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The European Sovereign Debt Crisis. A comparison with the current crisis generated by Covid-2019

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Abstract

The Sovereign Debt Crisis has shown how interconnected financial markets are in the third millennium's global environment. This Direct Research will start with the causes of the collapse of Lehman Brothers and the domino effect from America to the Old Continent. Particular attention will be devoted to the impact that well-known economic events had on these countries defined as PIIGS (Portugal, Ireland, Italy, Greece, and Spain), the countries most damaged by this event. The last part will analyse the meeting points and similarities between the historical sovereign debt crisis and the Covid global pandemic. Why was conditional help used during the Sovereign Debt Crisis while unconditional one was used during the Covid-19 crisis?

Keywords:

PIIGS (Portugal, Italy, Ireland, Greece, and Spain), *ECB* (European Central Bank), *Troika*, *Sovereign Debt Crisis*, *Covid-19*, *EU* (European Union), *IMF* (International Monetary Fund), *Quantitative Easing*, *EIB* (European Investment Bank).

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1 - Analysis of the Macroeconomic scenario

The financial crisis of 2008, which started in the US due to the credit explosion in the subprime mortgage market, had a tragic impact on many other parts of the world. Eurozone suffered the most severe consequences for many reasons, mainly from its nature as a monetary union. In the years following the crisis, the EU experienced a period of collapsing financial institutions and high public Debt, formally identified as the European debt crisis; At the same time, not all researchers agree on the chronological order of causes; most agree that the problem was caused and aggravated by:

1. Years of incongruencies between macroeconomic and government policies caused negative fiscal balance and debt accumulated among some EU countries.
2. Lack of effective institutional measures to control and manage crises.

This has led to several nations, such as Ireland, Portugal, Spain, Greece and Italy (henceforth referred to as *PIIGS*), having difficulty financing their expenditures. From 2010 to 2014, they risked going into Default, as they could no longer honour their established obligations, endangering European integrity.

1.1 - 2008's Crisis

The crisis of 2008 was not only the first real global crisis of the Third Millennium but also the most profound crisis since the Second World War (The Guardian news, 2020). The emblematic event of that economic-financial shock, which started the crisis, was the collapse of *Lehman Brothers*: one of the most important investment banks, which at the same time belonged to the system of *shadow banking*. This system was defined as a set of financial institutions that operated with higher-than-normal risks and outside the boundaries imposed by the government on banks (Bloomberg, 2015). Lehman Brothers' bankruptcy originated in 2007 when the subprime mortgage crisis exploded, to everyone's surprise, and highlighted the limits of a system that had been consolidated for decades.

The first critical issues became apparent in the early 1980s when the traditional 'originate to hold' loans and mortgages were replaced by the 'originate to distribute' mode, which during the affirmation of neo-liberal policies, pushed many banks to circumvent the constraints imposed by the authorities. These two terms refer to the behaviour of banks in their borrowing operations: in the case of originate to hold, the bank originates loans and holds them until maturity, while in the case of originate to distribute, the bank exploits credit transfer techniques by selling the loan. Over time, Mortgage-Backed Securities (securities backed by mortgages on Real Estate) or MBS and Special Purpose Vehicles or SPV (a legal entity other than a credit institution set up to convey financial assets) became increasingly used, changing the foundations of traditional banking management. Indeed, while banks previously held both the loans and the associated risks, distributing these risks through securitisation became more common in the last decades of the previous century.

The practice of securitisation was designed to turn illiquid financial instruments into an asset that was directly tradable in the market. The MBS (Mortgage-Backed Securities) and SPVs (Special Purpose Vehicles) were instruments used by credit organisations for the purpose described above (Corporate Finance Institute,2022). Using these techniques allowed them to operate in an unregulated field, thus totally free from authorities' assessment. Banks systematically used them to increase the ratio of assets to liabilities by increasing profits without considering the underlying risk that could have arisen.

In summary, in such a financial and regulatory landscape, banks or other financial and credit institutions were operating at very high leverage levels, which increased profits and associated risks. Fig.1, from Security and Exchange Commission (SEC), provides us with information in graphical form of how the leverage of financial institutions increased over the period 2003-2007, in which the red line represents the weighted average of the leverage for the leading Investment Banks in that specific period. This caused the collapse of Lehman Brothers: the company had invested massively in subprime mortgages by borrowing overnight in the short-term credit market without even considering that a crisis in the Real Estate market might occur. Underlying this belief was the data concerning house prices up to that time, as shown by the Bloomberg graph in Fig. 2. Particularly, it shows the (rising) trend of house prices in a Year to

Year changing, calculated through the US house price index, from 1988 to 2008(Guy Debelle,2008).

1.2 - Transmission from the subprime mortgage crisis to the European debt crisis

When house prices collapsed, as a result, Lehman Brothers' sources of credit were quickly exhausted, causing its bankruptcy. This caused a disruptive domino effect. Through securitisation, financial institutions worldwide were exposed to mortgages rapidly losing value due to the rising default rate of the tenant. All countries were hit by a credit crunch, losing access to credit or forcing themselves to pay significantly higher interest rates. In addition, several economists researched the causes of this crisis. Specifically, they pointed out that the low-interest rates for access to credit have led many consumers to over-indebtedness and banks to grant more credit. Therefore, the sovereign debt crisis that hit the euro countries is a straightforward consequence of the subprime mortgage crisis.

Another important factor that made the American crisis severe in Europe was the structure that the EU was characterised by. EU countries use a similar currency and adopt a similar monetary policy dictated by the ECB. At the same time, each country had the right to control its fiscal and government policies regarding domestic consumption and public spending (Encyclopaedia Britannica,2022). These conditions and the meagre cost of debt that characterised the period led some countries, including Greece and Portugal, to overstretch their budgets and spending beyond the limits.

Another important factor that has made the crisis more severe and critical was the lack of competitiveness that some countries had compared to the rest of Europe. Indeed, in the early 1980s, there were significant differences in the main financial metrics between the PIIGS and other European countries, forming the basis of the crisis that was reflected in a general economic slowdown. As shown in Fig. 3, we can notice the reduction of the growth trend, in terms of annual average GDP growth, for all the European Countries between 1995-2000 and 2000-2007. Nevertheless, what were the factors that changed during this period? The most relevant ones were low growth, low-interest rates, negative current account and increasing government fiscal unbalance. The existing negative account is the difference between imports and exports. Indeed, this factor, combined with the continuous creation of fiscal unbalances, defined as a negative difference between a nation's revenues (gained through the taxes inflow) and expenditures (public expense), leads to an increase in total debt year over year. This phenomenon happened simultaneously with a contraction in GDP between the PIIGS, making one of the most critical ratios, the total Debt/GDP ratio, increase over time. Economies and their governments did not adapt their economic policies to the crisis (N. Ketenci,2014). The considerable difference in PIIGS's current account, which mark a lack of competitiveness concerning the other part of the EU’s countries, can be seen in Fig.4. This figure makes us realise that the difference between exports and imports of the PIIGS was much smaller than other countries such as Germany, which has been considered the leading country of the EU since 2000.

At the beginning of 2010, the Eurozone PIIGS were in a situation of debt unsustainability and became forced to request the help of European entities, between them the ECB, the IMF, and the EFSF (Victor Mallet,2010). These factors of difficulty and uncertainty, combined with the shock announcement of Greek Prime Minister George Papandreou in November 2009, claiming that the previous government had declared and falsified public data concerning the government balance sheet, increased fears of a hypothetical Euro collapse. The above caused a growing fear of possible default, leading creditors to demand higher interest rates, making the process of paying and financing the government fiscal unbalances even more complex in the face of meagre economic growth. Therefore, the only way to meet payments and avoid default was through a rapid increase in taxes and/or reduction in public spending for all the countries in difficulties meeting their obligations.

During this period, Portugal and Ireland saw their ratings downgraded to junk status, which increased the fear of every investor and possible creditors. This, in turn, led to an erosion of investor confidence, causing bond spreads to rise to unprecedented and unsustainable levels, raising doubts about the debt sustainability of the countries mentioned above.

To summarise, if in America it was private debt that triggered the 2008 crisis, in the Old Continent, it was the public Debt that got some Eurozone countries into trouble. The origin is different, but not the cause. We will see in the following paragraphs how the relationship between public Debt and a debt's solvency can affect the health of an economy and how, specifically, some countries have dealt with the crisis. Reference will be made mainly to the Portuguese and Greek cases.

2 - Effects of the sovereign debt crisis on the real economy of the PIIGS

The sovereign debt crisis has been defined as the mutation of the financial crisis that erupted in 2007 in America. To save banks/financial institutions and other entities, governments were forced to intervene massively (with recapitalisations of banks and generous guarantees on their debts), expanding public spending to support productive activity (IMF,2016). On the other hand, the crisis has hit national economies on the most vital financial metrics. Indeed, in this period, specific countries had economic and financial problems, such as GDP contraction, slowing growth, rising unemployment rates, and at the same time, generating doubts about those countries' ability to guarantee the coverage of their public debt. Fig.5 indicates the massive GDP contraction graphically among the PIIGS during the crisis. The figure also shows how on average, the PIIGS had a GDP contraction of 10 % from 2006 to 2015. The worst contraction during this period occurred for Greece and Ireland at almost -15 %, which is highly significant compared to the Eurozone's average of around -6 %. In addition to GDP contraction, we have to consider other vitally essential variables such as government fiscal unbalances as a percentage of relative GDP and total debt. Economic recovery policies have been developed on these variables that have tried to revive the European economy by implementing austerity and bailouts policy.

Fig.6 summarises data from Eurostat research and confirms that these indicators were in a critical situation during 2009/2010 compared to the rest of the Eurozone countries. These indicators are important because they allow a comparison with international economies, showing that the PIIGS situation was not the best regarding debt sustainability. Indeed, our analysis will primarily focus on fiscal unbalances and total debt, which informs us about the health status of the countries. Government fiscal unbalances represent the negative difference between a nation's revenues and expenditures. This situation occurs when the former is greater than the latter, and the state spends more than it collects as revenue. Covering the government fiscal unbalances is usually done by issuing government bonds, which can be bought by financial investors (domestic or foreign).

On the other hand, the term 'total debt' refers to the private and public debt accumulated by a country towards other entities with which it has financial relations: private investors, banks, and foreign states. Therefore, these two variables are strategically interconnected. Lasting fiscal unbalances lead to an increase in total debt. The PIIGS began to have problems with debt sustainability and, with it, the possibility of default. The first country to have real issues was Greece; its financial situation did not allow the opportunity to honour its debt until May 2010, when it obtained 110 billion in financial aid under the strict policies of the Troika, an entity composed of the ECB, the European Commission, and the IMF.

As the possibility of a European default was becoming more and more concrete, investor alertness became more and more intense until credit rating began to decline, and investors began to demand higher interest rates to lend, making the countries mentioned above avoid the default. All governmental entities were almost obliged to help resolve the situation, even countries defined as 'too big to fail', such as Spain and Italy. If these had gone into default for lack of financial assistance, the European Union would have been in crisis. After Greece, Ireland also received financial aid in November of the same year. While in May 2011, it was Portugal's turn. For Italy and Spain, the assistance came through the purchase of government bonds by the ECB.

2.1 – What happened to the other European countries?

The most relevant factor in Europe that acted as a multiplier of worries was the significant differences in public finances and growth rates between the Eurozone countries. In those years, the Old Continent was composed of countries characterised by low levels of public debt, more GDP growth, positive trade balances and, in general, more solid economic activity, as it is summarised from a GDP perspective by Fig. 7. This figure shows the indexed GDP growth in 2010 of the PIIGS and the rest of the EU's nations. Thus, we note that the latter's growth was much more consistent. At the same time, the PIIGS was inconsistent and was characterised by greater volatility caused by unsustainable public debt dynamics and uncontrolled fiscal imbalance growth (DEG,2014).

The PIIGS' countries, therefore, had a different growth and development from the other European countries. The discrepancy between the two European factions was apparent. The same fear of bankruptcy led the less robust European governments to implement policies, plans and bailout actions to restore investor confidence, avoid panic in the financial markets, and prevent or reduce the effects of the ongoing recession. The pattern followed was to make capital injections by increasing public fiscal unbalances and, in development, turning the "Countries debt crisis" into a "European public debt crisis". In the next section, we will focus our analysis on the Greek and Portuguese situation during the Sovereign Debt Crisis and try to understand the types of aid they received and how they solved their problems.

2.2 – PIIGS, a particular focus on the Portuguese and the Greek situation

The situation that emerged from the crisis entailed a set of common problems, especially in the PIIGS. The Portuguese and Greek economies are similar with several common traits: both were characterised by small economies that needed support from European finances. Both countries had high public debt, negative current accounts and consistent negative fiscal balances, as shown by Fig. 8 (KfW Reference,2016).

One of the main differences we will see in detail is that Portugal finalised its economic adjustment program sooner than anticipated. Indeed, in 2014, independently and without help, it participated in capital markets again. On the other hand, Greek's situation was more challenging and intrinsically unique as its first bailout package was inadequate. Indeed, just after 2011 and 2015, the Greek situation was under control. To comprehend the reason that Portugal managed to get out of financial aid, unlike Greece, it is worth comparing their different situation, especially in the era between 2010 to 2014. Let us look specifically at the Greek situation and then move on to the Portuguese situation.

For Greece, a long period of structural reforms and corrective movements to restore debt and fiscal unbalances in the Government's balance sheet began at the beginning of the 2010 and officially ended only in 2018. The instability of the Greek economy made its government bonds riskier and, therefore, more expensive to issue. It was, for a time, impossible for the government to find creditors willing to finance its debt. In parallel, the problem of the credit crunch, or the global credit squeeze, was affecting the banking system, the difficulties of repaying debts, both for citizens, companies and the government, without having anymore the possibility to offset the short obligation with issuing new debt, made Greece a high-risk economy in the financial markets. The crisis peak was reached between October 2009 and April 2010, when the yield on 10-year bonds rose from 4.57% to 7.83%, when the Standard & Poor's rating agency downgraded the creditworthiness of Greek government bonds to junk (BBC News,2010). By May 2010, the bonds were so risky that Greece was excluded from international credit markets. At that point, only two paths remained: default on the debt and total collapse of public finances or intervention and aid by international financial institutions.

On May 2nd, 2010, after weeks of negotiations and hesitation by some member states, International Monetary Fund (IMF) and EU reached an agreement with Greece. The country received 110 billion euros over three years, including 80 billion from the EU. Many measures were taken to deal with the bailout in the name of austerity (El economista, 2010). Indeed, support was conditional on specific restrictive and structural policies to restore market competitiveness. Approval was conditional on macroeconomic adjustments imposed by the Troika and the IMF. In general, the proposed programmes were aimed at - stimulating growth and, rebalancing economic imbalances, - ensuring financial stability in the Eurozone and among problem countries.

The most fundamental actions to achieve the goals were to set maximum fiscal unbalance targets to make their debt situation more sustainable. In addition to these actions, the activities were significant in increasing labour efficiency and making labour more flexible through remodelling social reforms and improving the efficiency of public administration. All these actions were generally undertaken to make the programme-adherent nation more competitive and create conditions for investment growth.

Two others followed this first agreement within a few years. In February 2012, EU finance ministers approved a second €130 billion packages, which included a partial restructuring of

Greece's public debt to avoid default and achieve the goal of a 120% Total debt/GDP ratio by 2020 (Financial Mirror, 2012).

The government also pledged to implement new reforms to curb public spending, privatise sectors of the economy, reform the tax system, improve competitiveness and attract foreign investment. The measures led to a rapid reduction in the annual budget fiscal unbalances (from 10.3 %of GDP in 2011 to 3.7 % three years later), but public debt continued to rise, reaching 180 % of GDP in 2014 (Trading Economics,2010-2021). This was partly due to borrowing under the bailout plan, and the collapse in the gross domestic product (GDP), which automatically increased the fiscal unbalances /GDP and Total debt/GDP ratios. In August 2015, after months of complex negotiations that brought the Greek economy to the brink of bankruptcy, the government of Alexis Tsipras reached an agreement with Eurozone leaders for a third €86 billion aid package under the ESM. Implementing the necessary reforms to receive the loan tranches always took place under the supervision of the Troika and the European Commission. In total, Greece received €243.7 billion from the other member states, the EFSF (2012) and the ESM (2015), plus €31.2 billion from the IMF(Welfare Network, 2020).

Portuguese's problems, instead, began in 2009, when even in Europe, the financial crisis that erupted on Wall Street in the fall of 2008 transferred to the real economy. The outbreak of the global recession had hit a country that had arrived notably weaker at the time of the most intense crisis experienced in the industrialised world. Indeed, between 2001 and 2008, the Portuguese GDP grew at an average of 1 %, the second lowest in the EU. The Portuguese economy, which specialises in labour-intensive, low-tech sectors that are particularly exposed to competition from emerging countries as typical of soft value-added segments, had lost competitiveness due to wage growth well above that of productivity.

The introduction of the single currency fostered a typical phenomenon in the eurozone during the credit boom in the early 2000s. In 2009 the recession blew up Portugal's public accounts, which had consistently broken the 3 % fiscal unbalances ceiling in previous years. The annual fiscal unbalances in 2009 and 2010 had settled at around 10 %, with a dynamic of accentuated growth in public debt, which rose from 70 % relative to GDP recorded before the crisis to 96.2

% in 2010, almost doubled from 2005 to 2010 as showed in Fig. 9. Investors, even though Portugal was one of the countries with the greatest rate of growth within the eurozone in 2010, began to demand increasingly higher interest rates for bonds issued by the Portuguese government. The cost of 10-year bonds rose steadily from about 500 basis points in mid-2010, when Europe prepared the first Greek bailout, to over 1,000 basis points during the spread crisis of the summer of 2011(Trading Economics, 2010-2021).

A collapse in capital markets prompted the Lisbon government, led by Socialist José Socrates, to seek financial assistance from the EU and the IMF in the preceding months. Portugal had ended 2010 at a record of 11 % fiscal unbalances, nearly four times the 3 % ceiling set by the Stability and Growth Pact, due to exploding debt costs. As a result, banks lost access to foreign credit as the Portuguese government debt spread increased. Indeed, the synthesis of these circumstances prompted the Socialist Party, which Portugal ruled to request financial aid in April 2011.

Troika and the Portuguese government reached an agreement on May 2011. The total financing was 78 billion euros "between" the period 2011-2014 (European Commission, 2022). The essential goals were to improve competitiveness and productivity in the medium term and assure fiscal sustainability by addressing the issue with long-term structural measures to solve it. Among the main austerity measures introduced, many were mainly concerned with the public sector; cuts of up to 25% in public workers' salaries took place and reductions in pension checks of 10%. Approximately 400 structural measures to stimulate growth and debt sustainability could be counted to recover from the crisis. In the end, the Troika received rescue package requests from Greece and Portugal. Although the demands and modalities were similar, the program's results were very different from one another. While Portugal was able to surpass projections, the Greek economy fared far worse than the program's expectations.

Several factors contributed to Portugal's better performance:

- An austerity strategy that was more moderate and less detrimental to businesses;
- A rapidly growing export sector and enhanced institutions, which supported the contraction of domestic demand, political consistency and durability.

Portugal has also benefited from lessons learned from the Troika. Its less stringent austerity requirements were another effect of the failure of the first program in Greece (Badar Iqbal,2016).

The above comparison demonstrates how related economies, such as Portugal and Greece, have reacted to policy changes in ostensibly very different ways.

2.3 – Spread and CDS as the quantitative measure of Crisis

The growing uncertainty and fear of investors/debtors during this situation led to a disproportionate increase in the cost of issuing new debt, especially in the PIIGS. Countries, therefore, had difficulty raising capital and resolving the situation because the cost of debt in the PIIGS countries had reached high yield levels. Therefore its repayment was unsustainable, as shown in Fig. 10. in the figure, we see how certain historical events correspond to increases in the interest rate to be paid on the debt. The situation in Greece became so unsustainable that an interest rate of 20% had to be paid to receive capital from the market.

In short, the spread, defined as the difference between the yields of a ten-year bond against its German Bund counterpart (considered risk-free), had risen out of all proportion. It created extreme difficulties in issuing new debts, which would have been needed to meet short-term obligations. Due to the default uncertainty, the creditor nations demanded an unsustainably high-interest rate. The spread is, therefore, a differential that does not have a static but a dynamic value. It changes from minute to minute depending on the price changes that bonds issued by governments have during the stock exchange session and also depends on the conditions of the issuer (A. Kalbaska,2012).

Many variables can affect the spread and its trend: from liquidity to the monetary policies the ECB decides to adopt at any given time.

The determinants that most influence this spread are:

- Credit risk
- Liquidity risk

By a country's credit risk, we refer to the possibility that the former (the government issuing debt) is failing to meet its obligations in a debtor-creditor relationship.

Liquidity risk, on the other hand, relates to the difficulty for an entity, whether governmental or not, to honour timely repayment of its liabilities due to excessively high demands. In essence, it is impossible to manage outflows through inflows.

The most direct consequence of a crisis, such as the sovereign debt crisis, usually leads to an increase in Credit Default Swap (CDS) prices, highlighting the risk of default for a country. CDS are financial contracts, called derivatives, whose function is to hedge against the credit risk or insolvency that may affect a private company or even a country, such as an insurance policy. While the increase in the spread shows the level of distrust in the solvency of those issuing securities, CDS are also closely linked to the same variables and are, therefore, equally important indicators for understanding the evolution of the crisis (CNN,2015). Indeed, Fig.11 shows how the essential points of CDS contracts have risen by a massive amount, dictating how the fear of default became more apparent. CDS' basis points in relatively stable market conditions should be minor, reflecting the market's perception of credit risk. However, when there is a difference between the two, it means that there is instability in that specific bond maturity. When the price of the CDS starts to rise, in other words, it means that the interest on that financial instrument is growing, so in practice, the market perceives the risk and buys insurance against a possible default of that country.

This phenomenon is closely interdependent with what happened with the increase in the spread because when a country wants to issue debt and it is in a risky state, it has to promise a high return to obtain capital. The primary motivation for the increase in the spread was, therefore, the risk of the country perceived by the market, which the value of CDS can measure at a certain point in time; if the price is high, the implied risk of default is more significant.

2.4 – Actions for mitigation and recovery, the monetary policy

The effects of the crisis have found a rapid transmission channel to the real economy in the dynamics of bank credit. Indeed, since the beginning of 2009, vital signs of a tightening of credit standards by the banking system have emerged in both Europe and the United States. The austerity measures implemented towards countries requesting financial assistance, such as Portugal and Greece, eventually slowed GDP growth, inducing, in some cases, an actual recession (Maria Michael,2020). Against this backdrop, therefore, it seemed apparent that European countries should take uniform action to reduce the damage to the real economy.

The measures that have prevented further economic problems from developing can be encapsulated in conventional and non-conventional activities implemented by the ECB against the worst-affected countries and beyond. Indeed, European Union has intervened at different times and through other modalities to restructure and resolve the situation. The presence of the EFSF, formed by members of the Euro Area's countries, was one of the best defences available to assist member countries in need by lending money, recapitalising banks, and purchasing sovereign debt securities. However, these attempts only temporarily reduced the tensions around European sovereign debt. The severe pressure on the debt market in the Eurozone's countries led the ECB to adopt a series of measures aimed at supporting intermediary liquidity and preventing market turbulence from undermining the monetary policy transmission mechanism. The importance and incisiveness of ECB operations increased during the crucial peak period between 2011 and 2012. Indeed, unconventional monetary policy measures were adopted to restore the situation. One among them was the Long-Term Refinancing Operations (LTROs) which only served to halt the crisis and had sporadic positive impacts.

On September 2012, the OMT (Outright Monetary Transaction), which allowed for the unlimited purchase of government bonds, was a solid indication from the ECB to take necessary action and reduce the impact of the crisis. The LTRO is an unconventional monetary policy made by the ECB in September 2012 that consists of issuing long-term loans (up to 4 years) covered by sovereign bonds and asset-backed security (a type of financial instrument collateralised by a basket of assets). Through these actions, the ECB and other international organisations have now shown that they have their finger on the pulse of the severity of the crisis. The TLTRO, as LTROs, are unconventional monetary policy operations that provide credit institutions with loans for up to four years. Thus, banks are provided with stable funding on favourable terms to reduce the liquidity Crisis and the credit crunch (George Kapetanios,2012).

In order to further restore the economy, in the first few months of 2015, ECB started an asset purchase programme called, Quantitative easing (QE) (Emanuele Mannietti,2020). This policy represents a further unconventional monetary policy, consisting of purchasing short- or long-term securities belonging to the public or private sector. The way the ECB did it was by increasing the Money supply in order to buy securities. The desirable effects are many, but the main ones are the provision of liquidity to banks, which spills over into the real economy. Indeed, Fig. 12 shows how the size of the ECB's budget is increased year after year to promote the total recovery of the European nations thanks to the numerous monetary policy initiatives (first with the LTRO and then with the QE).

In addition, the decrease in ECB Overnight rates was significant, which are the rates that commercial banks receive to keep their funds in the Central Bank. Those became negative in 2014, marking an unprecedented level. The negative Overnight Rate discouraged commercial banks from storing their money in the Central Bank and encouraged banks to lend and provide liquidity to those who requested it. Consequently, investor market confidence in the euro area increased significantly, breaking the declining trend that was evident at the end of 2014 and was associated with persistent deflationary pressures and lacklustre economic growth.

The program allowed for the purchase of up to 60 billion euros worth of public and private securities per month, for roughly 1,140 billion euros, of which 900 billion were reportedly securities issued by public institutions. In order to keep some flexibility in monthly purchases, the split of purchases by country was established by the contribution of national central banks to the ECB's capital. This included securities with maturities between 2 and 30 years (Euractive,2022). Following the excellent ECB involvement and Mario Draghi's emotional 'Whatever it takes speech'(Quartz,2017), the perception of sovereign risk for nations in the Eurozone has dramatically decreased, which is also seen in the evolution of CDS pricing on public debt and the ratings implied by market quotes. Thanks to this, the government bond yields have been reduced, and so have debt service spending for the PIIGS and the other European Countries while facilitating the implementation of fiscal unbalances containment.

3 – The global Crisis due to Covid-19

Covid-19 crisis is an unprecedented phenomenon that had significant consequences on social and economic aspects of society. The spread of the virus obliged the government to take the harsh measure from an economic and social perspective. The social distance policy was more than necessary to prevent the further spread of the virus (Sandra Ferreruela,2021).

The required social isolation policy had indirectly impacted supply and demand, changing our habits and our economies for some years. The supply bottleneck, resulting from the pandemic crisis, directly caused the unforeseen reduction in supply; in addition to the supply-side shock, there was also a demand-side shock triggered by multiple factors. Measures to restrict individual mobility caused an immediate drop in consumption, especially in the transportation, retail, tourism, and mass entertainment sectors. This, together with the uncertainty arising from the duration of the crisis, caused consumption to drop dramatically, generating political and financial instability.

The pandemic crisis, therefore, put a strain on the economic and social resilience of the entire EU area, causing the most pronounced negative change in Eurozone GDP of 8.26 %, aided by restrictive decisions imposed by governments (N26, 2022). This strongly impacted the supply of goods and services of a large part of the productive European supplier, leading to the demand by all European countries for economic and financial support. The turnaround in decisions to be taken concerning the debt crisis was swift as the Commission was forced to give timely responses that, if not taken, would have generated a fracture in the social fabric and the European integration process.

3.1 – Different cause, similar consequences: Increase in public debt

It is generally agreed that a country's public debt should remain well below the size of its economy. This guideline, at least temporarily, has succumbed to the Covid-19 pandemic as policymakers scramble to keep the economy on its feet. Rising debt levels are likely to increase fears of potential government default, similar to what happened in the sovereign debt crisis described above. In this context, developing countries may not be able to draw on the same resources as their wealthier counterparts (Germany, France etc.) and will probably soon be forced to issue a massive amount of expensive debt to prevent rating agencies from downgrading their ratings.

Covid's impact on sovereign debt has been more significant than during the 2010 financial crisis. ECB, in fact, reports how the euro area aggregate debt-to-GDP ratio rose to 100% in 2020 from 86 % in 2019 as governments financed extensive economic aid to support households and businesses (ECB Statistical Data Warehouse, 2022). Support for the fiscal policy was pervasive in some crisis-hit countries such as the PIIGS, which were still at a disadvantage compared to their affluent European counterparts, as their economies were still damaged by what had happened a decade earlier.

Governments, central banks, and financial market regulators have taken multiple measures to address the impacts of the crisis on economic activity. Actions were implemented not only to restore domestic consumption but also to address the supply shortage caused by the pandemic. The main concerns for the integrity of the EU were also directed toward the effects of Covid on labour and, thus, the employment rate.

The SURE Support to Mitigate Unemployment Risks in an Emergency) the program, implemented in April 2020, allocated 100 billion euros to supplement the layoff measures taken by various European countries. The most substantial measure to address the crisis was proposed on May 27th, with the European Commission creating a temporary reform fund called Next Generation EU. It provided the allocation of 750 billion euros and the strengthening of EU budget funds for 2021-2027 for a total amount of 1.1 trillion (Bayer Lili,2020). In addition to these expansionary policies, ECB has implemented numerous initiatives in order to increase the liquidity of the banking system to be able to support consumers. Among the many measures taken, the most important were:

1. Reduction of key interest rates.
2. Launching new refinancing operations that enable banks to acquire more liquidity from the ECB on more favourable terms.
3. Increases in the Pandemic Emergency Purchase Programs (PPPs) (European Central Bank ,2022).

Therefore, the pandemic has forced governments worldwide to spend more money safeguarding their economies. The impact, together with the measures of forced restriction and confinement of the population, was harsh on its public debt.

With IMFs data from 2021, let us analyse each country's debt-to-GDP ratio. The Covid pandemic has significantly increased public debt worldwide; this crisis has, in fact, caused absurd increases in total public debt. As a result, Greece exceeded 200% of their debt to GDP at that time, reaching the level of 210%. The United States, for example, went from 105% to 133% public debt to GDP ratio, surpassing neighbouring Canada (116.3%). On the other hand, in Europe, the PIIGS returned to debt sustainability issues as they had a decade earlier; in fact, they reached a total debt/GDP ratio of 157% for Italy while Portugal reached 131.4%, Greece 210% and Spain 127.1%(Eurostat,2021). Fig. 13 gives us a clear picture of how the aggregate debt, in millions, of the Eurozone nations, had risen in absolute terms, reaching massive increases above the sovereign debt crisis. The aggregate debt is set to increase due to the current support packages still in place, which may not end before 2027.

3.2 – PIIGS during the Covid-19, has the troika done an excellent job?

Having analysed the repercussion of the crisis on the debt and GDP of Eurozone nations, we can now turn to the contractions and repercussions that PIIGS countries have experienced during this tragic crisis. Fig. 14, 15, and 16 demonstrate the change in GDP, fiscal unbalances, and total debt with data from Eurostat.

PIIGS countries were in a situation where, due to Troika's adjustment measure, they had different growth opportunities than other European countries. Notably, when other European Countries were losing 6% of GDP in 20202 compared to the previous year, PIIGS were losing 8.5% on average. This condition led to worse economic consequences characterised by higher public debt, more significant GDP contractions, and higher fiscal unbalances during the Covid period. The latter had a very high value because the nations involved in the Sovereign Debt Crisis were tourism-based economies. A drastic reduction in tourism has led to a sharp drop in revenue and the inability to reduce public spending due to bureaucracy. Can we conclude that

Troika failed to restore competitive advantage to nations that stood on the brink of bankruptcy about a decade ago?

Unquestionably, Troika has helped countries in crisis to avoid dire consequences such as default, which was almost a foregone conclusion for Greece. The aid avoided the worst that could have strained the unity of the EU, which at the time was composed of core countries and assisted countries such as PIIGS. However, many economists questioned the methodologies of Troika's aid programme. The conditions imposed in exchange for the financial assistance endangered the social objectives of the EU, both because little time was allowed for the implementation of the measures and, above all, because there was a lack of assessment of the impact that these adjustment policies could have on the various segments of society.

As a result, Troika avoided default but also increased the poverty rate, contributed to the bankruptcy of small and medium-sized enterprises, and led to emigration while reducing the portion of the investment to the sanitary sector, which is an essential factor to consider while analysing the PIIGS effect during the Covid Period (Syndicate European Trade Union,2015).

We can rely on the opinion of Professor Joseph Stiglitz, Nobel Laureate in Economics and former Chief Economist at the World Bank, if we would like pragmatic and valid opinions on the actual efficiency and success of the austerity programmes imposed by Troika. His words during the peak of the crisis, in 2014, were verbatim:" I wish Merkel could understand that this austerity leads the economy to perform more poorly. It leads to more unemployment, lower wages and more inequality. There is no instance of a large economy getting to growth through austerity" (Joseph Stiglitz,2014).

This is justified by the evidence of how austerity policies increased levels of poverty and inequality. In his view, the measures taken tended to improve the ratios analysed above, such as the fiscal unbalances and total debt, but only in the short term. This is because a reduction in the budget fiscal unbalances does not necessarily lead to a reduction in debt. As mentioned before, the reduction in public spending was mainly in those sectors which are very important for a country's growth, such as infrastructure, health, public services and finally, by increasing the VAT, the tax that directly affects end consumers. All these actions taken in 2013 have had and will have a significant impact in the long term.

The professor concludes that due to these measures, the gap and, therefore, the difference between the poor and the rich has increased, eroding the middle class. The measures taken aimed to restore confidence in the market so that crisis-ridden nations could gain new access to the financial market, generating private sector growth, but this did not happen. Growth did happen, but only for specific segments of the population. More specifically, from 2008 to 2012, unemployment rates almost doubled from 4% to 7.7% in Portugal, reaching its highest level since 1992. The austerity strategy was counterproductive from the view of sustaining confidence and supporting the reduction of budget fiscal unbalances. This is perhaps why the EU decided to provide unconditional financial assistance to the hardest-hit states. Otherwise, further increases in debt would have led to irrevocable problems that would have called into question the EU membership of some states, including the PIIGS.

In the end, why did PIIGS have more problems?

One of the major points that came to come was the stringency of the blocking measures implemented by national or municipal authorities to respond to the pandemic. Another potential factor was the economic structure of countries. Specifically, depending on how close customers and producers are to one another, as in the case of services, the steps implemented to prevent the spread of Covid-19 have had varying consequences on economic operations. Services that consumers deem to be less necessary, like leisure and tourism, have been more negatively impacted than actions like shopping for essential goods.

In 2019, tourism weighted 7% of GDP in the 26 EU countries and ranged from 4% in Ireland to 25% in Croatia, as shown in Fig. 17, in which we can find out how relevant tourism is in the economy and thus what is the tourism contribution in GDP terms. This may also be one of the reasons why Ireland did not have problems with GDP contraction and did not have such high fiscal unbalances as the other PIIGS countries (Dirk Ehnts,2021).

A third possible factor is the extent of government debt. It has been stated that some countries with high COVID-19 death rates, such as Italy, which had 590 deaths per million citizens on September 18, 2020, would not be able to borrow money (or do so at relatively inexpensive charges) to cope with the consequences of Covid Crisis due to their high levels of public debt (135% of GDP in 2019 in Italy). This also explains why they could not conduct a significant fiscal response to avert a severe economic recession (Consob, 2022).

3.3 - What are the familiar and different parts of these two crises?

It is evident how the Covid-19 crisis differs from the Sovereign Debt crisis, which involved an endogenous shock and produced tensions on the side of the financial markets, sawing a small circle of countries affected. On the contrary, COVID-19 is described as an exogenous shock and has indiscriminately affected the entire European area. To overcome it, there was a change of strategy, which aimed to create a bolder and broader framework of measures. The recession due to Covid-19 is different because it results from supply and demand disturbances. However, attempts to stimulate aggregate demand cannot return the economy to full employment if different sectors are subject to adverse shocks. Instead, one decade ago, we had a financial crisis in which the main economic problems stemmed from the credit crunch (a situation in the money market where loans were difficult to obtain).

A critical and common point that the two analysed crises have in common is the enormous increase in debt at the European and, therefore, national level that the pandemic entailed. Covid-19 caused an incredible increase in sovereign debt for both developed and developing countries. In order to avoid overcrowding of hospital wards and to help families and businesses with funding, the most affected countries had to face exceptional expenses.

At the same time, all nations, especially exporters of raw materials and those whose primary revenue is based on tourism, suffered drastic reductions in their income, which increased their fiscal unbalances. At that precise moment in history, global public debt is estimated to have increased by 13% of the gross world product in a single year, from 83% to 96%. The IMF argued that fiscal balances would turn strongly negative in developing countries, reaching -9.1% and -5.7 % of GDP in the middle- and low-income countries, respectively (Bloomberg, 2022).

3.4 - Differences in the implementation of the monetary policies

These two crises have created significant challenges for central banks and governments as they strive to perform efficient monetary and fiscal policies to lead their economies towards recovery. Despite the unusual circumstances faced during these times, policymakers succeeded by embracing unconventional monetary policy measures, including quantitative easing and emergency financing.

On the one hand, we have a real financial crisis that turned into a debt sustainability crisis. On the other hand, we have a health crisis that turned into an Economic Crisis and, subsequently, a decrease in global supply and demand. It is important to note that the latter occurred after several quantitative and structural reforms after the 2008/2010 crisis. It is now considered that these measures, which were implemented through government legislation and central bank rules, significantly lowered the danger of a future global economic recession.

Another significant reform that gained relevance in the wake of the global financial crisis was the frequent stress testing of banks and other key financial institutions to assess their capacity to respond to a future catastrophic economic shock (Stanley Fischer,2021).
These showed that banks worldwide were much better capitalised and less indebted than their vulnerable financial situation prior to 2010. Policymakers and regulators aimed to prevent another historical catastrophe caused by flaws in the global banking system. However, 2020's global economic crisis originated in the public health sector and had nothing to do with the financial markets. According to many scholars and economists, these reforms reduced the negative economic impact the globe would have suffered if these reforms had not been implemented (Luigi Bonatti,2020). European Central Bank's monetary policy during COVID-19 has been notably different from the monetary policy during prior crises, partly due to the lessons learnt from the Eurozone's recovery efforts.

At the beginning of the Covid pandemic, ECB's deposit rate was negative from June 2014 until September 2019, when it was again lowered to -0.50%. Instead, in the financial crisis, further lowering interest rates into the negative region would not have been ideal; ECB left interest rates unchanged between 2010 and 2011. In the Covid-19 period, ECB, unlike

before, has adopted a policy of forward guidance. This policy was applied since interest rates were at the so-called “Zero Lower Bound”, which could not be decreased further.
Therefore, this policy changed inflation expectations and increased current consumption (Daniel Gros,2020). So, since interest rates were already negative, ECB had been using unconventional monetary policies that it had implemented several years earlier. Indeed, it has rapidly enlarged its quantitative easing and emergency lending programs, which were continuing in 2020 due to the ongoing Eurozone economic stagnation, marked by a lack of growth, low inflation, and high unemployment. ECB responded to the Covid-19 crisis rapidly and on a far greater scale than it had during the previous crisis. This occurs because even before the pandemic, there were existing fears of the "Japanization" of the European economy, with another problematic decade looming. Therefore ECB has taken decisive monetary policy actions to prevent an even more momentous economic crisis (World Reports,2019).

In the end, the response to ECB’s monetary policy strategy during Covid was different at the macroeconomic level compared to the more hesitant response during 2010. This illustrates how central bankers' traditional knowledge has evolved over the past 20 years regarding the most effective monetary policy responses to economic crises.

3.5 - Unconditional versus Conditional Support

The economic disaster caused by Covid-19 was highly unique; unlike the financial crisis of 2008 and 2012, the Covid-19 crisis is not a systemic crisis but a crisis triggered by an external shock. The reason for this uniqueness lies in that; perhaps for the first time, the crisis was not due to a purely economic factor. Moreover, the 'ad libitum' nature of this crisis, which is not known when it will end, as it is closely linked to the course of the disease, has changed any prospect of a rapid and effective recovery. In addition, a cure, such as vaccination, can stop the health consequences, but not the economic ones, as it throws the markets into a situation of total uncertainty. Moreover, according to many economists, the current crisis must be compared with the most recent one, culminating in 2008 with the bankruptcy of the US investment bank Lehman Brothers. Its effects can still be felt today by most market participants and by share price movements. An equally significant recovery followed the drastic setback in 2007 before prices fell back to their lows in 2008 and 2009. In 2021, like what happened a decade earlier, stock markets and prices recovered vigorously after a catastrophic descent (V-shaped economic recovery). Some specific sectors, such as the automotive, cruise and travel industries, still need to recover fully due to the uncertainty, fear and the very stringent policies of some governments. If the pandemic were to flare up again, either due to strict policies, as seen in China, or other new cases due to the emergence of a new variant, the world economic system would bring down the recovery forecasts made so far.

All these characteristics of the health crisis led to the conclusion that we had to act directly and unconditionally. The decision was dictated by the fact that no precise, responsible party or event caused the problem itself but a multitude of factors. The aid given by European governments and central banks is and will be independent of the aid given in previous crises, where an economic shock or responsibility could be attributed to someone. Indeed, by approving the Next Generation EU, the European Commission has sanctioned the distribution of 750 billion, of which 390 billion in subsidies and 360 billion in loans, to European countries and especially to those hardest hits by the health and economic crisis. To raise the money, EU Commission will issue multi-year European bonds on the markets: this will be joint European debt guaranteed by all states. Brussels will return the money from the plan to investors from 2028 onwards. It is not ruled out that the Commission will use its resources, with new EU taxes, to repay the money paid out as subsidies (NextgenerationEU,2022). In the current case, the aid allocated has no repayment clause; it is a measure taken to restore the situation in the world as directly and quickly as possible. On the other hand, what happened between 2009 and 2012 is a classic example of conditional measures with clauses and, therefore, obligations and requirements to respect in the name of Austerity measures.

In it, we saw how organisational entities, such as Troika, forced the situation to be restored with specific austerity policies, which, as seen above, limited the possibility of growth in the worst-affected nations, such as the PIIGS.

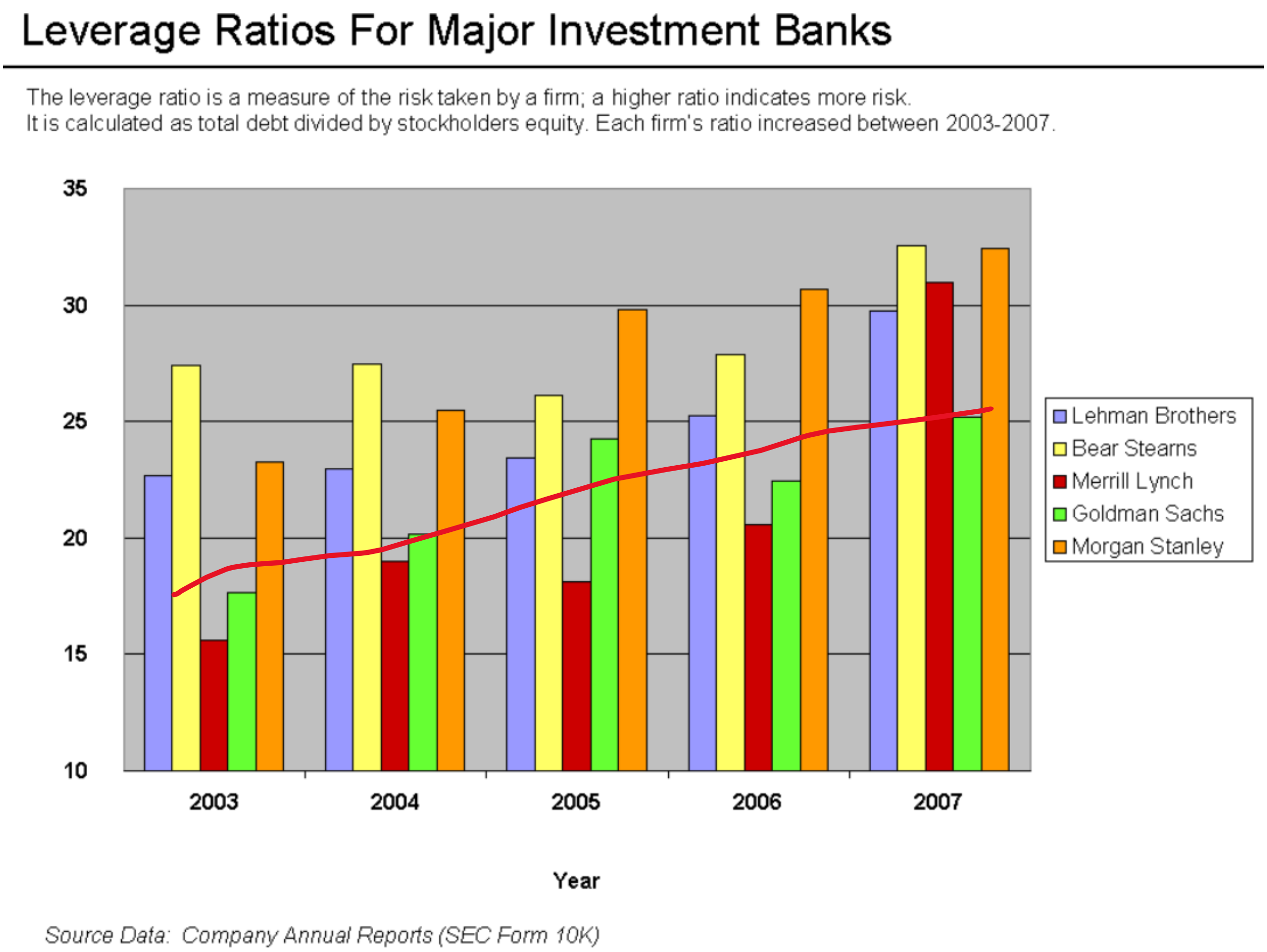
Conclusion

It has been proved that the methods and instruments used by the European Union have profoundly changed in dealing with financial and health crises during the second decade of the 2000s. There has been a shift from short-term mechanisms to more inclusive methods of intervention, designed not to cease to be in force at the end of the pandemic but which can become mechanisms of long duration. Covid-19 was the trigger for raising awareness, in European institutions, for pursuing a path of more robust integration. The change of strategy in the European Union’s map was necessary to overcome a crisis that could have fuelled scepticism towards European Union's unity. Notably significant was the unconditional financial aid offered to countries more wound by the pandemic. On the contrary, from 2010 to 2014, the financial aid offered to PIIGS had harsh terms to follow in the name of austerity adjustments. The mentioned above may be food for thought that the PIIGS were still recovering economically, let alone cope with a pandemic arriving, “hitting” their tourism sector.

There is still a long way to go, and this phase is only the beginning that must bring awareness to national institutions with the purpose of more European integration. This will be an enormous challenge for the future, among them greening the economy and digital transition. ThereforeUnion’sean, Union’s help is crucial in this phase of exit crisis and 'reconstruction’, involving national institutions as well. The hope is that the countries will converge on the interests of the entire community. They will look to the European mechanism as an element of strength to generate positive externalities that would benefit the entire European population.

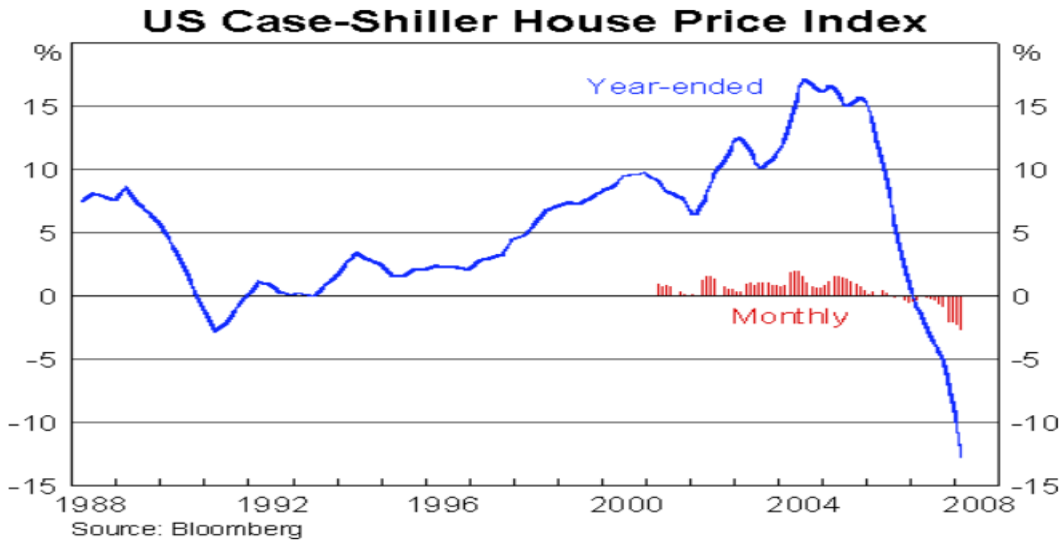
Appendix

1)



Leverage Ratios For Major Investment Banks
The leverage ratio is a measure of the risk taken by a firm; a higher ratio indicates more risk.
It is calculated as total debt divided by stockholders equity. Each firm's ratio increased between 2003-2007.
35
30
25
20
15
10
2003
2004
2005
2006
2007
Year
Lehman Brothers
Bear Stearns
Merrill Lynch
Goldman Sachs
Morgan Stanley
Source Data: Company Annual Reports (SEC Form 10K)

2)



3)

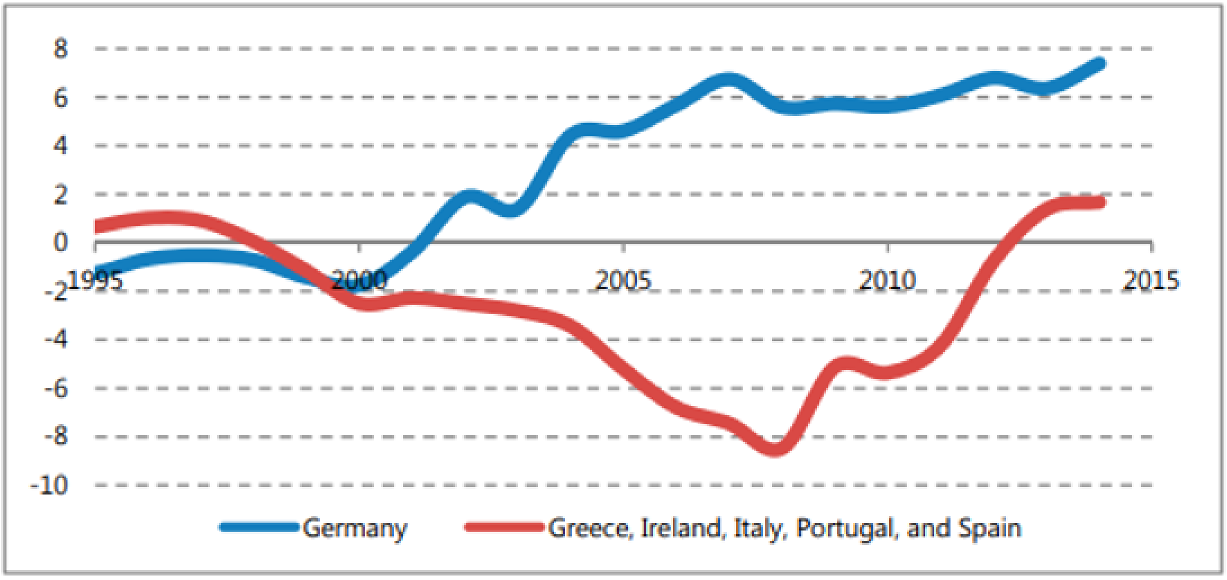
. Selected Countries: Average Annual Growth Rate of Real Per Capita GDP
(In percent)

	1995-2000	2000-2007	Difference
Austria	2.4	1.5	-0.9
Belgium	2.2	1.4	-0.9
Finland	4.0	2.5	-1.5
France	2.1	1.0	-1.1
Germany	1.5	1.2	-0.3
Greece	2.7	3.3	0.6
Ireland	7.4	2.9	-4.5
Italy	1.6	0.7	-0.9
Portugal	2.9	0.7	-2.2
Spain	3.0	1.6	-1.4
Sweden	2.9	2.2	-0.7
United Kingdom	2.3	2.1	-0.3
United States	2.6	1.3	-1.3

Source: *WEO*, October 2015.

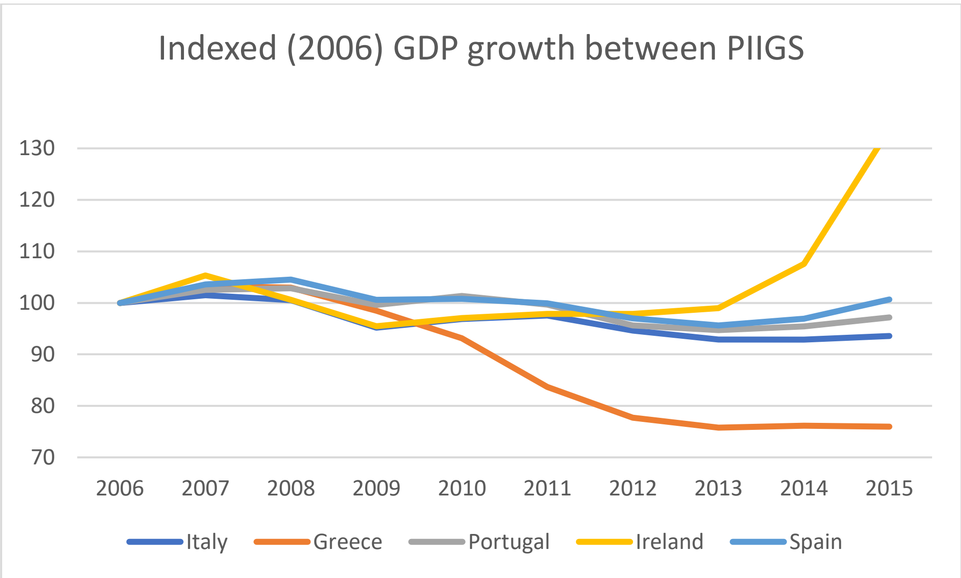
4)

Selected Countries: Current Account (In percent of Germany's GDP)



Source: *WEO*, October 2015.

5)



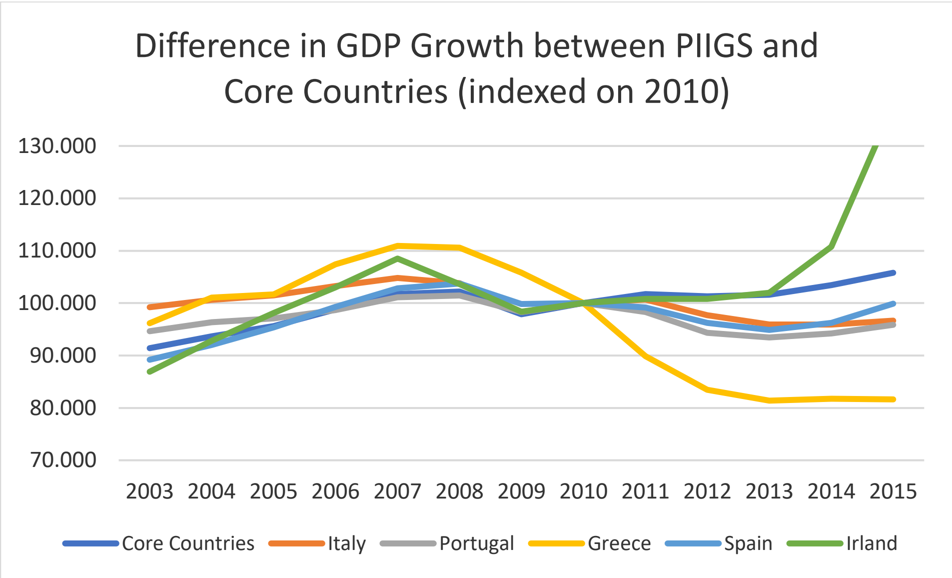
6)

Public Debt and Deficit (% of GDP)

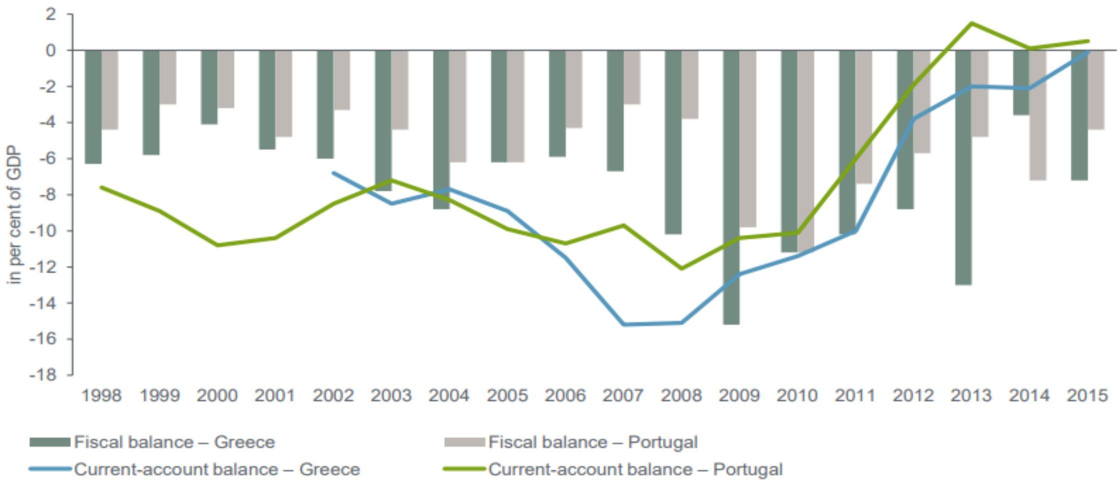
Pays	Public debt in 2009	Public debt in 2010	Public Deficit in 2009	Public Deficit in 2010
Greece	127.1%	142.8%	15.4%	10.5%
Ireland	65.6%	96.2%	14.3%	32.4%
Portugal	83%	93%	10.1%	9.1%
Spain	53.3%	60.1%	11.1%	9.2%
Italy	116.1%	119%	5.4%	4.6%
Eurozone	79.3%	85.1%	6.3%	6%

Source: Eurostat 2011-11-26

7)

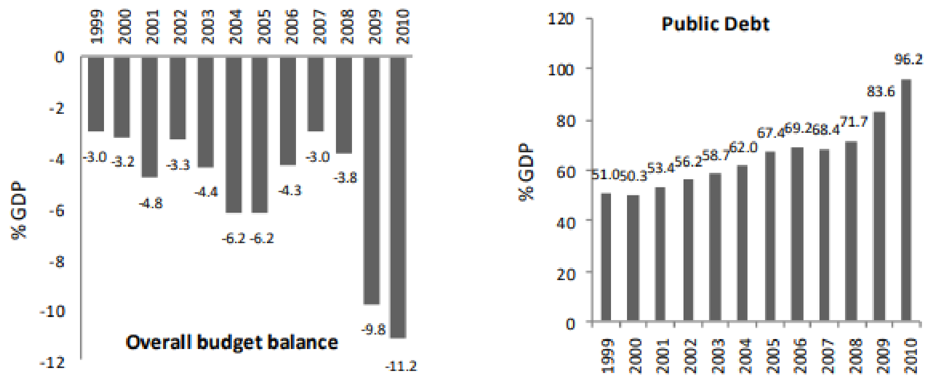


8)



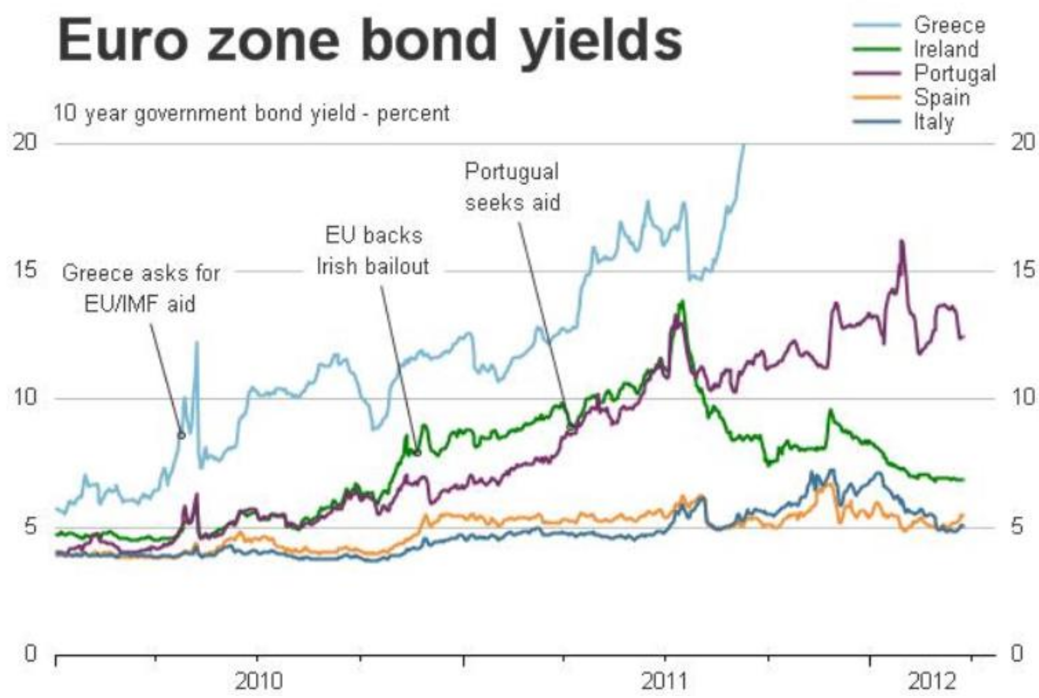
Source: Eurostat, own calculations

9)



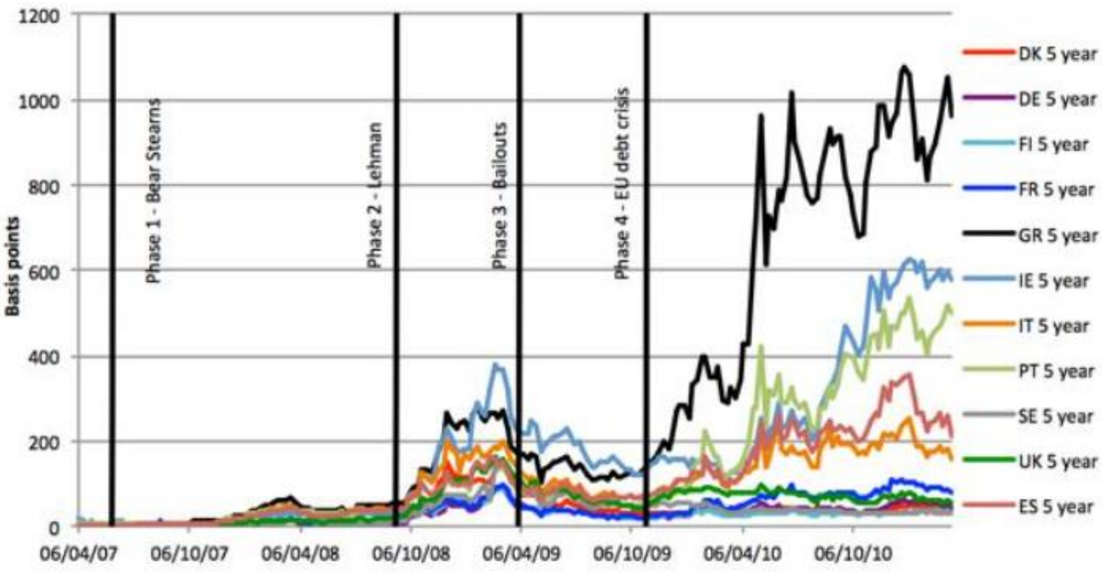
Source: Bank of Portugal (www.bportugal.pt).

10)



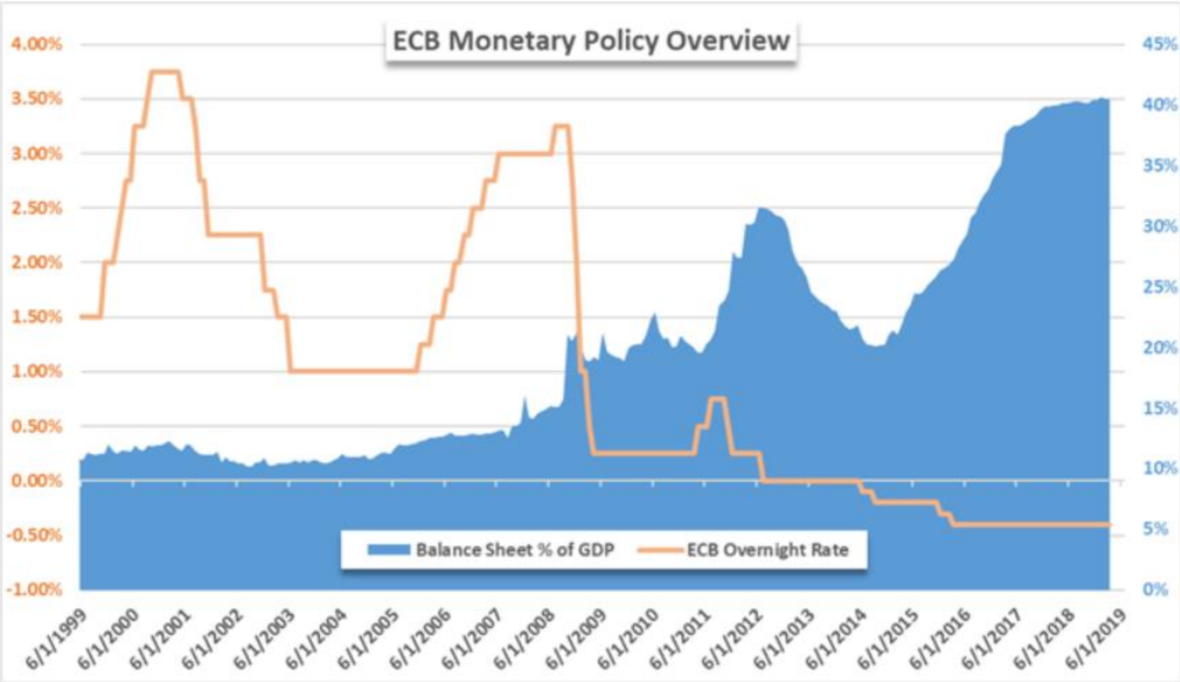
Source: Eurostat, own calculations

11)



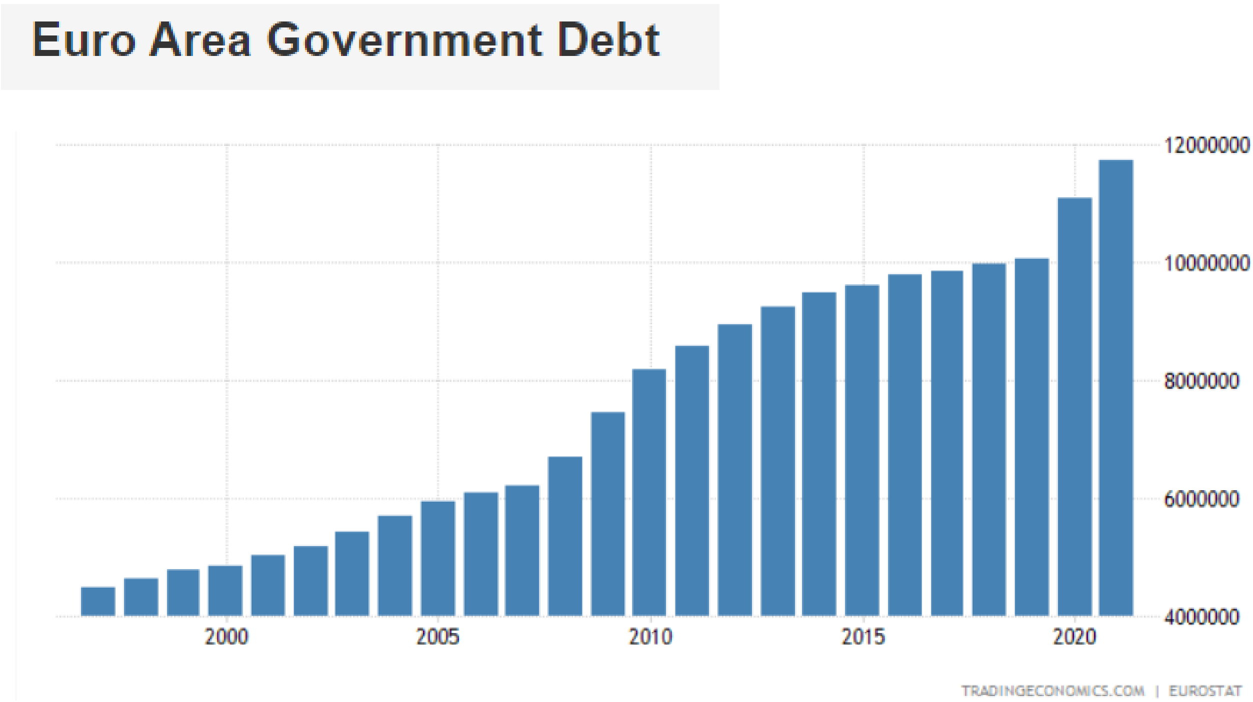
Source: Bloomberg. Five year weekly CDS

12)

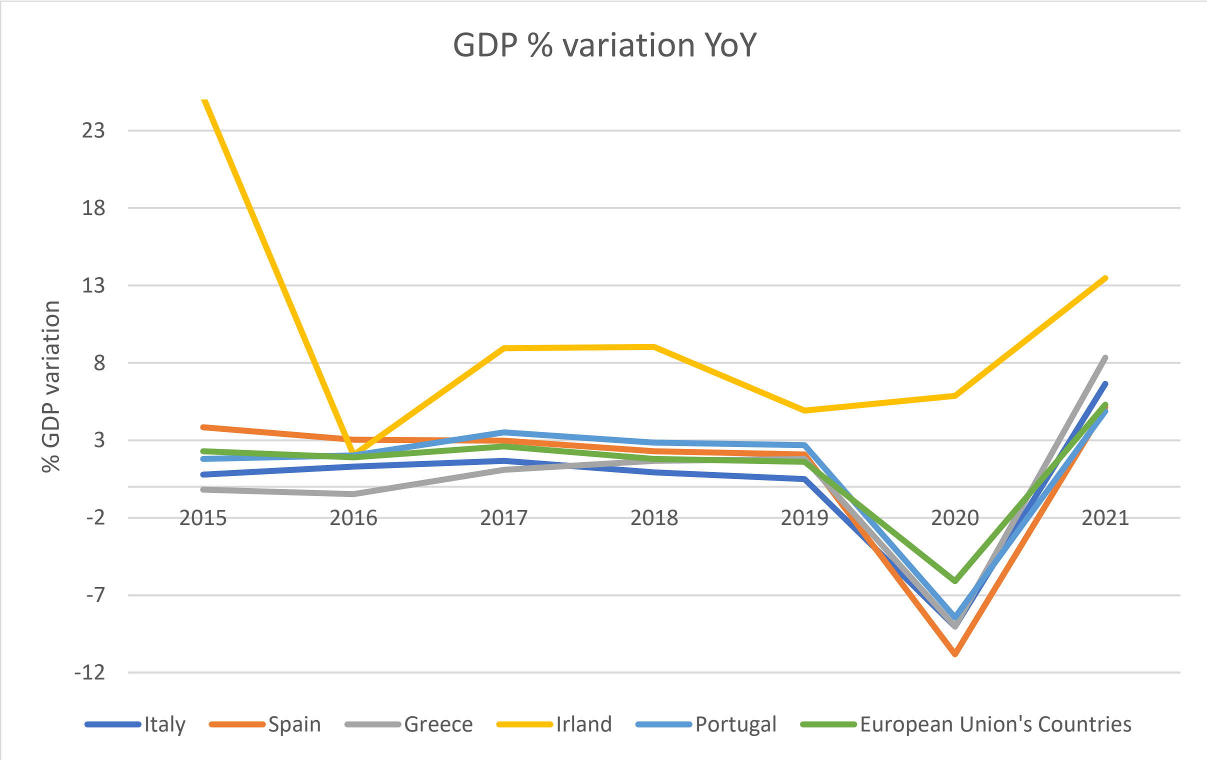


Source: Eurostat, own calculations

13)



14)


GDP % variation YoY
% GDP variation
23
18
13
8
3
-2
-7
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2015
2016
2017
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2019
2020
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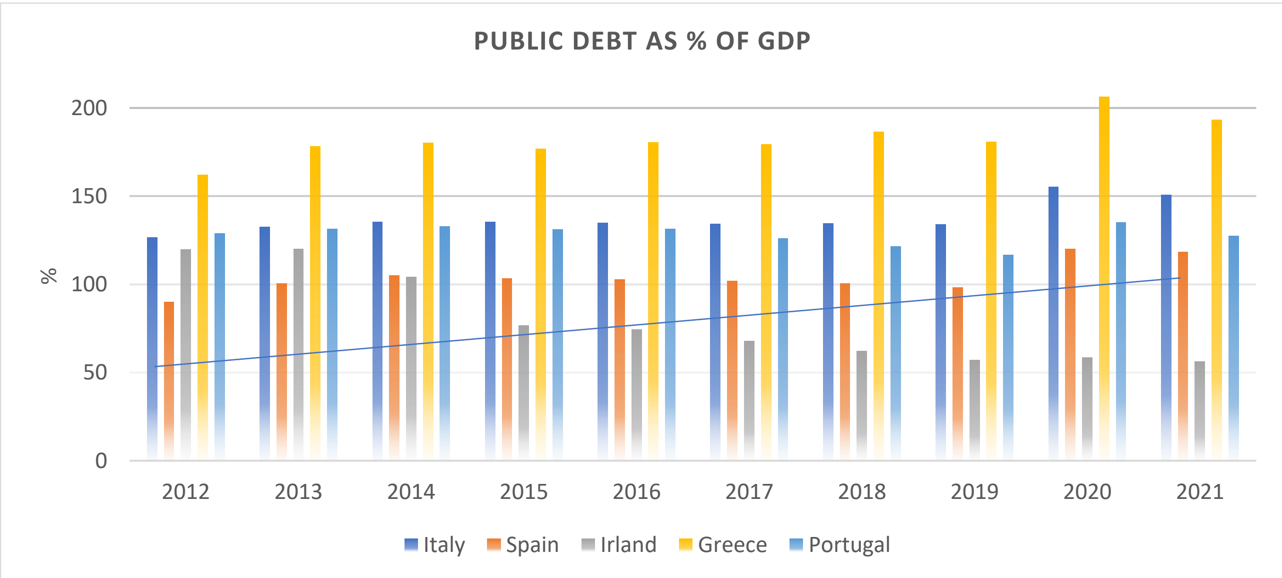
Italy
Spain
Greece
Irland
Portugal
European Union's Countries

15)


PUBLIC DEBT AS % OF GDP
%
200
150
100
50
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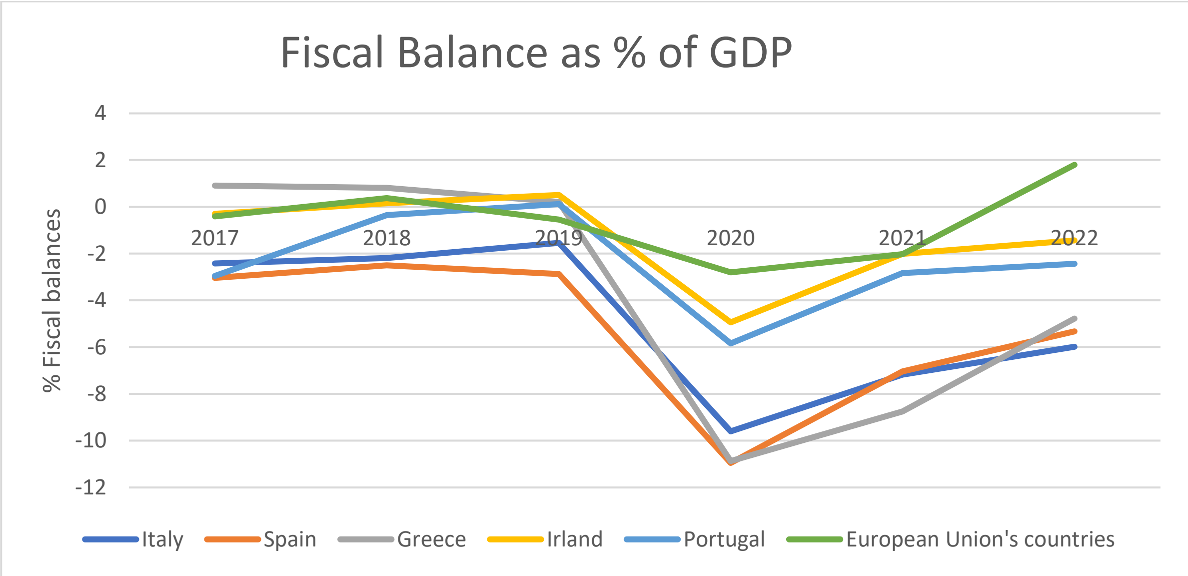
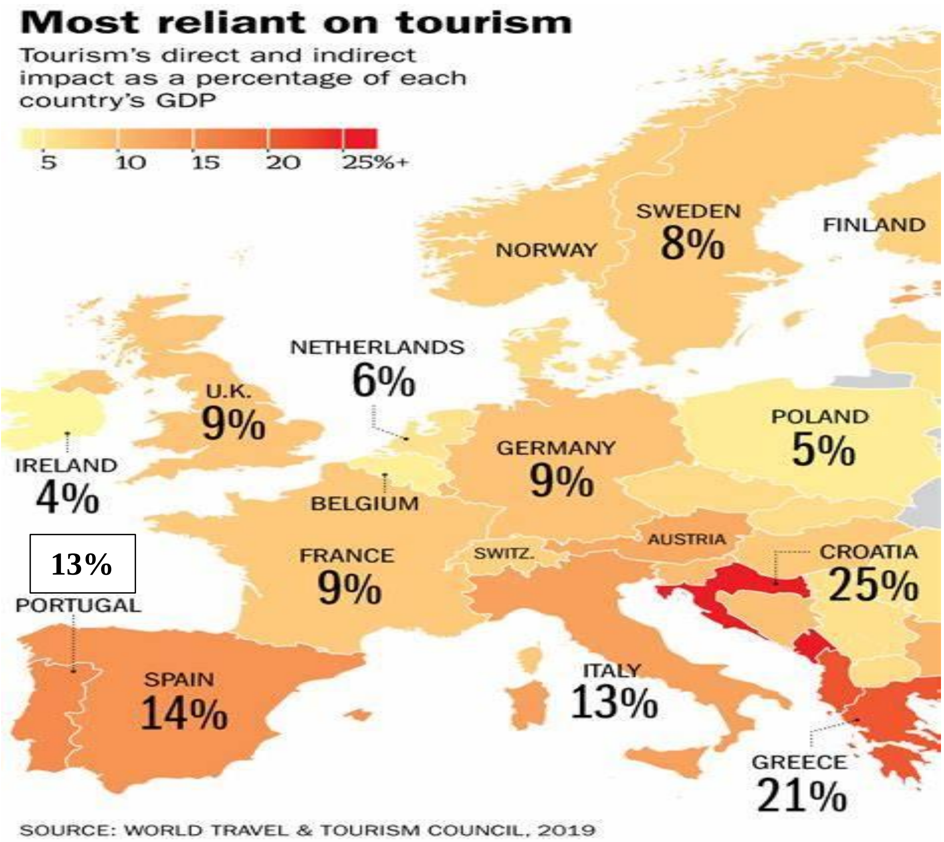
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Italy
Spain
Irland
Greece
Portugal

16)


Fiscal Balance as % of GDP
4
2
0
-2
-4
-6
-8
-10
-12
% Fiscal balances
2017
2018
2019
2020
2021
2022
Italy
Spain
Greece
Irland
Portugal
European Union's countries

17)



Bibliography

Abel, Jeannette. “The Resolution of Sovereign Debt Crises,” 2018. https://doi.org/10.5771/9783845290225.

Adinolfi, Giovanna, and Michele Vellano. *La Crisi Del Debito Sovrano Degli Stati Dell'area Euro: Profili Giuridici*. Torino: G. Giappichelli, 2013.

Ali, Trabelsi Mohamed. “The Impact of the Sovereign Debt Crisis on the Eurozone Countries.” *Procedia - Social and Behavioral Sciences* 62 (2012): 424–30. https://doi.org/10.1016/j.sbspro.2012.09.069.

Andries, Alin Marius, Steven R. Ongena, and Nicu Sprincean. “The Covid-19 Pandemic and Sovereign Bond Risk.” *SSRN Electronic Journal*, 2020. https://doi.org/10.2139/ssrn.3605155.

Antoniades, Andreas, and Isabell Kempf . “Financial Crises, Poverty and Environmental Sustainability: Challenges in the Context of the Sdgs and Covid-19 Recovery.” *Sustainable Development Goals Series*, 2022. https://doi.org/10.1007/978-3-030-87417-9.

Ball, Laurence M. *The Fed and Lehman Brothers Setting the Record Straight on a Financial Disaster*. Cambridge, United Kingdom: Cambridge University Press, 2018.

Bektas, Cagdas, and Ozgur Sarac. “The Debt Problem of Piigs Countries and Recovery Mechanism Built at the Monetary Unit Level.” *Pressacademia* 7, no. 2 (2020): 120–33. https://doi.org/10.17261/pressacademia.2020.1208.

Brown, Brendan. *Euro Crash: The Exit Route from Monetary Failure in Europe*. Basingstoke: Palgrave Macmillan, 2014.

C. Athanasiadis. “Ten-Year Government Bond Spreads Compared to Germany,” 2009. https://doi.org/10.1787/eco_surveys-irl-2009-graph2_6-en.

Canale, Rosaria Rita. “Default Risk and Fiscal Sustainability in Piigs Countries.” Academia.edu, February 13, 2022. https://www.academia.edu/71324546/Default_Risk_and_Fiscal_Sustainability_in_Piigs_Countries.

Ceps, Directorate-General for Economic and Financial Affairs (European Commission), Ecorys, Nation Institute of Economic and Social Research, Gros, Capolongo, and Alcidi. "Sovereign Debt Sustainability in Greece during the Economic Adjustment Programmes : 2010-2018." Photo of Publications Office of the European Union. Publications Office of the European Union, December 27, 2020. https://op.europa.eu/en/publication-detail/-/publication/9e0e995c-093b-11ec-b5d3-01aa75ed71a1/language-en.

Ehnts, Dirk, and Michael Paetz. "Covid-19 and Its Economic Consequences for the Euro Area." *Eurasian Economic Review* 11, no. 2 (2021): 227–49. https://doi.org/10.1007/s40822-020-00159-w.

Gartner, Manfred, Florian Jung, and Björn Griesbach. "Pigs or Lambs? the European Sovereign Debt Crisis and the Role of Rating Agencies." *SSRN Electronic Journal*, 2011. https://doi.org/10.2139/ssrn.1816582.

Guhathakurta, Kousik. "A Colossal Failure of Common Sense – the Incredible inside Story of the Collapse of Lehman Brothers." *IIMB Management Review* 24, no. 3 (2012): 180–81. https://doi.org/10.1016/j.iimb.2012.06.005.

Habermas, Jürgen. "The Crisis of the European Union: A Response." *International Dialogue* 5, no. 1 (2015). https://doi.org/10.32873/uno.dc.id.5.1.1103.

IEO, ed. "The IMF and the Crises in Greece, Ireland, and Portugal," 2016. https://doi.org/10.5089/9781475525144.017.

IEO, ed. “The Portuguese Crisis and the IMF - Ffms.pt.” Accessed December 12, 2022. https://ffms.pt/sites/default/files/2022-07/EAC__BP_16-02_05_The_Portuguese_Crisis_and_the_IMF-v2.pdf.

“Implementation of the Macroeconomic Adjustment Programmes in the Euro Area: State-of-Play.” CEPS, April 8, 2019. https://www.ceps.eu/ceps-publications/implementation-macroeconomic-adjustment-programmes-euro-area-state-play/.

Kalbaska, A., and M. Gątkowski. “Eurozone Sovereign Contagion: Evidence from the CDS Market (2005–2010).” *Journal of Economic Behavior & Organization* 83, no. 3 (2012): 657–73. https://doi.org/10.1016/j.jebo.2012.05.010.

Kalsie, Anjala, and Jaya Pandey. “Measurement of Eurozone Crisis for Piigs Nations: Through Composite Indexes Approach.” *Transnational Corporations Review* 12, no. 3 (2020): 250–65. https://doi.org/10.1080/19186444.2020.1733370.

Ketenci, Natalya. “Determinants of the Current Account in the EU and PIIGS.” Academia.edu, January 1, 2015. https://www.academia.edu/65633112/Determinants_of_the_Current_Account_in_the_Eu_and_Piigs.

KfW, ed. “No Pain, No Gain? Economic Adjustment Programmes in Greece and Portugal.” Accessed December 12, 2022. https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Fokus-Volkswirtschaft/Fokus-englische-Dateien/Fokus-2016-EN/Fokus-Nr.-146-October-2016-Portugal-and-Greece_EN.pdf.

Maior, Paulo Vila, and Isabel Camisão. “The Pandemic Crisis and the European Union,” 2021. https://doi.org/10.4324/9781003153900.

Mauldin, John. “The Role of the ‘Piigs’ in the European Sovereign Debt Crisis.” Equities News, November 21, 2022. https://www.equities.com/news/the-role-of-the-piigs-in-the-european-sovereign-debt-crisis.

Michael, Maria, and Louis N. Christofides. “The Impact of Austerity Measures on the Public - Private Sector Wage Gap in Europe.” *Labour Economics* 63 (2020): 101796. https://doi.org/10.1016/j.labeco.2020.101796.

Pitelis, Christos. “On Piigs, Gaffs and BRICS: An Insider-Outsider’s Perspective on the Structural and Institutional Foundations of the Greek Crisis.” *SSRN Electronic Journal*, 2012. https://doi.org/10.2139/ssrn.2005734.

Sarımehmet Duman, Özgün. “The Political Economy of the Eurozone Crisis: Competitiveness and Financialization in Piigs.” *Journal of Balkan and Near Eastern Studies* 20, no. 3 (2017): 211–29. https://doi.org/10.1080/19448953.2018.1379752.

Talani, Leila Simona. “Stopping the Run on the Piigs! EMU Structural Imbalances, the Sovereign Debt Crisis and the Response of the EU.” *Journal of Balkan and Near Eastern Studies* 17, no. 4 (2015): 353–72. https://doi.org/10.1080/19448953.2014.993262.

Wiggins, Rosalind Z., Thomas Piontek, and Andrew Metrick. “The Lehman Brothers Bankruptcy a: Overview.” *SSRN Electronic Journal*, 2014. https://doi.org/10.2139/ssrn.2588531.

Zack, Naomi. “The American Tragedy of Covid-19: Social and Political Crises of 2020.” Google Books. Rowman & Littlefield, March 31, 2021. https://books.google.com/books/about/The_American_Tragedy_of_Covid_19.html?id=yx0fEAAAQBAJ.