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QUANTITATIVE EASING: ITS IMPLICATIONS FOR THE EURO AREA ECONOMY

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RESUMEN

La expansión cuantitativa, más conocida por sus siglas en inglés “QE” (Quantitative Easing), ha sido la principal política monetaria aplicada por los grandes bancos centrales desde la crisis económica del año 2008. En el caso del Banco Central Europeo, la expansión cuantitativa ha resultado fundamental para paliar los efectos de dicha crisis y revitalizar la economía de la zona euro. Desde su puesta en marcha en el año 2015, su aplicación ha sido continua, siendo reforzada desde el pasado año a raíz de las consecuencias económicas derivadas de la entrada de la COVID-19. Tras muchos años de ejercicio de esta política monetaria, ha llegado el momento en el que se comienza a plantear su gradual reducción, por lo que está por ver cuáles serán las consecuencias a largo plazo de la expansión cuantitativa en la economía de la zona euro.

Terminología clave: Expansión cuantitativa (QE), Banco Central Europeo, euro, inflación, tipos de interés, Euribor, tasa de desempleo, Producto Interior Bruto (PIB), mercados financieros, política fiscal, balance de situación, compra de activos, clave de capital.

ABSTRACT

Quantitative easing, better known by its acronym QE, has been the main monetary policy applied by the major central banks since the economic crisis of 2008. In the case of the European Central Bank, quantitative easing has been fundamental in alleviating the effects of that crisis and revitalising the euro area economy. Since its implementation in 2015, its application has been continuous, being reinforced since last year due to the economic consequences of the outbreak of COVID-19. After many years of applying this monetary policy, the time has come to begin considering its gradual reduction, so it remains to be seen what the long-term consequences of quantitative easing will be for the euro area economy.

Key terminology: Quantitative Easing (QE), European Central Bank, euro, inflation, interest rates, Euribor, unemployment rate, Gross Domestic Product (GDP), financial markets, fiscal policy, balance sheet, asset purchase, capital key.

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1. INTRODUCTION

In 2008, an economic crisis without precedent, later named as the “great recession”, broke in the United States. None of the traditional monetary policies were proving to be useful, so the Fed decided to turn to something relatively new in western countries, Quantitative Easing.

Even though the effects of this crisis were tangible globally, it was not until 2011 when the great recession drastically affected European countries. Following the American example, and with no further room for complacency, conventional monetary policies were no longer having a positive effect. It was back in July 2012 when Mario Draghi, ex-ECB president pronounced the following words: *“Within our mandate, the ECB is ready to do whatever it takes to preserve the Euro. And believe me, it will be enough.”* As part of the new economic policies that the ECB established to reverse the economic situation, they started their own ambitious Quantitative Easing program. Nonetheless, this program has not been exceptional, but is still applied nowadays.

Furthermore, the outbreak of the COVID-19 pandemic has meant a new hit for the euro area economy. Lockdowns, restrictions to mobility and closed businesses, among others, have tremendously impacted the European economy and especially those nations like Spain where tourism account for nearly 13% of total GDP. As an extraordinary measure to try to save the European economy from an even bigger decline, the ECB approved a new QE program, the Pandemic Emergency Purchase Program. Therefore, there are currently two QE programs working in the euro area.

QE is a hotly debated topic that has guided the European economy since its official launch in 2015. The main objective of this paper is to take a more in-depth look at what QE has meant for the euro area economic recovery, together with the effects that this policy has had over some important areas, mainly inflation and interest rates, the European Central Bank’s balance sheet, financial markets in Europe and on the fiscal policy European nations have adopted. Nevertheless, it would not be possible to understand these implications without previously analysing the origins of QE, how this policy works and the different programs that the ECB has used to implement this monetary policy.

2. WHAT IS QUANTITATIVE EASING (QE)?

Quantitative Easing (QE) can be defined as an unconventional monetary policy established by a central bank through the acquisition of securities from the market, with the main objective of encouraging lending and investment through the increase of the money supply (Investopedia, 2021). It is classified as an unconventional monetary policy since it is used when the interest rate or the interbank rate are close to zero and after the previous unsuccessful application of other conventional methods of controlling money supply. In addition, when implementing this type of monetary policy, traditional macroeconomic variables do not behave in the way theory indicates. Therefore, central banks must apply this policy responsibly. These unconventional monetary policies directly target the cost and availability of financing for banks, households, and non-financial companies.

Quantitative easing has been used throughout history to stimulate the economy in times of crisis. As previously mentioned, QE policies are commonly applied with interest rates very close to zero, because the tools central banks have at this point are more limited (Investopedia, 2021). When buying these securities, new money is introduced into the economy, therefore increasing money supply. At the same time, QE helps to reduce interest rates, making it easier for banks to lend money and consequently incentivising investments and consumption. Moreover, through the acquisition of bonds, liquidity is injected into the market. The ultimate goal of QE is to incentivise economic growth. For the purpose of presenting a brief overall picture, QE works in the following way (Bank of England and ECB, 2021):

- Central Banks increase their supply of money by crediting their own bank accounts.
- As the main objective of QE is to increase spending and boost the economy, Central Banks buy, whether sovereign or private, bonds from financial institutions, such as banks, insurance companies and pension funds with the newly created money.

- When massively buying bonds, the price of these financial instruments increases, creating money in the banking system, and making their interest rates to fall. Therefore, loans become cheaper. Furthermore, companies that have sold bonds may use the proceeds to invest in other companies or lend to individuals.
- Businesses and households can borrow more and spend less to service their debts.
- With this “new money” for businesses and households, investment and consumption are incentivized.
- Consequently, this increase in consumption and investment serves as the engine for economic growth and labour demand.

However, this is just theoretical. We will later explain what the main effects of QE have been on the European economy since its introduction in 2015 and the impact it will have on the economy.

It is essential to distinguish between money printing and quantitative easing. This has been a hotly debated topic by economists since QE first appeared, and it is still argued nowadays. Nevertheless, there are some clear differences between them. First, and as we will later carefully analyse, QE has a direct impact over Central Bank’s balance sheets. Through QE, Central Banks create money for the sole purpose of buying sovereign and other bonds from commercial and different financial institutions. The immediate effect for banks is an expansion in their reserves. The objective is that banks lend the money received from Central Banks to companies and individuals to increase their consumption and boost the economy. Afterwards, when the economy recovers, the Central Bank starts working on what is known as “tapering”, this is, the progressive withdrawal of the economic stimulus introduced by the quantitative easing policies. In other words, tapering implies slowing asset purchases and reversing QE policies with the goal of taking the economy back to normality after the extraordinary period under which QE stimulus where implemented. In the case of QE, as the main policy of this program is asset purchasing, with tapering Central Banks announce a slowdown of these asset purchase programmes and sell assets or maintain them to maturity. The main objective is that in the long-term there has been no extra money created.

As aforementioned, QE directly affects a Central Bank balance sheet. How do asset purchase programs affect this balance sheet? In the below example (Gittler, 2013), we can see how QE works. Initially, Bank ABC has assets of 50 in reserves in the Central Bank, 50 in loans and 40 in T-bonds. The Central Bank has total assets of 70, with 50 in reserves and 20 in cash. Finally, the Treasury has 110 in assets divided into money and public goods, and 110 in liabilities made up of T-bonds and T-bills.

Before central bank buys bonds from the market				After central bank buys bonds from the market			
Bank ABC				Bank ABC			
Reserves	50	Deposits	130	Reserves	90	Deposits	130
Loans	50	Capital	10	Loans	50	Capital	10
T-bonds	40			T-bonds	0		
Central Bank				Central bank			
T-bills	50	Reserves	50	T-bills	50	Reserves	90
T-bonds	20	Cash	20	T-bonds	60	Cash	20
Treasury				Treasury			
Money	55	T-bills	50	Money	55	T-bills	50
Public goods	55	T-bonds	60	Public goods	55	T-bonds	60

Figure 1 - How does QE works?

Source: CNBC

After QE measures are implemented, there are changes in the balance sheet for Bank ABC and for the Central Bank. In the case of the Treasury, the balance sheet remains the same as there is no new bond release. As regards Bank ABC, the size of the balance sheet remains the same, there has only been an exchange between T-bonds, now zero, and reserves in Central Bank, now 90 after the 40 increase. The Central Bank balance sheet grows, they now have 60 in T-bonds after buying the 40 T-bonds of Bank ABC, and their reserves also increase, following the increase in reserves of Bank ABC.

This brief example shows that the only visible effect in the balance sheet of the Central Bank and the local bank is an exchange of bonds for reserves. Furthermore, there is no new money in the market, so it should not contribute to an increase in inflation. Nevertheless, as we will later see, even though apparently there is no impact on inflation, it does affect this economic variable in some way.

3. BRIEF HISTORY OF QE

To understand QE, it is important that we understand its history. Quantitative easing is a relatively new monetary policy. It was first introduced by the German economist Richard Werner. It was back in 1995 when Werner wrote his famous article *Recovery through Quantitative Monetary Easing* in the Nikkei Japanese newspaper. At that time, Japan was in the middle of her “lost decade”, the period that ranged between 1992 and 2003.

The average annual growth of Japan's GDP was 3.8% between 1973 and 1991. This figure dropped to 1.1% between 1992 and 2003. What factors caused the thriving Japanese economy to enter a phase of stagnation in the 1990s?

First, financial deregulation and a very expansionist monetary policy caused the stock and real estate bubbles that were created since the 1980s to burst between 1990 and 1991. This bubble was created after the inflationary pressures in the country since mid-1989, which caused unsustainable high prices and increases in interest rates. During 1990, and in just nine months, the Nikkei index fell by 50%. Moreover, land prices began to fall in 1991 and halved in just nine years (Bustelo, 2009).

The asset bubble burst had two main consequences. On the one hand, financial institutions tremendously reduced their loans, trying to maintain their capital ratio and face a more than probable increase in default risk. This is due to the fact that the Japanese banking system had a good part of its capital in shares and real estate property and a significant proportion of its loans secured with these assets. On the other hand, there was also a clear effect over wealth, causing stagnation and even, in some years, a fall in private consumption in relation to GDP. Between 1995 and 2003, private consumption grew at an annual pace not even reaching 1%, that is, a slower rate than that of GDP and substantially lower than that registered in other OECD countries. The withdrawal of consumption generated deflationary tensions: the GDP deflator fell during the years between 1995 and 2003, while the variation in the CPI entered negative territory between 1999 and 2003 (Bustelo, 2009).



Figure 2 - Inflation, GDP Deflator (annual %) – Japan
Source: World Bank



Figure 3 - Inflation, consumer prices (annual %) - Japan
Source: World Bank

A serious banking crisis was starting in Japan as a result of the increase in loans default and the losses of banks. This crisis, together with the increasing aversion of banks to risk, led to a very important reduction of credit, despite the expansionary measures introduced by the monetary authorities. Japan entered what the economist John Maynard Keynes called a “liquidity trap”, a situation in which expansionary monetary policies are ineffective because agents prefer to hold liquidity than to lend or borrow, no matter the level of interest rates. In 1997, the banking crisis finally exploded with the bankruptcy of the Yamaichi Securities and the Hokkaido Takusyoku Bank (Bustelo, 2009).

In 1995 Werner published his article about quantitative easing, but it was not until 2001 when the Nippon authorities decided to apply the quantitative easing model proposed by Werner as an attempt to avoid entering a recession and following the failure of the expansionary policies already applied. In his article, Werner wrote the following:

*“In such a situation the single most vital policy is for the government to **act and focus on increasing total purchasing power** in the economy. Put simply, the central bank can print money and **purchase assets in the markets** from participants beyond the banking system. It can **intervene in the foreign exchange markets**, without sterilising the monetary expansion. In these ways the central bank can **inject new purchasing power** in the economy. If this were done, then the overall amount of purchasing power in the economy would increase and **commercial transactions throughout business would be revived**. If such policies were taken, within 6 months we could see a marked improvement in business conditions.*

[...]

*At this stage, where Japan’s structural reform has reached a cross-roads, it is precisely by now changing to a policy focused on **quantitative easing** that the Bank of Japan can redeem its prior tight monetary policy stance” (added emphasis).*

The main ideas of his text were (Werner, 1995: 26):

- One of the main causes of a recession is the loss of purchasing power. Therefore, to accelerate and consolidate an economic recovery, it is necessary to create purchasing power.
- Japan’s situation at that time allowed the Central Bank to help create this purchasing power. For this, it just needed to implement an open market purchase of assets in conjunction with a foreign exchange intervention.
- Japan’s long-term growth rate could boost up to 4% if a series of structural reforms were carried out, and the recession they were experiencing gave the perfect opportunity to implement these reforms.

Starting in 2001 and until 2006, Japan was a pioneer in the use of QE policies. Just 6 years after tapering started, in 2012, the new Prime Minister Shinzo Abe restarted QE with his “Abenomics” three-arrow program (Amadeo, 2021).

After Japan, and fighting against the 2008 great recession, the Fed launched its own QE program in four rounds, lasting from December 2008 to October 2014. With the central bank funds rates and the discount rate at zero, other expansionary monetary policies could no longer be used, and the Fed decided to implement quantitative easing as their main policy to boost the economy (Amadeo, 2021).

As we will later see, Central Bank’s balance sheet is directly affected by QE, and the United States was not an exception for this. Until 2020, the QE implemented by the Fed resulted in the largest expansion from any economic stimulus program in history. The Fed’s balance sheet quadrupled from less than \$1 trillion in November 2008 to \$4.4 trillion in October 2014 (Amadeo, 2021).

4. THE ORIGINS OF QE IN THE EUROPEAN CENTRAL BANK

The outlook for the Euro area back in 2012 was very glum. Its overall GDP growth was negative, with three eurozone countries being rescued (Ireland, Portugal and Greece, which were joined by Spain and Cyprus) and a European Union that was not responding to the crisis. In that territory, the ECB had to deal almost alone with the markets. Furthermore, long-term interest rates were extremely high for some Euro countries which made it very difficult for consumers to spend and repay their high interest loans.

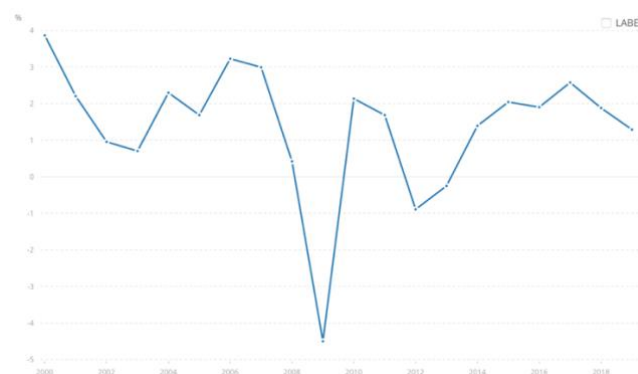


Figure 4 - GDP Growth (annual %) - Euro area
Source: World Bank

Since that moment, the ECB started to reduce interest rates as an attempt to cut the prices of loans for consumers and stimulate their consumption and the overall economic growth. This, together with other expansionary policies, helped the Euro area to start slowly resume GDP growth. Furthermore, in an attempt to achieve their ultimate goal of a 2% inflation rate in the Euro area, together with introducing new stimulus to help boost the economy, the ECB started its own quantitative easing program in March 2015. The idea was very similar to that of the Fed in 2008, that is, the purchase of financial assets, including public debt of Eurozone member states, something it had always resisted, as well as assets from agencies and institutions.

Both, through QE and through the reduction of reference interest rates, central banks are targeting the same goal. By reducing the interest rates held by companies and households, they are able to encourage consumption and investments, stimulating aggregate demand and increasing both inflation and economic activity. Nevertheless, the impact of these policies on the economy is different. Both policies aim to reduce long-term interest rates, but the ways to achieve that goal are different. When central banks reduce their reference interest rates, they are cutting their short-term rates with the objective of influencing long-term interest rates. However, through QE, central banks aim to have a direct and immediate impact on long-term interest rates. This is because by making massive purchases of a specific asset, demand for this asset increases and its yield falls. Now, investors would not purchase an asset that offers a low yield, they would try to recompose their portfolio by including other assets with more profitable yields. Consequently, riskier assets are now affected by the fall in interest rates (Montoriol-Garriga, 2015).

Furthermore, starting in 2012 and until March 2014, the euro appreciated by 9.9% in nominal effective terms. While it may seem that a strong currency is very positive, it directly affects how competitive the euro area is. By the appreciation of the euro, domestic exports become more expensive, and imports become cheaper, as prices are pushed down (Montoriol-Garriga, 2015)

This economic situation, together with the low inflation that the euro area had in 2015, forced the ECB to start their QE program with two clear objectives: promoting price stability and moving inflation close to, but under, 2%.

The ECB's QE was able to stimulate the economy since nearly the very first moment by depreciating the euro, helping some euro area countries to boost their exports. Furthermore, as the euro is one of the most used currencies worldwide, by implementing this policy the ECB is also pressuring other economies to adopt similar expansionary monetary policies if they want to stop the appreciation of their currencies against the euro (Montoriol-Garriga, 2015).

As we can observe in the below graph, currency movements since 2011 have been considerable. There is a clear effect of QE on the euro/dollar exchange rate, starting since Mario Draghi stated that they would carefully look at the euro's exchange rate in April 2014. His words caused the euro nominal effective exchange rate to fall by 4.8% between April and December of that same year. Since the beginning of 2015, with the announcement of the QE implementation, the euro depreciated even more. To achieve the price stability and inflation objectives, the ECB strongly relied on the euro depreciation, trusting in that it would help enhance exports, increase import price, and boost the economy of the euro area (Montoriol-Garriga, 2015).



Figure 5 - Euro/dollar exchange rate
Source: European Central Bank (ECB)

5. ECB'S QE: THE ASSET PURCHASE PROGRAM (APP)

First, we will focus on the ECB's Asset Purchase Program (APP), the biggest QE program developed by the ECB until the introduction of the Pandemic Emergency Purchase Program (PEPP) that we will develop at a later stage. Even though asset purchases started in 2014, it was not until the QE announcement and its deployment in March 2015 when purchases made by the ECB began to grow steadily.

The APP consists of (ECB, 2021):

- Corporate sector purchase program (CSPP): directed towards the acquisition of bonds from companies and strategic sectors in the Eurozone.
- Public sector purchase program (PSPP): directed towards the acquisition of public debt of capital key states in the ECB.
- Asset-backed securities purchase program (ABSPP): directed towards the acquisition of debt backed by loans granted by financial institutions, including RMBS (residential mortgage-backed securities) or debt backed by loans to the residential sector.
- Third covered bond purchase program (CBPP3): mainly directed towards the acquisition of mortgage bonds.

The monthly purchase of securities made between October 2014 and December 2018 amongst one or more of the asset purchase programs are as follows (ECB, 2021):

- March 2015 to March 2016: €60 billion.
- April 2016 to March 2017: €80 billion.
- April 2017 to December 2017: €60 billion.
- January 2018 to September 2018: €30 billion.
- October 2018 to December 2018: €15 billion.

Continuing with the APP program, the ECB decided to reinvest the principal obtained from maturing securities between January 2019 and October 2019. Furthermore, before the pandemic started and the PEPP program was launched, the Eurosystem decided to maintain the size of its cumulative net purchases under each of the programs that compose the APP as at the December 2018 levels (ECB, 2021).

From that moment, and as the economic situation of the Eurozone improved, even though some countries started to experience a slowdown in their economic growth, the ECB decided to establish the level of purchases under the APP program to €20 billion per month starting from 1 November 2019, without imagining what would happen less than six months later.

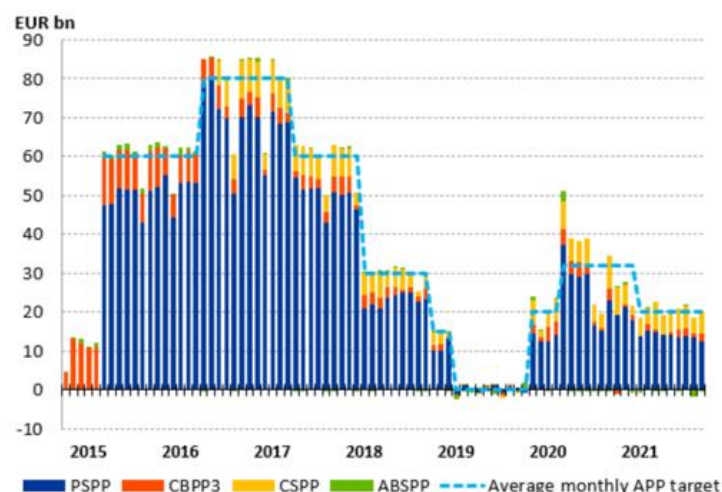


Figure 6 - APP net purchases, by program
Source: ECB

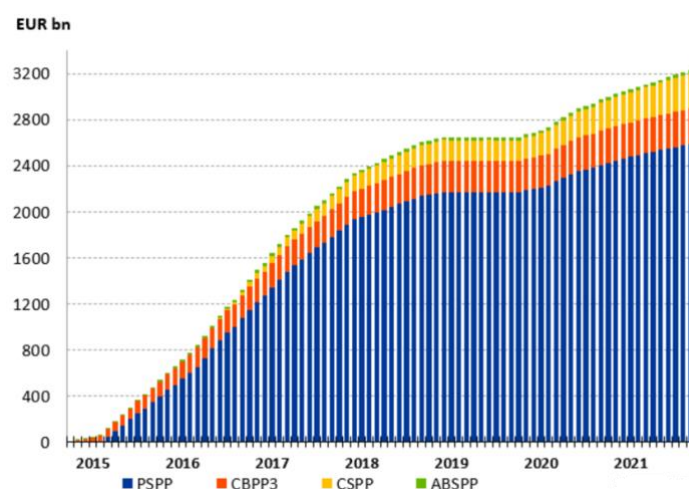


Figure 7 - APP cumulative net purchases, by program
Source: European Central Bank (ECB)

The APP has been crucial for economic recovery in the Euro area. It has allowed countries and other institutions to find an external source of financing for their debt. In addition, interest rates have remained low, and consumers have found a cheaper way to obtain loans and consume, therefore boosting the Eurozone economy. The implications of QE will be later developed.

Regarding APP, specifically the public sector purchase program (PSPP), there is one very important fact for the rest of our analysis. The APP has a very important limit that the ECB must consider, known as the issuer limit. The issuer limit is the maximum share that the ECB can hold of an issuer's outstanding securities. At the start of the PSPP, the issue share limit was set at 25%. On 3 September 2015, the Governing Council of the ECB

decided to increase it to 33%. This 33% limitation is meant to protect the ECB's position, guarantee price formation and the correct functioning of the market, and specially eliminate the possibility that the ECB becomes the major creditor of governments in the euro area (ECB, 2021).

In addition, the ECB must also respect the capital key restriction. The ECB has its own capital that comes from the subscription of each national central bank (NCB) of all EU Member states. In December 2020, the ECB capital amounted to €10.8 billion. The share that NCB's have on the ECB's capital is calculated using a metric that considers the country's share in the total population and gross domestic product of the EU (ECB, 2020). With this, the capital key is obtained. PSPP purchases are limited and guided by the capital key, as it provides a fair and clear guideline for the distribution of purchases across nations (ECB, 2021). This means that, taking into consideration the data published by the ECB in December 2020, Spain, for example, has a 9.7% capital key of the ECB. Therefore, through the PSPP program, the ECB should have no more than 9.7% of Spanish bonds in its portfolio.

6. ECB'S QE: THE PANDEMIC EMERGENCY PURCHASE PROGRAM (PEPP)

Even though economic growth of some of the most important nations in the EU, such as Spain, which had guided European GDP growth since the Euro crisis, was clearly slowing down, growth was still positive. Nevertheless, the COVID-19 pandemic reached Europe, starting in Italy, and spreading towards the rest of European countries. The terrible economic effects of this pandemic are well-known.

On 18 March 2020, the ECB announced the creation of the Pandemic Emergency Purchase Programme (PEPP) to help Euro nations deal with the drastic reduction in their GDPs and consumption due mainly to lockdowns established in most European countries.

This new Pandemic Emergency Purchase Programme (PEPP) had an original envelope of €750 billion. The initial idea was that purchases under this new program were going to include all the asset categories that compose the APP and were going to be carried out

until the end of 2020. As is the case for the APP, the capital key of central banks will also be the PEPP benchmark for allocation across the different euro countries (ECB, 2021). However, PEPP purchases are much more flexible than those of the APP, and the issuer limit we explained earlier is not to be respected in this case.

In addition, with the PEPP program banks are not obliged to fulfil the second pillar of the Basel Accords. The second pillar is the supervisory review, a framework intended to ensure that banks have an adequate capital distribution to support all risks in the industry, together with introducing new risk management techniques so that banks can better and more adequately manage and monitor their risks. It includes, among others, the following areas of treatment: credit concentration risk, interest rate risk, business risk, strategic risk, operational risk, and business cycle risks. Moreover, it also includes some tasks for the regulators, whose role is to assess how well banks are assessing their capital needs according to risks and act in accordance when necessary (Basel Committee, 2004:170). Therefore, this pillar evaluates the global risk of financial intermediation entities. It is based on the principles of vigilance of minimum capital ratios, control of risk calculation strategies and their supervision, monitoring and obtaining information, review of internal control and anticipation of intervention if necessary. With the PEPP, all these measures are temporarily suspended.

When this program was launched, the ECB announced that once the COVID-19 crisis would be over, it would finalize asset purchases under the PEPP. The ECB aid was essential to give investors' confidence in economic recovery in the euro area, and even though lockdowns were over by the summer of 2020, the subsequent waves of the pandemic prevented the economic situation to fully recover.

Therefore, the initial €750 billion envelope that was destined for the PEPP, was subsequently increased by the ECB by €600 billion on 4 June 2020 and by €500 billion on 10 December 2020, up to a new total of €1,850 billion (ECB, 2020).

On 9 September 2021, Christine Lagarde, president of the ECB, together with the ECB's Governing Council, announced that they would continue to conduct net asset purchases under the PEPP until at least the end of March 2022, maintaining the total envelope of €1,850 billion.

Therefore, what started as a €750 billion program is now a €1,850 billion program, an increase of 146.67%. In addition, the ECB also announced that it would continue to reinvest repayments of principal from maturing securities purchased under the PEPP until at least the end of 2023. Furthermore, the PEPP would be implemented on top of APP purchases, as the ECB confirmed that the APP will continue its purchases at a monthly rate of €20 billion.

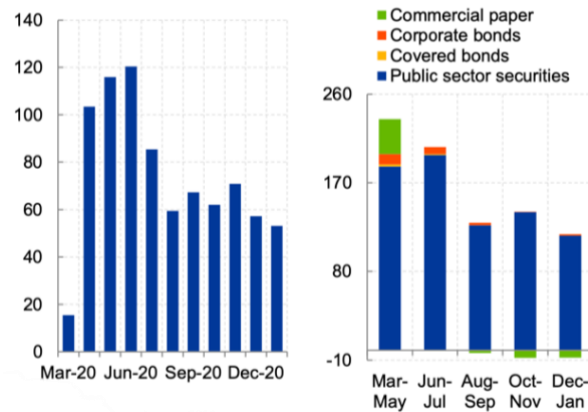


Figure 8 - PEPP monthly net purchases and net purchases by asset class (€ billion)
Source: European Central Bank

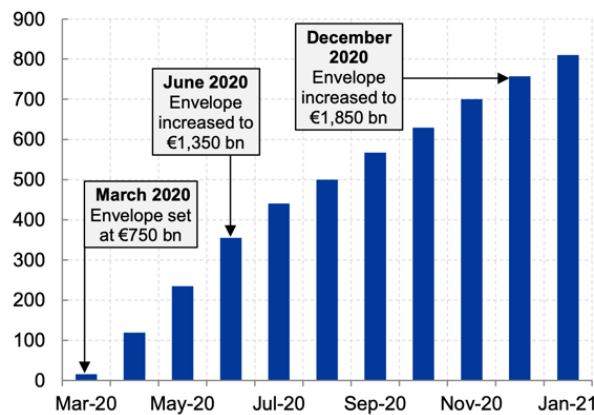


Figure 9 - PEPP cumulative net purchases (€ billion)
Source: European Central Bank (ECB)

All the QE measures the ECB recently announced were going to be supported by maintaining interest rates on the main refinancing operations at 0.00%, interest rates on the marginal lending facility at 0.25% and interest rates on deposit facility at -0.50%.

When COVID-19 appeared in Europe, and especially during lockdown periods, liquidity problems arose and investors turned to the safety of investment grade non-risky assets, consequently fragmenting the balance in financial markets and in the euro area. In a few

weeks since the COVID-19 outbreak in Europe, equity prices dropped around 40%, while on the other hand sovereign bond yields increased in almost all EU countries, together with corporate bonds also spreading to levels not seen since the “great recession” (Lagarde, 2021).

As we can observe in the below graphs, stress in financial markets show how investors reacted to the outbreak of COVID-19 both in the US and the Euro area and how the increase in both cases was similar to that of between the years 2008 and 2011. Furthermore, PEPP announcement on 18 March 2020, acted as a strong inflection point for this situation, re-establishing confidence in markets even before any single bond was bought.

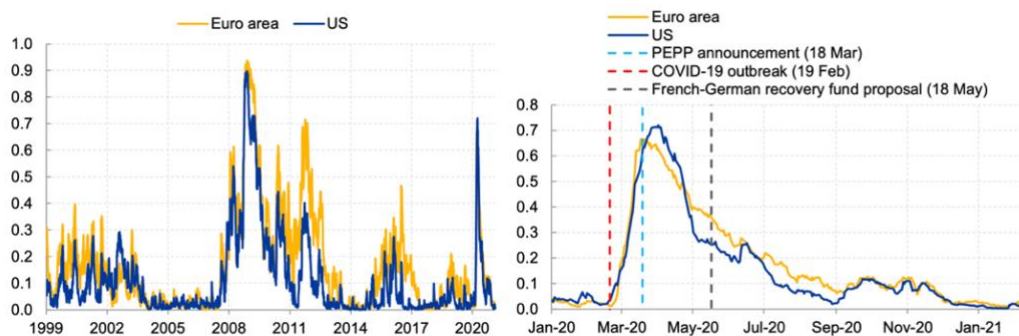


Figure 10 - Indicator of systemic stress in financial markets
Source: European Central Bank (ECB)

One year after the PEPP was launched, Christine Lagarde literally stated: “it has provided crucial support to euro area citizens in difficult times. It stabilised financial markets by preventing the market turbulence in the spring of last year from morphing into a full-blown financial meltdown with devastating consequences for the people of Europe. And it has ensured that financing conditions have remained favourable, helping households and families to sustain consumption, firms to remain in business and governments to undertake the necessary fiscal actions” (ECB, 2021).

7. IMPLICATIONS OF QE FOR THE EURO AREA ECONOMY

7.1. INFLATION AND INTEREST RATES

According to article 127 of the Treaty on the Functioning of the European Union:

“The primary objective of the European System of Central Banks (hereinafter referred to as ‘the ESCB’) shall be to maintain price stability”.

Therefore, all the policies the ECB implements are directed towards maintaining or reaching the optimal inflation level, around 2%.

Inflation in the Euro area is measured by the Harmonised Index of Consumer Prices (HICP). The HICP measures how prices paid by consumers for their goods and services change over time in the euro area. The ECB uses the term “harmonised” because the same measurement system is used in all the European Union countries, so that data can be compared between them. Therefore, the main objective of the ECB is obtaining an annual Harmonised Index of Consumer Prices inflation rate of below, but close to, 2% over the medium term.

During the Euro crisis, and before the ECB launched its QE program in March 2015, inflation was negative. Consumer demand was very low, companies had to cut prices to increase their sales, consequently turning to layoffs as an attempt to reduce their costs. This caused the unemployment rate to increase, and therefore fewer people had jobs and money to spend, further reducing demand, in a vicious cycle.

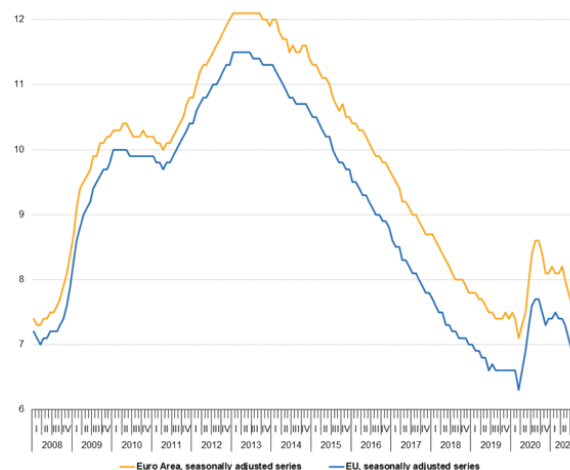


Figure 11 - Unemployment rates, EU and EA, seasonally adjusted, January 2008-August 2021
Source: Eurostat

The QE program, guided through the APP, helped in the economic recovery of the Euro area by providing more money to governments and other institutions, as we have seen. This boosted consumption and smoothly upturned the HICP curve positively.



Figure 12 - HICP inflation rate
Source: European Central Bank (ECB)

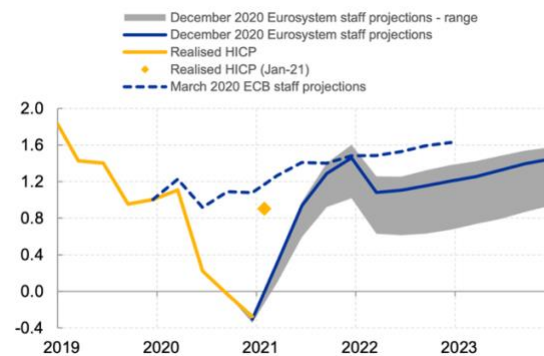


Figure 13 - HICP inflation predictions
Source: European Central Bank (ECB)

Furthermore, as we can see in figure 12, inflation has risen to higher levels than the predicted ones for 2021 (as shown in figure 13), due to the higher prices for energy, the shortage of raw materials which reduces supply, and the increase in demand, all together causing a rise in prices which are passed on to the final consumer. Christine Lagarde announced on 28 October 2021 that they will continue with their PEPP and APP measures, adjusting them as necessary to achieve the 2% inflation objective.

In addition, QE policies, together with the gradual reduction in interest rates the ECB has maintained in Europe since the 16 March 2016, when they were established at a 0.0% level on the main refinancing operations, together with the -0.50% interest charged for deposit facility, has directly influenced other important indicators for financial institutions in Europe. For instance, in the following graph, we can observe the evolution of the Euro Interbank Offered Rate, best known as EURIBOR, the reference rate that is constructed from the average interest rate at which eurozone banks offer unsecured short-term lending on the inter-bank market. In other words, Euribor rates are based on the interest rates at which a panel of European banks borrow funds from one another.

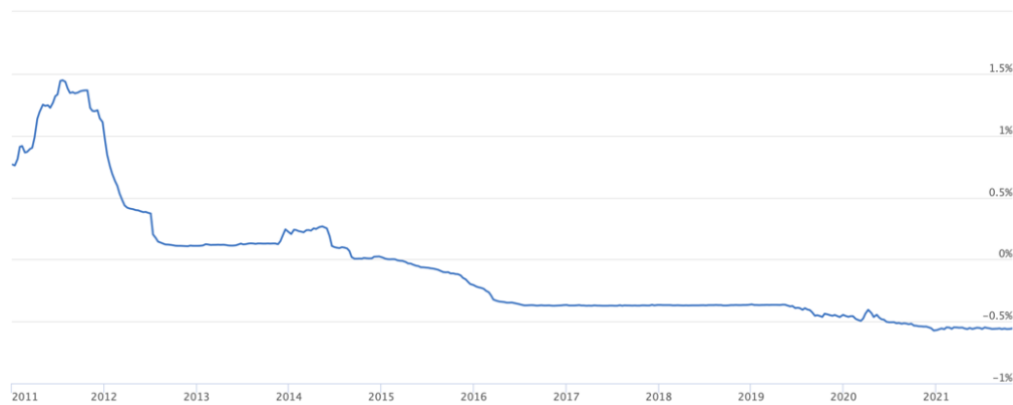


Figure 14 - EURIBOR 1-month evolution
Source: Euribor Rates EU

And how is it possible that the Euribor is trading negatively? There are two circumstances that are directly linked. On the one hand, as aforementioned, the European Central Bank has maintained its interest rates at 0.0% since March 2016. This means that it lends money to financial institutions for free. At the same time, the deposit facility is set at -0.50% since September 2019 (negative since June 2014). This means that banks must pay a 0.50% interest if they wish to keep their money in the ECB (although only in the event that they deposit more than a predetermined minimum).

With these two factors, although financial institutions can get money for free, it costs them more to deposit it within the ECB. Therefore, it is more profitable for financial institutions to lend money to each other when having a negative deposit facility. This is reflected in the Euribor, which is the interest rate applied to transactions between banks on the continent.

However, due to the excessive liquidity caused by QE in the markets, and as we can see in figure 14, Euribor is also in a negative territory since March 2015, being now in a rate of around -0.5%. This implies that banks are paying each other to save the money because they are not able to lend all their excess liquidity to the client. Therefore, the ECB is charging an interest rate to banks for depositing their money, but at the same time banks are paying each other to safe that money. This implies that not all the liquidity financial institutions are receiving through QE is being lent to clients in the form of loans, which is what the ECB expected with this policy (Garijo, 2016).

Consequently, QE, through the purchase of assets from financial institutions, mainly through the ABSPP and the CBPP3 previously mentioned, together with the reduction in interest rates, has completely changed the panorama for banks. One of the main sources of revenue for any financial institution is the interest rate clients pay them for loans or mortgages. One very important indicator for a bank to measure this is the net interest margin (NIM). The net interest margin is the difference between the net interest income a financial institution generates from its credit products like loans and mortgages and the outgoing interest it is paying to holders that have savings accounts or deposits with them (Bloomenthal, 2021). With the current rates in the market, clients are paying a very small interest rate for their loans, as most of them are attached to the Euribor, which is currently in negative numbers. Furthermore, banks are not giving any interests for the client's deposits and savings, as they receive free money from the ECB due to the 0% interest rate, and in addition are penalized with a 0.5% interest rate for the excess of liquidity.

The NIM serves as a profitability indicator that can easily but accurately indicate the probability of financial firms, mainly banks, to survive over the long-term. Furthermore, the NIM is also a very important metric for investors, as it gives them a clear picture of how much a financial firm is making by comparing their interest income with their interest expense, helping them to decide on whether to invest in the bank given the risks associated with the NIM.

7.2. THE ECB'S BALANCE SHEET

Throughout this report, we have explained what QE was and what it meant for the European economy, together with some of the implications it had in Europe's economy. Nevertheless, QE implications are not only for the Euro area economy, but also for the ECB itself. When talking about money creation, buying bonds, helping financial institutions and so on, we are talking about operations that have a direct impact over the ECB's balance sheet. Since QE policies were launched in 2015, the ECB's balance sheet has never stopped growing. In the last consolidated balance sheet of the Eurosystem as at 31 December 2020, the total assets figure was of €6.98 trillion, representing around 62% of the total Eurozone GDP.

As we can observe through the December 2020 balance sheet, the most important figure in the balance is “Securities of euro area residents denominated in euro”. This headline incorporates the purchase or sale of debt instruments to banks for the injection of liquidity. Therefore, it comprises all those securities that the ECB is acquiring under its purchase programs (QE programs). The second most important figure is “Lending to euro area credit institutions related to monetary policy operations denominated in euro”. This are those loans made by the ECB to financial institutions with the objective of implementing its monetary policy strategy. In this case, we find both, traditional financing operations, with which it provides liquidity to entities for one week and three months, as well as Long-Term Refinancing Operations (LTROs), designed to promote the granting of credit to companies and individuals (Cabrerá, 2020).

In order for us to better see the tremendous increase in the ECB’s balance sheet in the last years, if we take a look at the consolidated balance sheet of the Eurosystem as at 28 February 2020, just before COVID outbreak, the balance was of around €4.69 trillion. The figure shown in the consolidated balance sheet as at 8 October 2021 is of approximately €8.3 trillion. Consequently, in less than 2 years, the ECB’s balance sheet has grown in more than €3.6 trillion, this is a 76.9%.

Therefore, during 2020, the ECB’s balance sheet growth was close to 50%, moving from €4.67 trillion as at 31 December 2019 to €6.98 trillion as at 31 December 2020. This, together with the tremendous decline that COVID caused in the euro economy, has caused that by the end of 2020, these levels accounted for 62% of the European Union GDP, moving from the 39% that it represented at the end of 2019. This growth rate has been the highest ever registered by any central bank, including Japan during their “lost decade” (Alba, 2021).

These figures are even more representative if we look at the ECB’s consolidated balance sheet as at 27 February 2015, just before the ECB launched the QE program in March 2015, where the total balance was of €2.15 trillion. This implies an increase of around €6.1 trillion euros between February 2015 and October 2021, a 286% increase.



Figure 15 - Increase in the ECB's Balance Sheet (millions of €)
Source: ElConfidencial

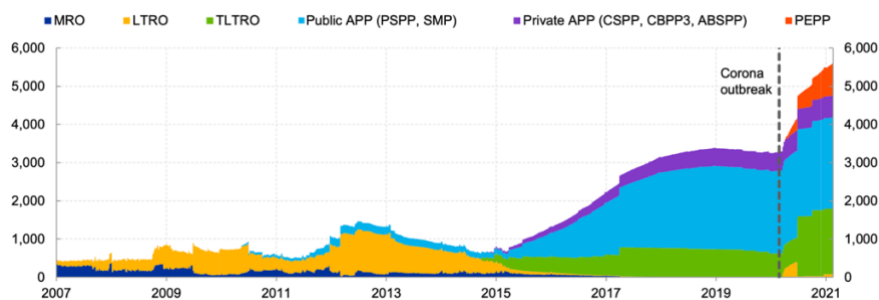


Figure 16 - Evolution of the ECB's Balance Sheet (in billion €)
Source: European Central Bank (ECB)

This dramatic increase in the ECB's balance sheet also poses some risks. As like any other bank, the ECB is directly affected by default risk. Having the enormous portfolio of assets it actually owns, poses the risk that some of its receivables would not be paid back. When holding debt from European nations, the ECB can be more confident about them paying back, but the ECB also finances banks and other corporations, which pose a greater default risk.

The expansion of the ECB's balance sheet has an impact in both, financial markets, and the real economy. This is because investors are starting to notice the potential risks that the excessive credit expansion of the ECB could imply for the economy, therefore fearing financial instability and possible market distortions. Furthermore, what experts predicted some years ago is starting to be noticed. ECB's debt purchases have incentivized governments and banks to expand their issuance, taking advantage of the fact that they can be financed cheaper, more easily, and that any eventual problem will only arise if there is a lack of coordination with the ECB when they decide to reverse these QE measures (Alba, 2021).

Consequently, even though the evolution of the ECB's balance sheet does not pose a risk in itself, distortions may appear if the reduction is not carried out in a smooth and coordinated way with Member states and taking into consideration the evolution of the economy, the stability of banking systems and the government debt (Alba, 2021).

7.3. FINANCIAL MARKETS

QE policies have also impacted financial markets and the way investors may obtain profitability. Since launching this program, the profitability of fixed income securities in European markets has been clearly reduced. Just to show a practical example, in Spain, the 10-year bond reached its maximum during the 2011 crisis, concretely in 2012 with a profitability of 7.6%, which showed that investors did not have confidence in our economy. Thanks to fiscal and other structural reforms that the EU obliged Spain to introduce, together with the financial institutions rescue made by the ECB, our yield started to fall, down to a 0.6% rate at present.

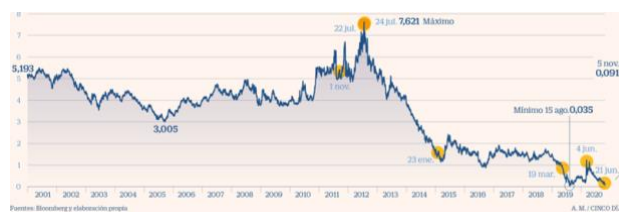


Figure 17 - Spanish 10-year bond % profitability
Source: CincoDías

When COVID-19 broke out, the fear that interest rates could go up for European nations, especially those whose economies were still weaker, further incentivized the ECB to launch its PEPP program. This had a clear effect over the 10-year yield spreads of European countries as we can see in the below figure.

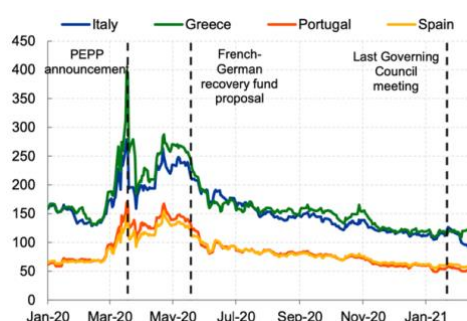


Figure 18 - 10-year yield spreads of selected government bonds over German equivalents (basis points)
Source: European Central Bank (ECB)

QE therefore has directly impacted the profitability of fixed income in Europe, by decreasing the profitability of these "safe investments", making them less attractive for investors, who decided to invest in riskier assets, such as stocks, causing the stock market to rise. At least this is what the theory says. The problem is that economic turbulences caused by COVID-19 directly hit many companies and therefore stocks also followed a downtrend.



Figure 19 - YTD (%) variation as of 30 September 2020 of the main world indexes
Source: Estrategias de Inversión

What are some of the consequences of having these low fixed income yields in Europe? One clear implication is that investors are turning towards other higher-yield investments which offer them a higher profitability, and sometimes these are normally speculative investments. Investment grade sovereign bonds offer a very low profitability. Nevertheless, we should also ask ourselves why people are still investing in these products with negative rates. The answer is very simple. As we previously mentioned, interest rates have been generally going down since 2016. If, for example, someone invested today at negative rates, it is very possible that when selling it in a month, interest rates would be even lower, therefore generating a profit. This is a risky practice that nonetheless many investors have been following, especially because some investment funds, pension funds or insurance companies are banned from investing in non-investment grade companies.

7.4. FISCAL POLICY

The main goal of the ECB is to maintain an inflation rate below, but close to 2%, considered as the optimal one for the economy. According to article 27 of the Treaty on

the Functioning of the European Union (TFEU), the primary objective is to maintain price stability, to be carried out through the definition and implementation of monetary policy in the Union. Therefore, the law of the EU does not allow the ECB to implement fiscal policies, as that is reserved to countries. However, the ECB is participating in fiscal policy, not directly, but *de facto*. How is this done? When implementing a non-conventional monetary policy such as QE, the ECB is indirectly financing nations as it is buying their sovereign bonds in the secondary market. Furthermore, Eurozone countries know that when issuing new bonds, they will find a loyal buyer in the ECB. Consequently, this directly affects the fiscal policies governments may decide to carry out, given that the ECB serves as backup for debt issuance. Fiscal and monetary policies are currently working hand in hand.

In addition, article 125 of the TFEU is referred to by the ECB is the “no-bail-out clause”. This article states that:

“The Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project. A Member State shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of another Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project”.

This article basically states that the Union, and therefore the ECB as an organism of the European Union, cannot take on the debts of another Member State. However, through QE, the ECB has been buying debt from Member States, posing a problem in compliance of the “no-bail-out clause”.

When implementing their fiscal policies, Euro area members need to take into consideration the Stability and Growth Pact. This Pact serves as the fundamental guide for the ECB in the establishment of the macroeconomic framework for the Economic and Monetary Union. The Pact has its bases in articles 121 and 126 of the TFEU. Article 126 states that:

“Member States shall avoid excessive government deficits”.

This is probably the most important clause in the Stability and Growth Pact. Article 1 of “Protocol 12, on the Excessive Deficit Procedure”, develops what are those reference values referred to in Article 126 of the TFEU:

- 3% for the ratio of the planned or actual government deficit to gross domestic product at market prices;
- 60% for the ratio of government debt to gross domestic product at market prices.

Therefore, compliance with these rules is to be examined based on reference values for the general government deficit (3%) and gross debt (60%) in relation to GDP.

Nevertheless, this is just theory. Just to give a practical example, Spain closed 2020 with a public debt of €1,311 billion, representing a 117,1% of our GDP, more than double the entire economy of Bulgaria or Croatia, and far more than the limit of 60% established by the Stability and Growth Pact.

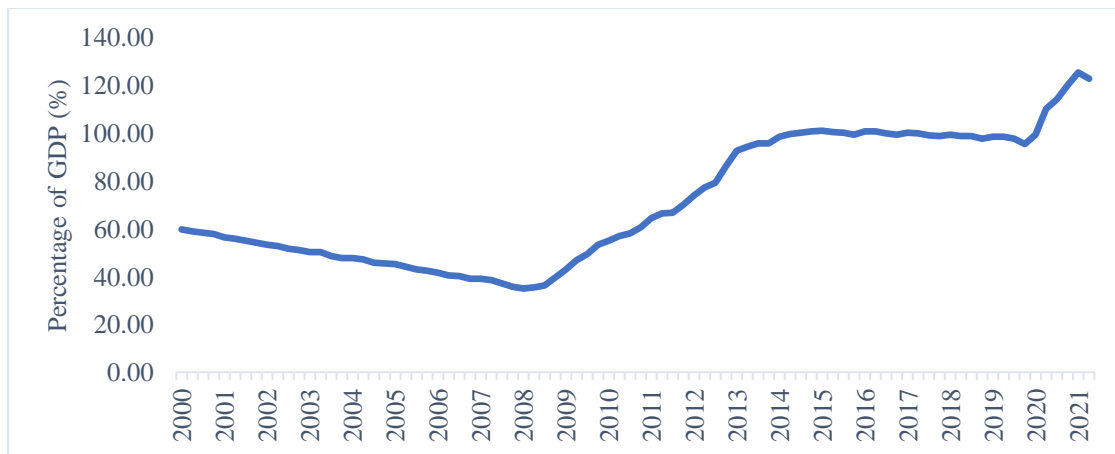


Figure 20 - Historic evolution of the Spanish public debt (as % of GDP)

Source: Own elaboration based on Bank of Spain data

Moreover, due to the COVID-19 crisis, the Union suspended the 3% deficit limit rule of the Pact. In the case of Spain, this meant that its 2020 deficit was of 11% of our GDP.

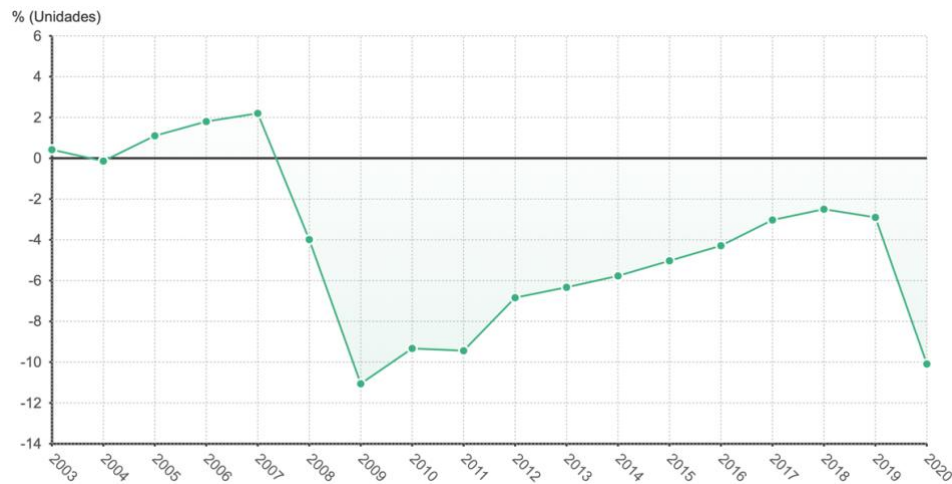


Figure 21 - Evolution of Spanish deficit (as % of GDP)
Source: Instituto Nacional de Estadística (INE)

What has been the main problem here? As aforementioned, and even though the situation has been worst due to the COVID-19 crisis, the Spanish public debt has been higher than allowed since the 2011 crisis, with no consequences. Through QE, the ECB has been buying Spanish debt throughout all these years, contributing to finance the increase of its public debt and being a support for the Spanish government and their fiscal policies.

This indirect involvement of the ECB on fiscal policy has not gone unnoticed by the German Constitutional Court, also known as “Karlsruhe”. In May 2020, a critical moment for the approval of the PEPP program, the Karlsruhe declared that the bond acquisition program started by Mario Draghi in 2015, the QE program, was not adjusted to law. Germany, and especially its courts, have been somewhat critical with this program since the beginning basically for two reasons. The first is the moral hazard entailed by the fact that the entire system, the ECB, would carry the burden of helping the inefficient and irresponsible southern states. And, secondly, by the tremendous fear of inflation of the German people.

The German Constitutional Court said that the Bundesbank, Germany’s central bank, needed to stop buying sovereign debt under the European Central Bank’s long-term stimulus plan within the following three months, unless the ECB could prove that those purchases were necessary. The high court ruled that the ECB’s debt purchase program exceeded its powers without making considerations about the proportionality of the measure as a tool to raise the inflation rate to close, but below 2%, which is the main

objective of the monetary policy of the ECB. It was very curious to see that the judges of the city of Karlsruhe specified that their decision did not apply to the new program to fight the pandemic of the ECB, the PEPP, that was about to be launched.

The problem was solved after the ECB presented all the required documentation by the Karlsruhe, and after the Bundestag, the German Parliament, voted in favor of the policies implemented by the ECB. With this, the Bundesbank was allowed to continue participating in the QE programs of the ECB. Notwithstanding this “happy ending”, the action by Germany’s Constitutional Court led to one of the most important institutional crises of the European Union, posing a great threat to the QE program started in 2015, that we have been explaining throughout this paper.

8. CONCLUSIONS

Quantitative Easing has been one of the most important policies introduced by the European Central Bank to boost the euro area economy, not only during the Great Recession, when the policy started to be used through the Asset Purchase Program, but also during the COVID-19 pandemic, with the Pandemic Emergency Purchase Program. It would be very complicated to estimate what would have happened to the European economy if it were not for this policy, so therefore we can only give our opinion on the QE program itself.

Since its implementation by Japan in 2001 after the theory was developed by Richard Werner in 1995, QE has been continuously used by Central Banks throughout the world, especially represented by the Fed and the European Central Bank. Even though the theory has slightly differed from the original idea, the core remains: Central Banks purchase assets in the market, injecting new purchasing power in the economy through the increase in money supply, with the main objective of encouraging lending and investment.

The QE program in the euro area, both through the APP and the PEPP, has had very important implications for the economy and some of its main indicators. Some of these effects have been clearly positive, while for others the consequences are still to be seen. Starting with the inflation and interest rates, QE was essential to provide more money to

governments and other institutions, boosting consumption and smoothly upturning the HICP curve positively as part of the economic recovery after the great recession. Furthermore, together with the reduction in interest rates, the revenue model for banks expressed through the net interest margin (NIM) has completely changed, as the interest rates clients pay when receiving money is much lower, due to the negative Euribor, and what banks pay clients for their deposits and savings is practically zero.

QE has also consequences for financial markets. In the case of the original APP program, it served as a tool to reduce the very high yields of sovereign bonds in certain European countries during the recession, as by buying bonds themselves, they made their demand to increase, with the consequent increase of the bond price and the reduction in their yields. Furthermore, the PEPP also served as an inflection point after the increase that the 10-year yield spreads of government bonds suffered, reducing their profitability, and returning their yields to pre-pandemic levels.

However, even though QE has been the main tool for economic recovery in the euro area, its long-term effects are still to be observed. Notwithstanding, economists do agree on some important facts that are to be analyzed. Firstly, due to the acquisition of bonds through the APP and the PEPP program, the ECB's balance sheet has increased around €6.1 trillion euros between February 2015 and October 2021, this is a 286% increase. Even though the increase of the balance sheet *per se* has no direct effect over the economy, investors are observing the potential risks that the excessive credit expansion of the ECB could imply for the economy, therefore fearing financial instability and possible market distortions. Furthermore, it is essential when the ECB decides to conduct tapering, that the reduction is carried out in a smooth and coordinated way.

Finally, through the different Quantitative Easing programs applied by the ECB, one fundamental clause established by the TFEU, the no-bail-out clause, is not taken into consideration. This is because the clause states that the ECB as an organism of the European Union, cannot take on the debts of another Member State. However, one of the main APP commitments, is the PSPP, directed towards the acquisition of public debt of capital key states in the ECB. Furthermore, the deficit procedure as established in the Stability and Growth Pact, has also been relaxed. Therefore, the ECB is having an indirect involvement on the fiscal policy of Member states.

On balance, it seems to me that Quantitative Easing has been an essential policy for the European Central Bank to boost the economy after the 2008 great recession and the 2020 COVID-19 crisis. All previous conventional monetary policies were not sufficient to deal with the economic situation, but QE, together with the reduction in interest rates, proved to be efficient. The euro area economy recovered after the crisis, banks started to lend money, consumption was revitalized, and GDP growth turned back to a positive tendency. QE was also essential after the sudden stop of the economy caused by lockdowns that Member states implemented to stop the spread of COVID, bringing back confidence to investors and further helping in the economic revitalization.

The long-term effects of QE for the economy are still to be observed. Both the APP and the PEPP are still in progress; therefore, the ECB has not yet entered the tapering territory. It will be a matter of time to observe how the ECB will deal with its balance sheet increase and how will investors react to the gradual stop of these asset purchases. In the meantime, we can conclude that QE was probably necessary to reverse the economic downturn of 2008 and 2020. We cannot say what could have happened if QE had not been applied, as it will be just speculating, but we do know that the ECB must carefully manage tapering if they don't want to bring new distortions and risks in the market and create an even bigger problem than the one they were trying to solve.

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