



**Facultad de Ciencias Económicas y Empresariales**

**TRABAJO FIN DE GRADO**

**PROGRAMA INTERNACIONAL DEL DOBLE GRADO EN  
ADMINISTRACIÓN Y DIRECCIÓN DE EMPRESAS Y ECONOMÍA**

**The Current Crisis and the European Central Bank**

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## **ABSTRACT**

The objective of this project is to understand the measures taken by the European Central Bank (ECB) in order to solve the economic crisis that started in 2008. It studies the causes and its development; the transformation from a financial crisis to a debt crisis.

Linked to the distinctive phases of the crisis there is an explanation of the policies carried out by the Eurosystem so that every reader, even those who have basic economic knowledge, can understand them.

In conclusion, this project attempts to bring complex economic knowledge in an easily comprehensive way.

## INDEX

|   |    |
|---|----|
| 1. INTRODUCTION.....  | 2  |
| 2. THE FINANCIAL CRISIS.....  | 3  |
| 2.1 Causes of The Economic Crisis .....   | 3  |
| 2.2 Development of the Crisis and its Reach to Europe .....                     | 7  |
| 3. HISTORY OF THE EC, ESBC, AND ECB.....  | 9  |
| 3.1 The ESCB: Functions and instruments of the ECB.....                         | 11 |
| 3.1.1 Functions.....  | 11 |
| 3.1.2 Main Instruments of The Ecb.....  | 11 |
| 4. INTRODUCTION TO FACTORS AND KEY CONCEPTS OF THE ECB POLICY ...               | 14 |
| 4.1 Factors affecting the ECB's policy .....                                    | 14 |
| 4.2 Key Concepts.....   | 16 |
| 4.3 Measures Taken by The European Central Bank.....                            | 17 |
| 5. THE MEASURES TAKEN BY THE ECB: 2007-2016.....                                | 18 |
| 5.1 First Alarming Signals: 2007 .....  | 18 |
| 5.2 The Big Crash and the Transformation into a Debt Crisis: 2008-2010 .....    | 20 |
| 5.3 Deep Debt crisis, Budgetary Adjustments and Social Despair: 2011-2012 ..... | 28 |
| 5.4 The Way to Recovery and the Greek ESTANCAMIENTO: 2013-2015.....             | 33 |
| 5.5 Political Instability: Uncertain future.....                                | 39 |
| 6. CONCLUSIONS .....  | 42 |
| 7. BIBLIOGRAFÍA .....   | 44 |
| 8. ANNEXES.....   | 1  |
| 8.1 Annex 1.....  | 1  |

## 1. INTRODUCTION

This project is about the measures taken by the ECB until 2016 for solving the economic crisis that started in 2008. This crisis has been the deepest since the 1929 crash and it has affected many European families which have suffered during these years, for that reason, the principal objective of the project is to explain the policies clearly so that every European citizen that has been affected by those measures can understand them in an easy and comprehensive way.

In order to understand correctly the ECB's policies this paper has three first sections that give useful information before digging into the Eurosystem's measures.

First, there is an explanation of the origin of the financial crisis that started in 2008 in the US. Despite of being the 'official' start date September of 2008, the crisis had been built up during several years and those causes are explained in this first section. Besides, it is also exposed its transmission to Europe which is mainly our geographical area of study.

With the crisis centred in Europe and before digging into the policies of the ECB, in the second section of the project, it is provided basic information about how the European Community (EC), European System of Central Banks (ESCB) and the European Central Bank (ECB) was created.

In the third part of the project there is a useful explanation of several key concepts and ideas that is crucial for understanding the following section.

Once having introduced the topic and having acquired the necessary information the project is focused on the core part. This section makes a division of the crisis into distinctive stages that reflect its evolution. In each of the phases there is an analysis of the economic situation and the measured that the ECB adopted. In order to gather all the information related to the policies and transmit it in a comprehensive way, I have read the annual reports of the ECB and selected the required information and complemented it with examples or clarifications. In this way, I hope that all the readers (even those with basic economic knowledge) can understand the measures.

Finally and concluding with the project there are some conclusions about the effectiveness of the Eurosystem's policies and the uncertain future of Europe.

## 2. THE FINANCIAL CRISIS

In this first part I am going to explain the causes behind the origin of the financial crisis of 2008. Afterwards, I will show how it was developed until its boom in 2008 and the way it affected the European Countries.

### 2.1 Causes of The Economic Crisis

The 15th of September 2008 can be widely considered as the start point of the global economic crisis as the whole world entered panic with the bankruptcy of *Lehman Brothers*. However, we must go back 8 years in time to understand how this financial disaster was slowly gestated and the main reasons of its origin.

The first reason is a **relaxed economic policy**. Around the beginning of the millennium the NASDAQ INDEX (which contains the information related the shares of the most important American technological companies) reached its maximum level at 5047<sup>1</sup> points. Internet was a huge discovery and it was becoming affordable for middle income families. It seemed to be a great opportunity for many companies; however these expectations soon turned out too optimistic; many of the firms thought as successful businesses, bankrupt or joined with other ones trying to survive. Furthermore, the FED had been increasing the interest rates until reaching the maximum level of 6.25%<sup>2</sup> (See Figure 1).

This fact added to the terrorist attacks of 9-11 2001, set uncertainty in the American economy and to some extent the global one as well, slowing down the economy of the United States as we can see in the table 1:

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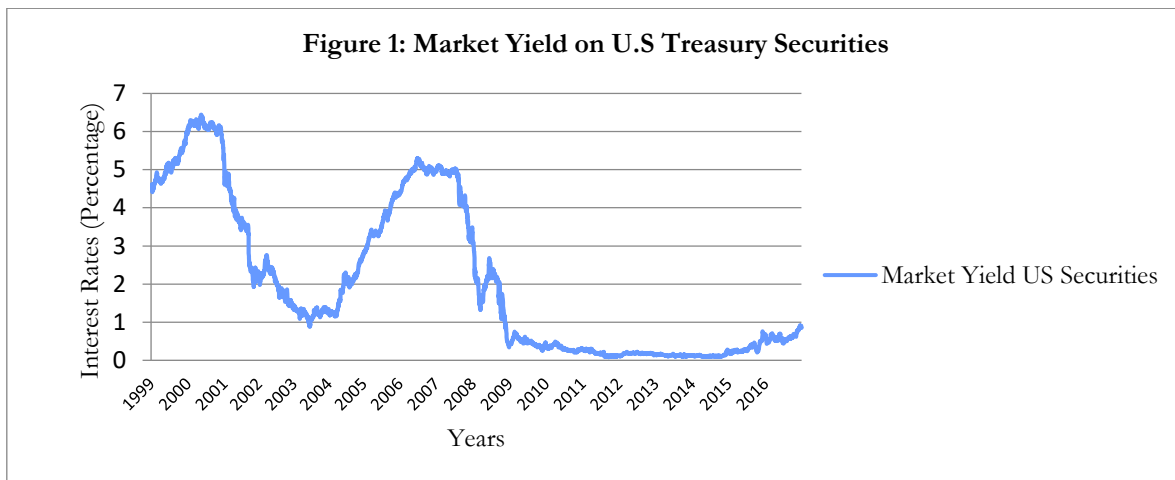
<sup>1</sup> Nasdaq composite: timeline. (n.d.). Retrieved from Nasdaq: <http://www.nasdaq.com>

<sup>2</sup> Marshall, J. (2009, April 22). *The financial crisis in the US: Key events, causes and responses* . Retrieved from Voltairenet: <http://www.voltairenet.org>

| Table 1: US Gross Domestic Product, percentage change |      |
|---|------|
| 2000 Q1   | -4,8 |
| 2000 Q2   | 5,9  |
| 2000 Q3   | -7,1 |
| 2000 Q4   | 1,4  |
| 2001 Q1   | -3,1 |
| 2001 Q2   | 3,7  |
| 2001 Q3   | -5,1 |
| 2001 Q4   | 2,3  |

Data source: Own elaboration from data in FED St Louis- Economic Research available at [www.fred.stlouisfed.org](http://www.fred.stlouisfed.org)

The FED decided to adopt a smoother economic policy by lowering down the interest rates, from 5.98% to 1.84% in 2001 and even more in the following years, which made very attractive the access to credit (see Figure 1). The government decided to reactivate the economy and focused itself in the housing market. Even the president George Bush signed the ‘Downpayment Act of 2003’ by which the Bush administration committed to finance the downpayment of the US habitants that decided to buy a house<sup>3</sup>.



Data Source: Own elaboration from data in FED St Louis- Economic Research available at [www.fred.stlouisfed.org](http://www.fred.stlouisfed.org)

Besides the low interest rates, banks decided to offer even more facilities and most of the

<sup>3</sup> *President Bush Signs American Dream Downpayment Act of 2003. (2003, December 16). Retrieved from The White House: President George W. Bush: <https://georgewbush-whitehouse.archives.gov>*

mortgages during the first two years included the so called ‘**two-year teaser rate**’<sup>4</sup> with low or none interest payments. These conditions were so favorable that everyone was tempted to buy a house, even those who could not keep paying the loan in the long run who are usually called NINJAS (No Income, No Jobs, No Assets). This is when the term **subprime mortgage** comes in; it is a variable interest mortgage lend to NINJAS, and more generally to the part of the society whose economic situation is unstable.

The second reason is related to the **deregulation of the global financial system**<sup>5</sup>. The financial world has become more and more complex and it experienced a significant growth in the previous years to the economic crisis. The banking system had to find new ways to keep its profitability high in an environment of low interests, so it started to invent new and more complicate financial products (CDS, CDO, Syntetic CDO...).

Before explaining how these products are created and its use, we should understand some basic concepts and ideas:

**Credit Rating:** Some agencies, Standard and Poors and Moodys mainly, classify the financial products according to the risk of default. The scale goes from AAA, being the most secure and CCC the riskiest.

**Securitization**<sup>6</sup>: It is the process by which combining different financial products or parts of it you create a new one, for example: You mix different types of mortgage (AA, BBB...) and the create a bond whose underlying assets are those credits. This technique was very popular during the previous years to the crisis because it is a way to spread the risk, that is; if you are going to buy shares you will probably decide to buy of different companies so that in case one is in bankrupt you can still get earnings from the others. The bonds were made following the same reasoning: in case a BBB mortgage defaults the rest of the bond is still secure enough to ensure earnings to its owner.

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<sup>4</sup> Lewis, M. (2010). *The Big Short: Inside the Doomsday Machine*. W. W Norton & Company

<sup>5</sup> Castells, M. (2014, February 28). *La crisis económica europea: una crisis política*. Retrieved from Europeg: <http://www.europeg.com>

<sup>6</sup> Lewis, M. (2010). *The Big Short: Inside the Doomsday Machine*. W. W Norton & Company

This is the easy part of the story as it turns out much more complicated when the financial engineering comes up. We are going to center ourselves in 2 of them:

- **Collateralized Debt Obligation (CDO):** Once the bonds were created up from the different mortgages (most of them unsecured subprimes) they were classified with different ratings, mainly with AAA but also with worse rates. Afterwards, normally the worse qualified were mixed again and a CDO was created with a AAA rating.
- **Credit Default Swap (CDS):** This financial derivative works as an insurance, that is, in case a financial product related to the housing sector (let's say bonds) loses all its value the owner of the CDS receives the whole amount of the bond in exchange for some small payments that has periodically made. The CDS were commercialized thanks to different investment banks (Goldman Sachs, the Deutsche Bank) but ultimately AIG was the one backing up the CDS.

These products and others became very popular because during the housing bubble they were very profitable as they involved a high leverage, which makes your gains multiply but your losses as well. A small loss in some part of the underlying assets of a CDO could mean that its value would drop to 0. It is also important to remind that all these products are based on subprime mortgages given to NINJAS, so all in all, the equilibria of the entire financial system depended on people who have no intention or real possibility to afford the high amount of money that owes.

The third reason is a lack of **reliable information**<sup>7</sup>. The rating agencies are not publicly owned which could mean that they are more impartial, they are private companies hired by many organizations to grade a financial asset that this last one has created. During the previous years to 2008 during the creation of the complex financial products S&P and Moodys had to rate lots of them and they could not clearly understand their content, so they started to give high qualifications to some products whose real value was close to zero (as they were based on subprime mortgages of huge risk of default). The reason for this is very simple; both companies competed against each other in the race of gaining new clients so they were afraid of giving low rated and then losing a client who would go to the other agency and obtain a

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<sup>7</sup> Marshall, J. (2009, April 22). The financial crisis in the US: Key events, causes and responses. Retrieved from Voltairenet: <http://www.voltairenet.org>



high grade<sup>8</sup>. The result was that the investors thought that they bought safe AAA assets and in reality, they owned nothing. We can say that there was a crisis on moral and ethics apart from the financial one.

## 2.2 Development of the Crisis and its Reach to Europe

The first piece of the puzzle is the **retail banks**. They started to look for profitability by giving huge amount of loans without considering the economic characteristics of the recipients. As said before, many of the borrowers were NINJAS with no real chance of paying back the loan but the banks in their search for earnings kept providing easy money. As more credits were granted the house prices continued increasing which made the bubble bigger and bigger.

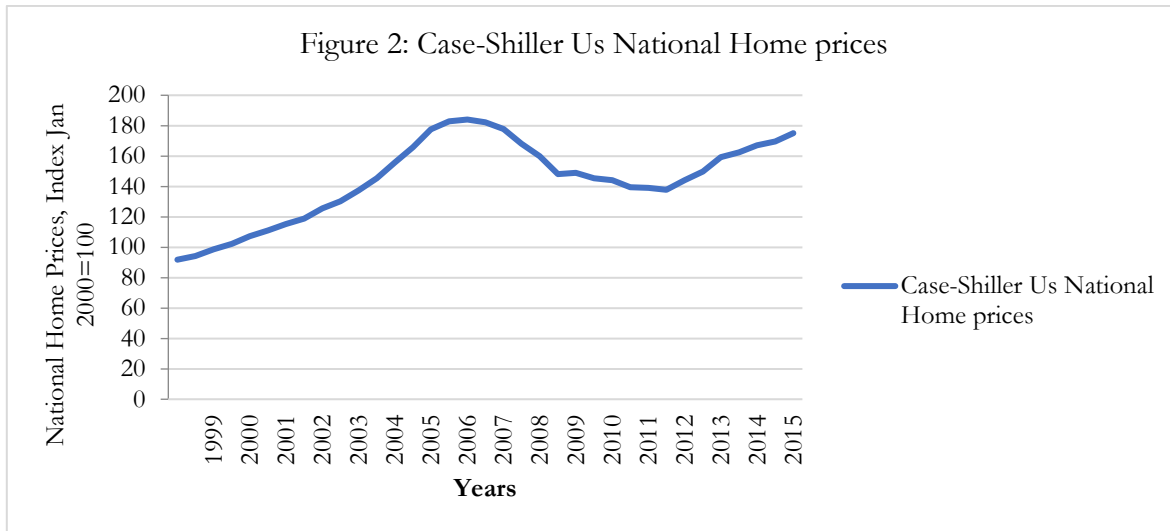
In the next step of the process all these mortgages were afterwards bought by other banks, investment ones, and used for *financial engineering*. Lehman brothers, Goldman Sachs, J.P Morgan...used them to create other products such as bonds, CDO, synthetic CDOs... Then, they were evaluated by the rating agencies, who gave extraordinary qualifications AAA enabling to set high prices for them. Due to such triple A qualifications, the financial assets were believed free of risk so they were easy to commercialize, they were soon bought by investment banks (International ones, European mainly), hedge funds, investment funds etc.

The bubble continued growing for years but in 2004 the FED started to raise the interest rates which would create the first warning signals in 2006-2007. The subprime mortgages were variable interest ones and they had two-year teaser rate<sup>9</sup>, so despite the increase of interest in 2004 the effects weren't noticed until two years later when many of the borrowers could not face the new high interest payments of their credits and defaulted. The Case Shiller Index, which measures house prices in the USA, started to fall sharply the first quarter of 2007 and more people stopped paying their loans because otherwise they would be paying a mortgage of a house whose value was much lower (see Figure 2). This process became a vicious circle and it predicted the explosion of the bubble

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<sup>8</sup> Lewis, M. (2010). *The Big Short: Inside the Doomsday Machine*. W. W Norton & Company

<sup>9</sup> Lewis, M. (2010). *The Big Short: Inside the Doomsday Machine*. W. W Norton & Company.



Data source: Own elaboration from data FED St Louis- Economic Research available at [www.fred.stlouisfed.org](http://www.fred.stlouisfed.org)

The crisis began smoothly in the late summer of 2007 when the confidence among banks started to be uncertain as they knew that all or almost all of them had deeply invested in complex, overpriced and ‘opaque’ products. The interbank market’s activity was reduced, the risk premium on interbank loans grew sharply and they started to experience liquidity problems as they could not face their short-term debts. However, despite these first evidences policymakers did not consider it a systemic collapse of the financial system and thought of it as a liquidity problem.

This point of view radically changed in September 2008 when Fannie Mae and Freddie Mac were rescued by the U.S government and Lehman Brothers bankrupt as it was too exposed to the toxic assets and it was not a systemic bank that could cause the fall of others. The panic of a meltdown of the financial system was spread worldwide, the banks from all over the world but especially American and European ones had the opaque financial products in their balances so they could not rely in any of their counterparts as they didn’t know how much of these assets each one had. The investors bought the few safe products of the market (mainly sovereign bonds) and the banks reduced the amount of credit which became scarce and expensive. At this point the economy was started to be affected and slowed down; sales and trade decreased and firms and consumers started to lose confidence and panic. In the year 2008 a financial and economic crisis that would be deepest since The Great Depression in 1929, reached USA and Europe some months later.

### 3. HISTORY OF THE EC, ESBC, AND ECB

In the following section I am going to explain briefly the history of the European Union until the point where the European Central Bank (ECB) is formed. Then, I will present its main functions and the tools used for achieving its objectives. It is a short guide that will be useful for understanding the measures taken by the ECB since the start of the crisis.

The first steps for the creation of the European Monetary Union were taken in 1958 when Germany, France, Italy, Belgium, The Netherlands and Luxemburg signed The Rome Treaty. The purpose of it was to create custom unions, common agricultural market and above all, it was an instrument to maintain the peace in Europe after having experienced two world wars. At the beginning the idea of a common currency was not considered, however in the following years due to the unstable interest rates, balance of payment crises and discrepancies among members regarding the monetary policy, it will be adopted as a solution to all these problems.

During the 50's Europe and US had adopted the Breton Woods system in which interest rates were fixed but could be adjusted and it continued stable until the 60's. By the end of this decade, the United States had invested billions of dollars in Vietnam War and had increased the public expenditure leading to problems in the balance of payments. In order to solve the deficit, USA will break the fixed exchange rate of the dollar with gold ending up with Bretton Woods System and creating global monetary instability in 1971.

In 1969 the head of states or governments in Europe decided to create a monetary and economic union in different stages by the end of the next decade, so they started to adopt mechanism to pursue this objective. In 1970-71 a new system called 'the snake' (fixed exchange rates with fluctuation bands) was set for narrowing the fluctuation margins among the currencies of the members and in 1973 the European Monetary Cooperation Fund (EMCF) was created as the future headquarters of the different central banks. However, the oil crisis arrived and the members adopted different policy responses to the shocks leaving the way towards the financial integration.<sup>10</sup>

In 1979 the European Economies tried to relaunch the monetary integration with the creation of the European Monetary system. Even though that this mechanism managed

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<sup>10</sup> Scheller, H. K. (2004). *European Central Bank: History, role and Functions*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

currencies in a single exchange rate system still there were great discrepancies among monetary and fiscal policies of the members. In 1987 trying to push further the building up process, The Single European Act was signed with the purpose of creating a Single Market which would force the state to more coordination of their policies. Besides, members will decide to adopt a single currency to avoid the exchange rate fluctuations and reduce transaction costs, increasing in this way the community welfare.

After all this trial and error, we can say that in 1988 a decisive step towards a real integration was taken when the European Council confirmed the objective of the progressive realization of economic and monetary integration in three different stages

1. **Stage one** focused on completing the internal market by reducing disparities between Member States' economic policies, removing all obstacles to financial integration and intensifying monetary cooperation.<sup>11</sup>
2. **Stage two** would serve as a period of transition to the final stage, setting up the basic organs and organizational structure of European Monetary Union and strengthening economic convergence.
3. In **Stage three** exchange rates would be fixed the monetary and economic responsibilities would be assigned among community institutions.

The first stage was implemented with the institutional framework existing until that year, nevertheless this was not enough for the other two stages. The members realized the necessity for further regulation and they signed the Maastricht Treaty in 1992 which gave the European Economic Community (EEC) a greater scope and power, a signal of it is that it was renamed as the European Union. This treaty included the Statute of the European System of Central Banks (ESCB) and of the European Central Bank (ECB) too (Statute of the ESCB) in which we are going to center from now on.

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<sup>11</sup> Scheller, H. K. (2004). *European Central Bank: History, role and Functions*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

### 3.1 The ESCB: Functions and instruments of the ECB

#### 3.1.1 Functions

The ESCB is formed by the European Central Bank, being the key of the system, and the 28 Central Banks of the European Union members, no matter if they have adopted de euro or not. The ESCB itself has no legal personality, however its components do have it, being the Eurosystem the one making decisions about the monetary policy. The Eurosystem it's formed by the National Central Banks (NBC) of the euro area countries and the ECB. The main **task** of the ECB is to follow the guidelines of the Eurosystem by its own means or the ones of the NCBs<sup>12</sup>:

- Set the interest rates at which it **lends to commercial banks** in the Eurozone, influencing the monetary supply and the inflation rate. This is a key task as the price stability is one of the main principles of European Community.
- Manages the Eurozone's **foreign currency reserves** and the buying or selling of currencies to manage the exchange rates.
- Ensures that **financial markets and institutions** are supervised by national authorities, and that payment systems work efficiently.
- Authorizes **production of euro banknotes** by the euro area members.

At this point, I consider important to highlight objective of the **price stability**, as it has conditioned the policy decisions taken by the ECB for solving the economic crises. The Maastricht treaty assigned the ECB the obligation of keeping a stable inflation rate. This decision restrains the decisions of the ECB as it cannot adopt expansionary monetary policy unlike its counterpart the American Federal Reserve

#### 3.1.2 Main Instruments of The ECB

The ECB in order to execute economic policies for the European Community has three main instruments. We have to keep in mind that this has to be carried out in an environment of price stability as a *sine qua non* condition and an open market with free competition. Besides, all

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<sup>12</sup> European Central Bank. (2004). *General Documentation on Eurosystem Monetary Policy Instruments and Procedures*. Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)

the decisions taken by the Eurosystem are usually quite polemic as it is always commented that are made favoring some countries, even though this organism is independent and objective.

### *Open Market Operations*<sup>13</sup>

They are the principle and most important ones among the instruments. They are used to manage the interest rates, administer the liquidity level and direct the monetary policy. The main devices to accomplish these operations are **reverse transactions**; The Euro system buys or sells assets or carries out credit operations.

Among the open market operations there are four main categories: main refinancing operations, longer-term refinancing operations, fine-tuning operations and structural operations.

The **main refinancing operations** are the principal ones as they are the most important device for directing the interest rates and the liquidity. They are made on a weekly basis and they are conducted by the NCB in a decentralized way.

The **long-term refinancing operations** are made monthly and they have 3 months' maturity. The purpose of the ECB is not to control the interest rates (as it usually takes the one given in the market), it is just a device for providing long term liquidity.

**Fine tuning reverse operations** are made to manage interest rates when there has been an unexpected liquidity fluctuation in the market, they are not pre-scheduled. They are an emergency resource for controlling the interest rates for palliating the consequences of an unplanned change in market liquidity. Finally, the **structural operations** are carried out to steer the position of the ECB in the financial markets.

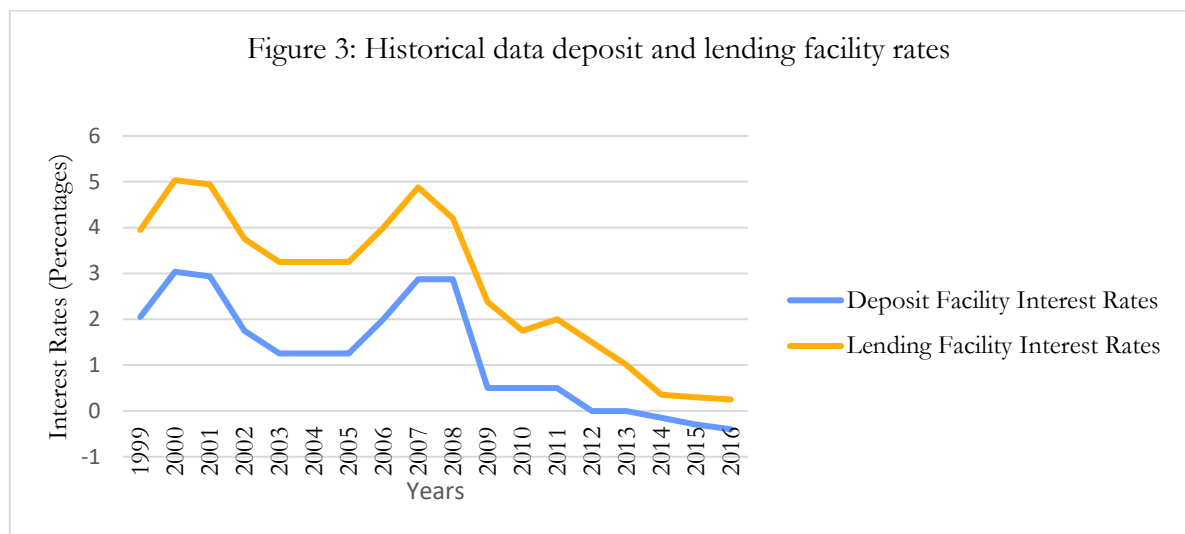
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<sup>13</sup> European Central Bank. (2004). *General Documentation on Eurosystem Monetary Policy Instruments and Procedures*. Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)

### *Standing Facilities*<sup>14</sup>

The purpose of **standing facilities** is to provide the necessary liquidity in the market and at the same time absorb it. That is, with this device the ECB makes sure in a decentralized way, that the NCB will lend money daily to other banks if needed and that they will also accept money deposits. This process is made with two instruments:

- **Marginal Lending Facilities:** The most common one is the *overnight collateralized loans*, in which the banks obtain the credit from one day to another. The interest rates used to be higher than the ones of the market so it was taken as an emergency solution; however, this has changes during the last years of crisis. (see figure 3)
- **The deposit facility:** Banks can make overnight deposits, without limit and they accept an interest rate that acts as a floor for the one-day interest rate. It used to be quite low but during the crisis they have become negative as the ECB has been desperately trying to inject liquidity in the economy. (see figure 3)



Data source: Own elaboration from data in Eurostat available in [www.ec.europa.eu/eurostat](http://www.ec.europa.eu/eurostat)

### *Minimum Reserves*<sup>15</sup>

<sup>14</sup> European Central Bank. (2004). *General Documentation on Eurosystem Monetary Policy Instruments and Procedures*. Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)

<sup>15</sup> European Central Bank. (2004). *General Documentation on Eurosystem Monetary Policy Instruments and Procedures*. Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)

The credit entities of the Euro area must keep a minimum level of reserves in their accounts of the NCBs. The amount varies depending on the balance of each institution and they are adopted for six week-long periods. This mechanism is useful for the banks as it allows them to respond to changes in the monetary markets by disposing of or withdrawing money from the reserves.

Link to the minimum reserves, we have the maintenance period concept. It is the period over which the credit institutions must keep the reserve levels required and it starts with the first main refinancing operation. It may seem a simple concept but it conditions the monetary policy because once the banks are under the maintenance period their liquidity needs increase and the ECB has to satisfy them.

## **4. INTRODUCTION TO FACTORS AND KEY CONCEPTS OF THE ECB POLICY**

### **4.1 Factors affecting the ECB's policy**

For doing so I will firstly expose different key-concepts for understanding the policies and I will like to highlight some ideas to keep them in mind in the following pages:

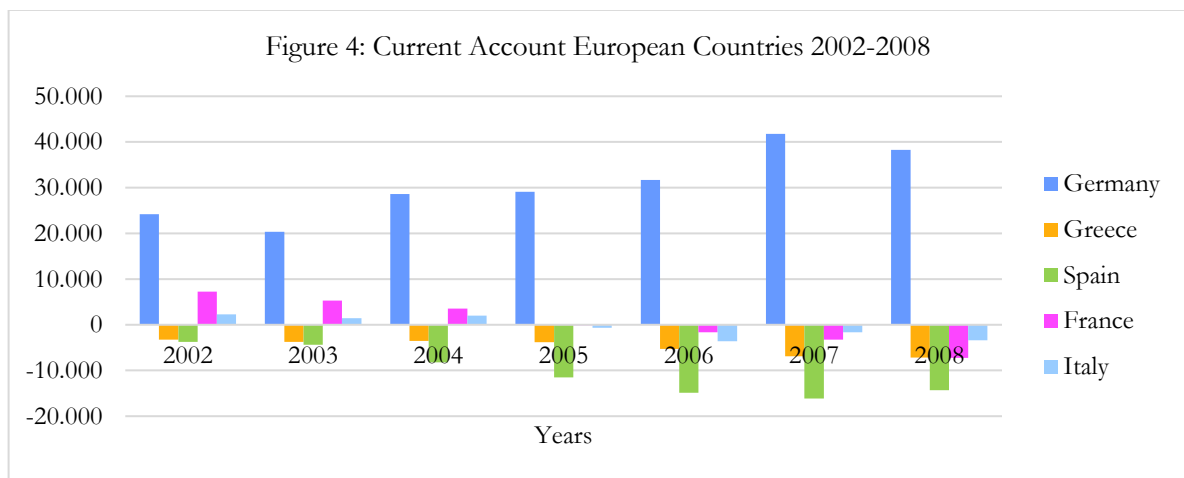
1. The European Central Bank measures are always guided by the price stability, always looking for an inflation rate close to 2% (Bini-Smaghi, 2012)<sup>16</sup>. As we will see in the following pages this objective will be the only constant among all these years. The reason for it has to do with the history of Germany, the country leading the monetary decisions of the Eurozone and the host of the ECB in Frankfurt. When the WWI arrived the II Reich left the gold standard and incurred huge amount of debts for facing the warlike costs. In 1918 after its defeat, Germany started to print insane quantity of money to pay its debt and face the severe conditions and fines of the Versailles treaty, creating in this way an uncontrollable hyperinflation. The situation became unsustainable in 1923, when the exchange rate between US dollar and German mark which had been 1dollar= 4 reichmarks, become 1 dollar= 6 billion marks. The country collapsed: the unemployment increased steadily, German population went through famines and extremisms raised. The economic situation got better with the



creation of a new currency called ‘*retenmark*’ which equaled 1 billion reichmarks, however the deflation arrived leading to high unemployment rates and linked to it, greater extremism finishing in the WWII.

Germany learned from this part of its history and decided to always keep the inflation under control in levels close 2%, which ensures market and employment stability.

2. The Eurozone is formed by heterogeneous states whose economic resources and ability to face the crisis diverge notoriously. Having the same currency and monetary policy coming from the ECB, one could expect that the effects of the crisis and the measures to solve it would have similar effects across euro-countries, however, as we will see later the reality is quite distant from that idea. The eurozone regions had tried to make a great union but have started from the last step: adopting a common currency. Other important steps like a more politically unified Europe or common fiscal policy have failed, such as the trial of a European constitution in 2005. Prior to the economic crisis, Euro countries had great differences among them and experienced unequal prices and costs competitiveness, and export performance. Since the entrance of the Euro, as there was no possibility of devaluating the currency some of the countries started building up huge current account deficits that had to be refinanced year by year. Besides, in some of the countries the political parties adopted expansionary fiscal policies for continuing ahead of the state by public indebtedness.<sup>17</sup>



Data source: Own elaboration from data in Eurostat available in [www.ec.europa.eu/eurostat](http://www.ec.europa.eu/eurostat)

<sup>17</sup> European Commission. (2010). *Surveillance of Intra-Euro-Area*. Retrieved from European Commission: Competitiveness and Imbalances: [www.ec.europa.eu](http://www.ec.europa.eu)

These imbalances will have profound consequences specially for Southern European economies that will be seriously hit by a debt crisis. Germany will be ahead of a hardly criticized committee that will set severe structural adjustments for these countries that will cause the despair of Southern societies.

## 4.2 Key Concepts

**The Minimum Bid Rate:** It is the minimum interest rate at which banks can bid in variable rate tenders. That is, the ECB carries out variable rate tender procedures by which it provides liquidity or withdraws it from the market using main refinancing operations. The commercial banks which participate in these procedures have to bid the amount of money they want to transact and the rate which has to be equal or higher to the minimum bid rate. It is the official interest rate in Europe and it is very important as it reflects the monetary stance.

**Marginal Lending rate:** The rate at which the credit institutions can borrow loans overnight against collateral (loans backed by assets that in case the debtor defaults the lender keeps the asset) at their national banks.

**Deposit rate:** Interest rate at which credit institutions can make overnight deposits at their central banks.

**MRO (Main Refinancing Operations) rate:** the cost at which banks can borrow from the central bank for a period of one week

**EONIA (Europe Overnight Index Average):** It is the weighted average of the rates of overnight unsecured transactions among banks in Europe. In other words, it is the weighted average of the rates at which banks lend money to its counterparts in overnight period in Europe. Its upper limit is set by the marginal lending rate (as no bank would be willing to pay a higher rate, otherwise they would ask for liquidity to the ECB) and its lower bound it is the deposit rate (as no one will be willing to lend money below it, otherwise they would keep the money in the ECB accepting the deposit rate).

**Interest Rate Corridor:** It is the difference between the marginal lending facility rate and the deposit facility rate (keep in mind that these are the bounds of the EONIA). If it becomes narrow it means that the volatility of interbank rate reduces (The EONIA's volatility),

broadens the ECB balance sheet (if corridor is narrow then banks may prefer borrowing from the ECB rather than to its counterparts) and steers the EONIA. The European central bank widens or narrows the corridor in order to control the EONIA keeping it close to the minimum bid rate. In this way, it ensures the well-functioning of the financial system and the avoidance of turmoil.

**Fixed rate full allotment procedure:** Until October 2008 the refinancing operations of the ECB were carried out through variable rate tenders. That is, the banks had to ask for liquidity at variable interest rates. From October 2008 on, the ECB established fixed rate procedure by which the banks could ask for whichever amount of money (backed always with collateral) at a certain interest rate set by the ECB.

### **4.3 Measures Taken by The European Central Bank**

In the following pages, we are going to analyze the monetary policies carried out by the ECB since the start of the crisis. Among them we can distinguish two main categories: Standard and non-standard ones.

#### *Conventional Measures*

The **conventional** ones have been applied from 1999 through open market operations, standing facilities and minimum reserves. They are conducted regularly and there is a certain amount of them prescheduled, as well as a fixed amount of money. According to Borio and Disyatat (2010, pp. 53), these operations are interest rate-base policies, as their main aim is to steer the official interest rate.

#### *Unconventional Measures*

Regarding the **unconventional** policies, their distinctive feature is that they are planned as temporary measures that will be used until the financial situation stabilizes. The most important nonstandard measures are the following ones:

- Fixed rate full allotment loans
- Extension of the accepted collateral assets
- Change the reserve ratio
- Outright purchases of certain securities
- Extended length long term financing operations in euros and other currencies

- Narrow or widen the interest rate corridor

## **5. THE MEASURES TAKEN BY THE ECB: 2007-2016**

In the following section, we are going to analyze the economic and financial situation since the start of the crisis around 2007-2008 until 2016. We will divide it into five distinct phases and in each of them I will try to explain clearly the measures taken by the ECB trying to solve the economic circumstances

### **5.1 First Alarming Signals: 2007**

The last trimester of 2006 the Eurozone registered a 0.8% GDP growth relative to the previous one, thanks mainly the exports and the domestic demand. The decrease in prices of energy and the hopeful real GDP growth in 2006 made the year 2007 a prosperous one, in tune with macroeconomic projections.

During the first semester of 2007, there was a stable economic growth environment and the monetary and credit expansion seemed strong due mainly to favorable financial conditions. The macroeconomic previsions pointed out a 2.1%-2.9%<sup>18</sup> average annual growth of the real GDP. The consumption continued its increasing trend, despite the decrease in household indebtedness. Despite of this fact the M3 reached maximum levels thanks to the loans granted to non-financial societies, which also kept an important degree of investment.

The inflation was following the guidelines of the ECB (2% level) during the first semester, however the increasing prices of oil and agrarian products, as well as the economic and monetary analysis revealed and upraise on the inflation rate. Considering these conditions, in March the ECB decided to increase the minimum bid rate in 25 basis points (b.p). After three months and under a strong increasing trend in oil and agrarian product prices, the ECB set another 25 b.p increase in the official interest rate of the main refinancing operations.

The first half of the year had elapsed without any incidents under the same hopeful economic conditions and with the inflation steered in the proper direction. The summer arrived and the situation changed: The problems in the housing market of the United States, concretely, in the

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<sup>18</sup> European Central Bank. (2007). *Annual Report 2007*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

subprime sector started. At the beginning, the agents couldn't guess the scope of the problem because of the complexity of the products and the securitization process commented before. However, in alarming headlines like the bankruptcy of two Hedge Funds of Bear Stearns in July (investment bank) and specially the suspension of three investment funds of BNP Paribas the 9<sup>th</sup> of August:

*"The complete evaporation of liquidity in certain market segments of the U.S. securitization market has made it impossible to value certain assets fairly, regardless of their quality or credit rating," it said in a statement.*

*"... BNP Paribas Investment Partners has decided to temporarily suspend the calculation of the net asset value as well as subscriptions/redemptions, in strict compliance with regulations, for these funds"<sup>19</sup>*

These news set up an uncertainty climate in the markets, there was fear of a liquidity shortage, so the ECB reacted quickly and the 9<sup>th</sup> of August conducted a one-day fine tuning operation (adjustment operation) of 95 million euros at 4%<sup>20</sup> (official interest rate) which would be followed by 3 more operations of this kind. From this point on, the liquidity need was satisfied through regular main refinancing operations.

The fine-tuning operations played a key role for the ECB as they were used for palliating the uncertainty of the financial markets and avoid in this way the paralysis of the system and the spread of panic among the agents. They were an emergency resource that the ECB conducted 18 times after the 9<sup>th</sup> of August. It is worth noticing this is an important number considering that it had only applied them 31 times in total from 1999 to 2006.

The financial markets' volatility scared the credit entities and the transactions among them related to long term liquidity decreased. The ECB decided to push the markets and conducted two additional LTRO on the 24<sup>th</sup> of August and 13<sup>th</sup> of September apart from the regular ones. Besides, when these two operations reached their due date the ECB announced a renewal of them.

Finally, to end up with 2007 I would like to comment two extraordinary measures carried by

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<sup>19</sup> Kar-Gupta, S., & Le Guernigou, Y. (2007, August 9). BNP freezes \$2.2 bln of funds over subprime. Retrieved from Reuters: [www.reuters.com](http://www.reuters.com)

<sup>20</sup> European Central Bank. (2007). *Annual Report 2007*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

the ECB. On the one hand, at the end of the year it conducted an unusual fixed rate MRO for avoiding the expected year end lending-shortage among banks (due to balance reasons) which would have been greater than usual due to financial instability. On the other hand, due to the global scope of the situation the central banks of various countries cooperated to satiate the financial need of their countries. The ECB signed a 'US dollar term auction facility', which is a swap agreement by which it provided dollar denominated financing to the Eurosystem. Other banks like the Swiss also signed this kind of contracts which had as main goal to calm the markets.

Despite the financial turbulences, the economic situation continued quite stable: the GDP continued growing due mainly to the domestic demand, the unemployment level decreased with respect to the one of 2006 and the exports followed the same trend thanks to the emerging economies. The instability of the financial markets had not hit Europe yet in a severe way and the ECB promised to closely follow the evolution of the financial situation and was decided to act in case of any risk for price stability.

## **5.2 The Big Crash and the Transformation into a Debt Crisis: 2008-2010**

The year **2008**, can be split up into 2 phases which can be called pre-Lehman fall and after the fall.

Before, the growth of the Eurozone's real GDP it was moderate but still the previsions pointed a 1.5%-2.1% increase. The consumption decreased a little bit but it continued at good levels and the household investment had decreased mainly in the housing sector.

Regarding the inflation, upward pressures rose due to the rapid increase in agrarian product and energy prices. The average annual inflation was set at 3.2% in January and 4% in July, way out of the 2% goal<sup>21</sup>. The news relative to the substantial risk subprime mortgages coming from the other side of the Atlantic were adding uncertainty to the evolution of the financial markets, so the ECB decided to increase 25 basis points the minimum bid rate (reaching 4.25%) to steer the price levels back to the right path. The FED, contrary to the ECB took the opposite measure and decreased sharply the interest rates reaching 2% level. The idea that

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<sup>21</sup> European Central Bank. (2008). *Annual Report 2008*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

these two entities carried out different measures under the same economic conditions, indicates the different priorities that each one had: keep the inflation under control in case of the ECB and solve the credit crunch in case of the FED. In fact, it may seem that due to the uncertainty lived at that time due to the subprime markets, the FED adopted a more expansionary policy by lowering the interest rates and adopting measures like tax incentives for incrementing the consumption. On the opposite side, the ECB decided to increase the rates always keeping in mind the risk of inflation.

The European central Bank kept providing liquidity in this first semester through the regular main financing operations, as well as long term financing operations. Some of these last ones were launched in 2007 and were renewed in 2008 and some others were additional ones. Their length was also extended from 3 to 6 months. It also applied various fine tuning operations for setting the EONIA close to the minimum bid rate and avoiding volatility in the financial markets.

The 15<sup>th</sup> of September 2008 was baptized as the black Monday: the panic hit the world with the bankruptcy of Lehman Brothers (one of the biggest investment banks of America). The Dow Jones decreased 4.24%, the SP500 opened at 1250 points and closed at 1204 and the European stock markets fell 4%<sup>22</sup>. The fall of this American bank had a massive impact in the market mainly for two reasons: First, given that Lehman Brothers was highly exposed to the opaque financial products, its bankruptcy questioned once again the reliability and solvency of those outputs that many other banks had as well in their balances. On the other hand, as the ECB working paper (Drudi, Durré, & Mongelli) says, ‘the assumption *too big to fall* was vanished<sup>23</sup> a fact that dented the other banks’ confidence. The response of the European Central Bank was to adopt different type of measures that can be labelled as non-conventional or nonstandard ones with the aim of appeasing the financial markets and softening the blow.

As I have commented, the banks felt vulnerable and they couldn’t trust its counterparts as no one knew the amount of toxic assets of the other banks, this made more a more difficult the

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<sup>22</sup> European Central Bank. (2009). *Annual Report 2009*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>23</sup> Drudi, F., Durré, A., & Mongelli, F. P. (n.d.). *The interplay of the economic reforms and monetary policy: the case of the euro area*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

lending among them. With the aim of providing liquidity and adding some trust in the markets, the ECB decided to introduce the **fixed-rate full allotment procedure**. Thanks to it the banks would get whatever amount of money they asked for at a given interest rate fixed by the ECB. This policy was satisfied through fine tuning operations (remember that they are an emergency resource for critical situations like this one) and the ECB announced that they would last until January 2009. This measure was also applied to LTRO whose length would be at least the first trimester of 2009.

Linked to that measure and being the financial institutions the main objective of both, the ECB tried to decrease the volatility of the financial markets narrowing the interest rate corridor (difference between marginal lending and deposit facility). As the corridor sets the boundaries for the EONIA interest rate reduces its fluctuation possibilities, that had an increasing tendency as the banks didn't trust each other so they stopped lending money to counterparts.

The situation in the U.S. was worse than in Europe as it was the epicenter of the crash and the cradle of the *subprime* backed financial assets. In this environment, the access to dollar financing was hard for non-American banks or too expensive, thus the ECB decided to extend the previous year's dollar financing. The ECB signed the same type of swap agreement as well to provide liquidity in Swiss Francs.

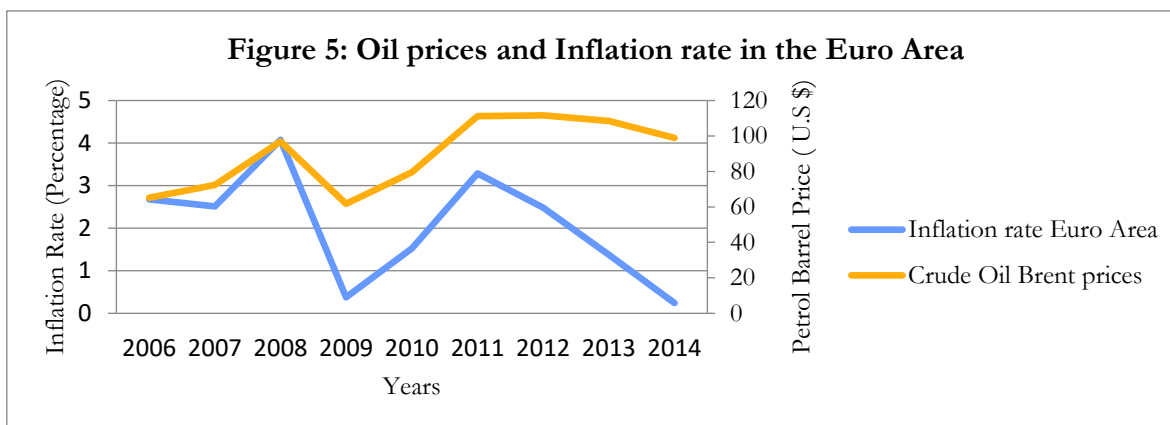
Finally, to end up with non-conventional measures the ECB widened temporarily the list of collateral assets accepted as the guarantee of the open markets operations. From that point on, the assets rated with BBB were admitted (before the worst rating accepted was A). Besides, it will also include in the list fixed rent assets even those denominated in other currencies than Euro like the Sterling Pound, U.S dollars and Japanese.

Despite of all these measures, the European economy was hit and the families will start to suffer the first signals. The consumer and companies' confidence indexes fell sharply as well as the household and the non-financial private sector (non-financial private companies such as car manufacturers) indebtedness. By the end of the year the majority of developed economies entered in a slowdown.

Regarding the inflation objective, the prices adopted a new rapid decreasing trend due to the fall of petrol and primary product prices. The price of the Brent barrel which had been \$147,5



in July dropped to 40\$, sowing deflation fear in Europe<sup>24</sup>.



Data source: Own elaboration from data FED St Louis- Economic Research available at [www.fred.stlouisfed.org](http://www.fred.stlouisfed.org)

The year **2009** began with high volatility in the financial markets due to the turbulent year- end of 2008. The liquidity of various market segments decreased and there was a general risk aversion and uncertainty spread among the investors. The global trade volume as well as the domestic demand of the Eurozone was adopting a decreasing trend which could mean that the real economy was being affected. Moreover, the first signs of the financial markets instability were suffered by the families and companies of the euro area in form of non-sufficient credit flow. The financial entities didn't trust in the other agents of the system leading to a liquidity shortage for households and firms.

Regarding the principal goal of the European Central Bank, the inflation reached levels closed to zero during the first semester of 2009 due mainly to lower prices of primary products. The ECB trying to reach the 2% level, lowered the interest rates 325 b.p in three stages until reaching 1% official interest rate, 1.75% marginal lending facility and 0.25% marginal deposit rate. The EONIA was trapped between 1.75%-0.25% which calmed down the monetary market.<sup>25</sup>

Taking into account the economic circumstances the ECB decided to carry out unconventional measures whose main goal was to stimulate the credit flow towards families and enterprises for

<sup>24</sup> European Central Bank. (2009). *Annual Report 2009*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>25</sup> European Central Bank. (2009). *Annual Report 2009*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

pushing upwards the economy and avoid a deep recession. Besides, they also wanted to smooth the negative effects of the financial crisis on the European solvent banks. The policies followed by the ECB can be classified into 5 main actions:

1. Unlimited liquidity provision (full allotment) at fixed interest rates applied to every refinancing operation.
2. The LTROs were extended from three to twelve months, so that the agents of the monetary market could feel that they had access to financing.
3. Widening of the list of collateral assets.
4. Swap agreements for providing dollar and Swiss francs liquidity.
5. Purchase of Covered Bonds Program

The decision of buying covered bonds was not random; in fact, these products are the main source of financing of many European financial entities. They are bonds backed normally by mortgages that banks issue for obtaining financing. When the financial crisis arrived, the market of these products suffered a slowdown, so the ECB decided to conduct this program as another measure for credit support and avoidance of liquidity shortage.

This process was conducted at the primary (where the banks firstly introduce their bonds for sale) and secondary (the investors resell the bonds to other investors) markets.

The policies carried out by the ECB obtained positive results during the second half of 2009. The real GDP grew during the 3<sup>rd</sup> and 4<sup>th</sup> trimesters and the inflation growth rate turned into positive figures, however, the overall result of the year was a 4% decrease with respect 2008. Besides, the measures of the ECB achieved their goal and the credit flow reached the households and non-financial companies especially in the case of short term loans.

On the other hand, there were some first alarming sings regarding the public finances of some of the countries: On October, the Greek Prime Minister Papandreú announced that the party governing previously had cheated and that the real public deficit amounted the 12.7% of the GDP, rather than the believed 6%. It will increase until 15.4% after further investigations.<sup>26</sup>

Ireland announced cuts as well in social and public spending trying to avoid the growth of the

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<sup>26</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

public deficit. Due to the liquidity problems faced by the banks of the country, the government (as many other of the Euro area) has provided huge amount of money to these financial institutions which had created considerable public deficit.

One of the reasons behind these budgetary cuts and following ones, (we will analyse them in the following years) is the **Stability and Growth Pact**. This is a mechanism that was invented in 1997 but it was reformed in 2005. The goal of this tool is to ensure that the governments of the euro area keep balanced public finances. It is formed by two main components<sup>27</sup>:

- Preventive arm: The states have to present 'Stability Programme' showing their actions for achieving sustainable public finances in the medium term. In case any of the countries is in risk of not accomplishing the objective, the European Commission will give recommendations for having healthy public finances. In case there is high risk, the Commission can propose the Council the conduction of the Excessive Deficit Procedure.
- Corrective arm: If any of the euro area countries exceeds the limits of 3% deficit of the GDP or 60% indebtedness of the GDP, it will have to follow the Excessive Deficit Procedure (EDP). Under this program, those countries will have to make the necessary adjustments (budgetary cuts, fiscal reforms, labour market reforms...) for achieving the correct debt and deficit figures. In case the countries don't take the required corrective actions, they can be sanctioned.

In the following years, we will see that the debt crisis will take a major place in the European economy and many countries will be subject to EDPs and thus, to strict austerity measures. In 2009, there were 20 countries subjected already to EDPs.

During the start of **2010** the overall figures of the European economy showed positive recovery signals. The real GDP grew more than predicted thanks to fiscal, monetary policies and the increase in European exports thanks to a global economic activity improvement.

The ECB considered that the liquidity needs had decreased and that the general picture of the euro area's economy was quite hopeful, so it decided to remove some of the unconventional

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<sup>27</sup> European Commission: The Stability and Growth Pact. (n.d.). Retrieved from <http://ec.europa.eu/>

measures that had been introduced in 2009:

- The LTRO of December 2009 of 12 months was the last one of this duration. From this point on they would have a due date of 6 months.
- The ECB and other central banks stopped providing financing in other currencies, they finished their agreements.
- The 3 months long LTROs were conducted with variable interest rate.
- The covered bonds purchase program came to its end.

However, if we analyse the economic situation that the different European countries faced, we find very heterogeneous paces. The countries that had experimented a big economic expansion during the previous years to the crisis had been piling up huge public deficits that weren't sustainable anymore; the Spanish government announced in February an 'Austerity Plan 2011-2013' for saving 50.000 million euros (requirement of the EDP)<sup>28</sup>.

In May 2010, the situation exploded and the panic entered into the markets when the Greek prime minister Papandreú reached an agreement with the EU and IMF for assisting Greece with a 110.000 million euros bailout. This monetary help was conditioned with cuts in the national budget which were laid down in an austerity plan. The Hellenic society will conduct general strikes for protesting against the hard measures taken by the government.<sup>29</sup>

The tensions were present as well in the markets; the economic agents had serious doubts about the sustainability of the public finances of some European countries (Italy, Greece, Ireland, Spain and Portugal) and the future of the euro. The liquidity shortages will appear again due to the uncertainty and mistrust of the agents. The ECB decided to conduct once again non-standard measures with special emphasis in the public debt segment:

- The minimum credit rating was removed for the Greek covered bonds
- The before removed unconventional measures were re-introduced so that the poor public debt markets' performance was not transferred to other segments

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<sup>28</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>29</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

- The ordinary 3 months LTRO were once again conducted with full allotment fixed interest rates and the ECB introduced 6 months-long LTROs.
- The swap agreement with the FED was signed again to provide dollar financing
- Full allotment with fixed interest rates for the ordinary main refinancing operations.
- Covered Bonds Second Purchase Program: The first one didn't cause the required effect so the ECB decided to conduct it again. It wanted to introduce more liquidity to the banks and hopefully to the real economy.
- Securities Markets Program (SMP)

This last measure was an innovative one and it is worth to dig deeper in it. With this program, the eurosystem could intervene the public and private debt secondary markets for turning the dysfunctional segments into functional ones. The introduction of this program is one of the key factors of the European policies due to the importance of this market segment.

The public debt markets are a great instrument for the transmission of the ECB policies due to the influence that they exert to the interest rates of private companies' bonds or other type of obligation. In order to understand the role of public debt I am going to use an example:

Greece issues a 1000 euros principal bond at 3% annual rate with due date 5 years. One investor buys it but the tensions in the market increase and the uncertainty regarding the sustainability of Greek public finances make the investor resell it at the secondary market. There are many other investors willing to resell it and few of them will be demanding them so it will have to offer a lower price rate in order to sell it, let's say 600 euros. In this way, the investor will receive  $(30/600=5\%)$  5% interest rate rather than 3%. However, the real problem will come when the Greek government decides to issue bonds again and it will have to do it at least for 5% interest rate as no investor will accept a lower one, otherwise he can always attend the secondary market.

Considering that the issuer is a country, which usually is the most secure one, and that it has to pay 5% interest rate for placing debt, we can imagine that the debt cost for households and companies is much higher.

The ECB with its program bought the sovereign bonds of the dysfunctional countries for ensuring a more stable public-debt market and avoiding the increase in the interest rates to unforeseen limits. The liquidity provided with the purchase of bonds was absorbed with fine

tuning operations.

Another key decision of this year was the creation of the European Financial Stability Facility (EFSF) as another temporary solution for solving the sovereign debt crisis<sup>30</sup>. The objective of this institution was to provide financing to the countries of the eurozone not able to face their deficits. The way of proceeding of this facility is closely linked to the SMP: The EFSF issued bonds for obtaining the necessary funds and then invested these ones in purchases in primary and secondary markets of sovereign debt (in other words, the SMP).

In November 2011, Ireland was the second country asking the bailout and thus, subjected to strict restructuring conditions and public spending cuts.

The 2010 ended up with an overall inflation level of 1.6% due to the increase in prices of primary products and a GDP interannual growth of 1.7% pushed mainly by the exports<sup>31</sup>. The turbulent last months of the year predicted worse economic prospects for 2011.

### **5.3 Deep Debt crisis, Budgetary Adjustments and Social Despair: 2011-2012**

The beginning of the year was better than thought: The European economies on average experimented a positive growth rate of the real GDP and there was enough liquidity in the markets which calmed the agents. However, this economic upturn had its origin on special and transitory factors such as, the rebound on the construction sector and once they were gone the economic environment turned complicated again.

Regarding the main goal of the ECB, the inflation rate had adopted an increasing trend due to the increase in primary product prices. The macroeconomic prospects predicted an inflation rate between 2%-2.6%<sup>32</sup>, which was viewed as a substantial risk of price instability on the medium term. The ECB decided in April to raise the official interest rates in 25 b.p. and again in July as the inflation continued upwards.

By the start of the second half of the year, the economic environment turned worse; there

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<sup>30</sup> *Before the ESM: EFSF-the temporary fiscal backstop*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)

<sup>31</sup> European Central Bank. (2011). *Annual Report 2011*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>32</sup> European Central Bank. (2011). *Annual Report 2011*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

were serious doubts regarding the sustainability of the fiscal policies of various countries (Greece, Portugal and Ireland mainly and Spain and Italy in a second place.)

The governments of these countries decreased public spending and set structural reforms (such as, the retirement system reform of Spain in February) which were unpopular among the inhabitants. These regions experienced general strikes and social movements (like the 15-M in Spain) that showed the societies' disagreement and despair<sup>33</sup>.

Portugal introduced in March an austerity plan that included decreases in retirement and healthcare funds and the removal of tax benefits. However, these measures were not enough and Portugal became the third country asking for the bailout.

Greece was pushed to adopt further reforms, so it presented several privatizations for saving money. The unemployment rate increased until 16% and the GDP fell 5,5% <sup>34</sup>in the first semester. These poor economic conditions and the stifling austerity measures intensified the protests of the Hellenics against the EU, IMF and Greek government intensified. Besides, Moody's rated the Greek bond with CCC category which created more distrust in the country. Italy adopted an adjustment plan as well extremely unpopular that created general strikes and made its risk premium rise.

In July, the situation became unsustainable: the Irish risk premium increased above 1000 b.p<sup>35</sup> level and Greece asked for its second bailout. The poor functioning of public debt markets was transferred to monetary market, which added to the fact of a moderate global economic growth, made the ECB carry out another package of non-standard measures on August 2011<sup>36</sup>.

- The Eurosystem would continue providing liquidity through fixed rate full allotment procedure with the aim of pushing the credit flow towards households and non-financial companies.

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<sup>33</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>34</sup> *Cronología de la crisis griega*. (2017). Retrieved from Público: [www.público.es](http://www.público.es)

<sup>35</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>36</sup> European Central Bank. (2011). *Annual Report 2011*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

- Introduction of longer term LTROs, concretely 6 months long
- Reintroduction of Securities Markets Programme (SMP) for helping the correct transmission of the measures taken by the ECB. The Eurosystem would buy public debt on the secondary markets and absorb the excess liquidity through fine-tuning operations.
- The ECB coordinated with other CBs conducted 3 operations for providing dollar-based financing with 3 months due date. Besides, it will sign swap agreements on November to keep providing liquidity in dollars.
- The ECB introduced two LTROs that would last 12 and 13 months.
- On December the BCE trying to stimulate further the European economy added some additional measures for supporting the credit flow and liquidity of banks: 2 LTROS of 3 years were set, the list of collateral assets was widened and the minimum reserve percentage decreased from 2% to 1%.

I would also like to highlight that in November Italy celebrated general elections that resulted in political direction change: Italy was established as a technocrat government.

The global figures at the end of the year showed that the real GDP of the eurozone increased 1.5% with respect to 2010, thanks mainly to the exports and investment. The private consumption was lower than in the previous year due mainly to a decrease in the goods consumption. The overall employment rate of the eurozone increased but this was unequal across countries. Regarding the inflation rate, it continued with its upward trend that threaten the objective of the ECB, so it decided to lower the official interest rates 25 b.p in two stages (50 b.p in total) in November and December, to lower it down<sup>37</sup>.

The year 2012 began in a difficult environment because of the persisting sovereign debt crisis. The public debt markets of some countries (Spain, Greece, Italy, Portugal and Ireland mainly) were going through serious trouble that was reflected in the increasing risk premiums. Spain specially became the attention centre during the first semester: the Spanish stock market fell to the lowest levels since 2009, the government nationalized 'Bankia' and the risk premium rose

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<sup>37</sup> European Central Bank. (2012). *Annual Report 2012*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>



until 539 b.p.<sup>38</sup>. The situation predicted the bailout of the Spanish banking system.

The real economy was suffering the instability in the markets as well. The real GDP was stacked during the first trimester of 2012 and it registered a negative growth during the second one because of the lower domestic demand and decrease in exports. The investment rate was another reason of the decreasing GDP, other sectors apart from the construction had stopped their investments as they had no possibility of obtaining the required financing. In this environment, the unemployment rate continued growing and the households had less disposable income. They used their savings for affording the private consumption which they also decreased.

Regarding the inflation rate, it reached the 2.7% during the first trimester and 2.5% in the second one<sup>39</sup>. These elevated figures were the consequence of the increasing commodity prices. The intervention of the ECB was more required than ever, so it conducted once again standard and non-standard measures.

On the one hand, around July the ECB decided to decrease 25 b.p the official interest rate setting it at 0.75% and the marginal lending facility and deposit ones were at 1.5% and 0% respectively. The EONIA was trapped between these boundaries which was helpful for decreasing the interest rates applied to the credits for households and non-financial companies. It is important to highlight that this didn't occurred homogeneously across Europe, some of the countries continued with the rates at the same level or even higher ones because the policies of the ECB were not correctly transmitted to these economies.

On the other hand, the ECB carried out unconventional measures. This time, they can be classified into two main groups according to the aim they pursued:

*Financing Operations:* Their aim was to push the credit and liquidity in the markets.

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<sup>38</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>39</sup> European Central Bank. (2012). *Annual Report 2012*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

- LTROs were introduced with 3 years maturity and with full-allotment fixed interest rates. They had positive impact on the markets, they provided considerable liquidity making the weekly MROs less needed.
- All the financing operations were conducted at full-allotment procedure and fixed interest rates.
- Dollar denominated liquidity was provided and the ECB announced that the swap agreements would last at least until February 2014.

*Public Debt Market Measures:* Their objective was to fix the poor functioning of some sovereign debt market segments to avoid a steep increase of risk premiums.

The situation of the public debt crisis got worse around the middle of the year. The economic recession became sharper in Spain with a 0.3% decrease in real GDP in the second trimester with respect to last year<sup>40</sup>. The 25<sup>th</sup> of June, Spain formally asked assistance (financing) for its banking system and the government announced austerity measures for containing the public deficit (increase the VAN from 18% to 21%, reduce the unemployment benefits, erase one extra pay of the public officials...)<sup>41</sup>.

In July, it was finally approved the financial assistance for the Spanish banking system. The facility in charge of providing the monetary amount was the FROB (Fund for Orderly Bank Restructuring). This facility was created in Spain in 2009 for offering public financial support to financial entities<sup>42</sup>. Besides, it oversees the restructuring of the Spanish Banking system by joining saving banks and nationalize them if required (see annex 1)<sup>43</sup>.

The Spanish financial system bailout created once again mistrust among the agents and expectancies about a likely future general bailout. The Spanish risk premium will reach

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<sup>40</sup> European Central Bank. (2012). *Annual Report 2012*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>41</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>42</sup> *Fund for Orderly Bank Restructuring (FROB)*. (n.d.). Retrieved from Fondo de Reestructuración Ordenada Bancaria: [www.frob.es](http://www.frob.es)

<sup>43</sup> *Evolución de los principales grupos bancarios españoles (2009-2014)*. (n.d.). Retrieved from Banco de España: [www.bde.es](http://www.bde.es)

maximum levels in July until the 640 b.p.<sup>44</sup> which reflected the tensions in the market.

The ECB, in order to improve the public debt crisis and inject confidence in the market, ended up with the SMP and substitute it with the **Outright Monetary Transactions<sup>45</sup> Program**. This consisted in the unlimited purchase of 1-3 years maturity sovereign bonds in secondary markets. Besides, this time the government council had the right to set the start and ending up dates depending on the price stability goal. The extra liquidity provided with this process would be absorbed by fine tuning operations in form of deposits (the banks would make monetary deposits to the ECB).

Another key feature of this program is that the countries opting to adopt must had been assisted by the EFSF or ESM in a macroeconomic dimension, not like Spain that it had only asked for the bailout of its banking system.

Since the announcement of this measure the tensions and uncertainties in the financial markets decreased. As I explained the public debt markets play a key role in determining the interest rates of the credits of households and non-financial companies, and they also have a profound influence in economic agents' confidence. The outright monetary purchases decreased the risk premiums and they improved the financing conditions.

#### **5.4 The Way to Recovery and the Greek Stagnation: 2013-2015**

The beginning of 2013 continued the same trend of 2012, a complex environment due to the uncertainty in the financial markets of sovereign debt. The rescued countries were subject to structural reforms for cutting the public deficit and conduct more responsible fiscal policies. This fact, added to the increasing unemployment slowed down the economic activity during the first semester. However, during the second one, the confidence of the agents in the economy increased as well as the external demand, made the GDP grow a bit.

The Greek economy stabilized during the second trimester as well as the Portuguese one which experimented positive real GDP and employment growth. The Spanish economy had

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<sup>44</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>45</sup> European Central Bank. (2012). *Annual Report 2012*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

some prosperous signs as well during the second semester of 2013 with the fall the unemployment rate (see figure 5) and the surplus of the current account balance. Besides, this year the program of the financial assistance of the banking system and its restructuring was finished <sup>46</sup>.



Data source: Own elaboration from data in Eurostat available in [www.ec.europa.eu/eurostat](http://www.ec.europa.eu/eurostat)

The interannual inflation rate of the eurozone in 2013 was 1.4%, however it didn't have a constant trend. It started at 2.2% level in January and it gradually decreased until 0.8% in December due to the decrease in prices of energy and food. The ECB trying to push upwards the inflation rate decreased the inflation rate twice, 25 b.p each time. In this way, the rates of the main refinancing operations were set at 0.25% and the marginal lending and deposit facilities at 0.75% and 0% respectively<sup>47</sup>.

On the other hand, the ECB introduced an innovative unconventional measure: forward guidance. The goal of this procedure is to inform the economic agents about the future interest rates so that the market participants can feel more confident about the future. The forward guidance based the announcement of the future interests according to its medium-term inflation predictions. Furthermore, this measure was taken before further lowering down the interest rates because it was believed that it will be more useful for controlling the monetary

<sup>46</sup> Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)

<sup>47</sup> European Central Bank. (2013). *Annual Report 2013*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

market and the credit flow.

The ECB communicated on July 2013 that it will keep the interest rates at the same level or lower one for a long period of time. After this announcement, the EONIA forwards decreased automatically, that is, the agreed future rates for the monetary trades between banks lowered down.

Regarding the other unconventional measures, the ECB set the full-allotment and fixed interest rates procedure in all the financing operations at least until July 2015.

The results obtained with all these policies were that the tensions and uncertainties in the markets decreased and the financing conditions got better. Furthermore, the interest rates of the public debt in troublesome countries decreased and even banks and states issued more new debt.

The beginning of the 2014 didn't predict a good economic year. The global international trade had a weak growth due mainly to the slowdown of the emerging economies, which were facing harder financing conditions which prevented them from growing. On the other hand, the developed countries continued experiencing a slow economic recovery. Under these conditions the exports of the Eurozone barely increased during the first semester, but they had an upturn in the second one.

The countries that had been struggling with their public debt were now having a slow recovery. Portugal entered again the public debt market and achieved debt issuance at lower rates than 4% interest<sup>48</sup>. On May of this year, the country finally finished with the bailout program of the EFSF. Despite these improvements, the European Council insisted on the necessity of adopting further reforms for deficit reductions in the countries subject to EDP like France and Spain.

Related to the global figures of Eurozone, the real GDP experienced a 0.9%<sup>49</sup> growth during 2014. The main factor behind it, was an increase of the domestic demand due to an increase in

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<sup>48</sup> *Cronología de la crisis en Portugal*. (2017). Retrieved from Radio televisión española: [www.rtve.es](http://www.rtve.es)

<sup>49</sup> European Central Bank. (2014). *Annual Report 2014*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

consumers' confidence that pushed the private consumption. Besides, there were other reasons, such as, the decrease in raw materials' prices and better financing conditions achieved through the ECB's monetary policy.

The overall employment rate increased 0.6% with respect to 2013 and the inflation rate decreased until 0.4% level, a very low rate if we compare it to the 1.4% level of 2013<sup>50</sup>. Regarding the credit trend, the loans granted to households incremented considerably during 2014 but the ones corresponding to non-financial companies experienced a negative growth.

Under this environment, the ECB introduced once again unconventional and conventional measures that can be distinguished into three main blocks:

#### *Interest Rates Reduction (Standard Measure)*

The marginal deposit facility was cut 20 b.p until reaching -0.2% and the marginal lending facility decreased 45 b.p for reaching 0.3%<sup>51</sup>. I would like to point out that the existence of negative interest rates can also be considered a non-standard measure. The corridor expanded and the EONIA was trapped between these boundaries. The fact of having a negative deposit rate forced the financial institutions transfer that liquidity into the market and trade with it rather than leaving it in the ECB.

#### *Targeted Long Term Refinancing Operations (Non-Standard Measure)*

The aim of this measure was to transmit a greater credit flow from banking sector institutions towards the non-financial companies. The distinctive characteristic of these operations is that the financial institutions couldn't ask for an unlimited amount, they would be granted with the 7% of the lent quantity to the private sector (excluding credits to households for house purchase) at April 2014. That is, the more you had lent, the more you could ask for, which aimed the banks for granting more credits.

#### *Private sector asset purchase programs*

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<sup>50</sup> European Central Bank. (2014). *Annual Report 2014*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>51</sup> European Central Bank. (2014). *Annual Report 2014*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

The ECB announced in October the decision of introducing another new program for purchasing ABS (Assets Backed Securities: products backed by credits made to companies or households but not mortgages) and covered bonds of the private sector through ABSPP (Assets Backed Securities Purchase Programs) and CBPP (Covered Bonds Purchase Programs). This measure was made for trying to transmit more effectively the ECB's policy and introduce additional liquidity to the system apart from the LTROs.

### *Financing Operations*

Apart from the TLTROs the ECB continued with its usual refinancing operations with full allotment process and three months maturity LTROs.

Despite of the injected liquidity through all of these measures, the inflation continued at very low rates and the projections for next year indicated the same trend. The ECB's decision for solving the problem was to continue providing more liquidity in 2015.

During the start of 2015 the global economy continued its way to recovery. It did it at a very slow pace due mainly to the slowdown of the emerging economies, which hindered the international trade. However, this situation didn't affect the European economy that much because thanks to the depreciation of the euro that began in 2014 the exports of the eurozone increased.

The real GDP of the euro area grew 1.5% in 2015<sup>52</sup>, being the private consumption increase the principal factor behind it. Besides, the ECB's monetary policy had obtained positive results such as more relaxed financing conditions and renewed confidence in the markets.

The employment rate increased as well and the unemployment rate was 10.5% at the end of the year, the lowest figures since 2012. Regarding the inflation rate, on average it reached 0% level. The main reason for it was the low prices of energy (petrol) and raw materials. Even though the ECB had introduced several monetary measures and injected substantial amounts of liquidity they were not enough for achieving the goal of an inflation rate close to 2%, so it

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<sup>52</sup> European Central Bank. (2015). *Annual Report 2015*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

introduced once again several new policies<sup>53</sup>:

- It extended the ABPP and from that moment on.
- It erased the 10% interest differential from the LTROs (in 2014 2 out of 6 TLROs were conducted at the fixed MRO's rate plus 10%)
- Start of the 'Quantitative Easing', a measure that had been adopted long ago by other banks (FED, Bank of Japan, Bank of England). It consists of massive purchases to banks of, mainly, sovereign bonds or other assets of European Public Institutions for injecting massive amounts of liquidity to the markets. In this way, the price of the bonds increases and the banks receive the money from purchases. The interest rates fall and loans are cheaper so companies and households can ask for credits which translates into more consumption and thus a higher economic activity, employment rate and increase in prices. In the end, it is another measure to pursue the close to 2% inflation rate.

These measures and the marginal deposit interest rate contributed towards easier financing conditions and thus, an increase in households' and non-financial enterprises' credits. However, during the third trimester the confidence in the markets dropped again due to the instability caused by the Greece public finances and poor global economic growth. These facts made the predicted inflation be set at close to zero levels, which is far from the 2% figure.

Considering that the price stability goal was in serious risk of being unaccomplished for an extended period, the ECB decided to take additional measures for helping to achieve the 2% objective:

- It lowered the marginal deposit facility until -0.30% level and kept fixed the official interest rate (0.3%) and marginal lending rate (0.05%)<sup>54</sup>.
- It extended the length of ABPP and re-invest the money that the ECB got back of the assets previously purchased.

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<sup>53</sup> European Central Bank. (2015). *Annual Report 2015*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>54</sup> European Central Bank. (2015). *Annual Report 2015*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>



- Continued conducting MROs and more than three months' maturity LTROs at full allotment fixed interest rates.

These measures were taken pursuing better financing conditions and a more dynamic economic recovery.

Regarding the recovery of the countries affected by the sovereign debt crisis, there were very positive signs in Portugal and Spain<sup>55</sup>. They experienced GDP growth despite of the high unemployment rates<sup>56</sup>.

On the other hand, Greece had a turbulent year. It started with the victory in the general elections of Syriza (left-handed) party. The new government asked for the extension of the second recue, but it was not prepared for accepting the retirement system, labor and VAT reforms. The prime minister, Alexis Tsipras announced that the organization of a referendum for deciding whether to accept or not those austerity conditions. The situation became critical in Greece; the banks established a 'corralito' with a maximum withdrawal amount of 60 euros<sup>57</sup>.

Finally, the Greek parliament accepted the conditions and the Eurogroup conceded the third bailout. The Prime Minister Alexi Tsipras resigned but in the anticipated elections of September he was elected again.

### **5.5 Political Instability: Uncertain future**

In **2016** the economic growth took a slower pace compared to 2015. There were two political events that introduced instability to the markets and difficulted the economic recovery; The UK referendum celebrated in June and the elections for the United States' presidency.

The euro area's real GDP grew 1.7% with respect to 2015 thanks principally to the private

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<sup>55</sup> *Spain: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)

<sup>56</sup> *Portugal: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)

<sup>57</sup> *Cronología de la crisis griega*. (2017). Retrieved from Público: [www.público.es](http://www.público.es)

consumption<sup>58</sup>. The main factors behind private consumption's improvement were low petrol prices and a labor-income increase. Besides, as the interest rates were at very low levels households didn't find profitable the savings' returns, so they decided to spend the money. It is important to highlight that the European economy could have experienced a bigger growth if it wasn't for the weakness of the global economy.

The labor markets continued its positive trend but the employment rate was still below the maximum level reached before 2008. The service sector was the one creating more employment and the industry in second place. The unemployment rate decreased until 9,6%, the lowest figure since mid-2009. Regarding the most important indicator, the inflation rate reached 0.2% level, a better figure compared to the 0% level in 2015<sup>59</sup>.

Regarding the credit evolution, there were more loans granted to households and non-financial institutions. The monetary policy applied by the ECB had obtained positive results: On the one hand, the low interest rates set by the ECB were transmitted to the households which boosted the demand side. On the other hand, thanks to the negative marginal deposit rate the banking institutions were 'forced' to put their money into the real economy for gaining profitability.

Even though the measures of the ECB had influenced the real economy, the inflation rate was still at very low rates and it seemed to keep the same trend for the following months. The ECB decided to continue introducing non-conventional measures:

- Reduce the marginal deposit facility until -0.40%.
- Increase the purchased amount of the assets and launch a new program for purchasing bonds of non-financial companies.
- Conduct four new TLTROs of 4 years maturity.
- Continued with the forward guidance procedure for communicating that the official interest rates will be at close to zero levels for a long period of time.

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<sup>58</sup> European Central Bank. (2016). *Annual Report 2016*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

<sup>59</sup> European Central Bank. (2016). *Annual Report 2016*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

Regarding the political events, on the 24<sup>th</sup> of June 2016 Great Britain celebrated a referendum for deciding whether to continue or not being part of the European Union. The 52% of the British voters responded no to the permanency of the UK in the UE. This event caused instability in the markets, such as the rise in Greece's risk premium.

On the other side of the Atlantic, the 9<sup>th</sup> of November, Donald Trump became the elected president of the U.S.A. This fact creates instability in the markets due to the protectionist economic profile of the president.

From this point on, the global economic future and Europe is uncertain. Besides, there are more political changes coming, such as, the rise of rightist parties (Marine Le Pen in France) that will impose new challenges to the economy.

## 6. CONCLUSIONS

When I started this project the principal goal that I pursued was to clearly understand the role of the ECB: how it was formed and the policies that it has implemented since 2008 for solving the crisis. My aim was to gather as much information as I could, principally by reading all the ECB's Annual Reports since 2008, for then being able to explain the ECB's decisions to everyone, even to those people that don't have basic economic knowledge. Now that I have gone through the analysis of the ECB's decisions since the start of the crisis, I would like to add some final reflections for concluding with this project.

First of all, I would like to say that the ECB has been many times criticized for its decisions but I think that the reader should keep in mind one key factor: Euro area is formed by many heterogeneous regions with different economic capacity. This fact makes almost impossible to please all the countries by the adoption of one general policy for all of them. No matter which decision is taken by the ECB there will always be critical voices against it.

One of the most remarkable lessons that I have learned with this project is the crucial role of the main goal of the ECB: The price stability, keeping the inflation rate close to 2% level but without reaching it. It is such the importance of this objective that the ECB policy decisions are shaped for achieving it. In the period that goes from 2007 until 2016, the goal in general terms can be considered as achieved, with the exception of 2008 when the rate increased above the level and the years between 2014-2016 being at close to zero levels.

On the other hand, the pursuit of this goal and its policy guiding role has in my opinion created other negative side effects. The ECB, contrary to the FED, adopted the decision of tightening up the southern economies' public budget and the introduction of austerity measures for making sure that the inflation was under control and that the public debt crisis was solved. However, these measures have stifled the economy of various European countries (Greece, Portugal, Spain...) and have not achieved the much-needed economic growth and employment for the despair of their societies. The situation has arrived at a critical point where the future of the European Union has been threatened by the exit of the countries and the rise of nationalisms (Brexit, Marine Le Pen...).

Another lesson learned thanks to this project is that, in my opinion, the ECB has acted putting

out the fire rather than looking for more long-term structural solutions. The ECB has been adopting unconventional-temporary measures for solving tipping points or new waves of crisis which have been useful for calming down the markets at certain moments but which do not prevent the problem from happening again. The Eurosystem and the European government council should consider analyzing whether the Euroarea is sustainable in the long run with the actual monetary system taking into account the divergence among the European economies (economic capacity, current account balance...).

All in all, I would say that despite of being highly criticized, the ECB has tried to solve the crisis the best way as possible respecting the inflation goal. However, I believe that it is necessary a new economic approach and a more unified Europe so that the survival of the European Union is ensured in the long term.

## 7. BIBLIOGRAPHY

- Before the ESM: EFSF-the temporary fiscal backstop.* (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)
- Castells, M. (2014, February 28). *La crisis económica europea: una crisis política.* Retrieved from Europeg: <http://www.europeg.com>
- Conclusion of ESM financial assistance programme for Spain: an overview .* (2013). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)
- Cronología de la crisis en Portugal.* (2017). Retrieved from Radio televisión española: [www.rtve.es](http://www.rtve.es)
- Cronología de la crisis griega.* (2017). Retrieved from Público: [www.público.es](http://www.público.es)
- De Nederlandsche Bank. (n.d.). *ECB Rates.* Retrieved from <https://www.dnb.nl>
- Drudi, F., Durré, A., & Mongelli, F. P. (n.d.). *The interplay of the economic reforms and monetary policy: the case of the euro area.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2004). *General Documentation on Eurosystem Monetary Policy Instruments and Procedures.* Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)
- European Central Bank. (2004, February). *The implementation of monetary policy in the euro area.* Retrieved from European Central Bank: [www.ecb.europa.eu](http://www.ecb.europa.eu)
- European Central Bank. (2007). *Annual Report 2007.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2008). *Annual Report 2008.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2009). *Annual Report 2009.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2010). *Annual Report 2010.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2011). *Annual Report 2011.* Retrieved from European Central Bank: <https://www.ecb.europa.eu/>

- European Central Bank. (2012). *Annual Report 2012*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2013). *Annual Report 2013*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2014). *Annual Report 2014*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2015). *Annual Report 2015*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Central Bank. (2016). *Annual Report 2016*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- European Commission. (2010). *Surveillance of Intra-Euro-Area*. Retrieved from European Commission: Competitiveness and Imbalances: [www.ec.europa.eu](http://www.ec.europa.eu)
- European Commission: The Stability and Growth Pact*. (n.d.). Retrieved from <http://ec.europa.eu/>
- Evolución de los principales grupos bancarios españoles (2009-2014)*. (n.d.). Retrieved from Banco de España: [www.bde.es](http://www.bde.es)
- Fund for Orderly Bank Restructuring (FROB)*. (n.d.). Retrieved from Fondo de Reestructuración Ordenada Bancaria: [www.frob.es](http://www.frob.es)
- González Zurita, J., Martínez Pérez, J. F., & Rodríguez Montoya, F. (2009, Septiembre). *La crisis financiera y económica del 2008. Origen y consecuencias en los Estados Unidos y México*. Retrieved from Universisias Autónoma Metropolitana Unidad: [www.redalyc.org](http://www.redalyc.org)
- González, R. M. (n.d.). *El pacto de Estabilidad y Crecimiento ante la crisis. Determinación y seguimiento del déficit público de los Estados miembros de la Unión Europea*. Retrieved from Tribunal de Cuentas: <http://www.tcu.es>
- González-Coloma, Á. B., & Cuerpo Caballero, C. (2012). *La crisis de deuda soberana: una perspectiva europea*. Retrieved from Universidad de Zaragoza: <http://www.unizar.es>
- Greece: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)
- Hernando, I., Llopis, J., & Vallés, J. (2012). *Los retos para la política económica en un entorno de tipos*

- de interés próximos a cero*. Retrieved from Banco de España: [www.bde.es](http://www.bde.es)
- Ireland: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)
- Kar-Gupta, S., & Le Guernigou, Y. (2007, August 9). *BNP freezes \$2.2 bln of funds over subprime*. Retrieved from Reuters: [www.reuters.com](http://www.reuters.com)
- Lewis, M. (2010). *The Big Short: Inside the Doomsday Machine*. W. W Norton & Company.
- Máiquez, M. (2012). *El vía crucis de la deuda, paso a paso: cronología de la crisis económica europea*. Retrieved from 20 Minutos: [www.20minutos.es](http://www.20minutos.es)
- Marshall, J. (2009, April 22). *The financial crisis in the US: Key events, causes and responses*. Retrieved from Voltairenet: <http://www.voltairenet.org>
- Nasdaq composite: timeline*. (n.d.). Retrieved from Nasdaq: <http://www.nasdaq.com>
- Portugal: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)
- President Bush Signs American Dream Downpayment Act of 2003*. (2003, December 16). Retrieved from The White House: President George W. Bush: <https://georgewbush-whitehouse.archives.gov>
- Rodriguez, C., & Carrasco, C. A. (2014, September). *ECB Policy Responses between 2007 and 2014: a chronological analysis and a money quantity assesment of their effects*. Retrieved from Financialisation, Economy, Society and Sustainable Development (FESSUD): [www.fessud.eu](http://www.fessud.eu)
- Scheller, H. K. (2004). *European Central Bank: History, role and Functions*. Retrieved from European Central Bank: <https://www.ecb.europa.eu/>
- Spain: Timeline*. (n.d.). Retrieved from European Stability Mechanism: [www.esm.europa.eu](http://www.esm.europa.eu)





