichenbaum and Rebelo 2001), it is a common accepted fact that, large and consistent fiscal deficits, market imperfections, over burden of foreign debt and shallow fiscal markets are among the factors contributing. As in the case of Ricardian equivalence, a debt-financed reduction in government revenue should not effect the exchange rate or the current account shows very conflicting conclusions. (Elmendorf and Mankiw 1998). There are also issues of arbitrariness in positive public finance, which is dominated by the delegation of political control (Persson and Tabellini 1999). International market borrowing dominated by IMF, for most emerging markets mostly led to huge output declines followed by a currency crises (Hutchison 2001). Besides these debates on stabilization and growth issues, it is a common belief that, external debt issues should not be taken in isolation from the general macroeconomic setting. Foreign debt has very close linkages among fiscal budget, foreign reserves, and overall balance of payments (Feldstein, 1992) and also Edwards(2008) wants to explain the crises effects on Latin America.

In this research we aim to see the interactions among, economic growth rate impacts on trade balances, on exchange rates and external debt and eventually on internal debt. The second or twin aim is to see the short or long term effects of innovations under the models

tested. Before covering our formal model more rigorously, we would like to show some recent macroeconomic developments in Turkey.

Recent financial crises in Turkey have shared the following features:

- Large internal debt
- Large external debt
- Shallow financial markets
- Persistent high inflation rates
- Evolved through a complicated interaction of domestic financial and real sectors
- Sharp growth slowdown and very high devaluation's

Starting with 1990's Turkey became a relatively more outward oriented country, where he is more vulnerable to international market developments. This paper starts with the conventional open market economy models and its relevance to Turkey. But major part of the paper will be devoted to providing a rationale for the macro interactions among macro aggregates, which can trigger imbalances.

The classical question of economic growth is why there are structural differences among economic growth rates among countries. Turkey in this respect seems to be very lucky achieving a 4.3 percent average economic growth rate annually during the last decade. From simple income determination model we can state that Net Foreign Assets (NFA) of a country is equal to

$$NFA = \text{Net Foreign assets} = \text{Assets owned by Turks from abroad} - \text{Liabilities of Turks towards foreigners} = \text{Turkish Foreign Assets} - \text{Turkish Foreign Debt} \quad (1)$$

If  $NFA > 0$  ; Turkey will be a creditor country

If  $NFA < 0$  ; Turkey is a debtor country

Although economic growth is a favorable factor for an economies performance, it usually have a negative effect on trade balances ( Exp-Imp). Usually provoking the induced import demand. Newer the less in a country like Turkey where public sector borrowing shows severe difficulties given the limitations, re-structural attempts become a must. During the era of 1950 –80, it seems that internal overall savings did not create any restriction on public borrowing in Turkey. But outward orientation attempts, which starts during the post 1980 period, put additional restriction on Turkey's trade balance due to the new liberalization attempts, which simultaneously increased the foreign borrowing and thus the foreign debt. Another event, which took place at the same era, is that public investment obligations shifted from internal resources, towards external resources. Increasing domestic interest rates caused a sharp increase in borrowing rates, which quickly led to a "crowding out effect". Decreasing private investment in time led to a decrease in productive capacity enlargement.

Starting from 1985, there is a drastic increase in foreign debt. As an indicator, in 1985 foreign debt had been 25 billion USD while in year 2001 foreign debt increase to 140 billion USD but till 2000 foreign debt seems to be more sustainable then the public debt. Examining private sector foreign debt, we see that, debt finance had been mostly used for public deficit finance instead of productive renewal investments. In 1999, public finance shows that internal turnover of public debt has reached to its limits, making it impossible to turnover for year 2000. This lead to a stand by agreement with IMF in December 1999, which reduced public expenditure, initiated another attempt for privatization while using exchange rate anchor to reduce expectation to reduce inflation, which is another source of increasing public debt. We should not forget that there is an interesting linkage between economic growth rates and the real interest rate. As long as economic growth rate exceeds real interest rate there is a chance of reducing public debt if the political authorities has established a discipline on the monetary

base. That is also true in the case of bond finance. As in most emerging markets Turkey's intention of initiating a financial stabilization program had been restricted by short term coalition governments. The issue became more sophisticated with the Maastricht Agreement where membership towards EU demands better macroeconomic performances. Although it is a legal and administrative requirement to prepare the annual budget as in all countries, there had been no year where the public expenditure has been restricted by the annual budget limits Turkey. In short, discipline on expenditure, internal and external revenue generation has not yet been established in this emerging country.

## THE MODEL

This study aims to put forward the triggering mechanisms on internal, external debt dynamics. We hypothesize that initial momentum comes from the economic growth process. Increases in economic growth rates triggers the import demand where the induced part of imports makes up the 60% of total imports. An increase in foreign exchange demand independent of domestic inflation rates leads to foreign borrowing and depreciation of the local currency. These developments can be translated as increased foreign borrowing and internal aspect of increasing public debt, which further triggers further internal borrowing. To test these implications we will use OLS and a dynamic time series analysis technique; Vector Auto Regressive Model (VAR) which tests the implications of innovation on economic growth and its chain reactions on trade balances, external borrowing, exchanges rates and on domestic borrowing. We hypothesis that there are meaningful short term shocks which at the end restricts the economic growth rate.

Our formal model has the following properties:

$$\ln dtradebalance = \alpha + \beta_1 \ln gdp + \beta_2 \ln er + \beta_3 \ln exdebtstock + \beta_4 \ln internaldebt \quad (2)$$

*lngdp* = percentage change in real GDP

*ln er* = percentage change in exchange rates

*dtradebalance* = absolute change in first differenced trade balances

*lnexdebtstock* = percentage change in external debt stock

*lninternaldebt* = percentage change in internal debt

All quarterly variables belongs to Turkish Central Bank, quarterly GDP and foreign trade data belongs to State Institute of Statistics. Period covered for the analysis is 1990-2000. Gdp variable included seasonality. So we adjusted with CensusX12. We have deliberately selected the above-cited period because it reflects a different economic structure in terms of exchanges rates and openness. We have used E-Views 5.1 in our predictions. During the estimation process initially unit root tests has been given to test the existence of stationary properties. Augmented Dickey-Fuller test shows stationarity of the variables:

**Table 1:** Unit Root Test Results:

	ADF	p
trade balance	4,98	0,0001
lngdp	-5,51	0,0001
ln er	-6,28	0,0000
lnexdebt	-2,95	0,0443
lninternaldebt	-7,32	0,0000

First of all with OLS we want to show the relationship of the variables:

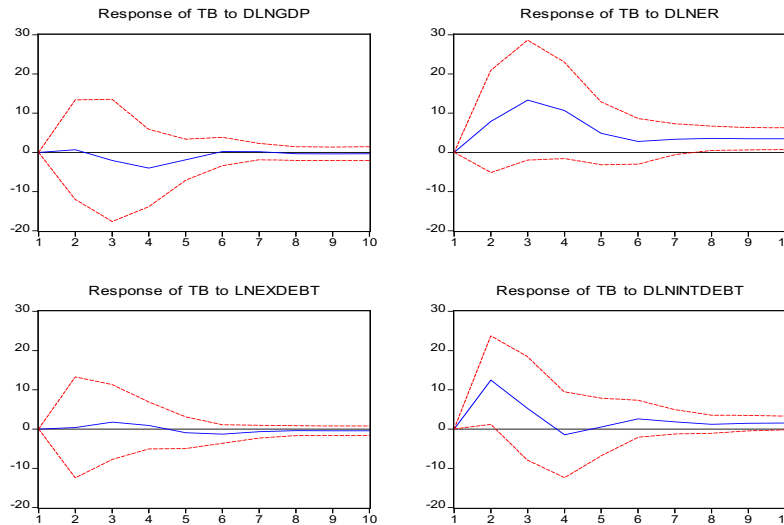
$$tb = 1020 - 272,56 \ln gdpsa + 277,95 \ln er + 217,44 \ln exdebt - 139,47 \ln internaldebt$$

	(0,34)	(-1,37)	(2,70)	(2,044)	(-4,00)	(3)
t	(0,73)	(0,17499)	(0,008)	(0,045)	(0,0002)	
p			F= 30,5	R <sup>2</sup> =0,65		

From the OLS above there is a positive relation between exchange rate and the trade balance. Here on this analysis trade balance is negative import exceeds export in Turkey on this period. When exchange rate increases export gets cheaper and import becomes expensive. Difference of export and import, increases on a negative form. Other positive relation is between trade balance and external dept. Debt is supported almost entirely by changes in the present-value of surpluses for some fiscal shocks, but for other fiscal shocks surpluses fail to adjust, leaving a large role for expected changes in discount rates (Chung at al,2007). External debt's increase induces the trade balance in Turkey during the 1990-2006 period. There is a negative relation between internaldebt and the trade balance variable. Internal debt means the saving part of the capital. But trade balance is from real economy. On this part of relation interest rate has a critical role. The interest rate effects the direction of money. Trade and interest income is alternatives of each other. These three connections are statistically significant.

### Graph 1

Response to Cholesky One S.D. Innovations ± 2 S.E.



To see the short run relationship VAR analysis used. After the ADF tests to understand stationarity at the second stage we calculated the optimal lags for the above-cited data. The optimal lag was 2. From the impulse response function Graph 1 we can easily say that there is no short run relationship. Only one shock on exchange rate increases the trade balance. Whole VAR graph can be seen at the end of this paper. Addition of these two methods, Johansen cointegration analysis used too. But no long run relation could be found.

## **CONCLUSION**

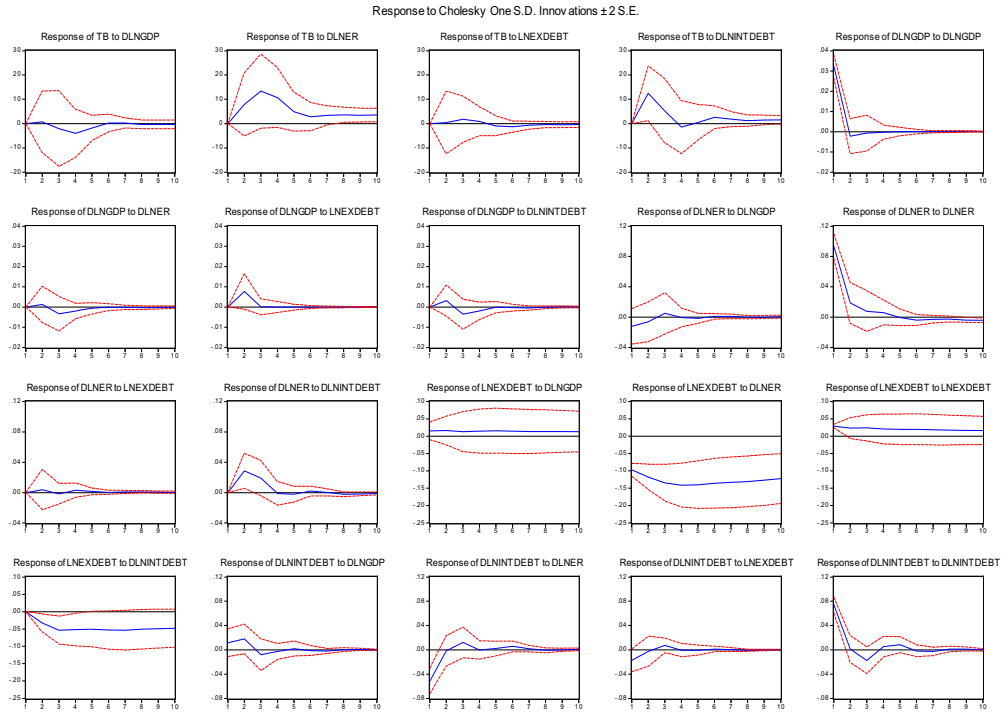
Overall findings show that, dynamic impacts of economic growth, trade balances, external debt, exchange rates and internal debt do not have long-term effects on each other.

One striking finding is that there are no long term impacts of innovations on each other, which can be translated as growth not restricting itself in the long run due to macro dynamics or innovation on variables stabilizing around averages in the short run. During the interpretation of our findings we should recall that lags in the implementation of monetary policy and interest rate benchmarks should be accepted as neutral, through out the period of analysis. Besides the domestic performances, international economic developments could be another source of dampening or magnifying factor on innovations.

We have started with the modest goal of looking at factors that leads to external and internal debt. Dynamic time analysis VAR had been used due to the nature of the data to assess economic growth and external-internal debt linkage. Major outcome of the study is that there are no long-term persistent impacts among variables.

# APPENDIX

## IMPULSE RESPONSE GRAPH



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