The Effect of the Domestic Debt on the Financial Development: A Case Study for Turkey

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Abstract

The aim of the study is to investigate the relationship between domestic public debt and financial development for the Turkish economy between 2002Q1-2012Q2. The previous panel data studies for developing countries suggest two main approaches. One view asserts a positive relationship between them while the other view asserts a negative relationship. Our results which are based on time-series analysis support the second view which advocates the negative relationship between domestic indebtedness and financial development. On the other hand we criticize the generalization of the results provided by other studies. According to our view each country may have different responses against the changes in domestic public debt due to its own specific economic and financial condition.

Keywords: public debt, financial development, lazy bank view, safe asset view, time series models

1. Introduction

There is huge literature about the effect of the public indebtedness on the economic growth both in the short- and in the long-run. The conventional view asserts that public debt can have a positive effect on growth via triggering aggregate demand and output in the short-run; but in the long-run the positive effect turns into a negative effect because of the crowding-out of capital and output (Elmendorf and Mankiw, 1998). There are also other channels through which economic growth is negatively affected as a result of high public indebtedness. These channels can be summarized as higher long-term interest rates, higher future distortionary taxation, inflation and greater uncertainty about prospects and policies (Kumar and Woo, 2010).

On the other hand another huge literature focuses on the relation between financial development and economic growth. On the theoretical side endogenous financial growth models indicate mathematically how financial development may have a positive effect on the economic growth (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Saint-Paul Gilles, 1992; King and Levine, 1993b). On the empirical side many cross-country studies provide empirical results which support also the positive relationship between finance and growth (Levine and Zervos, 1998; Levine, 1998; Benhabib and Spiegel, 2000; Beck and Levine, 2004; Caporale, Howells and Soliman, 2005). On the contrary some researchers like Minsky, Kindleberger advocates the negative effect of finance on the economic growth based on the occurrence of financial crisis (Stiglitz, 2000). Furthermore, Lucas advocates that the impact of finance on growth is overstressed (Lucas, 1988). According to Mankiw the negative impact of finance exists especially in countries in which the financial system regulation is weak (Mankiw, 1998). There are also some cross-country studies which indicate empirically the negative effect of finance on growth (De Gregorio and Guidotti, 1995; Harris, 1997; Aizenmann, 2004).

However, while the effect of the public debt and financial development on economic growth has been widely investigated; the relation between public debt and financial development is unexplored. In this paper our aim is to investigate empirically this relation for Turkey between the years 2002-2012 based on the quarterly data. We start to our analysis by asking a simple question: Why do governments issue debt?

Governments issue debt mainly because of two reasons. The first reason is about conducting monetary policy and the second is about the compensation of the government deficits. The public debt issuance is a powerful instrument to balance monetary expansion. In this manner the negative impact of the inflows of foreign currencies could be impeded through the placement of public debt (Foncerrada, 2005, pp. 251-252). In other

words the excess money is taken out of the circulation which could cause otherwise demand pressure and price increases in the domestic markets. The other reason of the debt issuance is based on the imbalance of the government expenses and income. Especially developing countries face with this imbalance due to the serious problems about raising revenue. Low income level and large informal sector make it difficult to collect direct and indirect taxes which represent a large portion of the public income. Additionally governments loose a reliable resource through trade liberalization which leads huge losses of tax revenues from tariffs. Inflation tax which could be thought as one of the traditional source of government revenue has lost its popularity due to the diligence about the price stability since 1990's. Given these difficulties in tax collection and inefficiency in the tax base leads developing countries to finance their government expenditures through domestic and international borrowing. This solution raises some questions about the optimal public debt structure. In one sense international borrowing provides countries to access financial resources. On the other hand the volatility in the capital flows into and out of these countries combined with the short-term characteristics of the external debt cause financial crises because of the lack of the financial depth in most of these countries. Additionally for most of these countries the access to international credit market is limited. This vicious cycle usually ends with financial crisis and starts again with renewed borrowing at unfavorable terms. These risks lead many developing governments to reduce the share of the external debt in their total debt structure. The uncertainties and additional costs of external debt force these countries to rely on internal borrowing. While domestic financing reduces macroeconomic risks, the absorption of the domestic financial resources by the governments brings some questions like inefficient credits to private sector and poor financial development to the agenda.

The common feature of the financial system in developing countries can be described as underdeveloped bond and equity markets. This fact causes the domination of the banks as the major lenders to the government in developing countries. The dual-role of banks as major lender to government and to the private sector offers an insight into a new literature which investigates the impact of the public debt on the financial development especially in developing countries.

Kumhof and Tanner (2005), one of the pioneers of this literature, asserts that liquid collateral function of safe government debt facilitates financial intermediation. They put emphasis on the function of public debt in financial development as safest asset in the financial system. According to their "safe asset" view government debt provides a benchmark that facilitates the development of the private sector bond market which is very important for overall financial development. They also assert that stable government debt management may facilitate bank-based financial intermediation if legal system and institutional infrastructure is weak. They describe stable government debt markets as the backbone for further development of financial markets.

David Hauner (2006) in contrast focuses on the increasing share of the bank credit absorbed by the public sector which causes the risk of slowing financial development. He finds empirical evidence about the negative effect of the domestic debt on the financial deepening. He also finds that the increasing share of public sector credit is not related to the income level of the country. According to his findings it is associated mainly with slower growth, increasing government intervention, more government bank ownership and weaker creditor rights. In another work Hauner (2009) adds a new concept to his previous work and set a new approach called "lazy bank" view. According to this view the increase in the profitability of banks through holding huge amount of public debt will cause on the other hand a decrease in their efficiency as the main credit source. This will lead diminishing financial deepening over time. The "lazy bank" view is also supported by the empirical results of the analysis. According to the empirical results there is also positive evidence for "safe asset" view up to a threshold in both bank-level and country-level. Beyond this threshold the increasing level of public debt becomes harmful. Hauner (2009) summarizes the additional costs of large fiscal deficits in developing countries under four titles as important policy implications. First, financial depth and credit to private sector has strong impact on economic growth; second the decrease in private sector credits has negative effect on the small firms and income distribution; third underdeveloped financial sector raises the sensitivity of financial system to capital account crises; fourth, poor financial development supports financial crowding-out.

Emran and Farazi (2008) investigate the impact of the government borrowing on the credits provided by the domestic banking sector for 25 developing countries. The results indicate a significant crowding-out effect on the private credits provided by banks. They find that an increase of the government borrowing by one dollar reduces credit to the private sector up to 80 cents in the long-run. One year later Emran and Farazi (2009) replicate their previous work and investigate crowding out effect for 60 developing countries. Their findings indicate more drastic results. They show empirically that $1.00 more government borrowing reduces private credit by about $1.40. According to their view the crowding-out effect on bank credits may have significant adverse effects on private investment and throughout on economic growth in developing countries where capital markets are not

well developed. Their analysis support "lazy bank" view too.

Riccardo de Bonis (2010) studies the determinants of the quantity of the bank loans and investigates the role of the government debt on the size of loans. The results of his analysis show that there are mainly two channels which the credit size is affected by the government debt. First, government debt reduces the size of the credits to private sector because banks find investing in government bonds more attractive. Second, the low private credit ratio to GDP may correspond to a large weight of the government and connected state-owned enterprises in the economy.

Natia Kutivadze (2011) investigates also the relation between public debt and financial development and finds positive correlation between the development of the domestic debt market and financial development. The results of the analysis provide strong evidence which supports the key role of the financial development on the development of the domestic debt market.

Our main aim is to suggest a new way to investigate the relation between public debt and financial development. This suggestion is based mainly on our criticism about the method of the previous works. The empirical parts of the previous works based on the panel data provides general results which is binding for all countries in the analysis. This common result represents the average response of the financial development against the changes in the public debt ratio of many countries but it hinders different responses of different countries about the same changes. We think in such an analysis overall results will be only sound under the assumption of ruling out the differences between countries about their financial and economic structures which may be an unreliable assumption. Therefore we suggest time series analysis to observe each country's response against the public debt changes in the context of financial development.

The remainder of this paper is organized as follows: Section 2 represents an overview about the internal and external debt position of the Turkish economy historically. In Section 3 we present our variables. Section 4 provides regression results and Section 5 provides conclusion.

2. External and Internal Debt of the Turkish Economy (2002Q1-2012Q2)

According to our view country specific differences play an important role to provide sound results about the analysis. Therefore we find it crucial to observe the Turkish public debt structure over time.
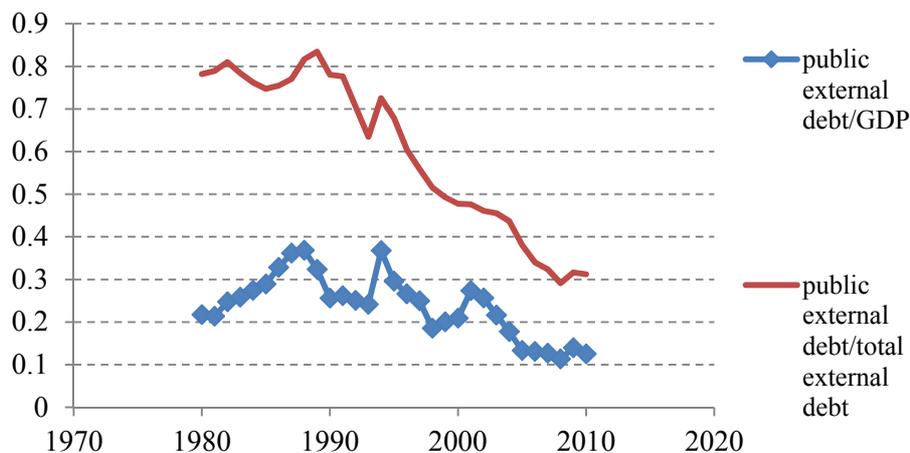

Figure 1. Public external debt

Source: World Bank.

The first figure represents the decrease in the external public debt/GDP and external public debt/total external debt ratio over time. The decrease in the share of the public debt in external borrowing means an increase in the share of the external private borrowing at the same time. In the second figure it can be seen that there is a trend shift in the domestic debt/GDP ratio from % 17 to % 43 during the period 2000Q3-2001Q2. The descending trend of the public external borrowing starting from that period till now supports the claim about the reliance of developing countries on internal borrowing as a result of the increasing financial risk. The uncertainties and additional costs of external debt are mentioned as the main reasons. On the other hand despite the reliance on the internal borrowing, the domestic debt/GDP ratio indicates a descending trend after 2002 up to % 27 percent in 2012.
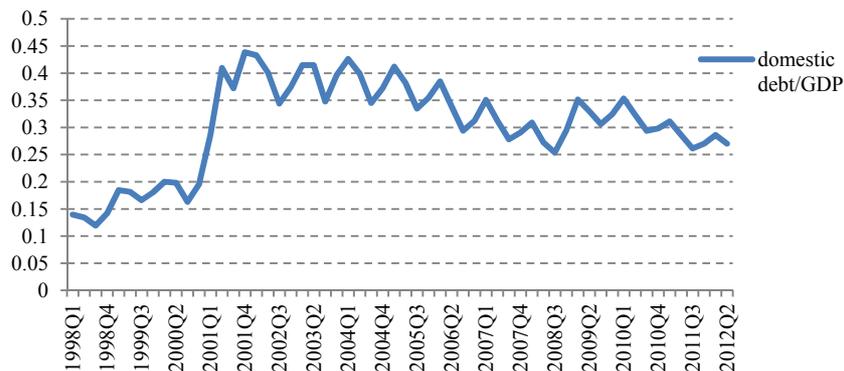
Figure 2. Domestic debt over GDP

Source: Central Bank of Republic Turkey.

The policy choice about relying on domestic sources instead of external borrowing may have some effect on the financial system. In the Turkish case banks play the dominant role in channeling funds from savers to investors like in many other developing and emerging market countries. Therefore the response of the banks due to the changes in the domestic borrowing is an important outcome to evaluate financial development in these countries. In figures 3 and 4 this response of the Turkish banking sector can be seen very clearly. In figure 3 the bank credits to private sector/GDP ratio indicates a tremendous increase after 2002. On the other hand in the same period the bank credits to public sector/GDP shows a decreasing trend. The percentage of the government securities held by banks in total government securities and the weight of these securities in total bank assets is a good indicator to evaluate the "laziness" of the banking sector. In figure 4 both government securities held by banks/domestic debt and government securities held by banks/banks total asset ratios indicate a decreasing trend after 2002. This trend has been corrupted during the financial crisis in 2008 but it has converged very rapidly to its previous trend before 2008.
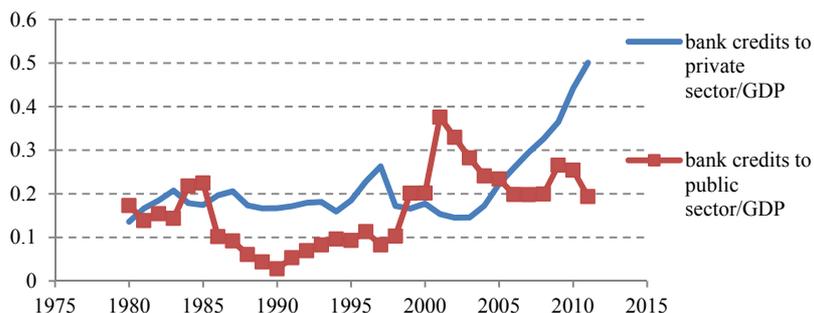

Figure 3. Bank credits to public and private sector
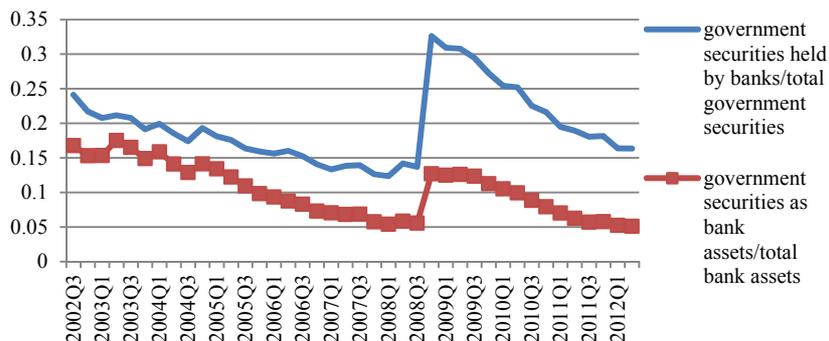
Source: World Bank.

Figure 4. Government securities held by banks

Source: Central Bank of Republic Turkey.

In sum the share of the domestic and external government debt decreases as percentage of GDP in the 2002Q3-2012Q2 period. The government policy during this period can be summarized as targeting low level of total public debt as the proportion of the GDP. Additionally it's also aimed to decrease the amount of external debt as much as possible in order to minimize financial risks that could be faced during financial crises. The effect of this policy implication appears as the increasing performance of the Turkish banking sector during this period. The decreasing trend of the public debt/GDP ratio allows banks to give more credits to the private sector which supports higher economic growth.

3. Data and Methodology

We've used basically two measures in order to examine the relationship between public debt and financial development in the 2002Q3-2012Q2 period. One measure is an indicator which shows the financial development through time and the other is an indicator which represents the indebtedness of public sector historically. The financial development measures are taken from the work of Levine (2002). He constructed a component measure called FINANCE-AGGREGATE which indicates the degree of financial system's ability to provide financial services. This measure consists of three sub-indicators. The first indicator is FINANCE-ACTIVITY which equals the logarithm of the value traded ratio times private credit ratio (Note 1). The second indicator is FINANCE-SIZE which equals the logarithm of the market capitalization ratio times private credit ratio (Note 2). The third measure of the financial development is FINANCE-EFFICIENCY which equals the logarithm of the turnover ratio divided by interest rate margin (Note 3). The last measure which can be described as a summary measure is called FINANCE-AGGREGATE which will be used as the financial development indicator. This measure is the first principal component of the finance-activity, finance-size and finance-efficiency. Larger values of these four measures signify an increase in financial development.

Table 1. Financial development indicator series (Note 4)

TIME	FINACT	FINSIZE	FINEFF	FINAGG
2002Q1	-2.1466	-1.1938	N.A.	N.A.
2002Q2	-2.3232	-1.3994	0.4945	-2.2344
2002Q3	-2.4169	-1.5723	0.3047	-2.4816
2002Q4	-2.0249	-1.5828	0.2815	-2.2402
2003Q1	-2.7293	-1.6731	-0.2698	-2.9763
2003Q2	-2.0638	-1.5331	-0.5165	-2.5457
2003Q3	-2.1679	-1.5297	0.0246	-2.4003
2003Q4	-1.6116	-1.2587	0.5002	-1.6743
2004Q1	-1.7512	-1.1860	-0.2350	-2.0065
2004Q2	-1.6995	-0.9905	-0.0685	-1.7813
2004Q3	-1.5862	-0.8682	-0.0964	-1.6389
2004Q4	-1.6531	-0.8312	-0.5242	-1.8262
2005Q1	-1.4330	-0.6797	0.6238	-1.1351
2005Q2	-1.5302	-0.5962	-0.0810	-1.4207
2005Q3	-1.1750	-0.3721	0.2692	-0.9060
2005Q4	-1.1430	-0.2126	0.3760	-0.7403
2006Q1	-0.9508	0.0518	-0.0601	-0.6140
2006Q2	-0.7969	0.0076	0.6292	-0.2721
2006Q3	-1.2261	-0.0860	-1.5963	-1.4843
2006Q4	-1.2125	-0.0290	0.0116	-0.8099
2007Q1	-1.0784	0.0506	0.3248	-0.5480
2007Q2	-0.9141	0.2340	0.6069	-0.2116
2007Q3	-0.6623	0.3293	1.7518	0.4628
2007Q4	-0.7429	0.4218	-0.3669	-0.3588
2008Q1	-0.9421	0.1526	-0.9943	-0.9085
2008Q2	-1.0147	0.1311	0.1011	-0.5418
2008Q3	-0.9332	0.1986	-0.5823	-0.7119
2008Q4	-0.9522	-0.0955	0.5885	-0.4564
2009Q1	-1.0963	-0.0577	2.9586	0.4000
2009Q2	-0.3811	0.1650	0.8330	0.1820
2009Q3	-0.4207	0.3455	0.1489	0.0052

2009Q4	-0.3534	0.4069	0.8349	0.3571
2010Q1	-0.2748	0.5851	6.5800	2.7699
2010Q2	-0.2775	0.6352	-0.5883	-0.0022
2010Q3	-0.4423	0.7433	-0.5944	-0.0430
2010Q4	-0.0252	0.8666	1.0035	0.9351
2011Q1	-0.0004	0.8265	1.5309	1.1317
2011Q2	-0.0665	0.8643	6.3869	3.0113
2011Q3	-0.1967	0.7634	3.6655	1.7968
2011Q4	-0.3723	0.7199	-0.4954	0.0265
2012Q1	-0.3354	0.7839	0.1022	0.3257
2012Q2	-0.2607	0.7735	0.3191	0.4529

As expected FINAGG gives nearly the same information those old variables FINACT, FINSIZE and FINEFF give. They correlation between these variables are very strong.

Table 2. Correlations of financial structure and financial development

Correlations (t-statistic)	FINACT	FINSIZE	FINEFF	FINAGG
FINACT	1.000			
FINSIZE	0.968	1.000		
	(24.118)**			
FINEFF	0.384	0.324	1.000	
	(2.601)**	(2.142)*		
FINAGG	0.903	0.876	0.733	1.000
	(13.176)**	(11.368)**	(6.729)**	

Notes: (**) and (*) indicate significance at the 0.01and 0.05 levels, respectively.

The other component of our analysis is domestic debt. In the public debt-finance literature different indicators are used in order to analyze the impact of the public debt on the financial development. Public debt/GDP, domestic debt/GDP, external public debt/GDP, credit to public sector/total bank credits, credit to private sector/ credit to public sector are examples for these indicators. In our analysis we use the logarithm of the DOMESTIC DEBT/GDP which represents the percentage change in the public needs of funds provided by the domestic financial system. We also used the logarithm of some control variables like INFLATION (-), TURNOVER RATIO (+) and INTEREST RATE MARGIN (+) with expected signs in the parentheses. (Note 5)

4. Regression Results

In order to investigate the effect of the public debt on the financial development we established a regression analysis between DOMESTIC DEBT/GDP ratio and the principal component score of the financial indicators FINAGG. We added also some control variables like TURNOVER RATIO, INTEREST RATE MARGIN and INFLATION to our regression analysis. The expected economic signs of the explanatory control variables were thought as a checksum of the regression analysis' soundness between DOMESTIC DEBT/GDP and FINAGG. In sum the explanatory control variables of the regression analysis were DOMESTIC DEBT/GDP, TURNOVER RATIO, INTEREST RATE MARGIN and INFLATION. The regression analysis is run for the Turkish quarterly data for the period 2002:Q1- 2012:Q2. This period is selected because it includes the recovery phase after the 2001 crises in financial markets. Estimations covering more than ten years are considered sufficient in literature to make long-run interpretations and using quarterly data allows us to make 42 observations with lags. All data is obtained from the database of the Central Bank of Republic of Turkey. The data at quarterly frequencies exhibit cyclical movements that recur every quarter. So recent U.S. Census Bureau's X12 seasonal adjustment method used for removing these cyclical seasonal movements from series.

The functional form of our regression analysis is chosen as a linear model as shown in below;

$$FINAGG_t = \beta_1 + \beta_2 DDR_t + \beta_3 TOR_t + \beta_4 NIM_t + \beta_5 INF_t + u_t \tag{1}$$

where $FINAGG_t$ measures financial development, DDR_t is the domestic debt ratio, TOR_t represents turnover ratio, NIM_t is the net interest rate margin and inflation is indicated by INF_t. Subjecting our variables individually to unit root analysis by Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) tests, we found that all the variables except INF are integrated at the same order. INF has I(0) order which indicates that it's already stationary. But the rest of variables' order is I(1) which means they contain a unit root at the level. The

results are given in Table 3 as follows:

Table 3. DF and ADF unit root tests for stationarity

| Variable | Level/First Dif. | DF | | ADF | | Conclusion |
		Intercept	Intercept& Trend	Intercept	Intercept& Trend	
FINAGG	Level	-0.218 (0.198)	-0.813 (0.001)	-0.218 (0.198)	-0.813 (0.001)	
	First Diff.	-1.274 (0.000)	-1.276 (0.000)	-3.482 (0.000)	--3.477 (0.00)	I(1)
DDR	Level	-0.02 (0.820)	-0.127 (0.772)	-0.033 (0.801)	-0.161 (0.582)	
	First Diff.	-0.814 (0.000)	-0.815 (0..001)	-0.814 (0.000)	-0.815 (0.001)	I(1)
TOR	Level	-0.514 (0.008)	-0.647 (0.006)	-0.514 (0.008)	-0.647 (0.000)	
	First Diff.	-1.570 (0.000)	-1.575 (0.000)	-1.570 (0.000)	-1.575 (0.000)	I(1)
NIM	Level	-0.916 (0.105)	-0.304 (0.276)	-0.196 (0.105)	-0.304 (0.276)	
	First Diff.	-1.105 (0.000)	-1.122 (0.000)	-1.105 (0.000)	-1.122 (0.000)	I(1)
INF	Level	-0.521 (0.001)	-0.564 (0.005)	-0.521 (0.001)	-0.564 (0.005)	
	First Diff.	-1.264 (0.000)	-1.268 (0.000)	-1.264 (0.000)	-1.268 (0.000)	I(0)

Notes: (i) Unit root test were performed using E-views (Version7.0) (ii) Lag length for DF test is selected as 0 and selected as automatic-based on Schwarz information criterion (SIC), (maxlag=9) for ADF (iii) Figures in bracket indicate probability values to reject the null hypothesis that claims the variable has a unit root.

According to Engle and Granger's definition cointegration refers to variables that are integrated of the same order. Nevertheless according to Lee and Granger (1990) it is possible to find equilibrium relationship among groups of variables that are integrated of different orders (Enders, 2010, p.360). As a result the linear combination of the variables cancels the stochastic trends in all series. Economically speaking, all the variables will be cointegrated if they have a long-term equilibrium between them. The estimated parameters of the cointegration model are shown in below and the results are given in Table 4.

Table 4. Estimated long term relation model dependent variable: FINAGG

Regressors	Parameter Estimates	P-Value
INTERCEPT	4.552	0.014
DDR	-18.804	0.004
TOR	1.1067	0.012
NIM	13.448	0.033
INF	-10.764	0.102
Adj. R^2 = 0.5933		
Prob (F-Statistic) = 0.0000		
Prob (L.M.) = 0.0329		

Notes: Estimation with OLS and HAC Standard Errors.

According to Breusch-Godfrey Serial Correlation LM test autocorrelation is found in the residuals of regression. Newey-West method is used to get rid of autocorrelation and to obtain standard errors of OLS estimators that are corrected for autocorrelation (Gujarati, 2009, 441). Subjecting our residuals to unit root analysis, we found that the residuals are stationary which indicates the cointegration between variables. The Dickey-Fuller and Augmented Dickey-Fuller critical significance levels are not quite appropriate for cointegration test for residuals (Engel and Granger, 1987). In the present context Engle and Granger's calculated values used for stationarity tests labeled as Engle-Granger (EG) and Augmented Engle-Granger (AEG) tests respectively. The results are

given in Table 5. Before the interpretation of Table 4 one must remember that the dependent variable of the regression analysis was the principal component of the logarithmic variables. As a mathematical necessity the parameters of the regression analysis give the partial semi-elasticities of FINAGG with respect to independent variables. So over the quarterly period 2002:Q1 to 2012:Q2, an increase in TOR by 1 point at a quarter, on the average, leads to about 1.1067 percent increase in the FINAGG; an increase in NIM by 1 point at a quarter, on the average, leads to about 13.448 percent increase in the FINAGG. Both variables have a positive effect on FINAGG as expected. On the other hand an increase in DDR and INF by 1 point individually at a quarter, on the average, lead to decrease -18.804 percent and -10.764 percent in the FINAGG respectively. Also the economical signs of DDR and INF were satisfied as expected. Since 4.552=log of FINAGG at the beginning of the study period, by taking its antilog we obtain 94.821 as the beginning value of FINAGG.

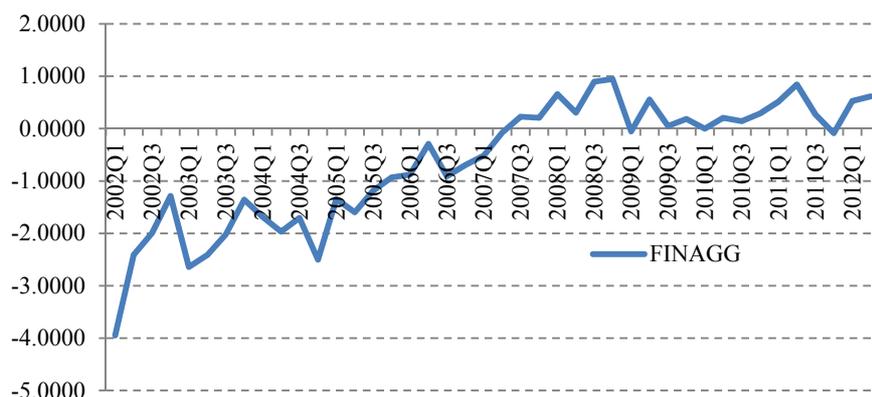Figure 5. Estimated FINAGG values over the 2002:Q1 to 2012:Q2 period

Table 5. EG and AEG unit root tests for residuals stationarity

		EG		AEG		
Variable	Level/First Dif.	Intercept	Intercept & Trend	Intercept	Intercept & Trend	Conclusion
RESIDUALS	Level	-3.933 (-3.34)	-4.129 (-3.78)	-3.93 (-3.34)	-4.129 (-3.78)	I(0)

Notes: (i) Unit root test were performed using E-views (Version7.0) (ii) Lag length for EG test is selected as 0 and selected as automatic-based on Schwarz information criterion (SIC), (maxlag=9) for AEG (iii) Figures in bracket indicate Engle-Granger asymptotic for cointegration values for %5. (Wooldridge, 2009, p.640).

As the variables below are cointegrated; that is, there is a long-term equilibrium relationship between them. In the short run there may be disequilibrium. Therefore, we can treat the error term in long term model as the "equilibrium error" and we can use this error term to tie the short-run behavior of FINAGG to its long-run value. The short-run relation is formulated as error correction model (ECM) as:

$$\Delta FINAGG_t = \alpha_1 + \alpha_2 \Delta DDR_t + \alpha_3 \Delta TOR_t + \alpha_4 \Delta NIM_t + \alpha_5 \Delta INF_t + \alpha_6 u_{t-1} + \varepsilon_t \qquad (2)$$

And the estimated regression model is shown in Table 6.

Table 6. Estimated error-correction model, dependent variable: ΔFINAGG

Regressors	Parameter Estimates	P-Value
INTERCEPT	0.050	0.698
ΔDDR	-3.235	0.819
ΔTOR	0.646	0.062
ΔNIM	10.311	0.128
ΔINF	-1.785	0.797
LONG-TERM RESID (-1)	-0.511	0.002
Adj. R^2 = 0.334		
Prob (F-Statistic) = 0.011		
Prob (L.M.) = 0.794		

Note: Estimation with OLS and HAC Standard Errors

Table 6 shows the short-run effect of public debt effect on financial improvement by using ECM model. In the short-run residuals follow the normal distribution and there is no autocorrelation as in the long-run. In this way the basic OLS estimation conditions are satisfied. As these results show, 0.51 of the discrepancy in the two ratios is eliminated because FINAGG ratio was higher than expected a priori in the last quarter, this quarter it will be reduced by 0.51 percentage points to restore the long-run relationship between the variables.

5. Conclusion

Our main aim is to provide some results about the relationship between public debt and financial development between 2002Q1-2012Q2 for the Turkish economy. The literature that focuses on this relationship is quite new and based mainly on two opposite approaches called "safe asset" and "lazy bank" view. "Safe asset" view advocates the positive effect of the public indebtedness on the financial development while "lazy bank" view advocates the negative effect. We criticize previous works about the generalization of the results they provide. We assert that different countries will indicate different responses against the changes in the public indebtedness and these responses will also differ historically. Therefore we suggest a time-series analysis which provides to monitor country specific conditions through time. In order to denote financial development we use the financial development indicators of Ross Levine (2002) and investigate its relationship with the domestic indebtedness. Our findings support our expectations based on the graphically interpretations of these two variables. The results indicate that the increase in the domestic indebtedness has negative effect on the financial. The control variables also support our results.

The policy implication of the results indicate that decreasing level of domestic indebtedness allows Turkish banking sector to increase private sector credits which in turns has positive effect on the economic growth. This result can be evaluated as a positive support to the "lazy bank" view. On the other hand we believe that the same analysis may give different results under different country specific economic and financial conditions. Therefore we suggest country specific analysis in order to obtain sound results about the public debt-financial development relationship. In future works it may be a good way to classify countries under more specific constraints and work with small groups in order to reach more healthy results for each specific country groups.

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Notes

Note 1. The value traded ratio shows the activity of the stock market and private credit ratio shows the activity of the financial intermediaries.

Note 2. The market capitalization ratio shows the size of the stock market.

Note 3. The turnover ratio indicates how often shares change hands in a stock market and equals to the division of the value of stock transactions by the market capitalization. In most of the developed financial markets the turnover ratios are quite high. The interest rate margin represents the transaction cost of financial intermediation and equals the difference between borrowing and lending interest rates that banks face. The value of the margin may have different meanings under different assumptions. In a liberalized financial system higher values of the interest rate margin may be interpreted as poor competition in the banking sector and poor financial development. Under the assumption of financial repression the margin could be below its competitive level and higher values may have positive effect on the financial development (Hauner, 2006).

Note 4. Finance-Activity= Ln (total value traded ratio*private credit ratio); Finance-Size = Ln (market capitalization ratio * private credit ratio); Finance-Efficiency = Ln (turnover ratio/ interest rate margin);

Finance-Aggregate = Principal component of Finance-Activity, Finance-Size and Finance- Efficiency.

Note 5. The variables which are written with capital letters in Section 3 are used in the regression analysis.