



**UNIVERSITAT  
JAUME I**

## **TWIN DEFICITS HYPOTHESIS FOR EUROPEAN COUNTRIES**

---

Student:

Sandra Laborda Deltoro

Tutor:

Mariam Camarero

Degree:

Economics

Castellón, June 22, 2015

JEL CODES: E62, F21, F32, F41



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Theoretical Basis</b>	<b>3</b>
2.1	The Twin deficit hypothesis . . . . .	3
2.2	Flexible exchange rate and full capital mobility. . . . .	8
2.3	Full capital mobility and fixed exchange rate . . . . .	9
2.4	Limited Capital mobility and fixed exchange rate. . . . .	9
2.5	Ricardian Equivalent Hypothesis (REH) . . . . .	11
<b>3</b>	<b>Literature Review</b>	<b>12</b>
<b>4</b>	<b>Methodology</b>	<b>14</b>
<b>5</b>	<b>Data and Results</b>	<b>16</b>
<b>6</b>	<b>Conclusion</b>	<b>21</b>
	<b>Bibliography</b>	<b>23</b>



# List of Figures

2.1	An increase in government expenditures in the small open economy with flexible exchange rate and full capital mobility (IS-LM model) [9]. . . . .	8
2.2	An increase in government expenditures in a small open economy with full capital mobility and fixed exchange rate (IS-LM model) [9]. . . . .	9
2.3	An increase in government expenditures in a small open economy with limited capital mobility and fixed exchange rate (IS-LM model) [9]. . . . .	10
5.1	Data 1970-2011 (Austria) . . . . .	16
5.2	Data 1970-2011 (Finland) . . . . .	16
5.3	Data 1970-2011 (France) . . . . .	17
5.4	Data 1970-2011 (Germany) . . . . .	17
5.5	Data 1970-2011 (Greece) . . . . .	17
5.6	Data 1970-2011 (Ireland) . . . . .	17
5.7	Data 1970-2011 (Italy) . . . . .	18
5.8	Data 1970-2011 (Netherlands) . . . . .	18
5.9	Data 1970-2011 (Spain) . . . . .	18



# List of Tables

3.1	Overview of previous empirical results. . . . .	13
5.1	Unit root test for variable CA (highlighted stationary values) . . . . .	19
5.2	Unit root test for variable BD (highlighted stationary values) . . . . .	19
5.3	Overview of results . . . . .	20





# Chapter 1

## Introduction

Recently, several European economies have suffered a deterioration in their fiscal and current account imbalances. The global crisis has contributed to possible linkages between fiscal and current account deficits. These linkages are known as "The Twin Deficit Hypothesis". The case of several European economies is that, excessive deficits lead into insolvency which reflects inability of the government to stabilize its public debt ratio and to pay its debts.

The twin deficit hypothesis states that an increase in the fiscal deficit causes an increase in the current account deficit. Our argument starts from the observation that, by national accounting, a fall in national savings because of a government deficit translates into a fall in the current account balance. On the other hand, private savings will increase in response to fiscal shocks increasing public debt, as a higher debt generates expectations of higher taxes in the future.

According to the Mundell-Fleming model, with flexible exchange rates, fiscal deficits appreciate the currency: an increase in the relative price of domestic goods crowds out net export. If fiscal deficits also raise the interest rate, the external imbalance may be moderated by a simultaneous fall in domestic investment. This model emphasised changes in terms of trade and interest rates, but abstracts from inter-temporal consumption and treats the rate of return to investment as exogenous. Conversely, models following the so-called inter-temporal approach to the current account emphasize consumption and optimal inter-temporal investment decisions, but typically postulate a high degree of world market integration.

---

The objective of this paper is to provide a deeper insight on the dynamic linkages between the twin deficits by testing 10 European countries: Austria, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain. An approach based on the Granger causality test was used, and the period analysed is from 1970 to 2011. The study examines diversity across a selected group of countries with weak economic situations. The causal relationship could not be stable because of the current global crisis, so in presence of instability the result could suggest erroneous or unproductive.

This paper is organized as follows. In Chapter 2 "Theoretical Basis" a short discussion of the behaviour of the budget balance and the current account balance is provided, Chapter 3 reviews the literature on the linkages between external and internal deficits, and exposes the different conclusions reached by the authors; Chapter 4 discusses the empirical methodologies employed in the econometric analysis, Chapter 5 contains the description and the empirical analysis of the data. Finally, the conclusions are included in the sixth chapter.

## Chapter 2

# Theoretical Basis

### 2.1 The Twin deficit hypothesis

The twin deficit hypothesis, also called the double deficit hypothesis or twin deficits anomaly, is a macroeconomic statement which enunciates that there is a well-established link between a national economy's current account balance and its government budget balance.

Over the last years, the twin deficit hypothesis has returned to the forefront of the policy debate. The argument first came out in 1980 when the United States suffered the twin deficits. Current account imbalances, have historically been considered a matter of policy makers and public opinion in a number of countries. It is often argued that budget imbalances of the public sector are one of the consequence for the current account imbalances. Furthermore, empirical work on the causal relationship between the current account and fiscal policy has been rather uncertain. Some empirical studies discovered that higher budget deficits lead to higher current account deficits. On the other hand, others determine the opposite or show no significant relationship at all.

The conception that the current account deficit can be connected in some way to the fiscal situation and that having internal an external deficits at the same time could be risky for the economy is normally associated with the IMF and the name of Jacques J.Polak (2001), one of the founders the monetary approach to the balance of payments. Polak stated that the increase in domestic credit could have a durable negative impact on the current account, whereas increases in exports and output have temporally positive effects.

Accordingly, control over domestic credit is of crucial importance for guaranteeing external balance.

Some other strand of the twin deficit hypothesis comes from neo-Keynesian approach, that confirms the relationship between the two deficits, assuming that the exchange rate should be used to attain external equilibrium while fiscal policy should be used to achieve internal equilibrium.

### Theoretical Basis for the Twin Deficits Hypothesis

Economic reasoning for connection between budget deficit and current account balance may be traced from the national income identity.

$$Y = C + I + G + (EX - IM), \quad (2.1)$$

Where  $Y$  stands for national income,  $C$  for private consumption,  $I$  for real investment spending in the economy such as spending on building, plant, equipment, etc...,  $G$  for government expenditure on final goods and services,  $EX$  for export goods and services and  $IM$  for import goods and services.

We define current account ( $CA$ ) as:

$$CA = EX - IM + Net, \quad (2.2)$$

where  $Net$  stands for net income and transfer flows. In such manner, in addition to goods and services balance, the current account includes also income received from abroad or paid abroad and unilateral transfers. To simplify it will be assumed that unilateral transfers and net income from abroad are not large items in the current account.

The current account shows the size and direction of international borrowing. When a country imports more than it exports, it has CA deficit, and this is financed by borrowing from foreigners. That borrowing is done by government or by the private sector of the economy. Private companies shall borrow by selling equity, land or physical assets. Therefore, a country with current account deficit must be increasing its net foreign debt by the amount of

the deficit. A country with CA deficit is importing present consumption and investment and exporting future consumption and investment spending.

According to the national identity, national saving in the open economy equals:

$$S = Y - C - G + CA, \quad (2.3)$$

where  $Y - C - G = I$  and  $I$  stand for investment. Because of that, in an open economy we have:

$$S = I + CA, \quad (2.4)$$

It is useful to look at national saving more closely and discriminate between saving decisions made by the private sector and saving decisions made by the government. We have:

$$S = S^{pr} + S^{gov}, \quad (2.5)$$

Where  $S^{pr}$  is defined as the part of disposal income after taxes that is saved instead of consumed. Usually we have:

$$S^{pr} = Y - T - C, \quad (2.6)$$

Where  $T$  stands for taxes collected by the government. Government saving is defined as difference between government earnings and expenditures which are done in form of government purchases,  $G$ , and government transfers,  $Tr$ .

$$S^{gov} = T - G - Tr, \quad (2.7)$$

From definition of national saving we have:

$$S = Y - C - G = (Y - T - C) + (T - G - Tr) = S^{pr} + S^{gov} = I + CA, \quad (2.8)$$

Equation 2.8 can be rewritten in a form that is helpful for the effects of government saving decisions on an open economy.

$$S^{pr} = I + CA - S^{gov} = I + CA - (T - G - Tr), \quad (2.9)$$

rearranging 2.9, we have:

$$CA = S^{pr} - I - (G + Tr - T), \quad (2.10)$$

Where the expression  $(G + Tr - T)$  is consolidated public sector budget deficit (BD), which is, as government saving preceded by a minus sign. The government deficit measures the proportions to which the government is borrowing to finance its expenditures.

Taking a look at the macroeconomic identity 2.10, it can be seen that two cases are possible. If the difference between private savings and investment is assumed to be stable over time, the fluctuations in the public sector deficit will be totally translated to current account and twin deficit hypothesis will hold. The other case is known as Ricardian Equivalence Hypothesis (REH), where it is assumed that the change in the budget deficit will be totally offset by the change in savings. In the real world it is more complex than these two statements and to identify the circumstances in which the twin deficit hypothesis may hold one has to look at the channels by which government deficit influences the economy.

In accordance to economic theory, the budget deficit influences private saving, investment and current account balance. The final impact depends on how deficit is financed. There are a number of ways of financing budget deficit:

- **Increasing money supply and collecting seigniorage.**
- **Domestic borrowing.**
- **Using foreign exchange reserves.**
- **Foreign borrowing**
- **Receipts from privatization of state enterprises**
- **Running government budget arrears**

The first four ways of budget deficit financing bring to light the different kinds of macroeconomic imbalances the deficit can cause in the economy.

Printing money excessively shows up as inflation. By printing money, the government collects seigniorage. Seigniorage can be analysed in two ways, the "pure seigniorage" and "inflation tax". The inflation tax component is equal to the inflation rate, that appears in this case as the "tax rate", times the stock of real cash balances controlled by the public. In the absence of inflation, the inflation tax will be zero, although seigniorage is still being collected unless there is no growth in real cash balances. As inflation grows, households shall use foreign currency for transactions. In this case, seigniorage collection becomes impossible.

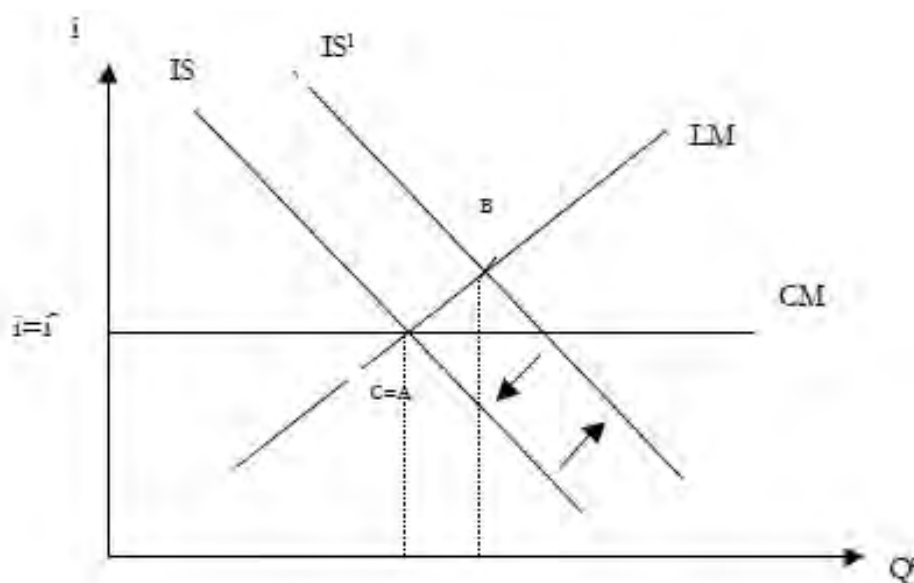
The connection between budget deficit and current account deficit is closer if running down foreign exchange reserves and foreign borrowing are used to finance budget deficit. Too much use of foreign reserve leads to a crisis in the balance of international payments in an economy with a fixed exchange rate system. In case of using foreign exchange reserves for budget deficit financing, appreciation of exchange rate takes place.

To understand what effects on the economy foreign borrowing as a way of budget deficit financing could have, the effects of financing a budget deficit by foreign borrowing in the small open economy will be analysed.

It is interesting to have a look at budget deficit in the Mundell-Fleming model. The model assumes a small open economy with international capital mobility. The main point is that the capital flows move faster than trade flows because international investors arbitrage differences in interest rates across countries to benefit of unrealized profit opportunities. So, differences in interest rates between two countries generate massive flows of capital that tend to reduce or even eliminate the differences. In contrast, trade flows respond more slowly to changes in underlying economic conditions. The key assumption is that interest rates are the same in the world economy leaving out the countries where capital controls exist. Mundell-Fleming theory about interest rate may not hold in reality due to political risk of the country, macroeconomic instability, capital controls and so on.

Now, we will look to an increase in government spending using three simple models of a small open economy with floating and fixed exchange rate and full capital mobility and with limited capital mobility in case of fixed exchange rate.

## 2.2 Flexible exchange rate and full capital mobility.

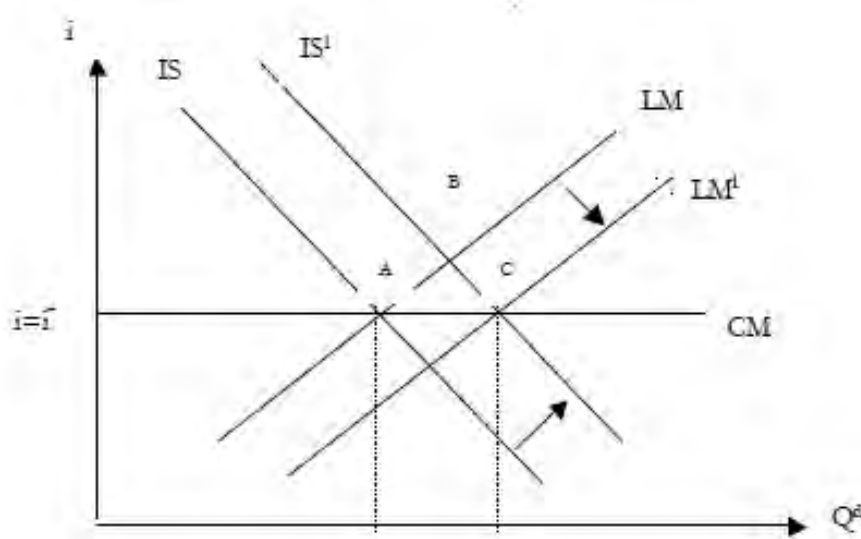


**Figure 2.1:** An increase in government expenditures in the small open economy with flexible exchange rate and full capital mobility (IS-LM model) [9].

Figure 2.1 shows an increase in government expenditures in a small open economy with a floating exchange rate and full capital mobility. Initial equilibrium is in point A, where the domestic interest rate and the world interest rates are equal. With floating exchange rates and full capital mobility, an increase in government expenditures rises the interest rate in the domestic economy.

As domestic interest rate is higher than world interest rate, a capital inflow occurs at point B in the figure 2.1 and the exchange rate appreciates. The result is an increase in imports and a fall of exports, the current account deteriorates. It causes IS curve to shift back in the initial position in the figure 2.1. Because of that, the interest rate in the domestic and in the world economies, domestic aggregate demand doesn't increase, domestic currency appreciates and current account is in deficit.





**Figure 2.2:** An increase in government expenditures in a small open economy with full capital mobility and fixed exchange rate (IS-LM model) [9].

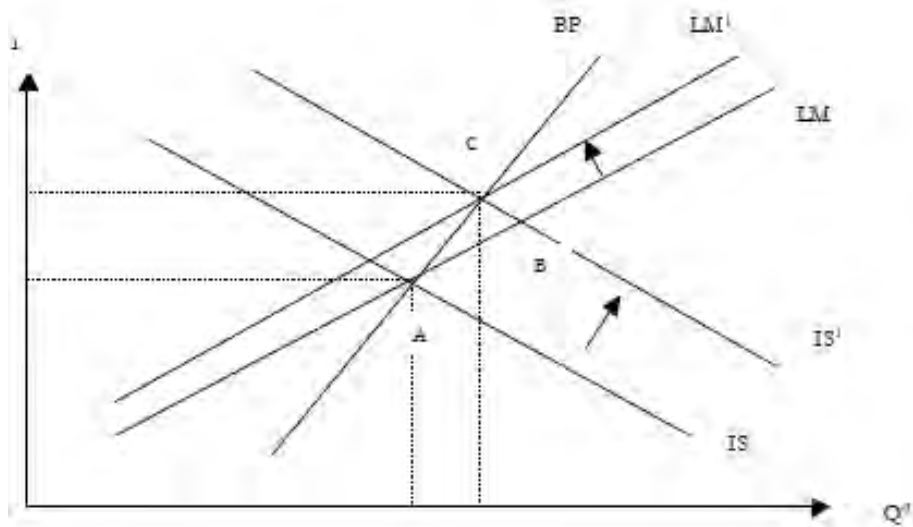
### 2.3 Full capital mobility and fixed exchange rate

In the case of fixed exchange rate and full capital mobility, an increase in the government spending brings out a raise in the interest rate and capital inflow occurs. As a supply of foreign currency increases and exchange rate is fixed, economic agents start to exchange foreign currency for domestic because more domestic currency is needed for an increased volume of transactions. In this situation domestic money supply increases, the LM curve moves to the left to the position  $LM^1$  in figure 2.2.

Even though the exchange rate is fixed, an increase in aggregate demand will increase demand for imports and the trade balance deficit occurs also in the short run. As a consequence, we have the same interest rate in the world and in the home economies, aggregate demand increases and current account deteriorates.

### 2.4 Limited Capital mobility and fixed exchange rate.

Perfect capital mobility doesn't exist in the real world. Therefore, it is important to analyse the case of limited capital mobility.



**Figure 2.3:** An increase in government expenditures in a small open economy with limited capital mobility and fixed exchange rate (IS-LM model) [9].

In the figure 2.3 a balance of payment line (BP) is shown, steeper than the LM-curve, which denotes limited capital mobility. It is assumed that the economy is in the initial equilibrium at point A. As government spending increases, the IS curve shifts to the right in position  $IS^1$ . The intersection with LM-curve occurs in point B below the balance of payment line. At point B, a current account deficit takes place. As the exchange rate is fixed, the central bank loses its foreign exchange reserves in the process of defending the exchange rate and pressure for devaluation exists. Domestic money supply falls because domestic residents demand more foreign exchange in the economy with fixed interest rate. As money supply is reduced, the LM curve moves to position  $LM^1$  and the new equilibrium is now at point C, where balance of payment is in equilibrium. In point C, domestic interest rate is higher than the initial and aggregate demand increases, trade balance deteriorates and the current account is in deficit.

To sum up, it has been proven that if capital mobility is limited, an increase in the budget deficit causes a rise in the domestic interest rate, which crowds out private investment in the economy. So, if foreign investors lose confidence in the economy, BP-line could become almost vertical and foreign capital would have interest in leaving the country. If this happens, the domestic interest rate rises even more, and aggregate demand returns to its formal level, but its composition changes.

## 2.5 Ricardian Equivalent Hypothesis (REH)

This is an alternative view first introduced by Barro in 1974. The main assumption is that under specific conditions, changes in taxes would have no effect on consumer spending. The decrease in taxes that increases disposable income would be paid by an identical increase in saving. Current consumption could be affected by the expected income of the future generation. REH states that, the time path of taxes doesn't matter for the households budget constraint as long as the present value of taxes is not changed.

In practice there exist limits for REH. In the real world may be barriers for borrowing. Households may not be able to borrow against future income because of imperfections in the financial market and especially if the financial market is underdeveloped. Some authors present strong evidence against REH, though.

The result for what was exposed above, is that the mechanisms of linkage between BD and CAD are complex. We see that government financing decisions may influence private saving, private investment and current account. The macroeconomics framework has to be taken into account to identify the exact channels through which BD and CAD are connected in the economy. In addition to the macroeconomic framework, we should take into account what institutions exist in the economy and how they work.

We expect that, if BD is financed by running down foreign reserves or by foreign borrowing, the twin deficits relationship has to be stronger. Appreciation of exchange rate occurs which worsens current account balance by rise in import and the fall of exports. If exchange rate is fixed and foreign reserves decrease, private sector agents, expecting future depreciation, fly capital abroad which deteriorates the current account.

In case of full capital mobility, an inflow of capital produce exchange rate appreciation. In case of floating exchange rate and in the case of fixed exchange rate, both lead to trade deficit. If foreign borrowing occurs in a country with limited capital mobility, an increase in government expenditures causes an increase in domestic interest rate and a rise in aggregate demand which may deteriorate the trade balance and the current account.

## Chapter 3

# Literature Review

The question of relationship between budget deficit and current account deficit started in 1980. At this time, CAD and BD emerged in many countries.

The twin deficit hypothesis states that an increase in BD will cause an increase in CAD. But the results of testing the hypothesis, turned out different for different countries. It is known that the twin deficit hypothesis will or will not hold depending on the macroeconomic conditions. In the present chapter the main results obtained in applied research will be summarized.

The majority of the studies were made for the United States.

Bahmani-Oskooee (1989) [5], Abell (1990) [3] and Bachman (1992) [4], among others, found an unidirectional link from BD to CAD.

Bahmani-Oskooee (1989) [5] estimated a model that states that CAD depends on present and past values of real exchange rate, domestic and foreign real output and domestic and foreign high-powered money in real terms. The model is estimated using OLS for the period of flexible exchange rates using quarterly data from 1973 to 1985. The results show that BD has a negative impact on CA.

Using the same data and equations as Bahmani-Oskooee (1992) [6], Ki-Ho Kim (1995) [10] states that his results are not valid because of the methodology employed. He showed that out of twelve time series that Bahmani-Oskooee used, nine of them were non-stationary, according to the ADF methodology. Kim employs Johansen's approach in esti-

matting the co-integration relationship and verifies that the trade balance is not co-integrated with the full employment budget and that both, the current account and trade balances, have a long-run relationship with the M2 aggregate and the terms of trade.

Banchman (1992) used four variables: federal government surplus, US relative to foreign productivity, gross domestic investment and the estimated risk premium. He used quarterly data for the period 1974 to 1988. He found that only the federal budget deficit explains the evolution of the CA. The other 3 variables cannot explain how the CA changes over time.

Another group of empirical studies analyse the case of Greece. Vamvoukas (1999) [19] and Pantelidis (2009) [15] have analysed the case of Greece for the period 1960-2007 and confirmed the twin deficit hypothesis.

Recently, Nikolina E. Kosteletou (2013) [11] confirmed the twin deficit hypothesis for the European countries. The authors concluded that an expansionary fiscal policy can worsen the current account in eurozone countries that have already current account deficits. However, she also found that the opposite direction effect also holds.

Countries	Authors	Methodology	Data	Causality
United States	Bahmani-Oskooee (1989)	OLS	Quarterly 1973-1985	BD → CAD
United States	Banchman (1992)	OLS	Quarterly 1974-1988	BD → CAD
United States	Ki-Ho Kim (1995)	Johansen's approach	Quarterly 1973-1985	No relationship
Greece	Vamvoukas (1999)	ECM and Granger	Annual 1960-2007	BD → CAD
Greece	Pantelidis (2009)	Granger Causality	Annual 1960-2007	BD → CAD
European countries	Nikolina E. Kosteletou (2013)	Two Stages Least Square	Annual 1991-2010	BD ↔ CAD

**Table 3.1:** Overview of previous empirical results.

## Chapter 4

# Methodology

To test the link between budget deficit and current account, one methodology has been used: the Granger Causality test (1969), which is based on the vector autoregressive model defined below:

$$CA_t = \alpha_0 + \sum \beta_k CA_{t-k} + \sum \gamma_k BD_{t-k} + \varepsilon_t \quad (4.1)$$

$$BD_t = \delta_0 + \sum \eta_k BD_{t-k} + \sum \lambda_k + v_t \quad (4.2)$$

It is required for this test, that the variables are stationary. Therefore, the first thing that needs to be done is to test the stationariness of the variables using the Augmented Dickey Fuller test (ADF). This test estimates for each variable:

$$\Delta X_t = \alpha + \mu_t + \beta X_{t-1} + \sum \gamma_i \Delta X_{t-i} + v_t \quad (4.3)$$

and unit root test. In the equation, if the null hypothesis  $\beta = 0$  is not rejected, the variable contains a unit root and, because of that, is non-stationary.

When we have done this, we test the long-run relationship that can be looked at from the viewpoint of co-integration. To test co-integration, the Engle and Granger (1987) has been employed, where if a vector  $\delta$  exists, the Y is said to be co-integrated.

$$s_t = \delta y_t \quad (4.4)$$

Finally, a Granger causality test was used, more specifically the vector autoregressive model, to determine if one variable is predictable by the other. Whether the inclusion of past observations of BD (lag of BD) reduces the prediction error of CA and BD, as compared to a model that includes only previous observations of CA or BD.

The Granger causality test examines the following null and alternative hypotheses:

$$H_0 : \gamma_1 = \gamma_2 = \dots \gamma_k = 0 \quad (4.5)$$

$$H_1 : \gamma_1 \neq \gamma_2 \neq \dots \gamma_k \neq 0 \quad (4.6)$$

Where the null hypotheses imply that no lag of variable BD is significant in the equation for variable CA (or BD) against the alternative that some lags of BD are significant for variable CA (or BD).

On the other way round, Granger causality tests:

$$H_0 : \lambda_1 = \lambda_2 = \dots = \lambda_k = 0 \quad (4.7)$$

$$H_1 : \lambda_1 \neq \lambda_2 \neq \dots \lambda_k \neq 0 \quad (4.8)$$

CA does not Granger-cause BD (or CA), against the alternative that CA Granger-cause BD (or CA).

# Chapter 5

## Data and Results

This study employs annual data from 1970 to 2011 to examine the causal relationships between government budget deficit as a percentage of GDP (BD) and current account as a percentage of GDP (CA). Data is taken from a database of Lane and Milesi-Ferreti; the countries used in this paper are 10 European Union members: Austria, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain.

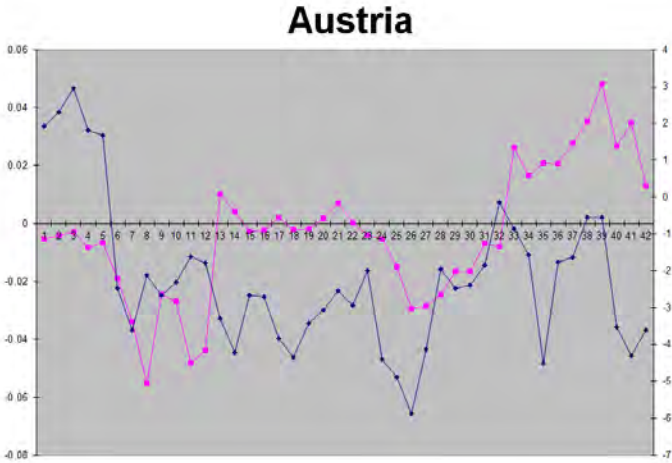


Figure 5.1: Data 1970-2011 (Austria)

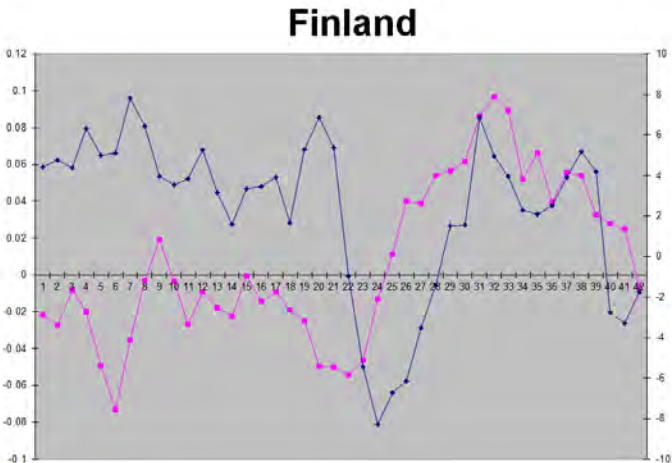
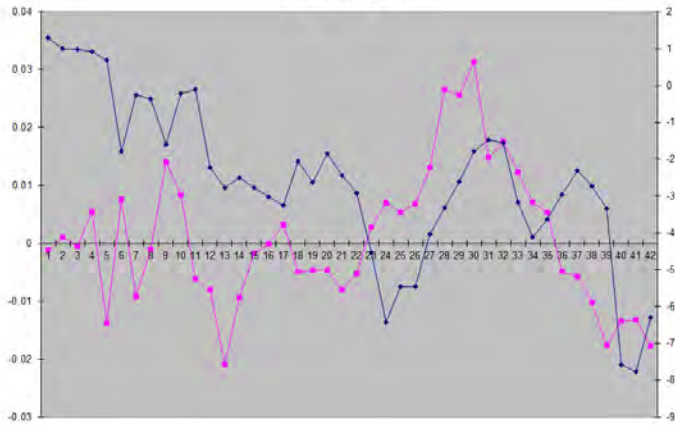


Figure 5.2: Data 1970-2011 (Finland)

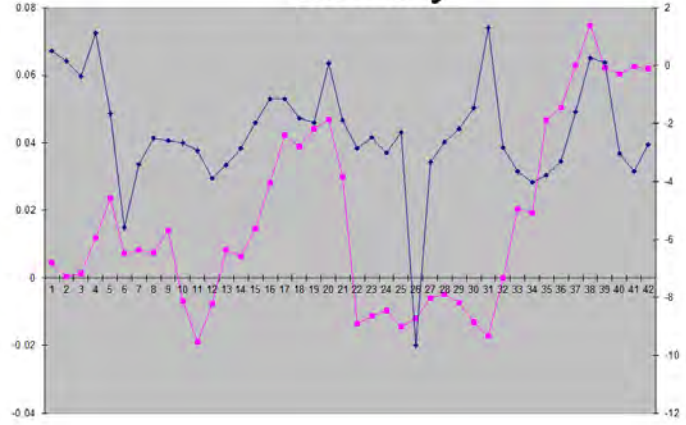


**France**



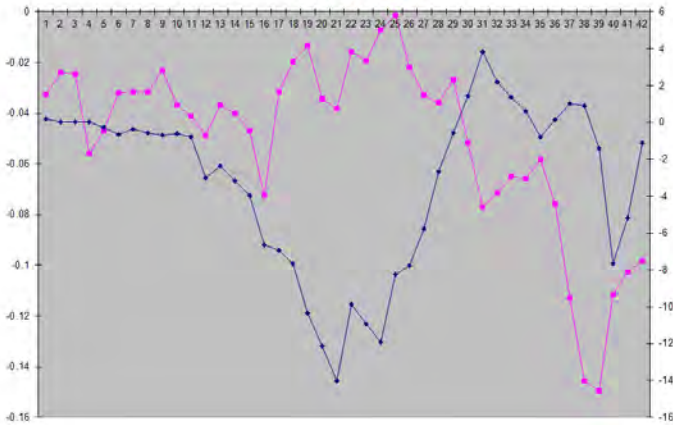
*Figure 5.3: Data 1970-2011 (France)*

**Germany**



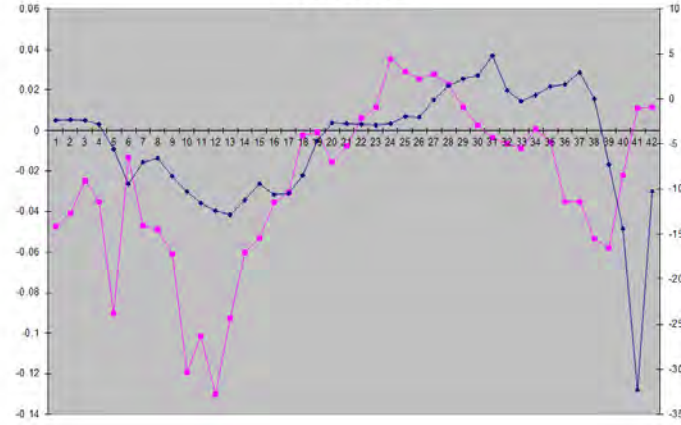
*Figure 5.4: Data 1970-2011 (Germany)*

**Greece**

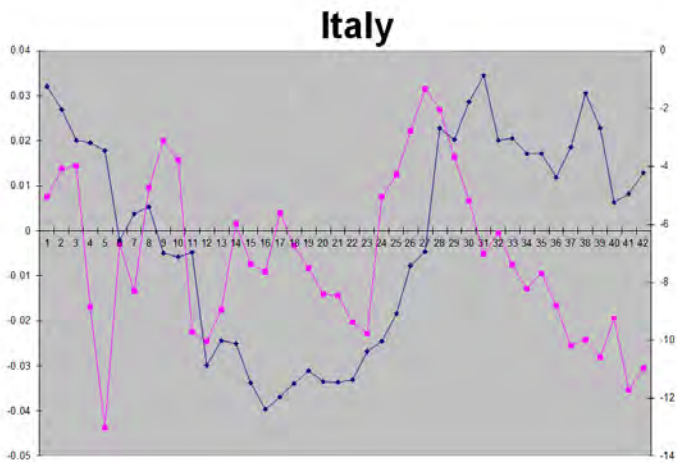


*Figure 5.5: Data 1970-2011 (Greece)*

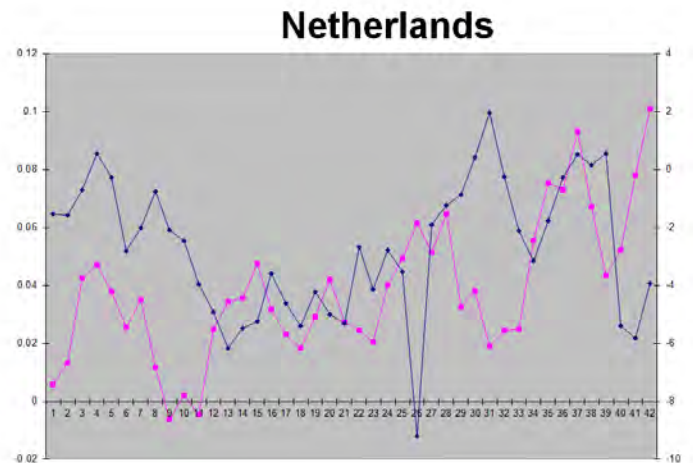
**Ireland**



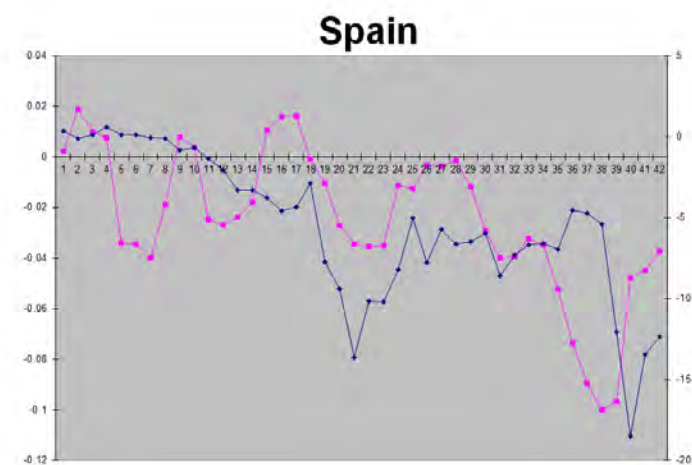
*Figure 5.6: Data 1970-2011 (Ireland)*



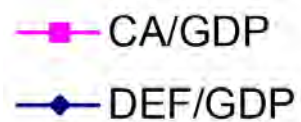
**Figure 5.7:** Data 1970-2011 (Italy)



**Figure 5.8:** Data 1970-2011 (Netherlands)



**Figure 5.9:** Data 1970-2011 (Spain)



To begin with, the Augmented Dickey-Fuller (1979) test is used to test for stationariness of the series in levels. The ADF unit root tests provide a strong basis for the presence of a unit root at level for the majority of the variables; but few turned out to be stationary.

Countries	Contrast without Intercept	Contrast with Intercept	Intercept and Trend
Austria	0.4009	0.2465	0.5429
Finland	0.07764	0.3962	0.6858
France	0.117	0.5474	0.8728
Germany	0.2922	0.5104	0.6399
Greece	0.5201	0.426	0.3592
Ireland	0.7888	0.6628	0.5286
Italy	<b>0.01072</b>	<b>0.04873</b>	0.1587
Netherlands	0.6109	0.3169	0.07083
Portugal	0.1174	0.09691	0.1077
Spain	0.07436	<b>0.04936</b>	<b>0.04915</b>

**Table 5.1:** Unit root test for variable CA (highlighted stationary values)

Countries	Contrast without Intercept	Contrast with Intercept	Intercept and Trend
Austria	<b>0.0184</b>	0.09852	0.171
Finland	<b>0.01411</b>	0.0743	0.1483
France	0.482	0.2643	0.1117
Germany	0.08234	<b>0.00147</b>	<b>0.01135</b>
Greece	0.146	0.3953	0.731
Ireland	0.3787	0.7494	0.9937
Italy	0.509	0.5599	0.6069
Netherlands	0.1412	0.06834	0.2295
Portugal	0.3214	<b>0.02301</b>	0.148
Spain	0.5705	0.4887	0.1701

**Table 5.2:** Unit root test for variable BD (highlighted stationary values)

The conclusions are that, repeated the unit root test taking into account first differences, all non-stationary variables in levels became stationary in their first differences.

Then, a Ordinary Least Squares (OLS) was used, and the residual was taken to determine co-integration. Once it was noticed that there was co-integration in some of the countries, a the selection of lags was made. The selection of lags is based on the VAR order selection test and it was concluded that the correct number of lags were 2.

As mentioned in Chapter 4, the relationship between budget deficit (BD) and current account (CA) has been tested: whether BD causes CA, whether CA causes BD and whether

there is bidirectional causality. Finally, the last possible case is that there is no specific relationship between the two variable.

The results present an absence of unidirectional or bidirectional relationship between BD and CA for Austria, Finland, Germany, Greece, Netherlands and Portugal. The null hypothesis cannot be rejected at a 5% significance level.

The rest of the countries (France, Ireland, Italy and Spain) show signs of the twin deficit hypothesis: budget deficit Granger cause current account deficits. It is important to emphasize that this does not mean that current account deficits are the effect or the result of budget deficit. Granger test simply shows if one variable leads or not to another.

So, on the one hand, the test confirms the Ricardian equivalence hypothesis for Austria, Finland, Germany, Greece, Netherlands and Portugal. The Ricardian equivalence states that fiscal deficit does not influence current account deficits. On the other hand, the test shows a weak unidirectional twin deficit for France, Ireland, Italy and Spain from BD to CA.

COUNTRIES	COINTEGRATION	P-Valor	BD → CA	P-Valor	CA → BD	P-valor
Austria	YES	0.00141	NO	0.9004	NO	0.1186
Finland	YES	0.00144	NO	0.6511	NO	0.2464
<b>France</b>	<b>YES</b>	<b>0.00162</b>	<b>YES</b>	<b>0.0212</b>	NO	0.4984
Germany	NO	0.00503	NO	0.5839	NO	0.9041
Greece	YES	0.02877	NO	0.3024	NO	0.0530
<b>Ireland</b>	<b>YES</b>	<b>0.00997</b>	<b>YES</b>	<b>0.0066</b>	NO	0.3901
<b>Italy</b>	<b>NO</b>	<b>0.06899</b>	<b>YES</b>	<b>0.0486</b>	NO	0.0981
Netherlands	YES	0.00510	NO	0.2076	NO	0.5340
Portugal	YES	0.00343	NO	0.9023	NO	0.9321
<b>Spain</b>	<b>YES</b>	<b>0.02955</b>	<b>YES</b>	<b>0.0303</b>	NO	0.8713

**Table 5.3:** Overview of results

## Chapter 6

# Conclusion

The casual relationship between current account balance and budget balance has been empirically examined. As stated previously, for this study we have used annual data ranging from 1970 to 2011 and focus our attention in 10 European countries.

The main results of this paper show that the twin deficit hypothesis cannot be proven because the nexus between public deficit and current account deficit is more complex than this. The causality result would suggest that if we decrease the government budget deficit, automatically it does not contribute to a decrease in the external balance. So, restrictive fiscal policy would not generate current account surplus.

On the one hand, the results present an absence of unidirectional or bidirectional relationship between BD and CA for Austria, Finland, Germany, Greece, Netherlands and Portugal. So the Ricardian equivalence is confirmed for this countries. On the other hand, France, Ireland, Italy and Spain shown signs of the twin deficit hypothesis: budget deficit Granger cause current account deficits.

The problem of fiscal and current account deficits probably requires a mixed policy approach that should combine both fiscal and monetary policy measures. However, the examined countries, due to their participation in the Eurozone, have relinquished a very important policy tool that is the depreciation of their currency. Controlling the excessive fiscal and current account imbalances in a monetary union such as the Eurozone and in a context of global crisis, may require there assessment of the institutional framework for financial stability. Further possible suggestions for the improvement of the fiscal and current

---

account imbalances may involve tax reforms, decreases in government spending, reforms in the labour and capital markets and productivity based in competitiveness.

# Bibliography

- [1] A. Z. BAHARUMSHAH, E. L., AND KHALID, A. M. Testing twin deficits hypothesis using vars and variance decomposition. *Journal of the Asia Pacific Economy* 11 (3) (2007), 331–354.
- [2] ABDUL ABIAD, JOHN BLUEDORN, J. G. M. K., AND LEIGH, D. *Separated at birth? The twin budget and trade balances*. 2011.
- [3] ABELL, J. D. Twin deficits during the 1980s: An empirical investigation. *Journal of Macroeconomics*. 12 (1) (1990), 81–96.
- [4] BACHMAN, D. D. Why is the u. s. current account deficit so large? evidence from vector autoregressions. *Southern Economic Journal* 59 (2) (1992), 232–240.
- [5] BAHMANI-OSKOOEE, M. Effects of the us government budget on its current account : an empirical inquiry. *The quarterly review of economics and business : journal of the Midwest Economics Association* 29 (4) (1989), 76–91.
- [6] BAHMANI-OSKOOEE, M. What are the long-run determinants of the u.s. trade balance? *Journal of Post Keynesian Economics* 15 (1) (1992), 85–97.
- [7] CORSETTI, G., AND J.MÜLLER, G. *Budget deficits and current accounts. Openness and fiscal persistence*. 2006.
- [8] DALY, V., AND SIDDIKI, J. U. The twin deficits in oecd countries: cointegration analysis with regime shifts. *Applied Economics Letters* 16 (2009), 1155–1164.
- [9] FEENSTRA, R. C. *Advanced International Trade: Theory and Evidence*. Princeton University Press, 2003.
- [10] KIM, K.-H. On the long-run determinants of the u.s. trade balance: A comment. *Journal*

- 
- of Post Keynesian Economics* 17 (3) (1995), 447–455.
- [11] KOSTELETOU, N. E. Financial integration, euro and the twin deficits of southern euro-zone countries. *Panaeconomicus* 60 (2) (2013), 161–178.
- [12] LANE, P. R., AND MILESI-FERRETTI, G. M. *Europe and global imbalances*. 2007.
- [13] M. CERRATO, H. KALYONCU, N. H. N., AND C-TSOUKIS. Current accounts in the long run and the intertemporal approach: A panel data investigation. *The World Economy* 38 (2) (2015), 340–359.
- [14] NICKEL, C., AND A, T. Fiscal stimulus in times of high debt: Reconsidering multipliers and twin deficits. *Journal of Money, Credit and Banking* 46 (7) (2014), 1313–1344.
- [15] PANAGIOTIS PANTELIDIS, A. L. A., AND KATRAKILIDIS, C. On the dynamics of the greek twin deficits: Empirical evidence over the period 1960-2007. *International Journal of Business and Economic Sciences Applied Research (IJBESAR)* 2 (2) (2009), 9–32.
- [16] PARIKH, A., AND RAO, B. Do fiscal deficits influence current accounts? a case study of india. *Review of Development Economics* 10 (3) (2006), 492–505.
- [17] S. NA, S. SCHMITT-GROHÉ, M. U., AND YUE, V. A model of the twin ds: Optimal default and devaluation. *FRB Atlanta CQER Working Paper No. 15-1*. (2014).
- [18] TRACHANAS, E., AND KATRAKILIDIS, C. The dynamic linkages of fiscal and current account deficits: New evidence from five highly indebted european countries accounting for regime shifts and asymmetries. *Economic Modelling* 31 (2013), 502–510.
- [19] VAMVOUKAS, G. A. The twin deficits phenomenon: Evidence from greece. *Applied Economics* 31 (9) (1999), 1093–1100.