European Crisis:
“To Quit or not Quit The EURO, Balance Sheet Effects.”

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Introduction

The economic – financial crisis, the worst since World War II, has produced an unprecedented increase in public deficit and debts in all advanced economies, quoting most of the recent articles from the new and experts from the macroeconomic field. Therefore, the challenge now is to see the ability of these countries to take the necessary actions to bring the public debt under control for the euro zone, especially for Portugal, Greece, Spain and Ireland (PIGS).

This work, would try to find an answer to the question -quit or not quite the euro zone - addressing it through the theory of balance sheet effects/ original sin, developed by Eichengreen, Hausmann and Panizza (2003). We would take into account the countries most affected (Portugal, Greece, Spain and Ireland) during the crisis which started in the summer of 2007 and have been a nightmare through all these years.

To understand the resent economic - financial crisis of the past years, we would not just have to look at it as an economic-financial issue; it also needs to be addressed as a political issue meaning that laws and actions taken by the politicians will be also a very important part in order to avoid a default. However, this is not the main point of the paper, we would take into account that political issues are no important to discover and solve the problem.

In the other hand, many would like to know what the causes of the crisis were. First of all, the crisis was due to a long period of rapid credit growth, risk premium, excess of liquidity, strong leveraging, soaring asset prices and the huge bubble on the real state sector, which started in the Unites States and it spread “all over the world”. However, in the special case of the EU, there is some other thing which drove the four countries to the now a day’s crisis.

For example graph 1 show; all of them had the lowest fiscal rates from the EU-15. While the average -of the EU-15- in terms of percentage from the GDP in 2010 was 41%; Ireland had 26%, Greece 24%, Spain 12% and Portugal 11%.
Theses lowest incomes for the government meant lowest expenditures in terms of the percentage of the GDP. Mean while the average of the public expenditures of the EU-15 was 46% of the GDP; Ireland had 36.8%, Spain 39.2%, Portugal 43.8% and only Greece was at the same level of the EU.

In the second part of the article, we would deal with some macroeconomic theory in order to understand the data and the analysis which is the most important part of the paper. It will compass the main topic through the balance sheet effect also known as the original sin. It would appropriate to take in to account some other macroeconomic concepts —currency mismatch, debt intolerance- in order to have a global understanding of the EU crisis and what would happen if any of the PIGS — an offensive term which now refers to the mentioned countries of the EU- exits the euro.

Finally, in the last part of the paper, the conclusions will be given based on the results shown by the data previously analyzed, which will give as a close idea of what will happened if any of the countries exit the euro zone. It will be important to look at both sides, the advantages or disadvantages for the country and similarly for the EU.
Objectives

As main objective of the paper, we would try to answer the question quite or not quite the euro zone, by the macroeconomic concepts like balance sheet effects, debt intolerance and currency mismatch. However, it is necessary to make an objective list in order to reach our target.

- Definition of three types of crisis: banking Crisis, Debt external Crisis and Debt domestic crisis.
- Define the European crisis, present the main causes and the countries most affected.
- Determine the factor why the Portugal, Ireland, Greece and Spain were more vulnerable to the other countries.
- Present the Macroeconomic concepts- currency mismatch, debt intolerance and original sin/balance sheet effects- how it is measure and the different types.
- Evaluate the financial consequences if any European country exits the Euro zone. This will take in to account the countries most affected from the crisis, such as Greece, Ireland, Spain and Portugal. This issue will be explored through the theory of balance sheet effects.
1. Definition of a banking, external and domestic crisis

There are a big number of economic crises; however, in this particular case the peripheral countries most focus in banking, external and domestic crisis in order to avoid a default and weakening the euro.

Following, we will introduce table one which describes the three main crises that the Euro is affronting nowadays.

<table>
<thead>
<tr>
<th>Type of Crisis</th>
<th>Definition and/or Criteria</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Banking crisis</strong></td>
<td>We mark a banking crisis by two types of events: (1) bank runs that lead to the closure,</td>
<td>This approach to dating the beginning of a banking crisis is not without drawbacks. It could date a crisis too late, because the financial problems usually begin well before a bank is finally closed or merged; it could also date a crisis too early, because the worst part of a crisis may come later. Unlike the external debt crises (see below), which have well-defined closure dates, it is often difficult or impossible to accurately pinpoint the year in which a crisis ended.</td>
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<tr>
<td>Type I: systemic/severe</td>
<td>merging, or takeover by the public sector of one or more financial institutions; and (2) if there are no runs, the closure, merging, takeover, or large-scale government assistance of an important financial institution (or group of institutions), that marks the start of a string of similar outcomes for other financial institutions.</td>
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<tr>
<td>Type II: financial distress/ milder</td>
<td>A sovereign default is defined as the failure to meet a principal or interest payment on the due date (or within the specified grace period). The episodes also include instances where rescheduled debt is ultimately extinguished in terms less favorable than the original obligation.</td>
<td>While the time of default is accurately classified as a crisis year there are a large number of cases where the final resolution with the creditors (if it ever did take place) seems interminable. For his reason we also work with a crisis dummy that only picks up the first year.</td>
</tr>
<tr>
<td><strong>Debt crisis:</strong> External</td>
<td>The definition given above for external debt applies. In addition, domestic debt crises have involved the freezing of bank deposits and or forcible conversions of such deposits from dollars to local currency.</td>
<td>There is at best some partial documentation of recent defaults on domestic debt provided by Standard and Poors. Historically, it is very difficult to date these episodes and in many cases (like banking crises) it is impossible to ascertain the date of the final resolution.</td>
</tr>
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</table>
The banking crisis is important due to the problem that Ireland have had during the crisis. Due to the fall of the real estate prices and the freezing up of the interbank market in 2007, starting the 2008 the Irish banking system was seen in big travel in run its day to day financial operation. Therefore, the Irish government recapitalized some banks in order to solve the problem and nationalize some others –Anglo Irish Bank-(Delatte 2010).

On the other hand, peripheral countries are facing an external debt crisis –new concept that has jumped out of the page for Michael Bordo, Barry Eichengreen, Marc Flandreau, Lindert & Morton and Alan Taylor, some of most recent macroeconomic experts - that could involve outright default on payment of external debt obligations mainly to the biggest external debtors –Germany and France-. Most of us would think that Germany and France are lending money to very low interest rates; however, they are charging rates close to 5% oblige them to do an extra effort to pay their bills. Due to this problem, the International Monetary Fund (IMF) and the European Union (EU) have pronounced to make a restructuring in their debts in order to avoid a default (Delatte 2010).

Finally we meet with the third night mare, debt domestic crisis, in countries like Spain and Ireland. The people are facing a big problem to pay them liabilities due to the bad performance of the economy. However, the governments are searching for all the possible solution in order to avoid a crisis like in Argentina 1999-2000 when they abandoned its dollar peg.

2. European crisis, causes and the “PIGS”

The economic – financial crisis, the worst since World War II, has produced an unprecedented increase in public deficit and debts in all advanced economies.

The causes of the crisis did not started in 2007, the problems were accumulated in the previews years. However, since 2007 the effects were starting to be seen around the world especially in the Unites States and the European Union (Ferguson 2010).
Decrease on the wages, created a debt problem to the families which started to live based on credit banks. Due to the amount of credit borrowing from the families, the financial sector grew in exaggerated way making the first problem for the economy.

In the special case of Greece and Spain banking sector, they borrowed the money from the French and German banks. In the other hand, Ireland was borrowing from England. However, for all of them the support of their debts was guarantee by the prices of the real state which was constantly increasing, which year’s later people called this the core of the private debt problem for countries like Spain. Nevertheless, when prices of houses fall down due to the real state bubble, it generated a tremendous problem affecting the demand and the economy growth- see Graph 2-. However, it is important to remark that this paper is not based in the subprime crisis, it is based on the sobering crisis it the euro zone.

In the other hand, the enormous increasing of the capital incomes and the low revenues of the economy, produce huge speculative investing in the financial sector.

Graph 2: Real house prices 2000/2009 related

Source: OECD, 2011
Besides all this, the poor tax burden and the lower state incomes were deterministic for the countries to require credit to finance the minimum needs of the state. However this was not the only problem in terms of the government. The decreases in taxes also increase the deficit- graph 3- of the state making it for the year 2010 for Ireland 32.4%, Greece 10.5%, Spain 9.2% and Portugal 9.1% (DELATTE, 2010).

If a country is spending more than it is rising through taxation in a year then it has an annual deficit. If it is raising more than it is spending then it has an annual surplus. Graph 3 shows that surplus (a number above zero) or deficit (less than zero) as a proportion of GDP (the total value of goods and services produced by the economy).

European Union rules say that countries using the euro are not allowed to have an annual deficit of more than 3% of GDP, but several countries have failed to keep to that rule in recent years. The chart shows data for all of the countries that officially use the euro, especially for the peripheral countries.

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.
This deficit, year past year was increasing the public debt, sum to the private one, the level of the total debt reached unbelievable levels- see graph 3- . The majority of these debts were taking by British, French and German banks; which were seemed affected creating a banking sector crisis and a supply credit deficit. Although, these debt problems and the lower rates on demand were the main causes of the big severing crisis; however, for every country things changed.

Graph 4 shows an estimation of the gross debt as a percentage of GDP for 2011. For several ailing nations, debt levels are too high even with low interest rates; however this is not the only problem, the spread of bond yields to German bonds continue to hit new highs on fear that restructurings are inevitable.

Following, there are two graphs (5th and 6th) which represent the spread between the peripheral countries against Germany and France – the countries which are seem to be safe- . If we take a look it this graphs, we can find the same correlation between both. The German and French line in both graphs has a minimum slope; meaning a stable economy, security for the investors, low probability of defaulting and low interest rates for borrowing.

However, Greece has been near the top of the debt league for some time, while Portugal and Ireland have been moving up the table for the past few years. Having a high debt to GDP ratio is not necessarily fatal as long as the institutions you are borrowing money from believe that you will be able to pay them back. If they get worried about a country's ability to pay, then the rate of interest they have to pay soars and they suddenly find that their debt is unaffordable. This is what happened to Greece, Portugal and Ireland. The chart shows data for all of the countries that officially use the euro, especially for the peripheral countries.

In the other hand, we can see how the trend of the Portugal and Spain is steeping as long as the time passes; however, when Portugal accepted the rescue from the EU and IMF the line changes drastically meaning that the probability of a default increase along with the fear -CNBC News, 2010-. Finally, let’s take a look at the
two economies most shocked by the crisis -Greece, Ireland-. Ireland which has a serious problem on their banking sector and gross debt, -128% estimated for 2011- had their biggest trouble in 2009 and in the half of 2010 where the crisis had its biggest pick.

Graph 4: Estimation of the gross debt

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<tbody>
<tr>
<td>Germany</td>
<td>59.7</td>
<td>60.9</td>
<td>60.4</td>
<td>63.9</td>
<td>65.8</td>
<td>68.0</td>
<td>67.6</td>
<td>64.9</td>
<td>66.3</td>
<td>73.5</td>
<td>83.2</td>
<td></td>
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<tr>
<td>Ireland</td>
<td>37.8</td>
<td>48.5</td>
<td>35.6</td>
<td>32.2</td>
<td>31.0</td>
<td>29.7</td>
<td>27.4</td>
<td>24.8</td>
<td>25.0</td>
<td>44.4</td>
<td>65.6</td>
<td>96.2</td>
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<td>Greece</td>
<td>103.4</td>
<td>94.0</td>
<td>103.7</td>
<td>101.7</td>
<td>97.4</td>
<td>98.6</td>
<td>100.0</td>
<td>106.1</td>
<td>105.4</td>
<td>110.7</td>
<td>127.1</td>
<td>142.8</td>
</tr>
<tr>
<td>Spain</td>
<td>59.3</td>
<td>62.3</td>
<td>55.5</td>
<td>52.5</td>
<td>48.7</td>
<td>46.2</td>
<td>43.0</td>
<td>39.6</td>
<td>36.1</td>
<td>39.8</td>
<td>53.3</td>
<td>60.1</td>
</tr>
<tr>
<td>Portugal</td>
<td>48.5</td>
<td>49.6</td>
<td>51.2</td>
<td>53.8</td>
<td>55.9</td>
<td>57.6</td>
<td>62.8</td>
<td>63.9</td>
<td>68.3</td>
<td>71.6</td>
<td>83.0</td>
<td>93.0</td>
</tr>
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</table>

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.

Graph 5: Ten- year Government Bond Spreads addressing it through

Having a clear concept of what happened during these years and understanding the causes of the crisis, it would be appropriate to introduce the next two graphs—7th, 8th—from two different sources which show a correlation between what we can observe and what was explained before. There are not the most recent graphs; however, show what the peripheral countries will be fighting for.

We can observe the tremendous problem of Greece, Ireland, Portugal, and Spain in terms of government debt as a percentage of the GDP. However, the problem was not just in terms of the government. The 7th graph makes the distinction between government debt and the private one. If we analyze Spain, we can see that private debt was bigger in comparison than the government one, therefore it shows a correlation between the graph and what have been said.

The unemployment rate has been rising significantly in the three countries that have needed bailouts. In Ireland, the rate started to rise following the bursting of the property bubble. Many countries have seen unemployment rise as austerity measures following the financial crisis have led to cuts in government spending, which has involved public sector job losses. Graph 8 shows the unemployment during the crisis. If we compare the rates of unemployment with Germany, we can see how bad their performance is going. The latest data shows the maximum
unemployment in the area –Spain- which is running in a very hard moment due that 20% of the population is stopped. This makes and increases on the informal sector, fewer taxes, more strikes and more spending from the government.

In brief, each country was shocked by the crisis, however, all of them have different components and causes which made them fall in recession. The next pages will be shown an analysis country by country in order to understand the real causes for all them and how they have battle this war.

**Graph 7: Government Vs Private Debts**

**Graph 8: Unemployment Rate**

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<tbody>
<tr>
<td>Germany</td>
<td>6,4</td>
<td>6,7</td>
<td>6,9</td>
<td>7,2</td>
<td>7,5</td>
<td>7,7</td>
<td>7,9</td>
<td>8,7</td>
<td>7,4</td>
<td>7,4</td>
<td>7,6</td>
<td>7,9</td>
</tr>
<tr>
<td>Ireland</td>
<td>14,8</td>
<td>14,5</td>
<td>13,0</td>
<td>13,0</td>
<td>12,8</td>
<td>12,6</td>
<td>11,8</td>
<td>10,3</td>
<td>10,3</td>
<td>8,0</td>
<td>6,9</td>
<td>5,5</td>
</tr>
<tr>
<td>Greece</td>
<td>10,5</td>
<td>14,1</td>
<td>13,0</td>
<td>12,2</td>
<td>11,0</td>
<td>9,8</td>
<td>9,2</td>
<td>8,8</td>
<td>7,9</td>
<td>7,6</td>
<td>7,5</td>
<td>7,0</td>
</tr>
<tr>
<td>Spain</td>
<td>20,6</td>
<td>20,5</td>
<td>20,4</td>
<td>20,0</td>
<td>19,4</td>
<td>19,0</td>
<td>18,6</td>
<td>17,8</td>
<td>16,6</td>
<td>14,0</td>
<td>11,8</td>
<td>10,5</td>
</tr>
<tr>
<td>Portugal</td>
<td>11,1</td>
<td>11,2</td>
<td>11,1</td>
<td>11,0</td>
<td>10,5</td>
<td>10,2</td>
<td>10,0</td>
<td>9,5</td>
<td>8,8</td>
<td>7,8</td>
<td>7,8</td>
<td>7,7</td>
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</tbody>
</table>

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.
2.1 Greece

Before the spread of the global financial crisis, Greece borrowed huge amounts abroad to support its large budget and current account deficit. The roots of Greece’s fiscal problems lie in prolonged deficit spending, economic negligence, government misreporting, and tax evasion (IMF, 2010).

Beginning with the adoption of the Euro in 2001, Greece’s budget deficit averaged was 5% per year until 2008, compared to a Eurozone average of 2% and its current account deficits averaged was 9% per year, compared to a Eurozone average of 1%. In 2009, Greece’s budget deficit was estimated to have been 13.6% of their GDP. However, a reevaluation of Greece’s balance sheets in the latter part of 2009 revealed Greece’s budget deficit was in reality closer to 15.4% of their GDP—see graph 9th-. This was new for most of the population due that when the candidate George Papandreou won the election, he announced that the Greece economy was in extremely bad condition. However, this was not the only issue. He also revealed that real amount of the debt was being hidden for at least one decade to the European Commission and the society.

Graph 8: Greece fiscal Deficit

Source: Eurostat, 2011.

Being aware of what had been happened; problems and measurement stared to be shown in order to present the real numbers of the country.
The first measure that experts use in order to see an economic crisis is to observe how GDP varies from one year to another.

It is important to highlight the fact that GDP isn't the be all and end all of economic analysis, and certainly doesn't give us a complete measure of economic activity.

Indeed there are many economic processes which may be of interest to economist; however, we will start with it followed by some other that we consider important to understand the Greece crisis.

Graph 10 summarize when the crisis started in terms as a percentage of the GDP. If we observed the third quartile of 2008 in the graph, we can see that the economy was growing at 0%, however, this was not longer like that. In the next quarter, went from 0% to almost -1.5% with a constant decreasing, until the end of third quartile 2009 which showed a positive growth due to the bailout given from the IMF and the EU.

![Graph 10: Greece GDP](image)


The second indicator is to show the massive reduction of bank credits to corporate sector and to householders –graphs 11th and 12th -. 
Both graphs have the same shape, a decreasing shape which tells us that as long as the crisis was going on, the corporate and householders where taking less
credit due to the bad signals of their economy, fear of bankruptcy and high levels of unemployment were the principals' karmas around the market.

The fear was all around; the probability of default was really high due that the total amount of debt was unsustainable. Mine while, the grader company Fitch Rating downgrade the long term of Greece form A- to BBB+, which had a very bad impact in Greece and worlds markets (Market Watch.com, 2011).

In the first step, Greece government refused to accept an austerity program to avoid the default. However, in May of 2010 the accepted €110 billion from the European Union and the IMF. Nonetheless, this wouldn't solve the problem; they would also have to work in several issues to help improve their economy. First of all, they will have to improve their competition and productivity. One example can be the deregulation of the transport and energy sector. Second of all, they will have to make changes in the labor market and the labor supply like reduction of the employment protection and facilitating use of part time work in order to reduce the unemployment. Finally, it has to make a pension reform.

These are some solutions that every day we hear in the news, however, there are not the only ones. If we go back and take a look the spread of Germany and Greece –4th graph- we can see how high it is, meaning that each time that they want to borrow money, their interest rate of borrowing each time is higher. Therefore, if they borrow constantly their debt will increase rapidly making it unsustainable.

In the other hand, they are having a big trouble with the German government. Germany's politicians do not want to lend Greece more money without a win/win strategy in the rescue plan. Therefore, if the German Government is looking forward to obtain own benefit, Greece economy will be much difficult to recover.

Recent news from Moody's (Moodys news ,2010) on warned about the consequences of restructuring, saying any Greek debt default would likely torpedo the country's credit for a "sustained" period, possibly thrusting Greek banks into default and leaving other weak euro countries "struggling" to stay out of junk
territory. However they are working on restructuring their debt. Germany is lending money to the interest rate around 5% (Delatte, 2010) and their economy is growing much less than that, therefore, they will not be able to pay their bills, ending into a bankruptcy. Restructuring their debt would involve a delay in repayments and a cut in interest payments, but would only be granted if the Greek government met strict targets.

2.2 Ireland

During 1995 to 2001 the Irish economy had a tremendous rapid growth, between 8% and 9% (Eurostat.com, 2011. Take it from DELATTE. A, Account). However, the following years their economy did not growth as much as the previews years, but still had a very high performance –Graph 13th-.

Due to the great performance, they were starting to be recognizing as the “Celtic Tigers”¹, although this was no longer more until the beginning of 2008 where they declare as the first economy on the European Union to fall into recession.

The next plot shows the high performance of the Irish economy between 2005 and 2007; however, in the first quarter of 2008 we see how the graph has a big fall showing the period where the Ireland had declared an economic crisis.

1 "The first recorded use of the phrase is in a 1994 Morgan Stanley report by Kevin Gardiner. The term refers to Ireland's similarity to the East Asian Tigers; South Korea, Singapore, Hong Kong, and Taiwan during their periods of rapid growth in the late 1980s and early 1990s. The Celtic Tiger period has also been called "The Boom" or "Ireland's Economic Miracle".
As Greece, the recession of Ireland's Economy was due to several facts. As it is known, the global financial crisis was a big part of it. However, with the subsequent collapse of its domestic property and construction markets -see graph 14- the economy started to be more affected unit it hit the banks and government.

![Graph 14: Northern Ireland Index](image)

Source: Ireland after NAMA, 2011.

Almost 95% of job losses in the last two years have come from less than half the economy. The economy shed 250,000 jobs between late 2007 and late 2009. Just over half of that has come from construction a very important sector as a percentage of GDP, with the wholesale and retail, manufacturing and agriculture sectors comprising just short of 20%, 15% and 10% respectively. The rest of the economy, including about 670,000 private sector jobs and 500,000 public sector jobs, has almost completely escaped large-scale job losses.
When the crisis hit in 2009, general government deficit was estimated at -11.7% percent (Thomson Reuters news, 2010) of GDP see graph 16-. Unlike Greece, Ireland’s fiscal loss was incurred due to the rising cost of propping up its undercapitalized banks. In response to that, the Irish government recapitalizes the banking system, and establishes capital funds in response to the country’s economic downturn- Office for Official Publications of the European Communities, 2009’. If we see graph 16 in the left down corner, we can see how it changes from one period to another, showing graphically the recapitalization occurred in 2010 in order to raise their economy.

More over to these measures, Ireland implement some other strategies to raise the economy which include cuts in the spending, reduction in the wages for the public sector and a support from the IMF and the EU of €80 billion rescue.

However, the spread with the 10 years government bonds still really high. In the right down corner, we case the tremendous differences especially in 2010 where fear was around the markets. Even worst, in January 26th of 2011 the grade Agencies raise down the grade of Ireland putting it in BBB just one step above of what is known as Junk Bonds –BB-. Indeed if the agencies keep downgrading the country their spread will keep going up, same as the interest rate.
2.3 Portugal

As Ireland and Greece, Portugal was also declared in debt crisis. However, we can note compare the debt levels between Portugal and Greece due that Portugal’s debts was significantly lower than Greece’s -see graph 17-. In addition, it works the same for Ireland and Portugal. It is true that Portugal affront baking problems, however, their system was more stable than the Ireland one.
After Ireland’s assist, speculation quickly arose that Portugal would require a bailout as it shared some of the symptoms of Greece and Ireland. The government’s repeated fiscal adjustments became increasingly difficult as they were met with strong political opposition. Nevertheless, this was no longer like that, due to Prime Minister Jose Socrates won the elections with a majority and on April 6th, the Prime Minister announced that the country needed a rescue from the EU (The Economist, 2011). Besides the support needed from the EU, the austerity plan also include reduction in the social and military expenditures, an increase on taxes to the higher rents, frozen the wages of the public sector employees and privatization to the public goods.

On the other hand, the agency Standers & Poor’s downgrade the Portugal’s grade from A+ to A- due to the structural weakness of their economy.

Finally there were 50 structural measures announced in the mid December of 2010 to be legislated by the end of March 2011. This measure includes reducing the size of the informal economy, improve the rental market, and reduce administrative burdens of the export sector.
2.4 Spain

Finally we affront the last country from the peripheral countries—Spain. After 15 years of strong growth med by the real state bubble—graph 18—and due to the entrance of the euro zone; Spain was seeing as the potential economies which could contribute to the whole zone. Nevertheless, Spain was hit hard by the global financial crisis. The Spanish case is particularly troubling since the Spanish economy is five times the size of Greece's, the country has over US$600 billion—graph 19—in sovereign debt, and its overall gross external debt amounts to 135 percent of its GDP.

Furthermore, Spain will need to reduce rapidly its budget deficit, which is presently at around 11 percent of GDP. In the other hand, nowadays Spain is in the midst of a worse housing market bust that recently was experienced in the United States and when its unemployment rate already stands at 20 percent – graph 20.

According to the recession, Spain has adopted some measures in order to fight all their problems. First of all, the government injected million of Euros in order to increase liquidity on the market helping families and Pymes. Second of all, the government is looking forward to create 300,000 jobs and reduce the informal economy. In terms of pension reform, in January 2011 the government approved a pension reform bill, agreed with social partners, including gradual increasing in the retirement age and increasing the contributory period for full pension. Finally it has to be done a restructuring of the “caja de ahorro” reform of the legal framework, extension of options for issuing equity capital.

Finally if we retake the graph 6 we can see how the ten years bond is not as bad as the other countries. We can see that the line is not as steep as the other three, however, doesn’t mean that their economy is recovering. The GDP plot – Graph 21- , shoes the tremendous fall of 2009 that they had during recession due to the reasons explained above. However, now a day they are facing a huge problem of unemployment, which will probably a reason to see their economy going down again.

Graph 21: Spain GDP


PYMES: stands for the acronym in Spanish “little and middle industries” –“pequeñas y medianas empresas”.

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2 PYMES: stands for the acronym in Spanish “little and middle industries” –“pequeñas y medianas empresas”.

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3. Original Sin – Debt Intolerance – Currency Mismatch

To give a clear response to quit or not quit the euro zone, it would be appropriate to introduce three concepts. These concepts will be the three main cores of the analysis. In order to give a clear response to our main question. However, not all of them are going to be addressed in the same way.

3.1 Original Sin/ Balance Sheet Effects

Original Sin also known as balance sheet effects, have been advanced as an explanation- Eichengreen, Hausmann and Panizza (2003)- for the persistence of macroeconomic shocks on output. The basic idea is that borrowing by firms is limited by their net-worth. If the net-worth of the firms falls because of a bad realization of their investment project, consequently it will be more difficult for them to borrow in the following period. Therefore, they will be forced either to pay a higher interest rate for an equal sized as the investment or not do so. Thus, less investment means less output, less output means less net-worth finally propagating a shock.

Understanding a rough concept in terms of firms, let’s consider a firm as a whole government. Original sin is defined as the inability of a country to borrow abroad in its own currency- Eichengreen, Hausmann and Panizza (2003a)-. Therefore, when a devaluation of the domestic currency happens, the worth of their liabilities will increase, meaning that it will be more expensive to pay their debt. Therefore, a country which cannot borrow in its own currency and falls into a debt trap, would have to borrow more and more each time depending on the interest rate, being exposed to a bankrupt. In the other hand, any country borrowings in its own currency, and having debt problems, can escape through fiscal and monetary policies such as lowering the interest rate or increasing the money supply. This could be the case of Australia when was hit by the same problem -Example considered in Eichengreen and Hausmann (1999)-.
However, this is not the case of Greece, Portugal, Ireland, Spain or any country using the Euro as their common currency due to they can note devaluate their currency, and the country in question refused to consider some sort of bankruptcy process, nor to present the strong economic needed to escape from a debt tramp.

Let’s imagine happening devaluation in Europe. First of all, the liabilities denominated in their own currency will not increase. However, the value of the foreign asset will increase due to the interest rate. This is what plays a really important role in our case; Interest rate, why?

Let’s imagine another hypothesis. Think about Greece abandoning the euro zone, taking the same amount of debt and considering a devaluation process.

First of all, if they quit the euro zone, they will probably return to their old currency -Drachma- ; this means that the Drachma will lose value against the euro. Second of all, they will be borrowing in a different currency suffering balance sheet effects-the inability of a country to borrow abroad in its own currency-. Finally their amount of debt will increase due to the interest rate.

Looking at this scenario, with the debt problem of Greece; we have to keep in mind a possible bankrupt of the country. However, in order to have a specific response to this hypothesis, we will have to analyze it through the real numbers.

3.2 Debt Intolerance

The inability of emerging markets to manage levels of external debt that is manageable for advanced countries- Reinhart, Rogoff and Savastano (2003) -. This next concept can also be seen as the relationship between a countries credit rating and its external debt.

History has shown that the emerging countries rating tends to fall in a faster way than advanced economies, meaning that emerging economies have less tolerance to manage certain levels of debt.
However, original sin and debt in tolerance are not the same. If a country has problems borrowing abroad in its own currency, could be an explanation of why some economies can manage certain amount of debt and some others cannot. Nevertheless, original sin is not the only determinant for a country to have debt problems.

In the paper of Reinhart, Ragoff and Savastano (2003), mention and conclude that countries that default in the past and have historical inflation (Greece faced economic hardships and defaulted on its loans in 1826, 1843, 1860 and 1893) have a lower credit rating in the present

A default of a country in terms of its external debt has several consequences for its financial situation. We don’t have to be experts to know that every time that a country default its economy gets weaker and weaker. In Reinhart, Ragoff and Savastano (2003) also mention the reason of it. This is due to that each time a country face a default, their country tax system suffer a big hit. Therefore this will bring capital flight and tax avoidance creating difficulties to rice the revenues for the governments needs.

3.3 Currency Mismatch

This last concept differs also from the original sin one. It is define as differences in the values of the foreign currency denominated assets and liabilities on the balance sheets of households, firms, the government and the economy as a whole.- Goldstein and Turner (2003)-. Therefore, if our main target is the government as a whole, we have to mention the importance of the real exchange rate. When depreciation happens, the value of country’s external debt tends to rise; therefore, its national output will create an adverse balance sheet effects, meaning that the different sectors of the economy will be unsoundly financed and insolvent causing a large-scale financial crisis.
If we take a look to the crisis from the 1990s –Mexico 1994, 1995-, we can see that the largest felled have occurred in the emerging economies with enormous amount of currency mismatch. This phenomena can be seen when the assets and liabilities and denominated in foreign currency, meaning that the net worth is sensitive to change in the exchange rates.

It could be confusing to understand why this concept is address in this paper, however, other papers and studies have shown that currency mismatch makes crisis management much more difficult due that the monetary authority tend to avoid reducing the interest rate due to the fear of initiate a large fall in the currency that would bring a with in large scale insolvency to the state.

It is not enough if we present just the theory and leave apart the data and its analysis. This is why the 4th part of the paper is focused on the analysis based on some data which will help us to answer the main question.

4. Data and Analysis

This following part of the paper will compass several points in order to answer our main question. It will be presented some data fallowed with its own analysis and interpretation for the four countries explained from before. This data are exported from the central banks of each country or from sites where we can get the trust of its value.

The first part will show the situation based on the performance of the economy (GDP, Deficit/surplus, Expenditure, Revenue and Debt) in the past recent years; however, it would be interesting to see both faces of the coin presenting a hypothesis on which any of the countries exit the euro zone. This hypothesis could be made for all the four countries; however, there are some countries which are jumping out of the page in the recent new –Greece- therefore, we will take as an example Greece to show the relation between the theory and what would happen to the country if they decided to exit the euro zone. Concepts like exchange rates,
interest rate, debt, GDP and others will be very important in order to understand the analysis.

Table 1 shows the evolution of Ireland’s economy during the crisis. It begins with the year before the crisis exploded (2007). We can see that from 2007 to 2010 the GDP was decreasing from year after year; however, the worst part can be seen from 2008 to 2009 where the GDP had a tremendous decrease of -11.303% meaning that the crisis was reaching its pick. In the other hand, we can observe the government deficits or surplus. In this case we can just talk about deficit due that all the peripheral countries had none surplus at all.

Table 1 shows the evolution of the deficit for the four years with a mean of -21.442 million of Euros and with an increase year after year. In 2010 we can see the biggest increase of the deficit meaning that that government was earning half of what it was spending. Hence, if we see real figures, its revenues were 34.6% of the GDP against 64% of it. Last but not least let’s see the government debt which is our main target in this paper. We can notice that while time was going through the government was increasing the amount of debt until in 2009 it was more than 95% of the GDP.

If we sum up all this variables explained before, we can get a better idea why Ireland was going through very hard time. Therefore, the hard time of the government and the problems of the banking sector, made think politicians, economist and all the society that Ireland could exist the euro zone area.

<table>
<thead>
<tr>
<th>Irland</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>Million Euros € 189.374</td>
<td>€ 179.989</td>
<td>€ 159.645</td>
<td>€ 153.939</td>
</tr>
<tr>
<td>Government Deficit (-)/Surplus (+)</td>
<td>Million Euros € 128</td>
<td>€ (13.196)</td>
<td>€ (22.795)</td>
<td>€ (49.903)</td>
</tr>
<tr>
<td>%of GDP</td>
<td>0.1</td>
<td>-7.3</td>
<td>-14.3</td>
<td>-32.04</td>
</tr>
<tr>
<td>Government Expenditure</td>
<td>%of GDP</td>
<td>36.7</td>
<td>42.8</td>
<td>48.2</td>
</tr>
<tr>
<td>Government Revenue</td>
<td>%of GDP</td>
<td>36.8</td>
<td>35.5</td>
<td>33.9</td>
</tr>
<tr>
<td>Government Debt</td>
<td>Million Euros € 47.361</td>
<td>€ 80</td>
<td>€ 105</td>
<td>€ 148.074</td>
</tr>
<tr>
<td>%of GDP</td>
<td>25</td>
<td>44.4</td>
<td>65.6</td>
<td>96.2</td>
</tr>
</tbody>
</table>

Source: Adapted from: "How to manage the panic in a crisis time (excel file)". By DELATTE, A 2010.
Table 2 shows the evolution of the Greece crisis. In my point of view, is the most interesting case from the whole group. Let's start with the GDP, if we take a look at the four tables, we can notice that Greece had the second biggest GDP from the peripheral countries; however, does not mean that their financial situation was strong enough to support the innumerable problems carried from the past. If we compute the mean of the real growth of the GDP it will give us 0.491%, meaning that in four years the country grew almost zero percentage. Indeed, the only positive growth that we see in the table is from 2007 to 2008 that is the reason we get a positive mean, otherwise the value would show a decrease year after year.

In the second row we see that all the time they have read values. Meaning that the government year after year was increasing the amount of deficit with the exception of year 2010 where they showed a positive variation. One explanation of it could be the bailout given by the Euro zone and the IMF. However, such was the severity of the problems that they still cannot get rid of it to the point that in recent articles mention the need of Greece for another bailout or an irreversible default.

In the other hand, we get the expenditures, revenues and the government debt. We find the same case that Ireland. They received less than what they expend, meaning that they have to adjust the way of how the government is earning money starting from the taxation. Finally, we find the debt problem, the biggest problem that they have had during the crisis. As it can be seen their debt is increasing year after year in about 10% if we take the average of the four years. That means that the government had to borrow money for financed they daily expenses. In 2010 the signed a big austerity plan which will reduce their deficit. Unfortunately, the bailout given by the IMF was not enough, due to they haven’t meet the targets posted in 2010 and they financial situation does not have a clear view. Here is the time line explained by one of the biggest news broadcast on the world:

- “May 2010: EU and IMF agree bail-out package to prevent Greece defaulting on its debts; in return, Greece agrees to make 30bn euros of budget cuts over the next three years
- **February 2011**: EU and IMF experts tell Greece it must make further cuts to keep its recovery on track
- **April 2011**: EU figures reveal Greek deficit revised up to 10.5%, worse than previously thought
- **May 2011**: Greece begins privatization programme but is warned the IMF may not release more funds because Athens cannot guarantee it will remain solvent for the next 12 months
- **29 June 2011**: Deadline for Greece to agree new austerity package”(BBC news, 2011)

Due to Greece is the country which has had most trouble to solve the problem, in the next pages we see a hypothesis of what would happen if they exit the euro zone.

### Table 3: Greece real numbers

<table>
<thead>
<tr>
<th>Greece</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>€ 227,074</td>
<td>€ 236,917</td>
<td>€ 235,017</td>
<td>€ 230,173</td>
</tr>
<tr>
<td>Government Deficit (-)/Surplus (+)</td>
<td>€ (14,524)</td>
<td>€ (23,121)</td>
<td>€ (36,306)</td>
<td>€ (24,193)</td>
</tr>
<tr>
<td>Government Expenditure</td>
<td>% of GDP</td>
<td>46.6</td>
<td>49.7</td>
<td>52.9</td>
</tr>
<tr>
<td>Government Revenue</td>
<td>% of GDP</td>
<td>40</td>
<td>39.9</td>
<td>37.3</td>
</tr>
<tr>
<td>Government Debt</td>
<td>Million Euros</td>
<td>€ 239,364</td>
<td>€ 262,318</td>
<td>€ 298,706</td>
</tr>
<tr>
<td>% of GDP</td>
<td>105.4</td>
<td>110.7</td>
<td>127.1</td>
<td>142.8</td>
</tr>
</tbody>
</table>

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.

In terms of Spain, the biggest economy of the peripheral countries, the problems does not have the same roots as the other countries. Table 3 shows that the GDP just had a decrease from 2008 to \( GDP = C + I + G + (eX - i) \) 2009, meaning that the well known formula is working how it should be. However, this doesn’t mean that the government has no deficit, a low employment rate and high real state houses. Furthermore, Spain will need to reduce rapidly its budget deficit, which is presently at around 11 percent of GDP. In the other hand, nowadays Spain is in the midst of a worse housing market bust that recently was experienced in the United States and when its unemployment rate already stands at 20 percent.
Last but not least, we find Portugal with some similar cases that we have explained before. In terms of the GDP, we can see that it has varied but less than others; however, the average of growth during the four years is close to zero -0.33%—similar than the one we showed for Greece.

Having a high debt in terms of GDP is not necessarily fatal as long as the institutions you are borrowing money from believe that you will be able to pay them back. In this particular case we can see the spread between Portugal is getting high each time. If they get worried about a country's ability to pay, then the rate of interest they have to pay soars and they suddenly find that their debt is unaffordable. This is what it seems to be happening to most of the peripheral countries. In the other hand, borrowing money at high interest rates plus having a deficit of -10.1% as a percentage of GDP does not help at all.

Due to Portugal had big levels of debt in the previews years (before the crisis), they needed to have a high performance of their economy in order to avoid a high spread with the German bonds. However, at the time that the nightmare arrived their financial situation was not clear enough to battle the war, indeed after a long time of refusing a bailout. Portugal prime minister called the EU and the IMF asking for help due to they couldn't manage any more the debt (see table 4).

<table>
<thead>
<tr>
<th>Spain</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>€ 1.053.237</td>
<td>€ 1.088.124</td>
<td>€ 1.053.914</td>
<td>€ 1.062.591</td>
</tr>
<tr>
<td>Government Deficit (-)/Surplus (+)</td>
<td>Million Euros</td>
<td>€ 20.066</td>
<td>€ (45.189)</td>
<td>€ (117.306)</td>
</tr>
<tr>
<td>% of GDP</td>
<td>1.9</td>
<td>-4.2</td>
<td>-11.1</td>
<td>-9.2</td>
</tr>
<tr>
<td>Government Expenditure</td>
<td>Million Euros</td>
<td>€ 360.661</td>
<td>€ 433.611</td>
<td>€ 561.319</td>
</tr>
<tr>
<td>% of GDP</td>
<td>36.1</td>
<td>39.8</td>
<td>53.3</td>
<td>60.1</td>
</tr>
<tr>
<td>Government Revenue</td>
<td>Million Euros</td>
<td>€ 1.053.237</td>
<td>€ 1.088.124</td>
<td>€ 1.053.914</td>
</tr>
<tr>
<td>% of GDP</td>
<td>36.1</td>
<td>39.8</td>
<td>53.3</td>
<td>60.1</td>
</tr>
</tbody>
</table>
| Table 4: Spain real numbers

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.
5. Hypothesis “Quitting the Euro Zone”

Let us make a little reminder in order to understand why it is necessary to make a hypothesis in this part of the paper. If we remember all the theoretical concepts explained above, are made in the assumption of developing economies. Therefore, if we don’t imagine one of the peripheral countries quitting the euro zone, we couldn’t apply this concept to their country.

Due to the recent news, it seems that Greece needs another bailout or they might exit the euro zone due to the inability to manage their debt. Therefore, we will make all the assumptions based in this country in order to see what would happen if they exit the euro zone and return to their old currency.

Let us consider that Greece exist the euro zone. This will carry some consequences.

First of all, the drachma will again take place as the domestic currency, and probably the euro will be playing the role of foreign currency, meaning that their debt will be denominated in Euros. Due that the drachma is a weaker currency, they will suffer devaluation, this will bring some problems like debt intolerance, currency mismatch, their external debt will increase due to the devaluation and finally it will appear liquidity and banking problems. This is without counting the social and political obstacles that will show up during hard times. To clarify this paragraph, let me show a very simple example.

<table>
<thead>
<tr>
<th>Portugal</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>€163.319</td>
<td>€171.983</td>
<td>€168.610</td>
<td>€172.546</td>
</tr>
<tr>
<td>Government Deficit (-)/Surplus (+)</td>
<td>Million Euros</td>
<td>(5.333)</td>
<td>(6.081)</td>
<td>(17.039)</td>
</tr>
<tr>
<td>% of GDP</td>
<td>-3.1</td>
<td>-3.5</td>
<td>-10.1</td>
<td>-9.1</td>
</tr>
<tr>
<td>Government Expenditure</td>
<td>% of GDP</td>
<td>44.4</td>
<td>44.7</td>
<td>49.8</td>
</tr>
<tr>
<td>Government Revenue</td>
<td>% of GDP</td>
<td>41.1</td>
<td>44.1</td>
<td>39.7</td>
</tr>
<tr>
<td>Government Debt</td>
<td>Million Euros</td>
<td>€115.587</td>
<td>€123.108</td>
<td>€139.945</td>
</tr>
<tr>
<td>% of GDP</td>
<td>68.3</td>
<td>71.6</td>
<td>83</td>
<td>93</td>
</tr>
</tbody>
</table>

Source: Adapted from: “How to manage the panic in a crisis time (excel file)”. By DELATTE, A 2010.
The example showed above, will give a general idea of how much they will have to pay if they return to their old currency. Let’s say that for one Drachma that we have you will receive 0.78 Euros therefore, if we make a simple calculation we can see that instead of paying 190.168 million of Euros they will end up paying 243.805.13 million. Therefore, if they can’t even pay their debt right now, for sure they wouldn’t be able to afford the rest.

In the other hand, we will find some currency mismatch and debt intolerance probably. However, that does not concern me so much. At the beginning of the paper we said that we will put aside the political and social issues. However, it is really important to see what is happening today in Greece. They are on the verge to have a political and social crisis, therefore, now the government will not only have to deal with the financial situation, also with the political and social situation, losing the confidence of the populations. Hence, for those who have study the theory of macroeconomic, will now that one of the biggest fears of the government is to lose the confidence and credibility on the government. Finally, we will be facing a banking and liquidity crisis, ending up with whole catastrophe.

5. Conclusion

As I said in the beginning of the paper This work, would try to find an answer to the question -quit or not quite the euro zone - addressing it through the theory of balance sheet effects for the countries most affected (Portugal, Greece, Spain and Ireland) in the crisis which stared in the summer of 2007 and have been a nightmare through all these years.
Now that we have an idea of the case and consequences of the crisis, we can build our own thought of how irresponsible and band were mange the fiancés of these four countries. However, not all of them arrived there for the same reasons; we have the Irish banking problem, the Spanish bubble real state and the terrible debt problem of Portugal and Greece.

In the other hand, we understood why is hard for a developed country to reach problems of balance sheet effects, debt intolerance and currency mismatch. However, for been a hard and strong economy does not disclaim to be hit by economic and financial crisis.

The third point addressed in the paper, were the real numbers of how bad they financial situation of the peripheral country are. It can be mention that most the countries are reaching the targets proposed to the EU and the IMF in order to receive the bailout. However, for every rule there is an exception in this particular case we fine Greece; indeed this conclusion would focus more in this particular case due to nowadays they are facing a tremendous problem in the economic and political fields. We don’t have to be experts to conclude that the worst thing that it could happen is if they quit the euro zone. This decision would not only affect the country due to their tremendous debt problems, it also affects the EU in terms of currency value debilitating the currency. In other hand, this is not just a Greece problem; the control agenesis were not effective enough do to Greece hide the real amount of debt during decades.

Finally, it would be nice to hear the announced made from the prime minister of Greece to see how he is going to find the way for a new bail out and what does Germany want back if they still lending money. Unfortunately we cannot give the answer right now, however, it seems that Greece still has a long path to go and their tool are almost finish.

The question quit or not quit the Euro zone have been answer through the theatrical and analytical view. However things happen different in reality, what would be next, Bailout or default?
6. References


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