



Analysis & Comparison of the Global Financial Crisis and Eurozone Crisis

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ABSTRACT

Starting in mid-2007, the global financial crisis quickly metamorphosed from the bursting of the housing bubble in the US to the worst recession the world has witnessed for over six decades. Subsequently, this crisis led to a recession in Europe, triggered the burst of the real estate bubble, and pushed Eurozone to the worst economic depression with three crises, a banking crisis, a sovereign debt crisis, and slow growth and relative competitiveness, since its foundation. Through an in-depth review of these crises this paper has been divided into five parts. Global Financial Crisis causes leading up to this crisis, the Federal Reserve's responses, and consequences of this crisis for US and rest of world were explained in depth in chapter 2. The 3rd chapter deals with Eurozone Crises in similar way Global Financial Crisis explained in chapter 2. In 4th chapter we tried to compare Global Financial Crisis and Eurozone Crisis in terms of similarities and differences. Finally the results of Global Financial Crisis and Eurozone Crisis were discussed and the conclusions were given in the 5th chapter.

Keywords: global financial crisis, eurozone crisis, subprime mortgage.

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LIST OF ABBREVIATIONS

AIG	:	American International Group
CDOs	:	Collateralized Debt Obligations
CDSs	:	Credit Default Swaps
CRAs	:	Credit Rating Agencies
EC	:	Eurozone Crisis
ECB		The European Central Bank
EFSD		European Financial Stability Facility
EFSD		European Financial Stabilization Mechanism
EMU		European Monetary Union
ESM		European Stability Mechanism
EU		The European Union
FED	:	U.S. Federal Reserve
G20		The Group Of Twenty Finance Ministers and Central Bank
GDP		Gross Domestic Product
GFC	:	Global Financial Crisis
GIIPS	:	Greece, Ireland, Italy, Portugal, and Spain
GLBA	:	Gramm-Leach-Bliley Act
IMF	:	The International Monetary Fund
OECD	:	The Organization For Economic Co-Operation and Development

OTC : Over-The-Counter
SEC : U.S. Securities and Exchange Commission
TAF : Term Auction Facility
UBS : Union De Banque Suisse
US : United States of America

CHAPTER 1: INTRODUCTION

The **Global Financial Crisis of 2007–09 (GFC)**, also known as the Financial Crisis 2008, was named by many economists the most severe since the Great Depression of the 1930s. Some of the world's best-known financial institutions collapsed or were nationalized, while many others survived only with massive state support. More than any other financial meltdown in the postwar period, the crisis affected major financial centers across the entire world (Reinhart & Rogoff 2009). It also generated a collapse of international trade more severe than any since the 1930s, and a broader economic downturn that involved all regions of the globe (Helleiner, 2011).

The old proverbial truth that the rest of the world sneezes when the US catches a cold appeared to be vindicated as systemically important economies in the European Union (EU) and Japan went collectively into recession by mid-2008. Overall, 2009 was the first year since World War II that the world was in recession, a calamitous turn around on the boom years of 2002–2007 (Verick & Islam, 2010).

The recent financial crisis also resulted in and downturns in stock markets around the world. In addition, it contributed to persistent high unemployment, failures of key businesses, declines in consumer wealth, real investment, and output. The financial crisis was caused by a complex interplay of valuation and liquidity problems in the United States (US) banking system in 2007. The bursting of the U.S. housing bubble, which peaked in 2007, caused the values of securities tied to U.S. real estate pricing to plummet, damaging financial institutions globally. Concerns about bank solvency, declines in credit availability, and damaged investor confidence caused the global stock markets to fall. Declines in bank lending reduced real investment and output, causing the Great Recession all around the world (Miao & Wang, 2013)

The GFC unfolded in several stages. It began in the US with the bursting of a housing bubble and the growth of mortgage defaults, particularly those involving subprime mortgages that had been extended in growing numbers at the height of the bubble to less creditworthy borrowers.

These defaults increasingly affected the stability of financial institutions with exposure to these mortgages as well as financial products tied to these mortgages (described below). Several hedge funds were the first to collapse in May and June 2007, and by August, serious concerns broke out in money markets about the exposure of a wide range of financial institutions in the US and Europe that had invested heavily in mortgage-related financial products. By mid-September, panic even broke out at the retail level, with Britain experiencing its first bank run (Northern Rock) since the nineteenth century.

Despite official efforts to calm the markets with large doses of liquidity, the crisis only deepened in March 2008, when the major U.S. investment bank Bear Sterns had to be rescued by U.S. authorities. Early in the month (September), the U.S. government placed the two giant government-sponsored mortgage lending agencies, Fannie Mae and Freddie Mac ("Fannie and Freddie"), under a form of public "conservatorship" because of the enormous losses they were experiencing. By the middle of the month, the U.S. investment bank Lehman Brothers was forced into bankruptcy. Shortly thereafter, the world's largest insurance company, American International Group (AIG), was rescued and nationalized by the U.S. government. These three developments in September 2008 then triggered a total collapse of market confidence (Helleiner, 2011).

The cost of the financial crisis is immense. One number is sufficient to indicate the scale of the costs in the US: For example, the US has lost 8 million jobs, the sharpest drop since World War II, and perhaps more depending on exactly when the recovery begins during the crisis. But bringing back even 8 million jobs would not return us to the pre-recession unemployment rate of 4.9% because the population has grown since then (Epi, 2013).

Being the most severe international economic crisis since the Great Depression the GFC has also brought an era of increasing prosperity and growth to an abrupt halt, the GFC has resulted in a recession that has led to stubbornly high levels of unemployment not only in the US but also in most **European countries**.

Gradually almost all Eurozone countries were affected by the GFC, while the liberal market economies of Anglophone countries, consisting of Britain and Ireland have this time been hardest hit, with their credit-fueled finance-driven model of growth having been at the heart of the crisis itself. The coordinated market economies of Continental and Nordic Europe, encompassing Germany and the smaller European countries in these two regions, have in contrast seemingly sailed through with their balanced model of export-fueled growth jeopardized mainly by the exposure of their banks to bad loans picked up in the liberal market economies. The other countries of Western Europe called “state-influenced market economies” of Continental and Mediterranean Europe because of the defining role of the state, including France, Italy, and Spain along with Greece and Portugal, have had varied responses. While France has had a pretty good crisis, Italy’s has been bad and Spain’s has been ugly, although it has so far been nothing like the sovereign debt disaster that struck Greece and then overtook Portugal as well as Ireland (Wilson & Grant, 2012).

The GFC since September 2008 led to a recession in Europe and triggered the burst of the real estate bubble. Both the recession and the adoption of fiscal stimulus packages to counteract it as well as the burst of the real estate bubble resulted in a ballooning of fiscal deficits and a massive deterioration of debt indicators that set the stage for the sovereign debt crisis in the Eurozone that began with the Greek crisis in early-2010.

The Eurozone today is not merely in a period of slow economic growth, attempting to recover from a financial crisis mainly known as the Eurozone Crisis (EC); it is in a full-fledged existential crisis. That is, the Eurozone is really in three crises. The Eurozone is currently in a **banking crisis**, where banks face a capital shortfall, interbank liquidity is restrained, and future losses are uncertain. At the same time, it faces a **sovereign debt crisis**, where at least one country (Greece) will not pay its debts in full, and bondholders are displaying increasing concern about other sovereigns. Finally, it also faces a macroeconomic crisis, where slow **growth and relative**

competitiveness in the periphery add to the burden of some of the indebted nations. This last crisis is one primarily about the level and distribution of growth within the euro area (Shambaugh, 2012).

Almost, all European member-states have been hit by the EC but Greece, Ireland, Italy, Portugal, and Spain (GIIPS) have been much more affected by this crisis.

The GFC and the EC widely referred as to the worst financial and economic shock since the Great Depression has revealed many serious deficiencies in the global financial system. The consequences of the crisis led governments and international institutions to act cooperatively to restore the confidence in markets through several strategies. There is a large consensus that more structural reforms are needed to achieve a transparent functioning of markets (Yurtsever, 2011).

This study aims to analyze the GFC and EC, and then compares the similarities and differences between these two successive crises. Within this context, Global Financial Crisis, causes leading to this crisis, the U.S. Federal Reserve's (FED) responses, and consequences of this crisis for US and rest of world were explained in details in chapter 2. Eurozone Crises was reviewed in the same way in 3rd chapter as the GFC explained in chapter 2. In the 4th chapter we tried to compare the GFC and the EC in terms of similarities and differences. Finally the results of the GFC and EC were discussed and the conclusions were given in the 5th chapter.

CHAPTER 2: ANALYSIS OF THE GLOBAL FINANCIAL CRISIS

The GFC has been the most severe international economic crisis since the Great Depression. Bringing an era of increasing prosperity and growth to an abrupt halt, the GFC has resulted in a recession that has led to stubbornly high levels of unemployment in the US and most European countries. The economic cost of the GFC is staggering. Ultimately, this translates into enormous human costs resulting from unemployment, homelessness, and the social ills that result.

In reflecting on the causes of this GFC, it is a mistake to think of the subprime mortgage fiasco or any other single condition as a unique cause that will not recur (Poole, 2010). This crisis largely originates from overextended household, in particular with respect to subprime mortgage loan but this is not the only factor that created the GFC (Claessens, Kose & Terrones, 2010). As is often the case with financial crises, many of the underlying factors listed below leading to the GFC (Arner, 2009).

Therefore, it can be easily said that the GFC was a crisis at the constitutive level. It reflects a deep loss of confidence in the basic infrastructure of the capital markets. This loss of confidence is a social rather than a technical process and tinkering with regulative rules, while tempting and politically distracting, will not address the heart of the matter. Like the Great Depression, it seems likely that the damage done to the social relationships which underpin global finance, such as the reputational assets of the rating agencies and the trust financiers have in each other, may take many long years to rebuild and could be wiped out again by renewed crisis perhaps stemming from sovereign debt default (Wilson & Grant, 2012).

In essence, the GFC resulted from an unprecedented period of excessive borrowing, excessive lending, and excessive investment incentivized by a series of significant economic and regulatory factors those are listed in detail in this chapter (Arner, 2009).

This chapter focused on the GFC, causes leading to this crisis, FED's responses to this crisis, and finally consequences of this crisis for US and rest of the world.

2.1. Causes of the Global Financial Crisis

The GFC has its roots in the US subprime mortgage market but, it is a mistake to think of the subprime mortgage fiasco or any other single condition as a unique cause that will not recur (Poole, 2010). This crisis largely originates from overextended household, in particular with respect to subprime mortgage loan but this is not the only factor that created the GFC.

In this sense, to understand the causes of the GFC, it is necessary to start with the events that led to the housing market bubble and subprime lending in the US and how the bursting of that bubble spread to other sectors of the US economy - most notably the financial services sector - and then to the rest of the world. It is a story of contagion, interdependence, interconnection and covariance: how the American Dream became the global nightmare (Legg & Harris, 2013).

The factors discussed below did not individually cause the GFC that has seen asset values and stock markets plummet, millions of jobs lost and large numbers of corporations collapse, even those once thought too big to fail. However, each of these factors played a part in turning rising US mortgage defaults into the worst financial crisis since the Great Depression (Legg & Harris, 2013).

Excessive Reliance on Credit rating agencies

It has escaped almost no one's attention that the credit rating agencies (CRAs) bear much responsibility for the 2008 financial crisis, with the consensus view being that they inflated their ratings in the case of structured finance offerings. Many reasons have been given for their poor performance: (i) rating agencies faced no competition (because there are really only three major rating agencies); (ii) they were not disciplined by the threat of liability (because CRAs in the US appear never to have been held liable and almost never to have settled a case with any financial payment); (iii) they were granted a "regulatory license" by the U.S. Securities and Exchange Commission (SEC), which has made an investment grade rating from a rating agency that was recognized by the SEC a virtual precondition to the purchase of debt securities by many

institutional investors; (iv) they are not required to verify information (as auditors and securities analysts are), but rather simply express views as to the creditworthiness of the debt securities based on the assumed facts provided to them by the issuer. These factors all imply that CRAs had less incentive than other gatekeepers to protect their reputational capital from injury. After all, if they face little risk that new entrants could enter their market to compete with them or that they could be successfully sued, they had less need to invest in developing their reputational capital or taking other precautions. All that was necessary was that they avoid the type of major scandal, such as that which destroyed Arthur Andersen & Co, the accounting firm, that had made it impossible for a reputable company to associate with them. So, in 2008, CRAs appear to have been the institutional actors those most egregiously failed. When CRAs fail, investors realize that they, themselves, are unable to appraise the value of securities in those cases where they had relied on CRAs. Facing uncertainty, investors unloaded enormous quantities of debt securities into the thin secondary markets for debt, producing a panicked race to the exit and a desperate search for liquidity (Joffe, Jr. 2009).

Therefore, it is clear that one principal underlying causes of the turmoil in financial markets is the flaws in CRAs' assessment of subprime residential mortgages . . . and other complex structured credit products.

Securitization and derivatives

In good times, securitized and complicated financial derivatives generated huge profits for the issuers. However, there were some early warnings. In 2002, Warren Buffett described these securities and derivatives as —financial weapons of mass destruction (Yu, Kesler & Tessema, 2009).

One major cause of the GFC was thus the transformation in financial systems unleashed by new models of securitization and derivatives. In the words of Roubini & Mihm (2010, p. 272), *“the crisis was less a function of subprime mortgages than of a subprime financial system ... the*

global financial system rotted from the inside out. The financial crisis merely ripped the sleek and shiny skin off what had become, over the years, a gangrenous mess." Although the U.S. financial system witnessed many of the greatest excesses, it is worth emphasizing that the problems associated with securitization trends were not unique to that country's firms and markets. Not only were many foreign financial institutions deeply involved in U.S. financial markets, but many other countries—particularly in Europe—had been experiencing similar trends in their own home markets (Helleiner, 2011). Therefore a significant erosion of market discipline by those involved in the securitization process, including originators, underwriters, credit rating agencies, and global investors, related in part to failures to provide or obtain adequate risk disclosures (Joffe, Jr. 2009).

Due to the complexity of the mortgage-backed securities, they were, however, unaware of the true extent of the liabilities linked ultimately to a rapidly deteriorating US housing sector. Consequently, liquidity quickly dried up, almost bringing the global financial system to its knees (Verick & Islam, 2010).

As shown in figure 2.1.6 in 2006, \$600 billion of subprime loans were originated, most of which were securitized. That year, subprime lending accounted for 23.5% of all mortgage originations.

Role of the Investment Bank

First, the unique fact about financial institutions in general and investment banks in particular, is their fragility. They finance their business using short-term capital to hold long-term illiquid assets. This mismatch exposes investment banks to liquidity crises, and, as the crisis mounts, their counter-parties back away and refuse to trade with them. This has happened before, almost cyclically, and well within the memory of the chief executives running these institutions. Then, as now, the SEC was not effective in dealing with this problem. That should not be surprising. As an agency, the SEC is essentially focused on consumer protection and antifraud

enforcement—not the protection of financial stability or the safety and soundness of financial institutions (Joffe, Jr. 2009).

Deregulation and shadow banking conglomerates

Blame for these developments rests not only with market participants but with regulatory authorities who failed to address the dangers that had been building in the global financial system. In 1999, the U.S. Congress largely repealed the separation of investment and commercial banking that had been established after the Great Depression. This change facilitated the greater participation of commercial banks in the securitization trends and intensified competitive pressures among firms. The next year, Congress locked in a laissez faire regulatory environment for OTC derivatives. In 2004, the SEC lifted a 12:1 leverage ratio for investment banks, a move that enabled them to engage in greater risk taking. This relaxation was quickly exploited by the subject firms, who had lobbied for this change and who uniformly increased their leverage in its wake. As a direct result, three of the largest US investment banks—Bear Stearns, Merrill Lynch & Co, and Lehman Brothers—became effectively insolvent in 2008 (Joffe, Jr. 2009).

Why did the SEC take this unsound step? Here, as later discussed, there were a variety of factors and forces that converged, but a significant factor was the sense that unless the US relaxed some regulatory restrictions it would sacrifice (or at least jeopardize) its international competitiveness by encouraging firms and transactions to migrate abroad. This is part of a larger pattern that constrained regulators worldwide: the inhibiting sense that if they were tougher regulators than their peers, their country's market would suffer (Joffe, Jr. 2009).

Finally, in the years leading up to the crisis, U.S. authorities did not do enough to stop the growth of poor mortgage lending practices in the private sector, especially vis-à-vis subprime loans. Regulators in the US also allowed banks to lower their reserves through the purchase of credit default swaps (CDSs) contracts, despite the fact that many issuers of those contracts—such as AIG—were not subject to the same capital requirements as banks. The deregulatory trends in

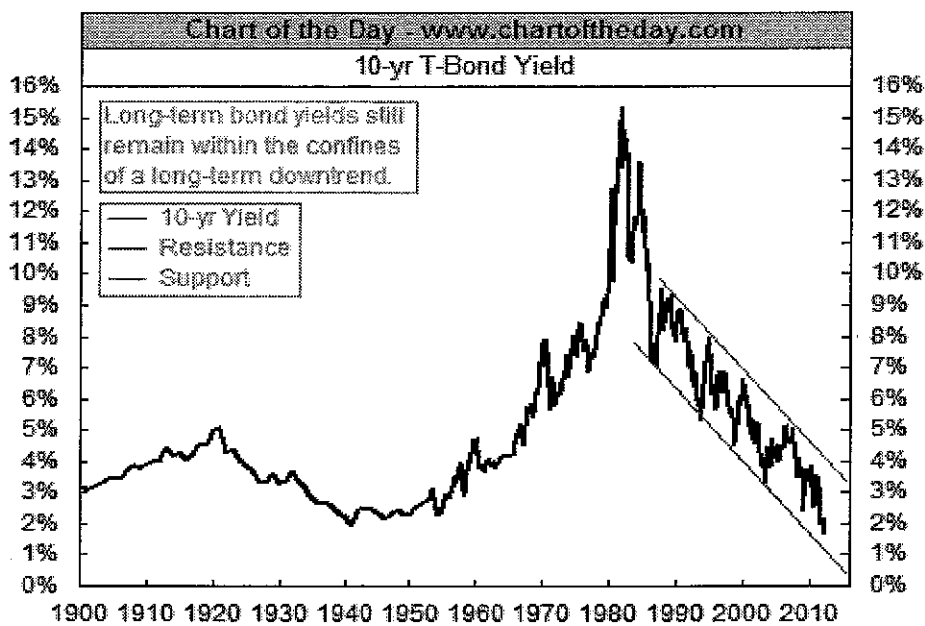
the US were echoed in many other countries, most notably the United Kingdom, which trumpeted its “*light-touch*” regulatory environment (Tedd, 2009).

Last but not the least; examining 26 financial crises in the post-1970 period, it was found that 18 of the 26 occurred after the financial sector had been liberalized. It is also proved that financial deregulation has an independent negative effect on banking sector stability. Eventually, under the Gramm-Leach-Bliley Act (GLBA) and deregulation beliefs, the traditional financial institutions turned to shadow banking institutions and became too big (and too interconnected) to fail (Yu, Kesler & Tessema, 2009).

Cheap Credit Conditions

Market and regulatory failures were not the only inducements to excessive risk taking during the lead-up to the GFC. Also important in US and many countries were a macroeconomic environment of cheap credit during the half decade before 2007. In the past, low interest rates (see figure 2) have often acted as a catalyst for financial bubbles, encouraging excessive debt accumulation and leverage, as well as the pursuit of riskier investments. They played the same role in this crisis, acting as a kind of fuel that set in motion many of the market processes described in the previous section. Some analysts blame the cheap credit environment solely on domestic policy mistakes made by central banks, such as FED, which is said to have kept interest rates too low in this period (Taylor, 2009).

Figure 1: 10-yr T-bond Yield



Source: allstarcharts.com

Structure of the Financial Market

The financial markets and its institutions have grown markedly over the past decades. In the developed world, deregulation of financial markets since the 1970s combined with globalization has led to the formation of large and very complex cross-border financial institutions. Global markets have also become increasingly integrated, with large capital flows across borders and emerging economies gaining an increasing share of international trade. Financial innovations over recent years have increased the complexity and scale of the network of inter-relationships between financial institutions. These innovations were made possible by both advancements in financial theory as well as in the technical infrastructure of the financial markets. Thus it can be argued that the crisis in many ways was a result of inherent weaknesses in the financial markets, which allowed a large but underestimated buildup of risk (Norgren, 2010).

The extension of complexity and diversification, for example through expansion in the use of securitization markets and derivatives products, also increased systemic risk by creating an increasingly complex network of interconnections between banks and other market participants.

On the other hand, risk models in banks and other financial institutions turned out to be poor representations of how market participants would respond. In particular, the use by banks of value-at-risk models, which used the volatility of asset prices over the recent past to quantify the risk entailed in marketable securities, increased the tendency of financial markets to under-price risk in good times and contributed to the herding tendencies of markets. Stress testing also proved inadequate. Stress testing aims to allow banks to assess the impact of more extreme events on their business, which are not generally captured by traditional risk-management models. However, the stress tests used had several shortcomings. For instance they missed the impact of system wide shocks, such as liquidity shortages, and how risks could be transmitted through markets in distressed conditions (Norgren, 2010).

In this sense, the structure of the financial market can be named another cause for the GFC.

The great American real estate bubble and surge in commodity prices

The earliest origins of the 2008 financial meltdown probably lie in the deregulatory measures, taken by the US Congress at the end of the 1990s, which placed some categories of derivatives and the parent companies of investment banks beyond effective regulation (Joffee, Jr. 2009). US house prices rose dramatically from 1998 until late 2005, more than doubling over this period, and far faster than average wages. The rise in house prices reflected large increases in demand for housing and happened despite a rise in the supply of housing (Marshall, 2009). Still, most accounts of the crisis start by describing the rapid inflation of a bubble in the US housing market. Here, one must be careful. The term “bubble” can be a substitute for closer analysis and may carry a misleading connotation of inevitability. In truth, bubbles fall into two basic categories: those that are demand-driven and those that are supply driven. The majority of bubbles fall into the former category, but the 2008 financial market meltdown was clearly a supply-driven bubble, fueled by the fact that mortgage loan originators came to realize that underwriters were willing to buy portfolios of mortgage loans for asset-backed securitizations without any serious

investigation of the underlying collateral. With that recognition, their incentive to screen borrowers for creditworthiness dissipated, and a full-blown “*moral hazard*” crisis was underway (Joffe, Jr. 2009).

The great American real estate housing bubble was the result of a long period of low interest rates (see figure 2), support for the subprime mortgage, and speculation. The FED cut interest rates by a total of 550 basis points in a series of steps between 2001 and 2004. Some believe (for example the ‘Austrian school’ and John Taylor 12), that monetary policy was too loose for too long and this is what gave rise to the asset price bubble and commodity price spike through 2005-2008.

Figure 2: The Federal Funds rate

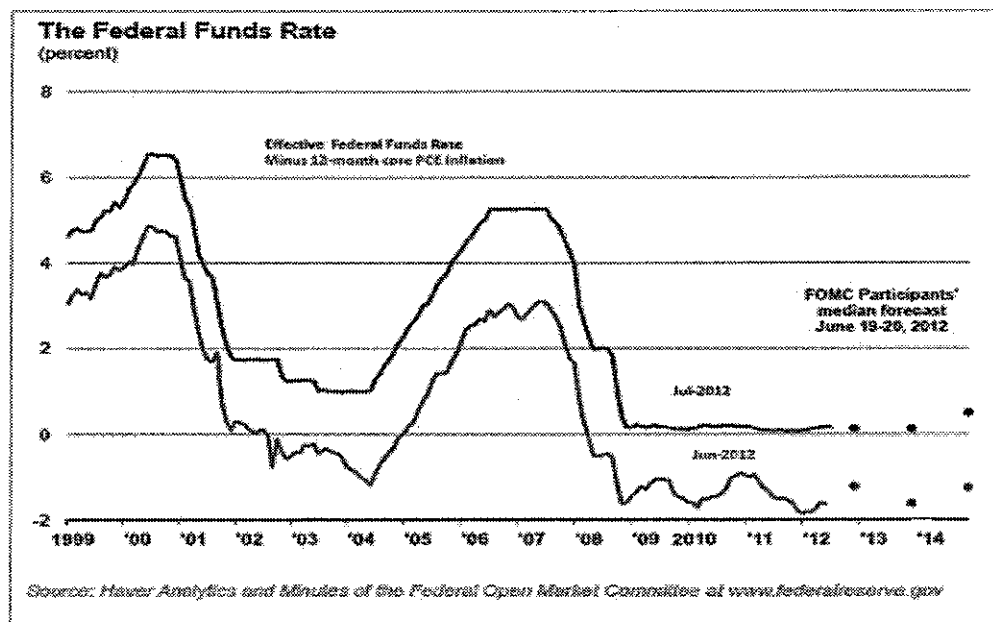
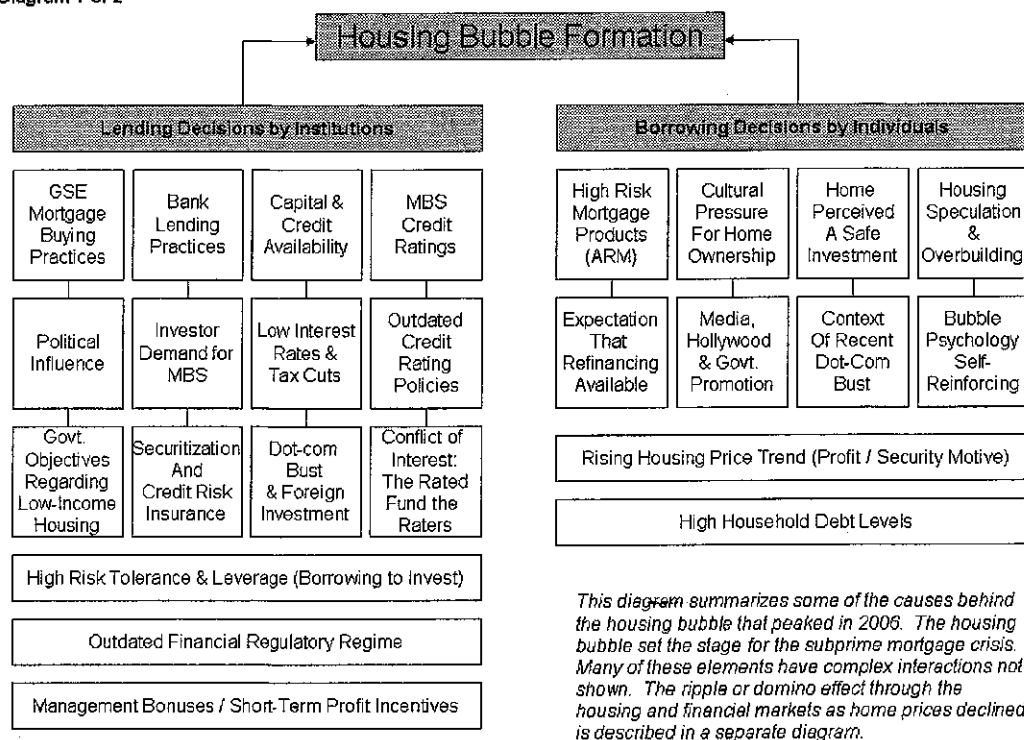


Figure 3 summarizes a housing bubble formation a stage for the subprime mortgage crisis.

Figure 3: Housing bubble formation

Subprime Mortgage Crisis
Diagram 1 of 2



Together, factors listed above created a huge housing bubble. By 2005-06, the value of subprime mortgages relative to total new mortgages was estimated at 20% - as opposed to less than 7% in 2001. Subprime mortgage lending rose from \$180bn in 2001 to \$625bn in 2005. New Alt-A mortgages, the risk level between subprime and prime, had risen from 2% in 2001 to 14% by 2006. Dean Baker, co-director of the Center for Economic and Policy Research, valued the housing bubble at \$8 trillion (Marshall, 2009).

By 2006 a number of factors had conspired to burst the bubble. First, average hourly wages in the US had remained stagnant or declined since 2002 until 2009; in real terms this represented a decline. Consequently, prices could not continue to rise as housing became increasingly unaffordable. Second, growth in housing supply tracked price rises. While prices were able to withstand this downward pressure until 2005, once demand had subsided excess supply exacerbated the sharp fall in prices. Third, as interest rates rose to a peak of 5.25%, ARMs became less attractive and effectively removed many non-prime prospective buyers from the

market – in the first half of 2006, the Mortgage Bankers Association found the value, and total number, of subprime mortgages to be down 30% on the second half of 2005. Fourth, as personal saving from disposable income fell below zero, fewer households had the requisite finance to support increases in debt (Marshall, 2009).

Subprime mortgage crisis

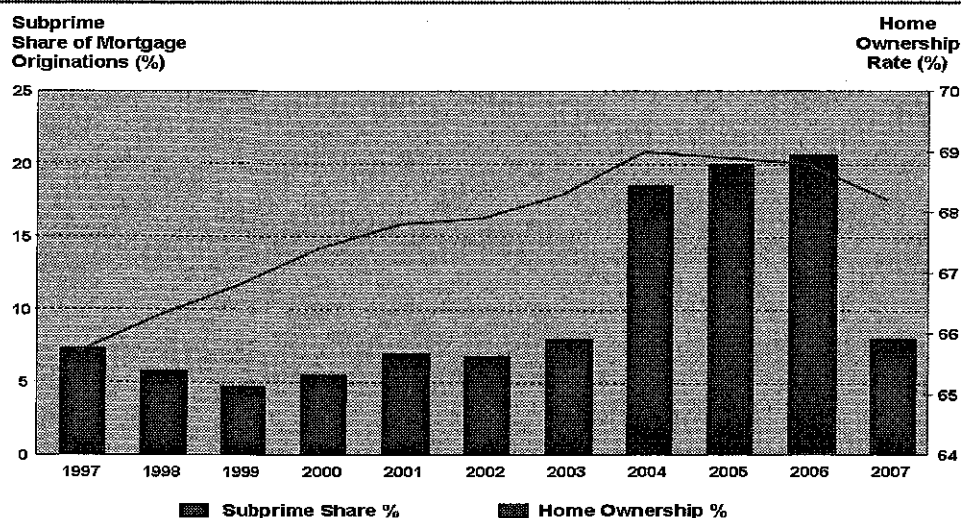
The recent financial crisis began with the downturn in U.S. residential real estate markets. Beginning in early 2007, a growing number of banks and hedge funds reported substantial losses on subprime mortgages and mortgage-backed securities, many of which were downgraded by CRAs (Brunnermeier, 2009).

The GFC largely originates from overextended households, in particular with respect to subprime mortgage loans. While aggregate credit growth in the US was less pronounced than in previous episodes, reflecting slower corporate credit expansion and the securitization of mortgages, the growth of household debt was excessive. Credit to households rose rapidly after 2000, driven largely by mortgages outstanding, with interest rates below historical averages and financial innovation contributing to an increase in outstanding household debt. Despite low interest rates, debt service relative to disposable income reached a historical high. The increased leverage left households vulnerable to decline in house prices, a tightening in credit conditions and a slowdown in economic activity (Claessens, Kose & Terrones, 2010).

Excessive borrowing and lending most directly arose in the context of the market for subprime residential mortgages in the US, especially during 2005 and 2006. Excessive borrowing and lending (see figure 4), however, were also prevalent in virtually all asset classes globally, including commercial real estate, corporate lending (especially for mergers and acquisitions and private equity transactions), commodities, and international (especially emerging markets) equities (Arner, 2009).

Figure 4: Expansion of the US subprime lending

U.S. Subprime Lending Expanded Significantly 2004-2006



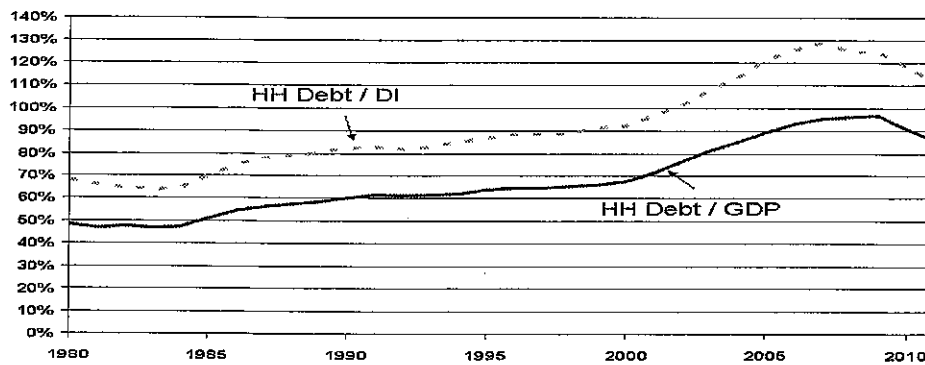
Sources: U.S. Census Bureau; Harvard University- State of the Nation's Housing Report 2008

A number of incentives beyond low interest rates promoted US subprime lending and borrowing. These include a then widespread belief that property prices would continue to rise so that bad loans were not a concern as the house could, it was thought, be resold for a profit (Legg & Harris, 2013).

As mentioned before, The GFC emerged from the American housing market. House prices peaked in 2006 and then dropped more than 30 per cent. This was the largest decline since the 1930s on a national level in the US. Household debt had increased significantly over the past decades (see figure 5), and during the last phase of the boom the so called sub-prime lending (see figure 4), i.e. lending to low income borrowers, rose quickly (Norgren, 2010).

Figure 5: Rapid debt increases

U.S. Household Debt vs. Disposable Income (DI) and GDP



Sources: U.S. Federal Reserve (FRED), BEA
Note: HH Debt is FRED "CMDEBT" variable

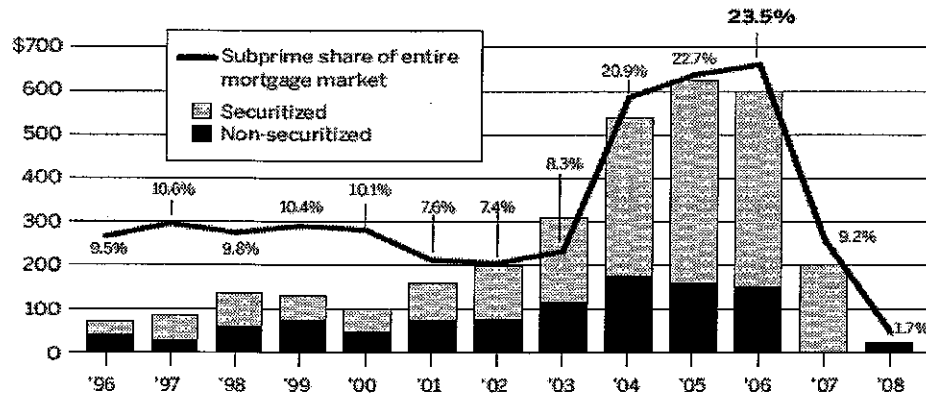
After years of extremely rapid expansion of sub-prime lending, which subsequently was securitized (see figure 6), the value of mortgage related assets fell rapidly when the housing market deteriorated. The development led to very large credit losses and threatened the very existence of banks and mortgage institutes, not only in the US but also in some European countries. By the summer 2008 it had become clear that securitization of mortgage loans had become a millstone for banks and other holders of these assets. The list of failed or almost failed large financial institutions became longer and longer: Lehman Brothers, Fannie Mae, Freddie Mac, AIG, Washington Mutual, Wachovia, Fortis, several Icelandic banks, Hypo Real Estate, ABN-Amro, RBS etc. Governments had to step in with numerous rescue operations in order to avoid a meltdown of the entire global financial system (Norgren, 2010).

Figure 6: Securitized & non-securitized subprime mortgage loans

Subprime Mortgage Originations

In 2006, \$600 billion of subprime loans were originated, most of which were securitized. That year, subprime lending accounted for 23.5% of all mortgage originations.

IN BILLIONS OF DOLLARS

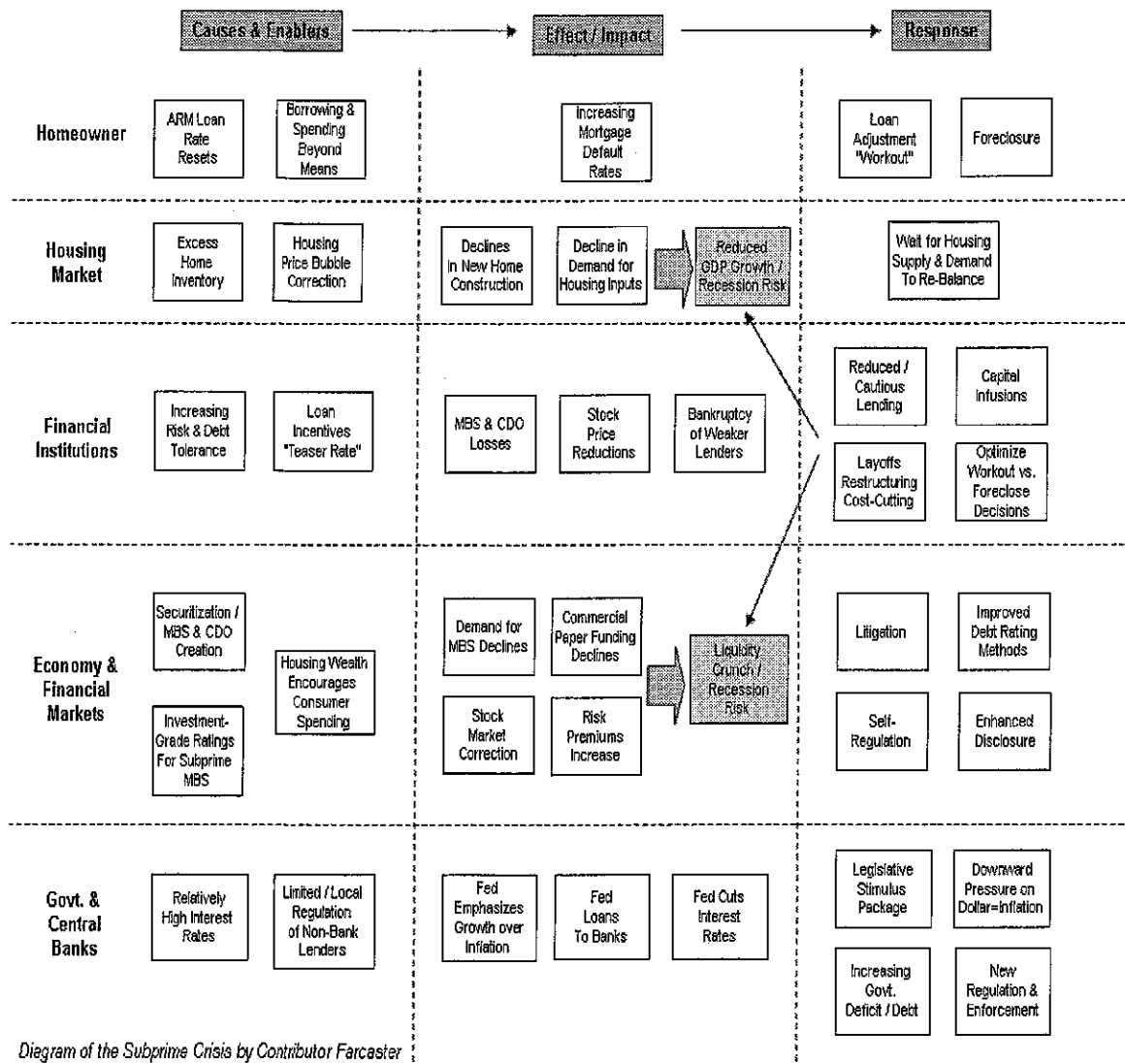


NOTE: Percent securitized is defined as subprime securities issued divided by originations in a given year. In 2007, securities issued exceeded originations.

SOURCE: Inside Mortgage Finance

Taking into account of all these factors, losses in the US housing market caused market confidence in the two government sponsored enterprises Fannie Mae and Freddie Mac to evaporate and consequently the US government had to take control of the enterprises by September 7. A week later, on September 15, Lehman Brothers filed for chapter 11, leading to a global loss of confidence in the entire financial system (Norgren, 2010).

Figure 7: A brief summary of the subprime mortgage crisis



Source: sef.hku.hk

The subprime crisis that began in the summer of 2007 should rank as one of the most traumatic global developments of the last hundred years. It caused dismay and panic throughout elite circles in developed countries as efforts to reignite confidence in the financial markets were frustrated again and again. Given that the subprime securities market was worth only \$0.7 trillion in mid-2007, out of total global capital markets of \$175 trillion, the impact of subprime assets is out of all proportion to their actual weight in the financial system. The "subprime crisis" is not a direct consequence of subprime mortgage delinquencies. The paralysis that came over global

finance is a consequence of the social, intersubjective nature of markets, rather than the logical result of relatively minor problems with lending to the working poor (Wilson & Grant, 2012).

Globalization of Capital Flows

This global capital flows, mainly from China, Japan, Russia, Taiwan, India, Brazil and other oil-exporting countries, was used to buy US Treasury bonds and other US securities. The global capital flows reflected the chronic shortage of savings relative to investment in the US and other developed countries, but the substantial savings surplus to investment in emerging countries (Yu, Kesler & Tessema, 2009).

The globalization of capital has been an integral part of the scale of the GFC. The globalization or internationalization of finance has both benefits and disadvantages for individual countries and their citizens. It can provide for access to global markets, thus reducing financing costs and allowing for business cycles to be smoothed, but it can also allow for the rapid transmission of economic shocks between economies.

The globalization of capital flows also poses considerable regulatory challenges. The financial institutions at the center of the financial crisis, such as AIG, UBS and Lehman Brothers, all operated across borders with each foreign subsidiary subject to different regulatory supervision.

A lack of international harmonization and coordination

Regulatory systems in individual countries could not keep up with the pace of the internationalization of credit markets and the growth of cross-border banking. When the crisis emerged it seems clear that regulators/supervisors had not cooperated in a sufficient manner, so that the responses were taken in due time and in a correct way. There is evidence of problems of coordination of reactions in due time. The lack of international harmonization was a problem as regards fighting with crises (Norgren, 2010).

The synchronized global boom of 2002-2007

Amid the doom and gloom of 2008 and 2009, it was easy to forget that the pre-crisis period between 2002 and 2007 was one of historically high rates of growth, especially for developing countries. There was a relatively mild global downturn in 2001 after the bursting of the dotcom bubble. This was followed by a synchronized boom that lasted until 2007. However, in hindsight, the 2002-2007 period stands out as a case of an unsustainable boom. There was a surge in various forms of external finance (export revenues, remittances, private capital flows) that fed a consumption boom in advanced economies and a surge in investment and exports in the developing world led by China and other emerging economies. Overall, the increase in credit flows pushed the cost of capital down. Such a growth experience bred a sense of robust optimism about the future, especially among investors in developed economies leading to an underestimation of risk. This state of mind perhaps contributed to the collective complacency of policymakers, development practitioners and multilateral agencies that were evident even at a time when the seeds of a rather severe global economic recession were being sown in the US heartland (Verick & Islam, 2010).

Systemic crisis

Preventing and addressing systemic risk is the fundamental aspect of financial regulatory design. Such design requires the following elements to be addressed: first, a robust financial infrastructure (especially payment and settlement systems); second, well managed financial institutions with effective corporate governance and risk management systems; third, disclosure requirements sufficient to support market discipline; fourth, regulatory systems designed to reinforce management and market discipline as well as limiting and monitoring potential risks across all financial institutions; fifth, a lender of last resort to provide liquidity to financial institutions on an appropriate basis; sixth, mechanisms for resolving problem institutions; and

seventh, mechanisms to protect financial services consumers in the event of financial institution failure (Arner, 2009).

As noted above, preventing and addressing systemic risk is the fundamental aspect of financial regulatory design. In looking forward, the GFC highlights the urgent need to redesign both the global and domestic financial regulatory systems not only to properly address systemic risk but also to support its proper functioning (i.e. financial stability). At the same time, financial regulatory design should extend beyond addressing systemic risk to broader concerns of financial stability (Arner, 2009).

Other factors

Commodity price volatility, inaccurate economic forecasting, monetary expansion and uncertainty, over-leveraging, and collateralized debt obligations (CDOs) as causes, credit creation as a cause, oil prices, emigration, overproduction, media, and speculators can be listed as other factors led GFC.

2.2. The Federal Reserve's Response to the Crisis

In summer 2007, U.S. and global financial markets found themselves facing a potential financial crisis, and the FED found itself in a difficult situation. It was becoming clear that banks and other financial institutions would ultimately lose tens or even hundreds of billions of dollars from their exposure to subprime mortgage market loans. Bank lending is closely tied to bank capital or net worth—specifically; bank regulators require that loans not exceed a certain multiple of capital. Thus, FED faced the danger of a sharp contraction in credit and bank lending in a way that threatened a deep recession or worse.

In the early stages of the crisis, the situation often arose in which a well-capitalized bank was forced to make sudden large loans based on previously committed lines of credit. In this circumstance, central bank actions can ease liquidity constraints by supplying banks with the funds they need in the short term. In fall 2007, FED provided short-term funding liquidity by, in

effect, allowing banks to exchange their holdings of Treasury securities for cash. This policy enabled the banks to meet the credit line commitments they had outstanding (Cecchetti, 2009).

The FED acted as the key actor in managing financial problems under the stewardship of Alan Greenspan (Chairman between 1987 and 2006), who generally favored the injection of liquidity and low interest rates as a response. The FED, led by Ben Bernanke after 2006, adopted a similar although broader approach using four main tools (Marshall, 2009).

In this sense, generally FED's monetary policy focuses on three traditional tools, each of which is based directly on actions related to the central bank's balance sheet: open market operations, balance sheet size, and the federal funds interest rate target; lending to commercial banks, the fraction of assets held as loans, and the discount rate; and the level of commercial bank reserves, the composition of liabilities, and the reserve requirement (Poole, 2010).

However, it became clear in October and November 2007 that traditional FED's tools were of limited use. Realizing these failings, FED officials created innovative, new lending procedures in the form of the Term Auction Facility (TAF) and the Primary Dealer Credit Facility, as well as changed their securities lending program, creating the Term Securities Lending Facility (Cecchetti, 2009).

As mentioned above, during the recent financial crisis, FED conducted three general types of credit policy. The first is discount window lending. FED used the discount window to lend funds to commercial banks that in turn lent them out to non-financial borrowers. The second is direct lending. FED lent directly in high grade credit markets, funding assets that included commercial paper, agency debt and mortgage backed securities. The third is equity injections. The Treasury coordinated with FED to acquire ownership positions in commercial banks by injecting equity (Miao & Wang, 2013)

During the GFC, FED officials acted quickly to encourage banks to borrow from FED—first by issuing a statement that the discount window was available to meet the liquidity needs of

banks, then by reducing the primary credit rate and increasing the maximum term of discount window loans, and finally by introducing the TAF to provide an anonymous source of term funds without any of the stigma associated with discount window borrowing. In GFC, FED also proved willing to provide loans to avoid the bankruptcy of financial firms that posed significant systemic risk. Further, FED officials supported the Treasury Department's program to stabilize banks through capital purchases and stress testing.

Throughout the GFC, FED sought to alleviate credit market strains by supplying liquidity to affected firms and markets in an effort to reduce risky lending rates and restart "frozen" markets. FED focused on "the mix of loans and securities that [the Federal Reserve] holds and on how this composition of assets affects credit conditions for households and businesses (Wheelock, 2010).

The GFC raises a number of substantial and difficult questions: What should policymakers do when prices of leveraged assets boom? How should central banks respond to declines in the price of risky assets and the associated increase in risk premia? Should monetary policymakers react to illiquidity in the market for specific assets, and if so, how? When a highly leveraged and complex financial institution experiences losses, what is the central bank's responsibility? Should a central bank take on credit risk in its lending operations, or should this function belong to the U.S. Treasury? Perhaps with experience and research, the answers to these questions will become clear. Once the crisis is safely past, we might want to reassess the role of the central bank. But in the GFC, FED was the only official body that could act quickly and powerfully enough to make a difference. Given the very real and immediate dangers posed by the financial crisis that began in August 2007, it is difficult to fault FED for its creative and aggressive responses.

In this context it can be admitted that FED's response to the recent financial crisis was markedly different from, and undoubtedly influenced by, the experience of the Great Depression (Wheelock, 2010).

2.3. Consequences of Global Financial Crisis on the global economy and Financial Markets

The GFC, originating largely in the US, has engulfed the world's markets and necessarily focuses our attention on what causes market bubbles. Why did both debt and equity markets decline rapidly and largely uniformly across nations and economies?

As mentioned above, the crisis originated in the US, but it took place in a highly integrated global economy where the widespread use of sophisticated financial instruments along with massive international financial flows facilitated its rapid spread across markets and borders. Although it was not surprising that a global crisis led to a significant decline in global activity, the extent and duration of this decline have been a major area of research. GFC created serious financial disruptions, including credit crunches, house price busts, equity prices busts and outright banking crises, in all over the world (Claessens, Kose & Terrones, 2010).

The GFC has infected the rest of the world economy resulting in a crisis of confidence, credit rationing and widespread de-leveraging that has had major impacts on wealth, output, trade, employment and standards of living across the globe. In April 2009, the International Monetary Fund (IMF) reported that the global financial system remains under severe stress as the crisis broadens to include households, corporations, and the banking sectors in both advanced and emerging market countries. The crisis has also impacted pension and superannuation funds and insurance companies. The IMF estimates that losses from the financial crisis could reach US\$4 trillion (Legg & Harris, 2013).

One of the greatest effects of the GFC was the price volatility of the commodities. For example, in summer 2008 the oil was trading at \$147 dollars a barrel, and then the price went down to around \$40 in a short space of time.

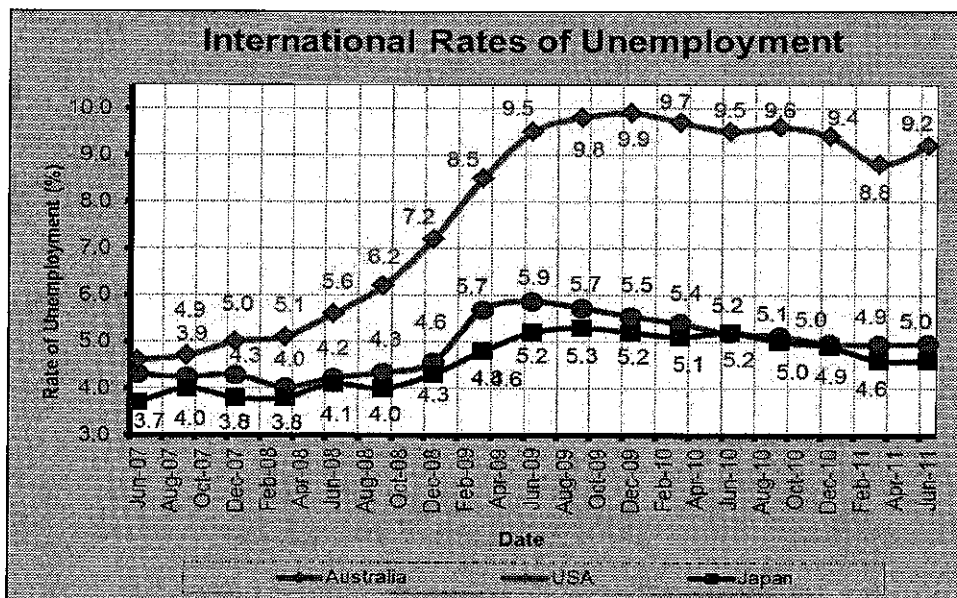
For firms making investments it's also a significant problem to know what to do. In addition to the uncertainty about commodity prices, exchange rates have also been volatile. If you look back to the summer of 2008, the pound sterling was over \$2. Then it went down to \$1.40.

The Euro was at \$1.60 then. It went down to about \$1.25 before rising back to about \$1.40 (Allen & Carletti, 2009).

The GFC had also large social consequences as well. The most important impact was a rise in global unemployment rate (see figure 8). One number is sufficient to indicate the scale of the costs in the US: For example, the US has lost 8 million jobs, the sharpest drop since World War II, and perhaps more depending on exactly when the recovery begins during the crisis. But bringing back even 8 million jobs would not return us to the pre-recession unemployment rate of 4.9% because the population has grown since then.

As a result, the declining demand forced companies to lay off millions of people and unemployment soared in many countries (Norgren, 2010).

Figure 8: International rates of unemployment



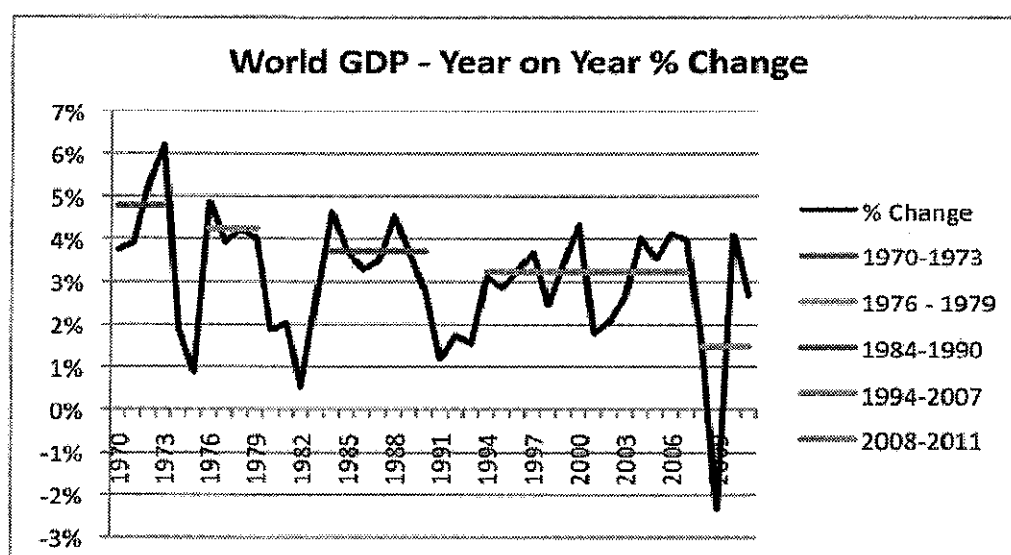
Source: economics.mrwood.com.au

The result is that the GFC has seen the largest and sharpest drop in global economic activity of the modern era. In 2009, most major developed economies find themselves in a deep recession. The fallout for global trade, both for volumes and the pattern of trade has been.

dramatic. The Organization for Economic Co-operation and Development (OECD) predicts world trade volumes could shrink by 13 percent in 2009 from 2008 levels (McKibbin & Stoeckel, 2009).

Since the US was the epicenter of the crisis and its economy was hit directly by the meltdown in the sub-prime mortgage market along with the repercussions of the GFC, then the US economy fell into recession in December 2007 and is estimated to have shrunk by 2.7 per cent in 2009. However, this contraction is smaller than most G20 countries and smaller than the average for advanced economies (-3 per cent) (see Figure 9).

Figure 9: World GDP – year on year % change



Source: ourfiniteworld.com

Although, the problems started in securitized subprime mortgages but then they spread to many other parts of the financial system because of the interaction with the real economy. As a result of the GFC Stock indices were decreased dramatically all around the world.

Most economists agree that restoring the basic functions of the financial system—intermediating deposits as loans to businesses and households as efficiently as possible—is one of the highest priorities. There is much less agreement on the best way to accomplish this goal. Broadly speaking, three types of policies, purchases of “toxic” assets, capital injections into

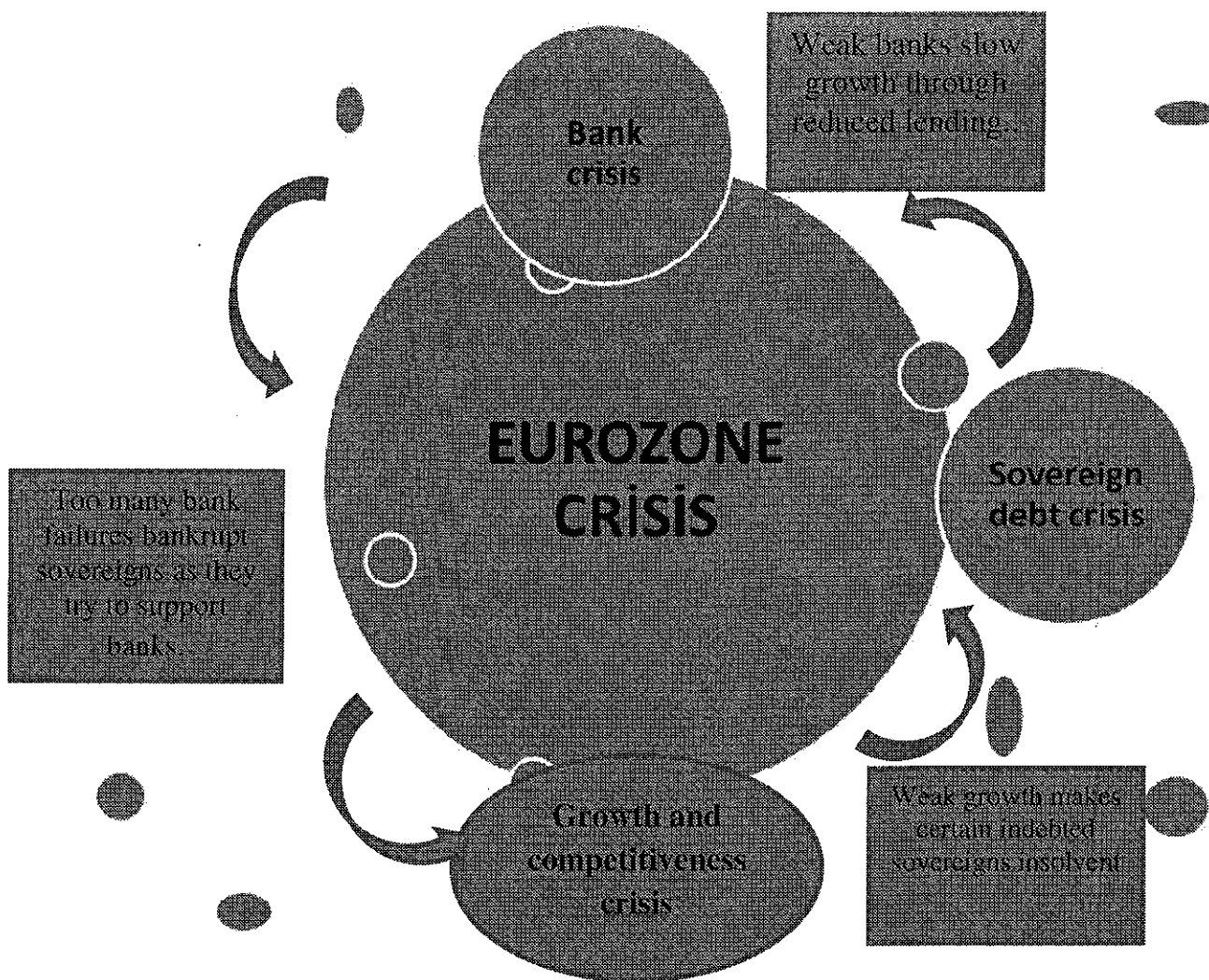
financial institutions, and wholesale reorganizations of financial institutions, are being considered and implemented to various degrees (Jones, 2009).

CHAPTER 3: ANALYSIS OF THE EUROZONE CRISIS

The European economy is in the midst of the deepest recession since the 1930s, with real GDP projected to shrink by some 4% in 2009, the sharpest contraction in the history of the EU. Although signs of improvement have appeared recently, recovery remains uncertain and fragile (European Commission, 2009).

Actually, the Eurozone today is not merely in a period of slow economic growth, attempting to recover from a financial crisis; it is in a full-fledged existential crisis. That is, the Eurozone is really in three crises. The Eurozone is currently in a **banking crisis**, where banks face a capital shortfall, interbank liquidity is restrained, and future losses are uncertain. At the same time, it faces a **sovereign debt crisis**, where at least one country (Greece) will not pay its debts in full, and bondholders are displaying increasing concern about other sovereigns. Finally, it also faces a macroeconomic crisis, where slow **growth and relative competitiveness** in the periphery add to the burden of some of the indebted nations. This last crisis is one primarily about the level and distribution of growth within the euro area.

Figure 10: The EC or Euro's three Crises



In this context, this chapter is focused on causes and results of the EC, and the EU's response to this crisis.

3.1. Causes of the Eurozone Crisis

In 1992, members of the EU signed the Maastricht Treaty, under which they pledged to limit their deficit spending and debt levels. However, in the early 2000s, a number of EU member states were failing to stay within the confines of the Maastricht criteria and turned to securitizing future government revenues to reduce their debts and/or deficits. Sovereigns sold rights to receive future cash flows, allowing governments to raise funds without violating debt and deficit targets, but sidestepping best practice and ignoring internationally agreed standards. This allowed the sovereigns to mask their deficit and debt levels through a combination of techniques,

including inconsistent accounting, off-balance-sheet transactions as well as the use of complex currency and credit derivatives structures.

The EC are interlinked in several ways. First, the sovereign debt holdings of euro-area banks are so large that if some of the debt-stressed sovereigns (Greece, Ireland, Italy, Portugal, and Spain, hereafter referred to as the GIIPS) cannot pay their debts, the banking system as a whole is insolvent. Second, and at the same time, attempts at fiscal austerity to relieve the problems due to sovereign stress are slowing growth. Yet without growth, especially in the stressed sovereigns, the sovereign debt crisis will persist. To complete the circle, continued troubles for the banks could bankrupt certain sovereigns, already struggling under the weight of supporting the banks within their jurisdictions, and failure of these banks could lead to a broken credit channel, which in turn could become a further constraint on growth (Shambaugh, 2012).

Three causes, sovereign debt crisis, banking crisis, and growth and relative competitiveness crisis, discussed above are not individually cause the EC. However, each of these factors played a part in turning rising EC.

The causes which mentioned above are explained in detail as below:

Sovereign Debt Crisis

The European sovereign debt crisis (mainly known as the Eurozone crisis) is an ongoing financial crisis that has made it difficult or impossible for some countries in the euro area to repay or re-finance their government debt without the assistance of third parties (interglobal.com, 2013).

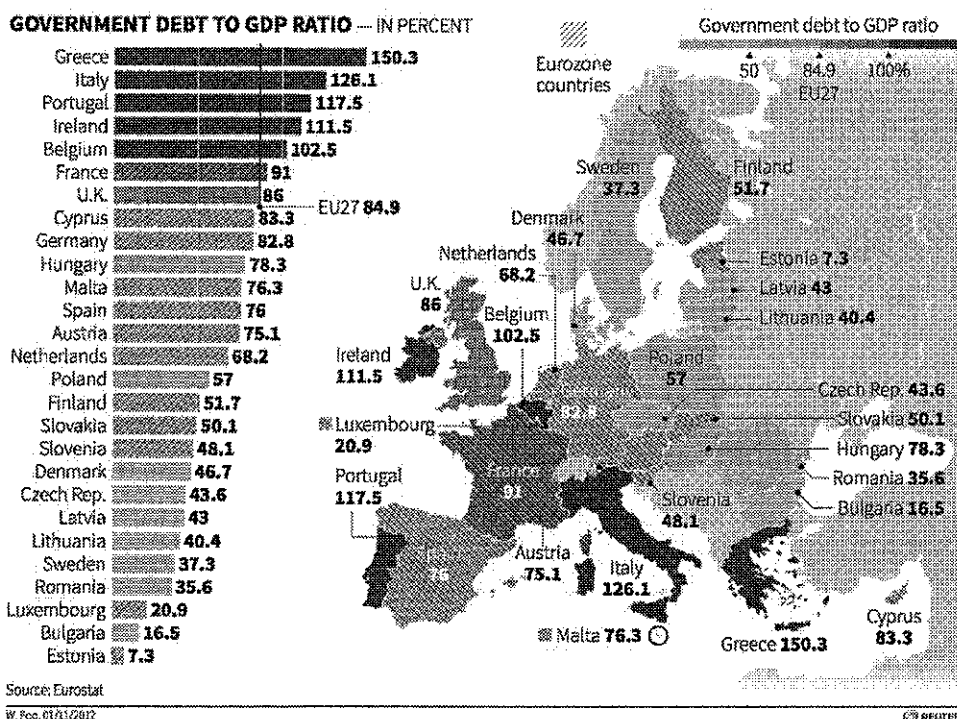
The European sovereign debt crisis resulted from a combination of complex factors, including the globalization of finance; easy credit conditions during the 2002–2008 period that encouraged high-risk lending and borrowing practices; the 2007–2012 global financial crisis, high government debt, and public debt to GDP level (see figure 11, especially in GIIPS countries); international trade imbalances; real-estate bubbles that have since burst; the 2008–2012 global

recession; fiscal policy choices related to government revenues, and expenses; and approaches used by nations to bail out troubled banking industries and private bondholders, assuming private debt burdens or socializing losses. The CDSs market also reveals the beginning of the sovereign crisis (interglobal.com, 2013).

Figure 11: Government Debt to GDP ratio

European government debt

At the end of the second quarter of 2012, the government debt to GDP ratio in the euro area stood at 90 percent, compared with 88.2 percent at the end of the first quarter of 2012. In the EU27, the ratio increased from 83.5 percent to 84.9 percent.



Source: Reuters

The crisis in Europe began when financial markets lost confidence in the creditworthiness of Greece and other periphery countries and interest rates on government bonds soared to levels that forced the governments of these countries to seek bailouts from the international community, including the European Community and the IMF. Rising risk premia on government bonds reflected the reaction of financial markets to over-borrowing by private households, the financial sector and governments in periphery countries of the Eurozone. As fears of government default

were the main trigger of the crisis, many analysts came to the conclusion that the crisis itself was caused by fiscal profligacy in periphery countries, driven by the construction of an elaborate welfare state and rising public sector wages (worldfinancialreview.com, 2013).

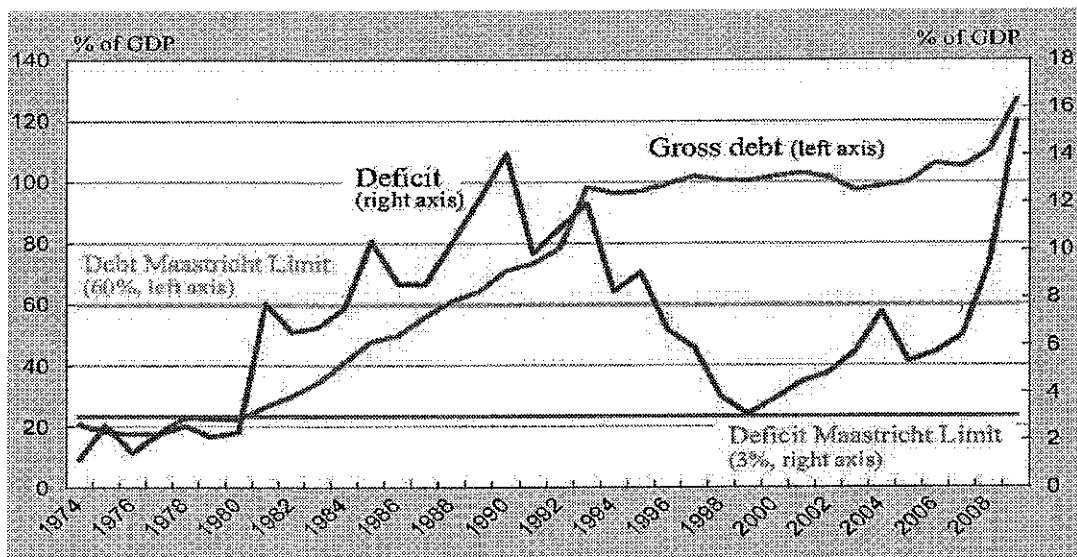
In this sense a sovereign debt crisis can act much like a bank crisis that explained in details later in this chapter. A country that can fund itself with low interest rates may be solvent, but the very same country forced to pay a higher interest rate may suddenly be feared to be insolvent, even if its primary budget is in balance. But slow growth can also doom an otherwise solvent country to insolvency (Shambaugh, 2012).

Since, GIIPS countries has been much more affected by the EC, we tried to focus on these countries implementations as follows:

Greece

Sovereign debt crisis was firstly unfolded in Greece in November 2009. Pre-existing conditions in Greece such as low level of structural reforms, high degree of government debt and deficit (see figure 12), and macroeconomic deteriorations undermines the Greece's capability to prevent the shocks of the crisis. After the first quarter of 2009, Greece was subject to excessive deficit procedure as specified in Stability and Growth Pact, owing to the forecasted deficit at 4.4 % of GDP. However, this estimate was also wrong, because of misreporting of the public finance statistics. In November 2009 Greek government announced that its deficit will be 12.7 % of GDP. EU's first reaction to the case was to determine a schedule for implementation of budgetary measures (Yurtsever, 2011).

Figure 12: Greece Government gross debt and deficit

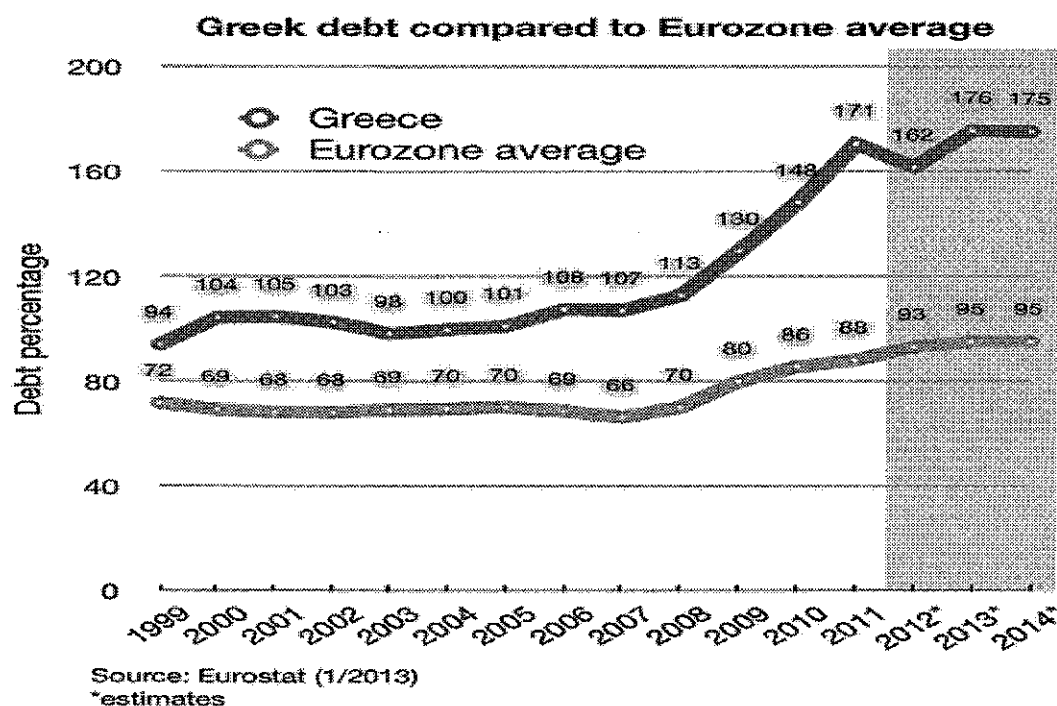


Source: Voxeu.org

European governments didn't give a signal for the bailout of Greek economy until March 2010. As a result Greek fiscal crisis deepened and its public debt became unsustainable. Following the March 2010 meeting of European Council, Eurozone members decided to offer €30 billion for 2010 as three year loans with an interest rate of 5%. On 2 May 2010, Euro area Member States raised the rescue package to €80 billion with a joint support of IMF with a €30 billion stand-by agreement. However, speculative attacks against euro had continued and European financial ministers met once more extraordinarily on 9 May to adopt a comprehensive package to stabilize Euro area. A European Financial Stabilization Mechanism (EFSM) and a European Financial Stability Facility (EFSF) were created in this regard with a total budget of €500 billion to provide financial assistance to Member States in difficulties (Yursever, 2011).

As shown at figure 11 and 13 it is clear that Greece has the highest government debt to GDP ratio. Moreover, comparing to the Eurozone average Greece's that ratio is much higher. These two indications are great risks and concerns for Greece's future.

Figure 13: Greece debt compared to Eurozone average



Ireland

The financial problems of Greece have spread to other weak economies in the European Monetary Union (EMU). Ireland requested as a second country for financial assistance in November 2009 and most recently (Yurtsever, 2011).

Greece, Italy, Portugal, and Spain have all come under fire for a varied mix of labor inflexibility, high-spending, and lost competitiveness, yet Ireland's experience demonstrates that the Aegean flu can attack even apparently flexible, parsimonious, and competitive economies. Following a massive financial crisis, Ireland now faces the same double-edged sword wielded at the other GIIPS, lost competitiveness and an unsustainable government debt trajectory.

An extraordinary housing bubble emerged. From 1997 to 2006, housing completions grew by 9.6 percent a year, and by IMF calculations, Irish house prices grew by 90 percent more than fundamentals predicted, compared to 28 percent in Spain and 20 percent in the US.

Unfortunately, in 2008, Ireland's bubble burst. Over the next two years, domestic demand fell by 16 percent, investment collapsed by over 40 percent, and housing prices plunged 30

percent. By the end of 2010, Irish output will likely have contracted by 14 percent since the beginning of the GFC.

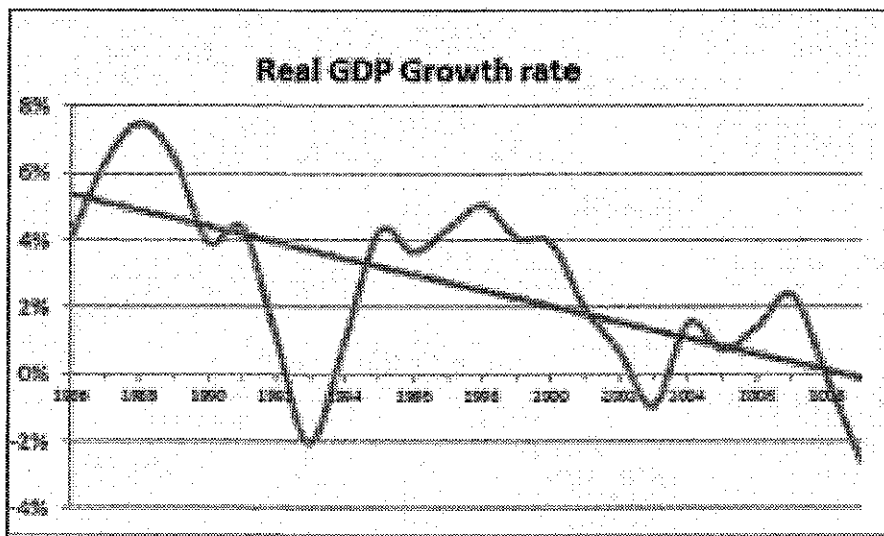
The financial sector was hit even harder. Financial equities plummeted by more than 70 percent. In June 2009, bank losses through 2010 were estimated to be as high as 35 billion euros, or 20 percent of GDP; since that estimate, nationalized Anglo Irish Bank announced losses of 12.7 billion euros, the biggest loss in Irish history (Dadush, 2010).

Portugal

After Greece and Ireland, Portugal became the third country which applied for an EU bailout. Similar to the Greek rescue package, EU and IMF jointly launched a three-year loan amounting to €85 billion for Ireland. However, the details of European aid for Portugal haven't been disclosed yet.

Unlike its most vulnerable Euro area counterparts, Portugal saw its boom that followed the adoption of the euro fade quickly. In the run up to the launch of the euro, its GDP had grown at an average annual rate of almost 4 percent—one of the highest rates in the Euro area and more than 1 percentage point above the Euro area average. However, the demand boom, which was triggered by a sharp decline in interest rates and fueled by expansionary fiscal policy, was not followed by a parallel increase in potential supply and, much like its boom, Portugal's rapid loss of competitiveness happened early relative to the other GIIPS. By 2001–2005, Portugal's growth rate (see figure 13) had decelerated sharply to just one percent.

Figure 14: Portugal's GDP Growth rate



While Portugal is doing better than Greece in terms of controlling its budget deficit and public debt, its poor long-term growth prospects, drastic loss of competitiveness, and high public and private indebtedness all make the country highly vulnerable to the Aegean flu. Moreover, Portugal's reliance on Spain—itsself vulnerable—as a market for 25 percent of its exports, adds to the contagion risk (Dadush, 2010).

Spain

The 2008–2013 Spanish financial crisis began as part of the world late-2000s financial crisis and continued as part of the European sovereign debt crisis, which has affected primarily the southern European states and Ireland. In Spain, the crisis was generated by long-term loans (commonly issued for 40 years), the building market crash, which included the bankruptcy of major companies, and a particularly severe increase in unemployment, which rose to 27.16% by April 2013. The factors created Spanish Financial Crisis can be counted as housing bubble burst (The residential real estate bubble in Spain saw real estate prices rise 200% from 1996 to 2007), increase in public debt, increasing of CDOs of public debt, credit rating downgrading, unemployment rate (youth unemployment rate is 50%) burst.

Italy

The sovereign debt crisis in Greece is still in its infancy and their effects on other vulnerable countries, including Spain, Portugal, and Ireland, have been widely discussed. But how is Italy—whose economy and public debt are more than six times larger than Greece's—faring? Italy did a better job than Greece of managing its fiscal affairs during the crisis, and its debt as a percentage of GDP (see figure 11) is still lower than that of Greece, but since adopting the euro, its competitiveness has deteriorated just as sharply. The declining competitiveness and anemic growth means that, even if contagion from Greece is controlled, the Italian economy will remain exceptionally vulnerable to adverse shocks in a highly uncertain post-crisis global environment.

To maintain its membership in the Euro area and avoid its own disastrous sovereign debt crisis, Italy should, as a first step, adopt a three-year program to raise its primary balance by at least 4 percent of GDP and engineer a real devaluation vis-à-vis Germany of at least 6 percent through wage cuts and far-reaching structural reforms. Compared to the programs enacted or planned in Greece, Ireland, and the Baltic countries whose crises have already erupted, these steps are modest and should be interpreted as preemptive (Dadush, 2010).

Banking Crisis

The banking system in the euro area—and in the EU more broadly—is large. Total assets of the banking system were equivalent to over 300 percent of euro-area GDP in 2007, compared with less than 100 percent in the US. The large size of the banking system relative to other parts of the euro-area financial system highlights another important fact: firms in the euro area rely more on the banking system for financing than do American firms, which are more likely to access the capital markets directly; this makes the health of the banking system particularly important in Europe. Thus, a problem in a banking sector can be one either of liquidity (banks are solvent but cannot get or retain funds because of uncertainty regarding their balance sheets) or of solvency (Shambaugh, 2012).

In 2007, and German banks in particular found that they were heavily exposed to problematic, subprime-related securities. During the first phase of the crisis, core Eurozone banks continued to lend heavily to peripheral borrowers in the mistaken belief that they were a safe outlet.

Furthermore, in the same time, liquidity problems surfaced in both the US and Europe. U.S. home prices had started to decline, and assets tied to U.S. mortgages became questionable in value. Banks in both Europe and the US faced large losses, and growing uncertainty about the quality of their assets made it increasingly difficult for them to borrow. One indicator of banks' difficulty in finding funds is the difference, or spread, between the interest rate that banks charge one another for short-term funds and a "safe" rate (Shambaugh, 2012).

To rescue banks, The European Central Bank (ECB) engaged in extensive liquidity provision, accepting many and debatable types of paper as collateral for secure debt. The ECB actions allowed banks to begin to adjust their balance sheet, engaging in deleveraging. By late 2008 banks were already reducing their lending, including to the periphery. Banks also stopped buying long-term securities preferring to hold short-term instruments - backed by the ECB - with a view to improving liquidity. The result was credit shortage and accelerated recession across the Eurozone, including the periphery (Lapavitsas, Kaltenbrunner, Lindo, Paineira, Pires, Powell, Stenfors & Teles, 2010).

Growth and competitiveness crisis

The institutional mechanisms surrounding the euro have been an integral part of the crisis. To be more specific, European monetary union is supported by a host of treaties and multilateral agreements, including the Maastricht Treaty, the Growth and Stability Pact and the Lisbon Strategy. It is also supported by the ECB, in charge of monetary policy across the Eurozone. The combination of these institutions has produced a mix of monetary, fiscal, and labor market policies with powerful social implications.

It is apparent that the institutions of the Eurozone are more than plain technical arrangements to support the euro as domestic common currency as well as world money. Rather, they have had profound social and political implications. They have protected the interests of financial capital by lowering inflation, fostering liberalization, and ensuring rescue operations in times of crisis. They have also worsened the position of labor compared to capital. Not least, they have facilitated the domination of the Eurozone by Germany at the expense of peripheral countries.

Peripheral countries joined the euro at generally high rates of exchange presumably to control inflation, thus signing away some of their competitiveness at the outset. Since monetary policy has been set by the ECB and fiscal policy has been constrained by the Stability Pact, peripheral countries were encouraged to improve competitiveness primarily by applying pressure on their workers. But they have faced two major problems in this regard. First, real wages and welfare states are generally worse in the periphery than the core of the Eurozone. The scope for gains in competitiveness through pressure on workers is correspondingly less. Second, Germany has been unrelenting in squeezing its own workers throughout this period. German competitiveness has thus risen further within the Eurozone (Lapavistas, Kaltenbrunner, Lindo, Paineira, Pires, Powell, Stenfors & Teles, 2010).

There is no doubt that all these factors create growth and competitiveness problem for other countries (such as GIPS) as a reason of crisis.

On the other hand, as in the US, financial deregulation increased bank leverage and availability of funds in the core Eurozone countries. The adoption of the Euro catalyzed financial flows to periphery countries and convergence of interest rates in periphery countries to the levels in core countries. The sharp increase in low-interest funds set off a consumption and real estate boom in periphery countries, leading to higher growth and increases in government revenue and spending. The resulting real appreciation led to a loss of competitiveness in periphery countries,

adversely affecting export performance and causing current account imbalances. While the fiscal position remained manageable before the crisis owing to rising revenue, the recession following the GFC led to the burst of the real estate bubble and a financial sector crisis, as well as to sharply increased budget deficits and worsened debt indicators: this triggered the sovereign debt crisis. Core countries, in particular Germany, maintained a competitive edge through wage restraint allowing them to increase exports to periphery countries, while their banks profited from increased lending to non-core countries (worldfinancialreview.com, 2013).

Other factors

Besides the factors listed above, the conditions in EU countries before the crisis were also responsible for the economic downturn. Unproductive use of resources, unsustainable policies in some member countries, faulty management of public accounts, institutional organization of European Monetary Union, the lack of cooperation among Member States are widely referred as inherent causes of the crisis (Yurtsever, 2011).

3.2. EU's response to the Crisis

The GFC widely referred as to the worst financial and economic shock since the Great Depression has revealed many serious deficiencies in the global financial system. The consequences of the crisis led governments and international institutions to act cooperatively to restore the confidence in markets through several strategies. There is a large consensus that more structural reforms are needed to achieve a transparent functioning of markets.

As a major player in the global financial landscape, EU has also taken a set of strategic actions during the global financial crisis. The recovery strategies of EU can be categorized under two headings; the preservation of Member States' financial stability and the enhancement of economic governance inside EU. In the first phase of the crisis, European states in coordination with EU tried to stabilize markets via injecting liquidity into the banks with high level of impaired assets. In the second phase, after the eruption of sovereign debt crisis in some Member States, they

took new measures for the stabilization and governance of macroeconomic conditions in Europe (Yurtsever, 2011).

Right after the crisis enters the most critical stage in September 2008; European Economic Recovery Plan was the first stimulus package introduced by the EU. The strategic objectives of the Plan were to recover the economy by considering the long-term objectives such as enhancing competitiveness and creating green economy and to mitigate the social costs of the crisis. In order to attain these objectives, the Plan proposed a number of strategic actions in accordance with Lisbon Strategy and was supported by a budget of 200 billion Euros (European Commission, 2008).

As the crisis spread the Eurozone 'periphery' countries, namely Greece, Ireland and Portugal, EFSM and EFSF were introduced as new mechanisms to avoid financial distress in euro area. Within the framework of EFSM the Commission can contract borrowings from financial markets on behalf of the EU, and then lend it up to €60 billion to the Member State in financial difficulties. Additionally, EFSF was as a special purpose vehicle, which can issue bonds up to €440 billion for lending to Eurozone Member States in difficulties. Both EFSM and EFSF were adopted following the Ecofin Council in 9 May 2010, became fully operational since August 2010 and will remain in force until June 2013. After June 2011, European Stability Mechanism (ESM) will replace EFSM and EFSF as a permanent instrument to safeguard the stability of euro area (European Council, 2010).

Finally, the ECB could provide liquidity to sovereigns and increase nominal GDP growth as well as allow slightly faster inflation to facilitate deleveraging and relative price adjustments across regions. All these steps, especially if taken together in an attempt to treat the three crises holistically, could substantially improve outcomes. At the same time, institutional reforms to create a true financial union and a common risk-free asset could help both solve the current problems and weaken the connections that led to the present crises. Of course, politics, ideology,

or additional economic shocks could all hinder improvement. The Eurozone is highly vulnerable and without deft policy may continue in crisis for a considerable while longer (Shambaugh, 2012).

3.3. Impact on the US and Global Economy

The EC crisis poses risks to the U.S. economy. The US and EU have the largest and most deeply integrated bilateral trade and investment relationship in the world. The US and the EU combined accounted for almost 50% of world GDP, and more than 40% of the world's trade in goods and services (Nelson, Belkin, Mix & Weiss, 2012). The US is tightly linked to Europe via trade, investment, and financial markets, and the Euro crisis is already affecting the U.S. economy. If the EC were to spread further across Europe, the sound conduct of U.S. monetary and fiscal policy could also come under threat. The US has taken action to help ease the crisis, restarting the FED's dollar-swap line in early May and supporting the IMF's participation in the European rescue plan. The US should also accept a weaker euro for some time. In exchange, it can exercise moral suasion to encourage fiscal consolidation and structural adjustment in the vulnerable Euro area countries and more expansive policies in the surplus ones (Dadush, 2010).

Another channel through which the EC could impact the US is through trade and investment. The EU is the US's largest trading partner: about 20% of U.S. merchandise exports and about 30% of U.S. service exports go to the EU. U.S. exports to Europe could be impacted by the EC through changes in exchange rates and aggregate demand in Europe. Additionally, uncertainty in the Eurozone is creating volatility in U.S. stock markets and a "flight to safety," causing U.S. Treasury yields to fall. Longer-term, a break-up of the Eurozone could have substantial implications for U.S.-European cooperation on economic issues (Nelson, Belkin, Mix & Weiss, 2012).

On the other hand, the trade and investment links between Eurozone and rest of the world is also significant. Lower growth and higher volatility in Europe could therefore have serious consequences for the rest of the world.

Another effect of the EC could be seen on the financial markets and institutions. As the crisis has worn on, the initial concern about exposure of euro-area banks to bad assets based on U.S. mortgages has broadened. In particular, a crucial question for these banks has become their exposure to the bonds of their own governments. European banks hold large amounts of euro-area sovereign debt on their balance sheets. That is, increased risk of sovereign default is directly translated in the market into increased risk of bank default (Shambaugh, 2012).

The sovereign debt crisis makes slow growth a more pressing issue than it otherwise would be. One reason is that slow growth might be sustainable over a much longer period when debt levels are low than when they are high. But the primary impact of the sovereign debt crisis on the growth crisis comes directly from the chosen policy response to sovereign debt stress: austerity (Shambaugh, 2012).

In summary, if the EC remains unsolved US and rest of the world feel the effects of the EC via six important channels: first, the crisis will lower growth, increase unemployment rate, and create volatility in commodities price on all over the world included Eurozone. Second, it will lead to further euro depreciation, sharply reducing profits from exports to Europe while also increasing competition from the continent. Third, by keeping policy rates low in Europe and potentially other industrialized countries as well, the crisis may encourage capital surges into emerging markets. Fourth, the crisis will add greatly to the volatility of financial markets and will lead to bouts of risk-aversion. Fifth, and potentially most important, the crisis could deal a mortal blow to many fragile financial institutions. Sixth, a failure to contain the crisis will raise the alarm on sovereign debt in other industrial countries and, inevitably, in any exposed emerging market (Dadush, 2010).

CHAPTER 4: COMPARISON OF GLOBAL FINANCIAL CRISIS AND EUROZONE CRISIS

In this chapter we tried to highlight several similarities and differences both in the causes as well as in results between two the recent crisis in the US (the GFC) and the Eurozone (the EC).

4.1. Similarities

Apart from the other conditions it can easily be said that both the GFC and EC were contributed to the 2008 financial crisis by privileging highly rated asset-backed securities, such as mortgage-backed securities.

Both the GFC and the EC affects each other from different aspect those were explained in depth in this chapter. The GFC is one of the major causes for the EC; similarly causes for the EC could be counted for the GFC. Therefore, from the causes point of view there is an intimate relationship between two crises.

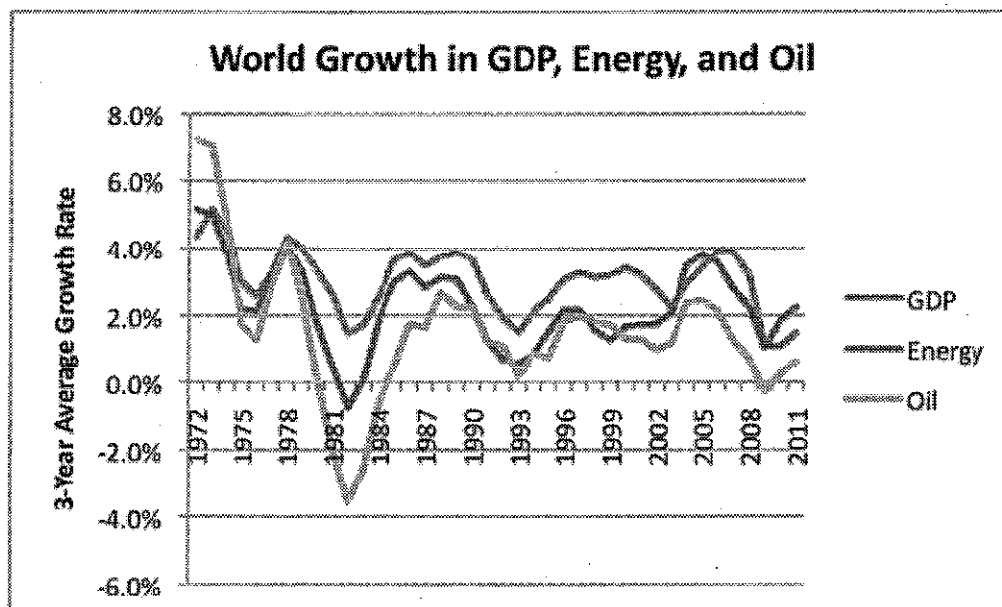
Another common theme in the period since 2008 in both the US and Europe was political failure to cope with the crisis, despite the success of the immediate stabilization efforts at the time of the initial collapse. Politicians always seemed to be behind the curve, reacting to events as they happened rather than developing any coherent plan of action, so that the markets increasingly lost confidence in their ability to cope and responded dramatically to any sign of trouble (Wilson & Grant, 2012). That is, when the troubles erupted, Eurozone policymakers initially assumed that the problem was liquidity, not solvency issue, and blamed the problem on “speculators”. Thus they repeatedly unveiled sticking plaster solutions that tried to delay tough decisions and paper over the cracks. This was similar to what the US authorities did in late 2007 (ft.com, 2013).

Both the GFC and the EC caused a severe and synchronized reduction in global trade and growth, and served as a stark reminder of the importance of cross-country linkages in the global economy. Nevertheless, while the crisis undoubtedly had global ramifications, there was a

diversity of different growth experiences across countries. Two crises were most keenly felt by advanced economies, where trade and financial linkages are strongest (Matheson, 2013).

Therefore, the bursting of the both GFC and the EC caused the values of securities tied to U.S. real estate pricing to plummet, damaged financial institutions, created liquidity problem and bank solvency, declined in credit availability, damaged investor confidence caused the global stock markets to fall, led declines in bank lending reduced real investment and output GDP, created volatility in commodities prices, and brought the Great Recession all around the world (see figure 15).

Figure 15: World growth in GDP, energy, and oil



In a nutshell, because of the GFC and the EC: First, asset prices rapidly increased in a number of countries affected by GFC and EC before the crises. Second, a number of key economies those affected by these crises experienced episodes of credit booms ahead of the crisis. Third, there was a dramatic expansion in a variety of marginal loans, particularly in the mortgage markets of several advanced economies those affected by two crises, which together led to a sharp increase in systemic risk. Fourth, the regulation and supervision of financial institutions failed to

keep up with developments. Lastly these results felt by all over the world (Claessens, Kose & Terrones, 2010).

4.2. Differences

The GFC was different than the EC and all previous crises in terms of four new aspects. First, there was a widespread use of complex and opaque financial instruments. Second, the interconnectedness among financial markets, nationally and internationally, with the US at the core, had increased in a short time period. Third, the degree of leverage of financial institutions accelerated sharply. Fourth, the household sector played a central role. These new elements combined to create unprecedented sell-offs in the fall of 2008 and resulted in the GFC (Claessens, Kose & Terrones, 2010).

To begin with, there is a striking contrast between the GFC and EC's scope (affected area), and how the Eurozone and the US are handling their financial crises. Contrary to the EC, the GFC was the worst the world has seen since the Great depression, and affected almost every part of the world. The Eurozone recession is now the longest on record for the single currency area, according to official statistics released last week, as the economy shrank again in the first quarter of this year. A comparison with the US economy may shed some light on how such a profound economic failure can occur in high-income, highly-educated countries in the 21st century (aljazeera.com, 2013). That is, difference between crises on scope comes from power of the countries. The old proverbial truth that the rest of the world sneezes when the US catches a cold appeared to be vindicated as systemically important economies in all around the world.

For better or worse, we have a useful frame of reference for the effects of the GFC on the world's economies. Table 1, indicates what happened then to the global economies (morssglobalfinance.com, 2013).

Table 1: Real GDP growth rates

Country/Region	2007	2008	2009
World	5.4%	2.8%	-0.7%
China	14.2%	9.6%	9.2%
United States	1.9%	-0.3%	-3.5%
Euro area	3.0%	0.4%	-4.3%

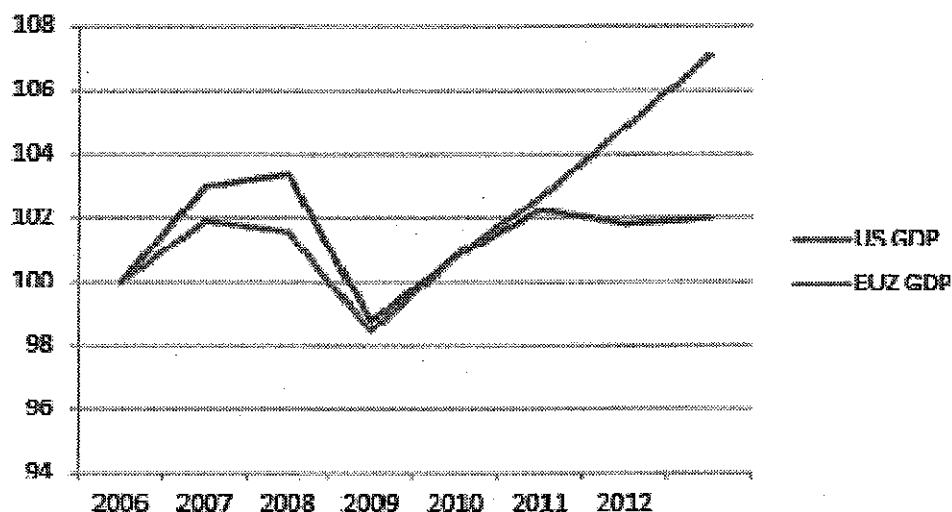
Source: IMF, World Economic Outlook Database

In contrast, there is no denying that the effects of the EC were lower than those of the GFC. Moreover, the Eurozone today is enmeshed in a set of overlapping crises that could threaten the very survival of the currency union. Banks are struggling, sovereigns are under strain, and the vision for how to generate enough growth in the periphery seems clouded (Shambaugh, 2012).

A useful starting point is to compare how the US and Eurozone have been affected by and have responded to the recent financial crisis. The goods and labor markets show an instructive comparison between the US and the Eurozone.

Firstly, the US recession starts earlier (2007), than in the Eurozone (2008), the GFC originated in the US and later spread to the Eurozone and elsewhere. Despite the crisis origin, the fall in output is larger on impact in the Eurozone; the US economy started recovering from 2009, while in the Eurozone recovery has been short-lived, and flattens out in 2010. As a result, US GDP in 2012 is above its 2006 level by 7%, while the Eurozone's output in 2012 exceeds its level in 2006 only by 2% (voxeu.org, 2013).

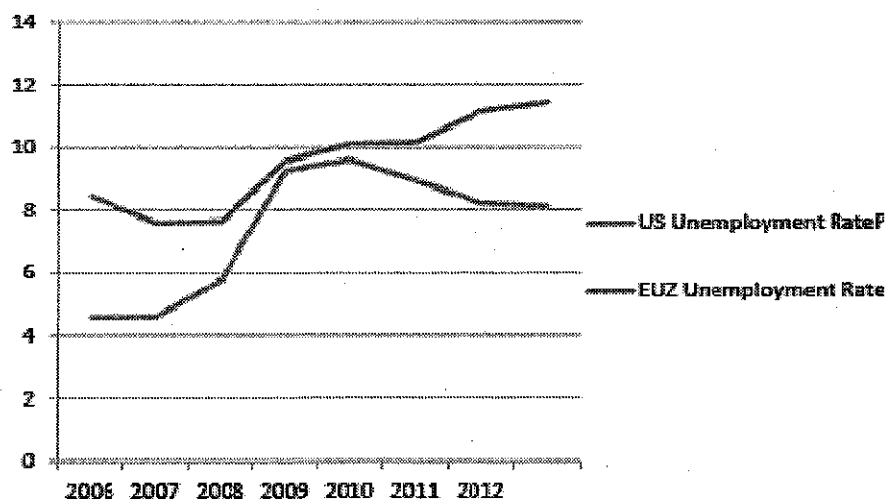
Figure 16: GDP



Source: Author's calculations based on *World Economic Outlook*

Secondly, the labor market comparison tells an interesting story: the picture below describes the rate of unemployment in the US (blue line) and in the Eurozone (red line).

Figure 17: Unemployment



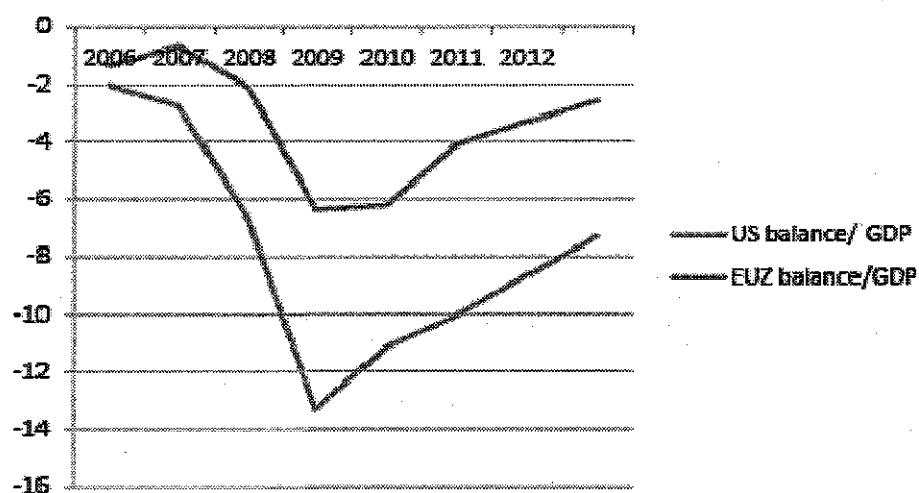
Source: Author's calculations based on *World Economic Outlook*

First, that the rise in unemployment in the US is on impact much larger than in the Eurozone, despite the fact that the latter experiences a larger drop of output. The data is therefore consistent with the presence of labor hoarding in the Eurozone relative to the US, possibly due to higher firing cost in the Eurozone. Second, following the sharp rise in the rate of unemployment in

2007-08, the US rate starts to decline in 2010, although there is little progress in 2012. Third, by contrast, the European unemployment rate rises relatively more smoothly since 2008, but shows no sign of reversal (voxeu.org, 2013).

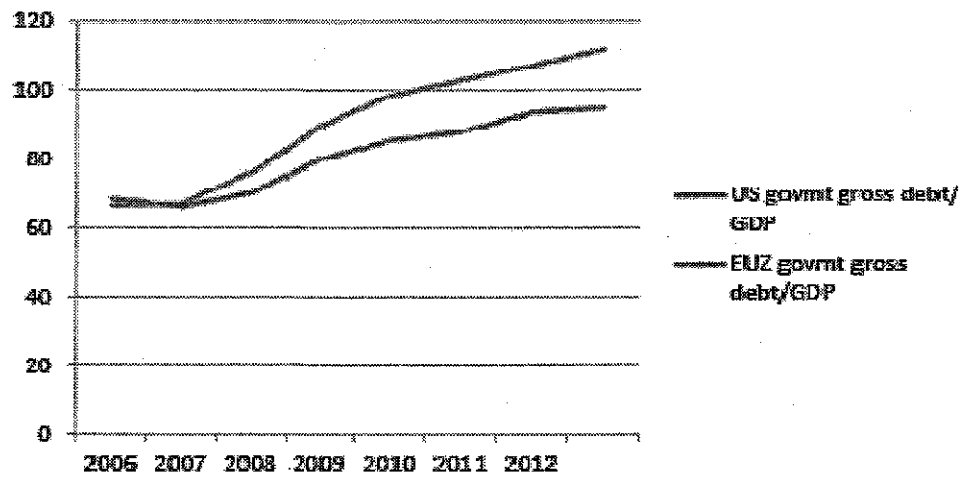
Third, a look at fiscal and monetary policies in the two sides of the Atlantic Ocean reveals important differences. The next picture shows the ratio of government budget deficit to GDP in the US and in the Eurozone. We know that this ratio should not be interpreted as an indicator of discretionary fiscal stimulus, but it's nevertheless interesting. The differences are quite striking: the rise in deficit/GDP ratio (see figure 18) in the US – a downward jump in the red line – is far more pronounced than in the Eurozone: 12 versus five percentage points of GDP from peak to trough; this occurs despite the fact that Europe experienced a deeper recession, which reduces GDP and raises the deficit due to automatic stabilizers; the 'expansionary' stance in the Eurozone is short-lived, and reverts as soon as 2009 while the deficit/GDP ratio in the US improves only from 2010. As a consequence, the debt/GDP ratios that was approximately at 70% in both the US and the Eurozone start diverging since 2007, with a much larger rise in the US (see Figure 19).

Figure 18: Government budget/GDP



Source: Author's calculations based on *World Economic Outlook*

Figure 19: Government debt/GDP



Source: Author's calculations based on *World Economic Outlook*

CHAPTER 5: CONCLUSION

The GFC has been the most severe international economic crisis since the Great Depression. Bringing an era of increasing prosperity and growth to an abrupt halt, the GFC has resulted in a recession that has led to stubbornly high levels of unemployment in the US and most European countries. The economic cost of the GFC is staggering. Ultimately, this translates into enormous human costs resulting from unemployment, homelessness, and the social ills that result.

In reflecting on the causes of this GFC, it is a mistake to think of the subprime mortgage fiasco or any other single condition as a unique cause that will not recur. This crisis largely originates from overextended household, in particular with respect to subprime mortgage loan but this is not the only factor that created the GFC.

Therefore, it can be easily said that the GFC was a crisis at the constitutive level. It reflects a deep loss of confidence in the basic infrastructure of the capital markets. This loss of confidence is a social rather than a technical process and tinkering with regulative rules, while tempting and politically distracting, will not address the heart of the matter. Like the Great Depression, it seems likely that the damage done to the social relationships which underpin global finance, such as the reputational assets of the rating agencies and the trust financiers have in each other, may take many long years to rebuild and could be wiped out again by renewed crisis perhaps stemming from sovereign debt default. That is to say, the GFC resulted from an unprecedented period of excessive borrowing, Excessive lending, and excessive investment incentivized by a series of significant economic and regulatory factors.

Being the most severe international economic crisis since the Great Depression the GFC has also brought an era of increasing prosperity and growth to an abrupt halt, the GFC has resulted in a recession that has led to stubbornly high levels of unemployment not only in the US but also

in most European countries. Almost, all European member-states have been hit by the EC but GIIPS have been much more affected by this crisis.

The GFC since September 2008 led to a recession in Europe and triggered the burst of the real estate bubble. Both the recession and the adoption of fiscal stimulus packages to counteract it as well as the burst of the real estate bubble resulted in a ballooning of fiscal deficits and a massive deterioration of debt indicators that set the stage for the sovereign debt crisis in the Eurozone that began with the Greek crisis in early-2010.

The Eurozone today is not merely in a period of slow economic growth, attempting to recover from a financial crisis; it is in a full-fledged existential crisis. That is, the Eurozone is really in three crises those are a banking crisis, a sovereign debt crisis, and slow growth and relative competitiveness.

When it comes to the result of these two crises, it is clear that the GFC and the EC resulted in and downturns in stock markets around the world. In addition, it contributed to a disaster for millions of people who have lost jobs, homes, and savings, failures of key businesses, declines in consumer wealth, real investment, and output. The financial crisis was caused by a complex interplay of valuation and liquidity problems in the US and Eurozone banking system. The bursting of the U.S. housing bubble, which peaked in 2007, caused the values of securities tied to U.S. real estate pricing to plummet, damaging financial institutions globally. Concerns about bank solvency, declines in credit availability, and damaged investor confidence caused the global stock markets to fall. Declines in bank reduced real investment and output, causing the Great Recession all around the world.

Both the GFC and the EC have their roots in the subprime mortgage market but, it is a mistake to think of the subprime mortgage fiasco or any other single condition as a unique for crises. That is, together factors mentioned in previous chapters played role to some extent for crises.

On the other hand, comparing these two crises we also highlighted several similarities and differences between the GFC and the Ec.

My tentative conclusion is that, the GFC and the EC widely referred as to the worst financial and economic shock since the Great Depression has revealed many serious deficiencies in the global financial system. The consequences of the crisis led governments and international institutions to act cooperatively to restore the confidence in markets through several strategies. There is a large consensus that more structural reforms are needed to achieve a transparent functioning of markets.

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