

# Foreign Debt in EU Periphery, Roots and Remedies: A New Strategy

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**Abstract** This paper investigates the determinants of external debt in EU periphery. The goal is to contribute to the ongoing debate on the determinants of external debt and to subdue it by adopting the right policy reform. To answer this question the study implements a quantitative research methodology using econometric techniques with monetary, financial, fiscal, trade, and labor market policy variables with time-series data over the period of 1980 to 2013. The estimated econometric results with OLS technique suggest that while fiscal policy variables such as budget deficit and corporate tax rate are the most important factors in shaping external debt in Italy and Spain; monetary, financial, and trade policy variables are more important for Greece and Portugal. Interestingly, none of the labor market variables have a statistically significant impact on the foreign debt of EU peripheral countries. The policy implication is straight forward; contrary to what has been proposed by international institutions to reform the labor market, Greece and Portugal need to focus on trade and monetary policy reforms, while Italy and Spain should put more emphasis on fiscal policy reforms, particularly tax reform.

**Keywords:** *external debt, fiscal policy, financial development, capital outflow, corporate income tax rate, openness, trade policy reform*

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## 1. Introduction

Though there are numerous studies on the determinants of foreign debt among developing countries not much has been said about external debt in EU periphery. The experience of highly indebted countries suggests that past accumulated external debt is likely to provoke further external borrowing, creating a vicious circle of debt. To mitigate the burden of foreign debt, introduction of a sustainable strategy is indispensable. Since the Troika common reforms have some blind spots, this paper tries to propose a new strategy by investigating the roots of disease and the macroeconomic fundamentals that shape the foreign debt in EU periphery.

The southern European periphery has suffered a severe setback in its catching up with Western Europe, with GDP dropping by 10% between 2008 and 2013 and unemployment rising to 20% for Greece, Portugal, and Spain [1]. Though these countries have been at the center of attention among policy makers, too little has been said about the underlying roots of the problem.

Policy reactions has mainly focused on the labor market reform and price competitiveness, with blind spots on other fundamentals such as financial development, monetary policy, trade policy, and fiscal policy reforms. Indeed, in the aftermath of financial crisis the automatic adjustment of devaluation has no longer been available to these countries due to adoption of Euro; that is why Troika has mainly focused on wage adjustment and

reducing pensions. Increase in the current account deficit stimulated by high domestic demand and insufficient exports have exacerbated the trade deficit among periphery countries.

Moreover, when the financial crisis hit these countries they experienced a convergence of interest rate with northern Europe; and with the reduction in interest rates, government bonds became extremely expensive to the southern European countries; making it difficult for these government to sell bonds. As a result the Troika strategy mainly focused on labor reform to reduce the budget deficit without paying attention to productivity and tax reforms.

Since there is gap in the literature on the determinants of foreign debt crisis in EU peripheral countries this paper attempts to investigate the macroeconomic fundamentals that shape external debt in Greece, Italy, Portugal, and Spain. The results of this study have important policy implications because they help us develop sustainable strategies that mitigate the burden of external debt. Is the labor market reform the right policy as suggested by Troika to cure the foreign debt crisis, or there are other important pieces to the puzzle like monetary, financial and trade policy reforms that play an important role in curing the external debt crisis? Choosing the right policy reform without recognition of economic fundamentals that shape foreign debt looks impossible. To answer these questions I use a quantitative research methodology with data for the period of 2008-2013 to determine the roots of foreign debt in EU periphery.

The rest of the paper is organized as follows. Section 2 reviews the literature on the macroeconomic fundamentals of external debt. Section 3 presents econometric specification and data description. Section 4 discusses the estimated regression results. And finally section 5 concludes and presents policy implications.

## 2. Literature Review

This section reviews the empirical studies on the determinants of external debt in different countries and regions. The study of literature will help us recognize the fundamentals in shaping external debt, and therefore, can help us subdue the accumulation of foreign debt in EU periphery.

Tiruneh uses panel data for 60 developing countries to analyze debt crisis in 1980 and 1990 [2]. He uses country specific features like colonial heritage, geopolitical situation and creditworthiness and estimates an econometric model where the demand for borrowing is a function of total debt service, changes in international reserves, capital outflow, foreign direct investment (FDI), exports and terms of trade. He finds that capital outflow and deterioration in terms of trade have been disastrous phenomena for developing countries. He uses random and fixed effect model to control for country and time specific effects. He finds that countries with lower GDP growth tend to have higher demands for foreign resources. Also countries that are more open to international trade tend to borrow more than countries that are relatively closed. Also, the results indicate that countries with higher capital flight tend to borrow more. In sum, his results show that capital flight, debt service payments, imports to GDP ratio, and GDP growth rate are the key determinants of demand for overseas borrowing.

In another study Lane uses cross-section data for the period of 1970-95 for a sample of 68 low and middle income countries [3]. He uses per capita external debt as dependent variable, and openness, productivity, access to credit and political instability as independent variables. His results indicate that influence of trade openness on foreign debt is positive and significant. He also finds that lack of access to international credit will raise the possibility of external debt.

Saibou & Abogan examine the determinants of foreign debt in Nigeria [4]. They use time series data from 1970 to 2004 and an Error Correction Model (ECM) to investigate determinants of external debt. Their empirical results suggest that external debt is negatively correlated with exports and exchange rate, while it is positively affected by fiscal deficit, level of economic growth, and inflation. However, fiscal deficit has longer effects than other variables. Thus they emphasize the importance of fiscal policy for external debt. Given the negative effects of exports on foreign debt, the authors emphasize the importance of non-oil exports promotion strategies to reduce external borrowing.

Tiruneh investigates the debt crisis of heavily indebted poor countries [5]. Though it is generally believed that external debt helps countries to achieve accelerated economic growth, once this financial gap becomes unmanageable, the past accumulated external debt provokes further external borrowing, creating a vicious

circle. He uses data for 48 countries that have rescheduled debt service during 1889-98. In his study the dependent variable is the total amount of reschedule debt and independent variables include debt service to exports, reserves to imports ratio, real GDP, annual growth rate of GDP, ratio of imports to GDP, growth of OECD trade partners, percentage change in terms of trade, and capital inflow ratio to total debt service. He finds that a higher amount of foreign reserves to imports ratio decreases the probability of debt rescheduling; while an increase in the ratio of imports to GDP increases the probability of rescheduling. He also finds that higher amount of capital inflow reduces the probability of debt rescheduling.

Ngassam uses a sample of 45 African countries with data over the period of 1976 to 1987 to investigate the factors that affect external debt service [6]. He finds that the debt service ratio, reserves to imports ratio, the debt service payment to capital inflow ratio, the GDP growth rate, the inflation rate, and the ratio of government deficit to GDP are the most important factors shaping the foreign debt-servicing capacity of African countries. The results suggest that a higher reserve ratio means lower likelihood of rescheduling. He finds that as the real net capital inflow declines the ability to meet the debt service obligations significantly diminishes. He also finds that higher inflation and fiscal deficit to GDP ratio is positively associated with external debt.

Udoka & Anyingan investigate the external debt management strategy of Nigeria from 1970 to 2006 [7]. They use a regression model where the external debt is dependent variable and gross domestic production, exchange rate, fiscal deficit, Libor interest rate and terms of trade are used as independent variables. Interestingly enough, the abovementioned independent variables explain more than 97% of changes in external debt. They find that GDP, exchange rate, fiscal deficit, Libor interest rate, and terms of trade are strong determinants of external debt in Nigeria.

Ioan investigates Romanian economy [8]. He finds that a reduction in capital inflow has been associated with a wider budget deficit and a corresponding increase in external debt. He uses different measure of external debt including imports to reserves, the share of external debt to GDP, and share of foreign debt to total exports and finds that rigidity of public spending has been a major factor for high level of external debt.

Awan, R et al. investigate the macroeconomic determinants of external debt in Pakistan with time series data from 1976 to 2010 using ECM model [9]. They find that fiscal deficit, nominal exchange rate and trade openness are the main determinants of external debt in Pakistan.

Benedict et al. investigate the determinants of external debt in Nigeria [10]. The result of cointegration finds that there is negative but significant relationship between terms of trade and ratio of external debt to GDP. Budget deficit is also found to have a positive but insignificant relationship with external debt; and finally, FDI is found to have an inverse relationship with external debt.

Buch, C. & L. Lusinyan investigate determinants of short term foreign debt [11] and use variables such as cost of liquidation, state of development of financial system, regulations, type of borrower, and EU membership for 55 countries. They find that the level of economic development,

the presence of financial centers and share of loans have positive impacts on foreign debt.

Chiminya A.& E. Nicolaidou investigate determinants of external debt in 36 Sub Saharan Africa over the period of 1975 to 2012 using pooled OLS and fixed effects model [12]. They use variables such as trade openness, inflation rate, share of government expenditures to GDP and political systems. They find that countries with more open trade and competitive electoral systems are likely to accumulate less debt.

Hilsher, J. & Y. Nosbusch investigate the effects of macroeconomic fundamentals on emerging markets sovereign debt [13]. They find that volatility of terms of trade has a significant impact on spreads. Also, their measure of economic fundamentals including reserve to GDP and debt to GDP are statistically significant in their model.

Lane, P.R examines the statistical portrait of the foreign debt for a group of low and middle income countries with data spanning 1970-1998 [14]. He finds that external debt is increasing with the level of initial output and finds a positive significant effect from trade volume on external debt.

### 3. Econometric Specification and Data Description

#### 3.1. Data Description

The data in this study covers the period of 1980-2013 and has been retrieved from Organization for Economic Co-operation Development (OECD), the World Bank and Eurostat.

Table 1 represents the list of independent variables that are used to explain foreign debt to GDP ratio in EU periphery. The list is divided into five categories, financial, fiscal, labor market, monetary, and trade policy variables. The goal is to investigate which of these set of variables play a more important role in shaping the external debt.

Table 1. List of Independent Variables

<i>Financial Variables</i>	
<i>K</i>	Capital outflow
<i>FDI</i>	Foreign Direct Investment (Inflow)
<i>Stock</i>	Stock market size to GDP
<i>Fiscal Variables</i>	
<i>BD</i>	Budget deficit percentage to GDP
<i>Tax</i>	Average Corporate Income Tax Rate
<i>Labor Market Variables</i>	
<i>W</i>	Hourly labor wage
<i>Strict</i>	Strictness of Employment Protection
<i>Pension</i>	Social Expenditure Program to GDP (Pensions)
<i>Monetary Policy Variables</i>	
<i>Spread</i>	Lending interest rate minus rate paid on saving deposits
<i>Loan</i>	Banking system loans ratio to GDP
<i>Trade Policy Variables</i>	
<i>Trade</i>	Ratio of Trade deficit to GDP
<i>TOT</i>	Terms of trade measured by export price to import price index
<i>Openness</i>	Imports plus exports ratio to GDP
<i>FR</i>	Foreign reserves as a ratio to GDP

Table 2. Estimated results for foreign debt of the EU periphery

Variables	Greece	Portugal	Italy	Spain
<i>K</i>	0.46 (2.93)**	0.32 (2.15)**	0.14 (2.34)**	0.17 (2.01)**
<i>FDI</i>	-0.37 (2.64)**	-0.58 (1.89)**	-0.13 (2.19)**	-0.18 (2.35)**
<i>Stock</i>	-0.27** (3.15)	-0.25** (7.5)	-0.14* (1.13)	-0.17* (1.42)
<i>BD</i>	0.12 (1.56)	0.14 (1.23)	0.32 (2.56)**	0.42 (3.14)**
<i>Tax</i>	-0.08 (2.54)	-0.15 (2.78)	-0.51 (3.12)**	-0.57 (3.56)**
<i>W</i>	-0.06 (1.12)	0.23 (1.23)	0.14 (0.95)	0.18 (1.45)
<i>Pension</i>	0.11 (1.06)	0.21 (0.97)	0.13 (1.40)	0.12 (1.16)
<i>Strict</i>	0.01 (1.54)	0.07 (1.76)	0.24 (1.19)	0.08 (1.23)
<i>Spread</i>	0.34 (1.96)*	0.23 (3.95)**	0.08 (2.96)**	0.09 (2.12)*
<i>Loans</i>	-0.34 (2.79)**	-0.41 (3.18)**	-0.09 (2.83)**	-0.05 (2.64)**
<i>Trade</i>	0.09 (2.22)**	0.12 (1.96)*	0.19 (1.57)	0.22 (1.14)
<i>TOT</i>	-0.01 (3.2)**	-0.04 (4.1)**	-0.35 (3.56)**	-0.31 (3.34)**
<i>Openness</i>	0.12 (0.95)	0.03 (1.14)	0.16 (1.43)	0.15 (0.94)
<i>FR</i>	-0.15 (3.18)**	-0.13 (4.16)**	-0.09 (3.17)**	-0.12 (2.78)**
<i>R-Squared</i>	0.91	0.93	0.87	0.89
<i>F-Statistics</i>	159.48	231.24	134.95	187.26
<i>D.W.</i>	2.14	2.28	2.19	2.32

Note: Numbers in parentheses are (t) statistics  
Numbers with \*\* are significant at 99% confidence level and with \* are significant at 95% confidence level.

#### 3.2. Empirical Model

The following econometric model has been estimated for four EU peripheral countries including: Greece, Italy, Spain, and Portugal. In this model the debt to GDP ratio is a function of five categories of macroeconomic variables; (i) financial variables including capital outflow, foreign direct investment, and stock market size; (ii) fiscal policy variables including budget deficit, average corporate income tax rate, (iii) labor market variables including hourly wage, strictness of employment protection, and social expenditures to GDP, (iv) monetary policy variables including interest rate spread and bank's loans ratio to GDP; and (v) last not least trade policy variables including trade deficit ratio to GDP, terms of trade, openness, and foreign reserve ratio to GDP.

$$\begin{aligned}
 Debt = & a_0 + a_1K + a_2FDI + a_3Stock \\
 & + a_4BD + a_5Tax + a_6W + a_7EXP + a_8Strict \\
 & + a_9Spread + a_{10}Loan + a_{11}Trade \\
 & + a_{12}TOT + a_{13}Openness + a_{14}FR
 \end{aligned}$$

The expected signs of each of these variables on foreign debt are as follows:

$$\begin{aligned}
 \frac{\partial FD}{\partial K} > 0, \frac{\partial FD}{\partial FDI} < 0, \frac{\partial FD}{\partial Stock} < 0, \frac{\partial FD}{\partial BD} > 0, \\
 \frac{\partial FD}{\partial Tax} > 0, \frac{\partial FD}{\partial W} > 0, \frac{\partial FD}{\partial Pension} > 0, \frac{\partial FD}{\partial Strict} > 0
 \end{aligned}$$

$$\frac{\partial FD}{\partial Spread} > 0, \frac{\partial FD}{\partial Loan} < 0, \frac{\partial FD}{\partial Trade} > 0,$$

$$\frac{\partial FD}{\partial TOT} < 0, \frac{\partial FD}{\partial Openness} < 0, \frac{\partial FD}{\partial FR} < 0.$$

#### 4. Estimated Results and Discussion

The estimated results for the above equation with the OLS technique suggest that financial, fiscal, monetary, trade, and labor market policy variables together explain more than 87% of changes of foreign debt in EU peripheral countries. However, the importance of each group of variables varies substantially among these countries.

The estimated results indicate that monetary and trade policy variables play the main role in shaping external debt in Greece and Portugal. The results are in accordance with the empirical finding of Tiruneh [2]. Indeed, the results suggest that austerity program, measured by the ratio of loans to GDP, has led to higher amount of foreign debt in these countries, reflected in the negative coefficient of banking loans. The more contractionary monetary policy, the more likely the country restores to external financing. Also, the coefficient on interest rate spread is positive, indicating that a higher interest rate leads to higher foreign.

In the financial sector, the sign on capital outflow is positive and significant, suggesting a higher capital outflow leads to higher external borrowing. However, this coefficient matters more for Greece and Portugal. The coefficient on FDI is also statistically significant for all countries but more relevant to Greece and Portugal. The coefficient on stock market size is negative as expected, meaning that a more developed financial market leads to lower level of foreign debt. Therefore, financial and monetary policy reforms remain a high priority for Greece and Portugal.

However, the results suggest that fiscal policy variables matter more for Italy and Spain. The coefficients on budget deficit are positive for all countries but only significant for Italy and Spain. The higher the budget deficit, the more likely the government restores to external borrowing. In accordance with Saibou & Abogan [4] we find a positive significant impact of fiscal deficit on external borrowing.

Though the average corporate income tax rate is among the fiscal variables that matter to all countries, the importance is more relevant for Italy and Spain; the higher the corporate tax rate, the more likely people flee their money out of the country, leading to higher level of external financing. Different measures of labor market reforms including hourly wage, strictness of employment protection and social expenditures have been used here; interestingly enough, none of these variables have a significant impact on the foreign debt, highlighting the fact that labor market reform is not a priority for indebted countries.

Among trade policy variables, terms of trade and foreign reserves are significant and of the expected signs. The coefficient on terms of trade is negative and significant for all countries because as term of trade deteriorates the country will need more foreign financing

and external debt. Also, trade deficit to GDP matters for Greece and Portugal, while not significant for Italy and Spain.

Finally, the coefficient on foreign reserves to GDP is of expected negative sign and significant for all countries; however, it has higher impact on external debt of Greece and Portugal. In other words, the higher the foreign reserves, the less likely the country restores to foreign debt. Our results are consistent with those of Tiruneh [5] and Udoka & Anyingan [7] who find foreign reserves has a negative significant impact on external debt.

In sum, the estimated results suggest that each country needs to focus on a different set of policy reforms. No single policy reform is panacea for all countries at all times. While Greece and Portugal will substantially benefit from monetary, and trade policy reforms, Italy and Spain will substantially benefit from fiscal policy reforms. Emphasizing on the wrong policy reform, not only has a high cost for the relevant peripheral country, but also for the European Union. The results of this study indicate that focusing on labor market reforms, without paying enough attention to blind spots of monetary policy and trade policy reforms will be misleading for the economy of Greece and Portugal.

#### 5. Concluding Remarks and Policy Implication

This study tried to investigate the macroeconomic fundamentals of external debt in EU periphery. The estimated econometric results indicate that monetary, financial, fiscal and trade policy variables have different degree of importance in shaping external debt in EU peripheral countries; therefore, each country needs to adopt a different strategy for prioritizing its policy reforms to avoid further burden of external debt.

The policy implication of this study is straight forward; while fiscal policy, particularly budget deficit and high corporate income tax rate, are the main determinants of external debt for Italy and Spain; financial market, and trade policy reforms are of greater importance for Greece and Portugal. Contrary to ongoing policy recommendation of Troika our results indicate that labor market reform, from reducing hourly wages to reducing the strictness of employment protection doesn't have any significant impact in explaining external debt in EU peripheral countries. Indeed, what is at the core of Greece and Portugal foreign debt crisis is undeveloped financial market, procyclical monetary policy, and lack of an effective strategy to attract FDI. The experience of Scandinavian countries suggests that despite higher wages they have been able to grow faster and reduce their foreign debt due to effective trade strategies and higher amount of FDI inflows to their countries.

The results of this study also indicate that fiscal policy variables, particularly average corporate income tax rate matters more than other variables for Italy and Spain. Therefore, these two countries will benefit from fiscal policy reforms, particularly from corporate income tax reform.

In sum, the results of this study suggest that each of the EU peripheral countries has experienced high level of foreign debt due to different fundamentals. Ignoring the

roots of foreign debt crisis and following a generic policy reform package designed by Troika with so many blind spots won't be able to fix the burden of foreign debt. Therefore, putting too much emphasis on the labor market reform and fiscal discipline for a country which is suffering from undeveloped financial market and lack of FDI flow may not be the right policy solution.

Indeed, no single policy reform is panacea for all EU peripheral countries at all times; each country should avoid accumulation of foreign debt by tailoring the right policy reforms package, which is not focused on austerity plan but on reforms towards a sustainable model. Today, peripheral countries need a more proactive strategy that helps them develop new industries and leverage more FDI to the country. Cutting the wages to compensate for the loss of competitiveness, specifically, if the low productivity was the root of increase in unit labor cost, is not the right solution. Therefore, wage restraint and cutting the pensions and dismissal of civil servants do not seem to be capable of solving the external debt problem in peripheral countries. An efficient policy reform package should be multidimensional with comprehensive programs on fiscal, monetary and trade policy reforms. A policy reform package that focuses only one aspect like labor market will deter the catch up process with northern countries and deteriorate the burden of foreign debt.

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