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Abstract:

The aim of this paper is provide us with empirical evidences and theoretical knowledge about how the compelling current Sovereign Debt Crisis in the periphery Euro-zone countries was triggered according with moral hazard theory, because the implicit and explicit externalization of risk cost for commercial financial institutions and/or banks. Different from traditional working papers that concentrated only on weak macroeconomic fundamentals and contagion effects as the main origins of the previous financial crises. In this way, this research is attempting to solve how moral hazard problem in the Euro-zone periphery countries after the introduction of the Euro currency as a global competitor of the U.S.A. Dollar caused and/or nurtured their fiscal and external unbalances. This after a short period of euphoria and wellbeing, with reduction of the interest rate and easily access to capital to finance unprofitable and risky biased businesses without appropriate banking regulation; ending up in a vicious circle between weak banking system and fiscal imbalances.

After assessing thoroughly different related economic and financial statistics from the Euro-zone periphery countries Portugal, Ireland, Italy, Greece and Spain (PIIGS), such as ratio Short Term External Debt/Foreign Exchange Reserve as a moral hazard index, as well as Fiscal and External unbalances accounts, among others, making a comparison with some of the North-core Euro countries evolution, one of the first evidences is that the nowadays Sovereign Debt Crisis has been originated in the awkward circle between weak financial system and implicit guarantees provided by negligent governments without suitable public financial regulation and supervision; while politicians were differing necessary reforms as the fiscal union adoption in the region. All in all, future research about causes of the financial crises should be focused on the moral hazard problems rather that in traditional weak fundamentals; consequently, economy policymakers should come up with the possibility to explicitly and legally avoiding the direct and discretionary interventions of the Central Banks or Governments (Finance Ministers) with the aim to rescue or bailout broken commercial financial institutions under socialization programs of their debts.

Key words: Moral Hazard, European Monetary Union, Sovereign Financial Crisis, Financial Crisis

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"FINANCIAL CRISIS IN EURO ZONE AND MORAL HAZARD"

I.- INTRODUCTION

There are different factors that explain a financial crisis. Some researchers have been traditionally concentrated on Fixed/Pegged Exchange Rate and overvaluation of the local currency, domestic credit expansion, high and persistent deficits in the Current Account of the Balance of Payments and Fiscal Accounts, high stock of Public Debt. These research including also external shocks, such as increasing of international interest rates or falling down of the Terms of Trade; and contagion effect (herd behavior). However, there are other factors that help understand better how these financial crises can be originated. Therefore, this document will explore other sources of the current European Sovereign Debt Crises as *Moral Hazard* behavior of economic/financial and politic agents that allowed commercial financial institutions (banks) to externalize their risk cost, combined with politic crisis, government profligates and corruption in the *so-called* European zone periphery EU countries: Greece, Italy, Portugal, Ireland, and Spain (PIIGS).

The *moral hazard* is a behavior caused by *asymmetric information* problems in financial markets, where the commercial financial institutions such as banks have better/more information than the regulator (financial supervisor) about transactions, efforts in order to avoid collapses and crisis in advance or ex ante (*third generation of currency crisis model*). So, the *moral hazard* problem for the aim of this document has been defined as the awkward behavior of some economic agents and politicians in the European Monetary Union (EMU) in the last decade after the introduction of the Euro as a global currency. Initially, the introduction of this regional policy allowed them experiencing a sense of wellbeing boom for a short time in the early 2000s due to easy access to credits with low interest rates that have conducted toward an extremely hazardous indebtedness of financial institutions, taking risk position by increasing the Short Term Debt regarding the Foreign Exchange Reserve. All of them under the absence of appropriated financial regulation/supervision. Furthermore, some governments implicitly guaranteed some weak banks to borrow funds, allowing *externalization of their risk cost*, and also creating a compelling vicious circle with the Public Debt.

Certainly, more of the scholars have been concentrated on some disequilibrium of economic variables (weak fundamentals) aforementioned, but ignoring the real and original causes of this turmoil *the moral hazard* incurred ex ante by some of the financial stakeholders. In this way, the basic research question addressed is how has the *moral hazard* problem incurred by commercial financial institutions in the Euro-zone periphery countries in the last decade caused and/or nurtured the current Sovereign Debt Crisis. At the same time this central research question will allow understand how the introduction of the European Monetary Union (EMU) and the Euro as a global currency and competitor of the U.S.A. Dollar by the end of 1990 years, nurtured or triggered the nowadays European Financial Crisis.

The organization of this document will permit us see in the next section (II) the basic literature reviewing about how the *moral hazard* problem has been empirically presented in the previous financial crises in Latin America, East Asian, Russia, United States of America and other countries. In the third section the working paper will concentrate on the theoretic framework based on Asymmetric Information theory and Moral Hazard. The fourth section intends to assess the relationship and causality between theoretic *moral hazard* definition and the empirical financial problems in the last years in the European Monetary Union. The conclusions and main economic policy implications from the Euro zone Sovereign Debt Crisis assessment will be provided in the last section. The annex includes some public, domestic and external financial indicators of the Euro-zone.

II.- LITERATURE REVIEW

This section summarizes some academic researches about Financial Crisis in different countries, trying to emphasize *moral hazard* ex ante problem as the main factor that has been triggered financial crisis under the absence of suitable regulation of financial markets, their over liberalization, wrong intervention of the Central Banks, government bailouts of financial institutions (private and public) that create a vicious circle between them, politic instability and other related activities. All of them led commercial financial institutions (banks) to *externalize the risk cost,* for instance, in the cases of United States of America (2007), Argentina (2000), Brazil and Russia (ending of 1990s), Asia and Mexico (1997/98 and

1994/95 respectively) and one decade before the Latin America (Chilean) financial crisis, the Lost Decade (1980s).

One of the first cases in which we can see how *moral hazard* have been presented is North American mortgage crisis under liberalization (deregulated) policies, "created not only by all those terrible people on Wall Street who took risks and ruined the economy because of they were greedy, but also by the real state bubble, playing the Central Bank a big role in its formation; therefore, it is necessary more formal checks and balances to prevent the Federal Reserve taking large risks" (Allen and Carletti, 2009). Let us not forget that this deregulation started in the 1980s with the Mr. Reagan's administration, continued in the follow three governments of Mr. Bush (father), Mr. Clinton and Mr. Bush (child), without strict financial regulation and supervision, especially in financial derivatives and other new sophisticated financial instruments; which in turn make financing industry one of the most risky profitable sectors in the USA economy.

As a result of the financial liberalization without suitable regulations as well as according to Peruvian economist De Soto (2011), based on the *property rights theory* and the *good rule of law system*, it has been very difficult to identify the owners of roughly 60 percent of the Real State mortgages in the USA, at the same time it has not been established a suitable regulation to avoid them from toxic documents[1]. Undoubtedly, the combination of both situations have been caused that some private banks and investors felt into *moral hazard* behavior, taking advantage under implicit government financial support (for the financial system) and externalization of the risk cost.

Another case of financial crisis accompanied with politic crisis and corruption is *Argentina*. In 1989 Carlos Menem was elected President in the middle of the economic debacle, hyperinflation, recession and high unemployment, etc., and started structural adjustment program including tax reform, privatizations of public enterprises, trade and financial liberalization during the 1990s[2]; as well as the adoption of the Currency Board System enacted the Convertibility Law in 1991[3]. At the same time, one of the chronic problems that had been presented in Argentina was the corruption of politics and public

[1] De Soto, Hernando (Dec. 02, 2011). International Herald Tribune Newspaper.
[2] According to "Washington Consensus" Recommendations.
[3] Hornbeck, J.F. The Argentine Financial Crisis, 2002.

official; which in turns made the Currency Board System adopted in the 1990s does not work well. Different from other economies like Hong Kong, which is working well under strict fiscal discipline (Chiu, 2001)[4]. Furthermore, corruption restricted international loans for this country. Finishing the period of Menem, after financial crisis in Russian (1998) and then in Brazil (1999)[5], Argentina entered in a prolonged recession by the third quarterly of 2000 and unemployment rate increased faster. In the middle of economic crisis Fernando de la Rua was elected President and got financial assistance from the Monetary International Fund (IMF).

In October 2000 the Vice President Carlos Alvarez resigned over the La Rua´s decision of not replace two cabinet members linked with a Senate bribery scandal, which contributed to creating political instability and financial panic that led triggering the financial crisis. So, after approving the law for cutting budget in January 2001, the Minister of Finance Cavallo resigned and later the President De la Rua. Then the Congress pointed out the San Luis Governor Rodriguez Saa in December 2001 as interim President, and announced a new economic plan: a) suspension of payment on Public Debt, b) new job creation program, c) creation of new currency not to be convertible to U.S.$. However, the political and economic problems continued and the Congress chose Peronist Senator Duhalde to complete 2003 as President. It was announced the end of the Currency Board, its devaluation in 29 percent for major foreign commercial transactions, with the adoption of the Floating Exchange Rate for all other transactions, started the *financial crisis* with the collapse of financial sector (Hornbeck, 2002).

The *Brazilian financial crisis* in 1999 showed in part how the carelessness of the government to regulate and supervise appropriately the baking system, after starting the process of liberalization with a fixed exchange rate can led toward financial problems. This was a result of the *Real Plan* implemented after Fernando Cardoso had been elected President in 1994 (second period), who adopted free market policies (Franco, 1995). Indeed, under Fixed Exchange rate the model needs capital influx to accumulate Foreign Exchange Reserves to defend the pegged exchange rate. This results in a high international Debt US$ 230 billon, the second largest in the world, with a total net Foreign Direct Investment (FDI) flow of US$ 60 billion since 1994, stimulated by the liberalization and scarce regulation. The

[4] Chiu, Priscilla (2011). Hong Kong Experience in Operating the Currency Board System.
[5] In January of 1999, Brazil devalued its domestic currency (Real) and damaged Argentina exports in 30 percent.

portfolio flows during 1997 and 1998 were US$ 71 billion in, and US$ 68 billion out; as well as portfolio investment (mixture of equity and bond purchased)[6]. At the same time tariff liberalization allowed increasing imports of goods and services, increasing the Deficit in the Current Account (BoP), reached 4.5 percent of GDP, and high demand for U.S.$ to finance imports.

Additionally, we have the economic growth in Latin American countries in the 1990s as a period of euphoria that led banks met credit demand from private sectors easily, supported by foreign capital influx, this is when banks detrimentally preferred returns over liquidity, maintaining low reserves and adopting more speculative posture being less carelessness. This also occurred before in Mexico (1994) and South Korea (1997).

One year after triggering the financial crisis in Asia, we had the *Russian Financial Crisis* (Summer 1998), as a consequence of political uncertainty and financial liberalization without suitable regulation, as part of its socioeconomic and politic transformations from State (centrally planned economy) lead development toward private sector (market based decisions). The liberalization of different sectors was very difficult because these were part of the State structure without regulation for many years, accumulating deficiency and losing competitiveness (UNCTAD, 1998). Starting liberalization of the financial sector without appropriate regulation and weaken institutions, the private property was unfairly concentrated in few hands of managers, who at the same time neither have the correct incentives nor sufficient capital in order to deal with transformations and necessary modernizations, it has been clearly an example of the Agency-Principal problem.

The straight monetary policy with high interest rate and the lack of supervision in the financial market, bolstered the financial crisis in this *transition economy* due to the fact that allowed a huge inflow of external capital (equities), long run and short terms capitals, as well as it was registered speculative financial operations under externalization of risk cost, with implicitly government guarantees. Moreover, the wealth of some families was the result of unfair (sometimes illegal activities) redistribution of the former State property but not as a result of entrepreneurial activities, exacerbating *moral risk* behavior. Furthermore, the Public

[6] Most of it is owed to commercial banks, mainly European.
http://www.twnside.org.sg/title/brazil-cn.htm

Sector was characterized by scarce of transparency and irregularities, developed reforms on Public Spend and collecting taxes. Last but not least, the heavy retirement pension fund deficit was one of the factors that nurtured the fiscal imbalance (UNCTAD, 1998).

Meanwhile, the *1997 Asian Financial Crisis* was caused not only by traditional macroeconomic disequilibrium factors and weak fundamentals (Zhuang and Dowling, 2002), but also by *Moral Hazard* problems (Third Generation of Currency Crisis Model), as well as political uncertainty under changes in governments[7], political transitions and deregulation of the financial system. Therefore, there was presented high indebtedness implicitly supported by governments that helped triggered the financial crises; private investors got financial funds to invest without suitable supervision in unsustainable sectors (Radelt and Sachs, 1998). Furthermore, these financial institutions increased awkward business activities used a mismatched maturity method: borrowing from international markets on a short-term basis and investing in Association of Southeast Asian Nations (ASEAN) markets on a long-term basis (Kyong ju Kim, 2006), for example, in Thailand and Indonesia.

High levels of capital inflows, especially of short-terms borrowings in the 1990s (Cipollini and Capetanios, 2006), place new pressures on underdeveloped and lack of technical supervision on financial system, commercial banks and Central Banks, institutional changes generally cannot keep pace with the high level of the international flows; which in turn generates ample conditions for excessive risk taking, poor banking judgment, and even outright frauds[8]. So, the easy accessibility of financial funds especially by big enterprises and business groups (*chaebols* in South Korea) supported by policy influences led invest in risk sectors because of *externalization of risk cost*. Additionally, some of them were more interested in the real property sector (building); tradable sectors were less interesting and lost competitiveness. Because one indicator to measure how increase the indebtedness risky as a part of *moral hazard* is the ratio of Short-Term Debt to Foreign Exchange Reserves, the last years before starting the financial crisis it had increased quickly, especially in South Korea and Thailand. At the same time these economies presented the highest Current Account Deficit and both resulted being the worst damaged.

[7] Korea and Thailand have both changed governments since the onset of the crisis, a new President was elected in Philippines, and the current Indonesia President was weakening health. Radelt and Sachs (1998). "The Onset of the Asian Financial Crisis".

[8] Ibid.

On the other hand, International Monetary Fund (IMF) was not alerted about possibilities of financial crisis in this Asian region up to October 1997; on contrary the IMF had predicted high economic growth rates for Asian Tigers (Hong Kong, Singapore, South Korea and Taiwan), which in turn led international investors even been more interested in the region. It is also fair to point out that in this region, different other financial crisis, the Sovereign Debt remained at prudent level, as well as had been existed strictly discipline in Fiscal Accounts without Deficits (Radelt and Sachs, 1998); therefore, it was a little difficult for specialist predicted this Financial Crisis. Later the IMF recommended these countries improving banking regulation/supervision, increasing the interest rate and cut the public spending, which contributed to the economic contraction/recession in Asian countries.

Another example of inappropriate financial regulation and poor supervision occurred under the adoption of liberalization policies was *Mexico* (1994-95), because of unrestrained financial and commercial liberalization policies adopted since the decade of 1980s. This produced a huge capital inflows, but without suitable regulation and supervision by the government. This was especially after the incorporation of Mexico to the General Agreement of Trade and Tariffs (GATT) in 1986 (Licona, 2011). This allowed some private institutions to fall in Moral Hazard behavior with high indebtedness and riskiness, the monetary reserve requirements of the banks were eliminated, there were no capitalization rules based on market risk costs, lead increasing the default portfolio, the expansion of Central Bank credit in 1994 as a last resort lender and forming price-asset bubbles. "The unseemly attraction of foreign resources, the liquidation of large amounts of government debt, and *moral hazard* nurtured an increasing in the private aggregate demand that contributed to the rapidly rising Current Account Deficit" (Gil, 1997)[9].

Different factors contributed to increase the amount of credits such as the reduction in the Public Debt, the phenomenal international availability of securitized debt, poor borrower screening and credit-volume excesses; moreover, *moral hazard* was increased by the unlimited backing of bank liabilities (Gil, 1997). Indeed, all these factors contributed directly the *externalization of risk costs* for financial investors. There were over expectations of investors in Mexican economy, just it signed the Free Trade Agreement (FTA) with United

[9] The Origin´s of Mexico 1994 Financial Crisis. The Cato Journal.

States of America and Canada (NAFTA), its accession to the Organization Countries for Economic Development (OCDE), as well as the good performance of Latin America economies in the first lustrum of 1990s. Finally, other political event that detrimentally triggered the financial crisis in Mexico was the assassination of a presidential candidate in March, 1994[10].

In this way, the Deficit in the Balance of Trade rose near 6 percent of the Gross Domestic Product, about 81 percent was explained by the rising in private investment, which was basically directed into unprofitable ventures, contributing to the unsustainability of the Current-Account Deficit. But this fact was a result of the hard Foreign Exchange Rate policy too (Licona, 2011) developed under the President Salinas (1988-1994). For instance, some of those undertakings were highly leveraged tollroads, unrecoverable home mortgages, or credit unions that invested with low or negative returns financed through the development banks. Some of the credit went to finance nonexistent enterprises or the hugely levered acquisition of bank shares, or went to non-collateralized loans[11].

One decade before, in the 1980s, different countries around the world, included *Latin American* (Peru, Chile and Bolivia) were suffered the impact of the Crisis Debt; however, the Chilean experience is more relevant to help us explaining one other financial crises where, among other factors, the absence of appropriate supervision on the financial sector by the government, increasing of the international liabilities of the private sector as well as the wrong allocation of the financial funds in the private sector, led into financial crisis. Furthermore, an audit report published by the World Bank´s Operations Evaluation Department on Chile structural adjustment loans highlighted that the lack of prudential supervision of financial institutions in increasing the economy´s vulnerability to such an extent to collapse (World Bank, 1999a, p.2)[12]. There were other factors such as overvaluation of the Real Exchange Rate under Chilean fixed regimen, booming in the real state sector, high Current Account Deficit of Balance of Payments, which were triggered by external shocks,

[10] Luis Donaldo Colosio of the Partido Revolucionario Institucional (PRI) was killed in March 23, few days before Presidential election; later was elected Mr. Ernesto Zedillo, in August 21th., 1994.
[11] http://www.cato.org/pubs/journal/cj17n3-14.html
[12] Therefore, we can see how the financial crisis was caused by lack of supervision, but not by the adaptation of Washington Consensus recommendations.

like the increasing of the international interest rate caused by the monetary policy contraction in the USA and decreasing on the Terms of Trade for Latin American.

In the first half of 1980 years, Chile suffered a financial crisis and collapsed its financial sector, Chilean Private Pension Fund (Administradoras de Fondos de Pensiones, AFPs) had to be bailed out by government with public budget (Central Bank), as well as some broken private banks, through their nationalization. After that, both financial rescuing operations for long years have been part of the Chilean Fiscal Deficit that received the elegant name of *socialization of the Debt*, its cost was more than 2 percent of the GDP, US$ 4 billons (Larrain and Vergara, 2000)[13]. It is also fair to point out that according to its powerful, presence and participation in the political decisions in that period, the military sector still keeping in the Public Pension Fund with the aim to prevent them far from some future financial crises. This is only one other part of the *Moral Hazard* problem because of the fact that some sectors near governmental decisions are taking advantage respect to others.

Table N^{o} 2.1: Causes or Factors that Triggered Financial Crisis (1980-2000s)

Factors:	Argentina 2001	Brazil 1999	Russia 1998	East Asia 1997	Mexico 1994	Chile 1982	U.S.A 2007	Euro Zone
Fixed Exchange Rate Regimen	Yes	Yes	Yes	Yes	Yes	Yes	-.-	Yes
Over valuation of Exchange Rate	Yes	Yes	Yes	Yes	Yes	Yes	-.-	Yes
High Public Debt and Fiscal Deficit	Yes	Yes	Yes	Not	Yes	Yes	Yes	Yes
Current Account Deficit and External Sector Problems	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Private Sector Over Indebted	Not	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Boom in the real state sector	Not	Not	Not	Yes	Not	Yes	Yes	Yes
Contagion Effects	Not	Yes	Yes	Not	Not	Not	Not	Yes
Scarce Accountability and Institutional Regulation Failure: Moral Hazard	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High expectations on economic successful	Not	Yes	Not	Yes	Yes	Not	Not	Not
Global Currency (US$ or Euro)	Not	Not	Not	Not	Not	Not	Yes	Yes

Source: Different international studies about financial crises.

[13] Larraín, Felipe. y Vergara, Rodrigo. "La Transformación Económica de Chile", Centro de Estudios Públicos (CEP). Chile, 2000.

In short, all the factors that were forming part of the *Moral hazard behavior* based on empirical observation because of *the externalization of risk cost for commercial financial institutions* like banks under political –explicit or implicit- support defined in the introduction were presented not only in the previous financial crisis, but also in the current Sovereign Debt Crisis in periphery Euro-zone countries, as we can see in the Table N° 2.1. Furthermore, "in many ways the financial crisis has confirmed the impression of the minimal relevance of the current multilateral legal framework regulating trade in services for the prevention and management of financial crisis"[14]. The table N° 2.1 summarized the factors that contributed triggering the different episodes of financial crises around the world.

III.- ASYMMETRIC INFORMATION THEORY AND APPLIED MORAL HAZARD DEFINITION

It is not wonder that *Moral Hazard* is one of the results of the Asymmetric Information problem that is presented normally in all market interactions, markets with one side or the other imperfectly informed are markets with imperfect information. Imperfectly informed markets with one side better informed than the other are markets with asymmetric information (Varian, 2000); therefore, the neoclassical paradigm of perfect competition markets does not exist in fact due to this problem, and others. In this way, there are prominent economist scholars that have been even laureate with the Nobel Prize in Economics according to their seminal academic research in this area. For instance, George Akerlof[15], Michael Spence[16] and Joe Stiglitz[17] whose original research have originated the Theory of Information in the modern Microeconomics courses.

According with different economic research this *Theory of Asymmetric Information* has been applied by economic practitioners like financing and banking, insurance services, businesses, labor markets; however, not enough times in order to assess the origins of

[14] Delimatsis, Panagiotis (2009). "Financial Services Trade After Crisis".
[15] Akerlof, George (1970). The Market for Lemons: Quality Uncertainty and the Market Mechanism.
[16] Spence, Michael (1973). Job Market Signaling and Book Market Signaling.
[17] Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information (1976).

Financial Crises around the world: to study the Asymmetric information between commercial financial institutions (banks) and the financial regulator (government), which originated the classic problem of Agent - Principal.

In the first case, we have George Akerlof who analyses a special market of goods (second hand autos) where sellers have better information about the quality of the products that they are offering regarding the buyers, so this market needs to be regulated in order to separate markets between (i) appropriate second hand autos and (ii) wrong second hand autos (so-called *lemons*). Otherwise, if the market is not regulated and the buyers cannot observe the quality of the product, unscrupulous and irresponsible sellers can offer and sell wrong second hand autos (lemons) as the high quality ones. "It should also be perceived that in these markets social and private returns differ, and in some cases government observations make increase the social welfare of all parties; or private institutions may arise to take advantage of the potential increases in welfare which can accrue to all parties"[18].

Another prominent academic researcher in this theoretic economy related area is Michael Spence who was focused on the *labor market* saying that according to *asymmetric information*, high productive workers may get education exactly as a signal just of their high productivity; therefore, he has developed the *"signaling theory"* that differs in the treating from *moral hazard* approaches. Moreover, we have Joe Stiglitz (and Rothschild) researches about *adverse selection* as a result from asymmetric information problem too. These authors considered that the insurance businesses where companies do not have information ex ante about the risk of their potential clients, while clients know well about themselves and their own effort to avoid accidents.

In this way, under *asymmetric information* these authors consider two kinds of equilibriums: *pooling* and *separating*. In the first, all individuals buy the same amount of insurance, in the other clients purchase different contracts. One of the important theoretic conclusions from this academic working paper is that *asymmetric information* markets need to be regulated, especially the financial market. Consequently, Stiglitz has developed economic theories about hypothesis of efficiency on financial markets (with Grossman, 1980) and credit markets (with Weiss, 1981).

[18] Akerlof, George (1970). The Market for Lemons: Quality Uncertainty and the Market Mechanism.

As occurred in some economic scopes of analysis there are different forms of understand the significance of the *Moral Hazard*, as well as based on the *externalization of risk costs* which is assumed detrimentally by innocent bystanders (Mack, 2011)[19]. So, this topic has not been considered only as an important development for the modern Microeconomic Theory, but also it has been applying in Financial Theory, Macroeconomics Theory and International Economics research areas, under the same meaning of the reaction behavior of economic agents because of existing of special incentives to becoming neglectfulness and increase the risk of a loss (Varian, 2000). For instance, following Akerlof and Romer (1994), as well as Radelt and Sachs (1998), they understand that the *moral hazard* related financial crises arises because of the fact that the banks are able to borrowing funds on the basis or implicit and explicit public guarantees of bank liabilities (externalization of risk cots). For the both last mentioned authors coincidentally, "if banks are undercapitalized or under-regulated, they may use these funds in overly risky or even criminal ventures".

Furthermore, Akerlof and Romer argued that the "economic of looting," in which banks use their state backing to purloin deposit, is more common than is generally perceived and played a large role in the United States of America savings and loan crisis. Krugman (1998) argued that the 1997 Asian Financial Crisis is a reflection of excessive gambling and indeed stealing by banks that gained access to domestic and foreign deposits by virtue of state guarantees on these deposits[20]. So in this thesis, another theoretic support will be economic theoretic models about financial crisis. For instance, according to Basu model (2009) of the financial crisis (2007-09), who builds a rational expectation microeconomic model about why the local crisis escalated into a general freeze in credit flows. The author includes a risk of default, there is the probability p that the entire loan will repaid and the probability $1-p$ that the loan will not be repaid; where $p\ (0<p<1)$ depends on different factors, such as banking regulation and supervision (by the government). Consequently, with appropriate banking regulation and supervision it is hopefully that the p increasing.

Another important related theoretic model was developed by Diamond and Dybving (1983), which provides a mathematical statement to explain how a commercial financial institution with long maturity assets (such as businesses, investors and mortgages loans

[19] Hillman (1992) pointed out that limited liabilities, similar to externalize risk cost, is very inefficient.
[20] Radelt and Sachs (1998). The Onset of the Asian Financial Crisis. (Cited in)

offered) and short-maturity liabilities (such as public deposits which can be withdrawn at any time) may be highly unstable for financial system. Indeed, it can help us understand bank runs and consequently the financial crisis in a country. Furthermore, according to Roubini it is also fair to point out that "no attempt at understanding the financial crisis of 2008-09 can be made without also considering the intellectual canvas against which it proceeded, one that long championed the innate virtues of markets efficiency, financial innovation and financial market opening, literally as ends in themselves".[21] In this way, he predicted in advance the U.S.A. mortgage crisis based on past financial crisis experiences.

Following to Bengt Holmstrom (1979) we can represent an asymmetric information model in formal terms (mathematically), in which one unrealistic feature is the assumption that the *agent* or commercial financial institution (bank) chooses their actions (and efforts) *a*, having the same information as the *principal* or regulator (Government Agency), which means that before anything about the state of the nature (θ) is revealed; of course commonly this will not be the case. In the situation that the principal o regulator (Government Agency) observes only the outcome $\boldsymbol{x}$, $\boldsymbol{s(x)}$ denote the share of $\boldsymbol{x}$ that goes to the agent and $\boldsymbol{r(x)} = x - s(x)$ denotes the share of the outcome that goes to the principal (financial regulator). It is assumed that both parties agree on the probability distribution of θ and that the agent chooses a before θ is known, where a represents a productive input called *the effort*. In this case (constrained) Pareto optimal[22] sharing rules $\boldsymbol{s(x)}$ are generated by the follow mathematical program (i), in which $G(x)$ is the principal o regulator´s utility function, defined under outcome (x) alone, which represents the interests of a part of the society, and $H(x,a)$ is the agent or (private) financial institution´s utility function (part of the society), defined also over outcome (x) and efforts (a).

$$Max: Social\ welfare: W\{G(r(x)), H(s(x))\} \quad \text{(i)}$$

$$Max\ E\{G(x - s(x))\} \quad \text{(ii)}$$

$$subject\ to\ E\{H(s(x), a)\} \geq H \quad \text{(iii)}$$

$$a \in argmax\ E\{H(s(x), a')\}$$

[21] Delimatsis, Panagiotis (2009). Financial Services Trade after Crisis (cited in). An additional review of Roubini´s point of view has been commented by Stephen Mihn in her "The New York Times" column: http://www.nytimes.com/2008/08/17/magazine/17pessimist-t.html?pagewanted=all

[22] "Pareto optimal" is referred that situation in which is not possible that somebody (or one of the parties) improves its welfare condition without impoverish the other (part).

In this way, we can establish a social welfare function *W* based on the utility of regulator (the government) and the utility of the commercial financial institution (bank), but after reordering the functions we can obtain the same results by maximizing in practical terms the *expected welfare function of the Regulator (ii)*, in accordance with the regulator utility function based on observed results (*x*) discounted the utility of financial institutions. There is a negative relationship between the regulator´s utility and the outcome or results taken by the commercial financial institutions (trade off); however, both conform at the same time the social welfare (W). The constraint (iii) guarantees that the agent or commercial financial institution (bank) gets a minimum expected utility *H* attained via the financial market or negotiation process. The *argmax* denotes the set of arguments that maximize the objective functions that follows, at the same time this constrain reflects the restriction that the principal can observe $\boldsymbol{x}$ but not $\boldsymbol{a}$. If he also could observe $\boldsymbol{a}$, a forcing contract to internalize cost risk could be used easily to guarantee that the commercial financial institution (the agent) selects a proper action or effort even when *s(x)* is chosen to solve the first to restrictions ignoring the third.

After the sharing rule is fixed, the commercial financial institution will often learn something new about the difficult of its tasks or the environment in which it is to be performed. Let *z* be the signal about θ which the agent or commercial financial institution observes prior to choosing $\boldsymbol{a}$, so that this choice becomes a function *a(z)*, as before we suppress θ and write *f(x,y,z,a)* for the joint density function, where *y* is some additional information observed by both parties. The best sharing rules *s(x,y)* can be determined to solve the program:

$$Max \int G\big(x - s(x,y)\big) f\big(x,y\big|z,a(z)\big)p(z)dxdydz \quad \text{(v)}$$

Where *G(w)* is the principal´s utility function defined over wealth (w= x - s) alone, subject to:

$$\int U(s(x,y)) f\big(x,y\big|z,a(z)\big)p(z)dxdydz - \int V\big(a(z)\big)p(z)dz \geq \overline{H}, \quad \text{(vi)}$$

$$a(z) \in argmax \int U(s(x,y)) f(x,y|z,a')dxdy - V(a'), \forall z \quad \text{(vii)}$$

Here *f(x,y/z,a)* is the conditional density function of *x* and *y*, given z and the action *a*, and *p(z)* is the marginal density of *z*. Letting *u(z)p(z)* be the multiplier function for the second equation and λ the multiplier for the first restriction, point-wise gives the characterization:

$$\frac{G'(x-s(x,y))}{U'(s(x,y))} = \lambda + \frac{\int \mu(z).fa(x,y|z,a(z))p(z)dz}{\int f(x,y|z,a(z))p(z)dz} \ldots\ldots\ldots\ldots\ldots\ldots \text{(viii)}$$

The second term on the right hand side of this equation (viii) indicates a deviation from a first best solution; consequently, under *asymmetric information* the society does not reach Pareto optimum, being necessary to establish a deductible in order to internalize the risk cost of the commercial financial institutions.

In the context of the Principal – Agent relationship, the Agent (commercial financial institution or bank) provides a productive input called the effort (*a*) in order to not over taking risk positions, that cannot be observed by the Principal (the government Financial Regulatory Agency) directly; of course, the results relate to a very specific kind of imperfect of the agent´s actions. Therefore, the Principal (Regulatory Agency) does not know to what extent a social contract has been satisfied by the Agency (banks), because of the Asymmetric Information problem. Therefore, financial institutions (the Agent in the model) use their authority only for their own benefit (sometimes selfishness) rather than take into in consideration the Financial Regulatory Agency (Principal), which represents the interests of the society, their financial creditors and public depositors; indeed, there is a clear disagreement between both kinds of institutions. Of course, this causes the modification of the probability distribution function of the outcome $\boldsymbol{x}$, which can be identified mathematically in terms of continuous time by the area under the first integral wealth function of the program (equation v).

However, following Jehle and Reny (2000) we can establish a model in which we can assess how commercial Financial Institutions (Agents) can be less concerned in accordance with the financial support of The Principal (Government) that led them to externalize risk costs; unfortunately, the Principal or Regulatory Institution cannot observe the actions or efforts (*a*) that Private Financial Institutions are doing in order to manage public funds (from depositors) appropriate. In this way, the Principal must structure their policies so that the policies themselves induce the Agents to take an appropriate level of care by internalizing risk costs. When a Principal has a stake in the action taken by an Agent, but the Agent´s action cannot be observed by the Principal, the situation is said to involve *moral hazard*. The Principal-Agent problem is for the Principal to design an incentive scheme so that the Agent

(Commercial Financial Institution) takes an appropriate action[23]. So, to simplify we can establish a model in which exists the Regulatory Agency and only one commercial Financial Institution, this last can incur in losses resulting in a varying amount of loss *L*, ranging from 1 through *L* monetary units; depending on the severity of the risky financial operation. It is possible that the loss has been avoided wholly (*L = 0*). Under the assumptions:

(i) The probability of incurring in a risk operation resulting in losses of l € {0, 1,…L} is given by the *p(a)* > 0, where *a* is the action or amount of effort exerted toward safe financial operations by the Agent; of course the probability (*p*) is affected by the such efforts. For each fixed effort *a*, we have that:

$$\sum_{l} \pi_l(a) = 1$$

(ii) There are only two possible effort levels for the Financial Institutions or Agent, a = 0 denote low effort and *a = 1* denote high effort.

(iii) Higher effort by the financial institution to reduce risky financial operations result in lower likelihood that they will have serious financial losses L, avoiding costly financial crisis in the society.

So, the best policy for the government financial regulator will differ as well as depending on whether it wishes to induce the commercial financial institutions or banks to choose high or low effort to avoid taking risky and awkward financial operations by internalizing the risk cost. Unfortunately, under *asymmetric information* situation that use to be in the financial markets, there is an additional restriction regarding the symmetric information situation; consequently, we have Paretto-inefficient outcomes because of the fact that there is a high cost for the regulator (government) when it intends to induce high effort (*a = 1*) of commercial financial institutions (banks) to avoid turmoil.

IV.- CAUSES OF PERIPHERY EURO-ZONE CRISIS: STATISTIC ASSESSMENT

Indeed the *Moral Hazard* behavior of some economic agents and politicians have been presented in all Financial Crisis previously (ex-ante) triggered them; not only in the United

[23] Jehle, Geoffrey and Reny, Philip (2,000). Advanced Microeconomic Theory. The Addison-Wesley.

States of American mortgages or real state crises, but also in the developing and/or emerging economies. For instance, some authors have been considered among other factors how the domestic economic agents (included governments) were irresponsible over spending and making risky investment beyond their means under the externalization of risk cost. Consequently, one of the compelling results was over indebtedness with foreign creditors under free interest rate, especially in the Short Terms. Sometimes private sector was guaranteed implicitly by the governments to bolster the development or bailout (rescue) of some special sectors or group of enterprises, especially from financial sector[24]. However, the difficulties of the Euro Monetary Union introduction had been existed before its introduction (ex-ante).

4.1.- EMU origins and Moral Hazard

It said that had not been existed previously a serious economic assessments (ex-ante) about the consequences and sustainability of EMU, it is believed that the motivations had been more politic related ones rather than economy oriented; for intance, their promoters did not take care about the different economy characteristics inside these varied countries. Furthermore, the introduction of the Euro currency resulted in a loosing of Nominal Exchange Rate Anchor and monetary political tools of each individual Central Bank for adjusting against specific external or domestic shocks, which was assigned to the regional European Central Bank. In this way, nowadays the interest rate has the aim to maintain the average stability of the Euro-zone, rather than respond to the conditions of an individual or specific member country (Glick, 2012)[25], in order to reach a particular socioeconomic aim.

Furthermore, the political leaders have been postponed the introduction of the Fiscal Union, not only with the aim to not loss sovereign, but also in order to not loss presence in the World Economy. Different Budgets require different financing in a region where some members have very low tax revenues; consequently, they had been financing their spending

[24] This fact was registered for example under industrialization policies to bolstering the development of special productive sectors such as microchips, carmakers, heavy chemical industry in South Korea (1997) under the government-led-economy oriented development model. In other cases to finance public and private adventure risky entrepreneurial operations as in the case of the Industrial Substitution Import models in Latin America (1970 and 1980 years).

[25] It is also fair to point out that according to "Theory of Optimal Currency Area" a common currency is more appropriate for countries with: (i) similar shocks and business cycles, (ii) high trade integration, (iii) internal labor flexibility, and (iv) fiscal policy flexibility (Mundell, 1961).

with borrowing from commercial banks by issuing sophisticated financial instruments. It is said that recently by middle of 2012, they are talking in order to adopt the Fiscal Union.

Likewise, another factor that had been taken for granted before the introduction of EMU has been the *commercial openness* intensity, which is different in each country. One country with different characteristics should issue its own currency (Mudell, 1961), keeping Flexible Exchange Rate regarding other currencies; this is contrary what happened in the Euro-zone[26]. Therefore, in the context of the current EMU, countries by themselves cannot retain the ability to restore or gain national competitiveness by devaluing or depreciating their own national currencies, simply and solely because they do not exist. Meade (1957) argued that the conditions for a common currency did not exist in Western Europe because of the lack of labor mobility; consequently, a system of Flexible Exchange Rates would be more effective in promoting Balance of Payment equilibrium and internal stability[27].

Under different labor market structures with different real unit labor costs, rigidity labor regulations and different intensity grades of labor mobility in each Euro country, it could be possible that they have problems in the salary and prices flexibility as well as in the economy adjustments, caused losing of competitiveness and serious unemployment problems. "Real unit labor costs related to major trading partners (a rough measure of national competitiveness) are moving against some of the poorer Southern countries of the Euro zone, Italy in particular; almost similar with United Kingdom"[28]. For instance, Ireland, Greece, Spain and Italy were showing the highest increase of the Labor Unit Cost, while in Germany this indicator was reducing.

4.2.- Moral Hazard Index

In spite of the fact that most scholars have not been considering *moral hazard* behavior as one of the main or central factors of the financial crises (*third generation models*) presented especially before triggering them. However, recently some authors have shyly recognized this problem as one of the main causes of this current European Sovereign Debt Crisis. For instance, they said that some people have believed that the current crisis was

[26] Mundell, Robert (1961). "A Theory of Optimum Currency Area".
[27] Mundell, Robert (1961). "A Theory of Optimum Currency Area" (cited in).
[28] Jones, Erick (2009). "The Euro and the Financial Crisis".

fundamentally caused by profligate and irresponsible behavior by governments, politicians and individuals in the Euro Zone periphery countries. "Let's call this the *local cause* point of view: Government Deficits and Debts in the periphery were so large that once the Great Recession of 2008-09 hit, investors lost confidence in the ability of those countries to remain solvent. So they tried to dump the bonds from those countries, triggering the crisis"[29].

In this way, one of the first index that this document consider to assessing the possibility of financial crisis is the ratio Short Term External Debt (International claims - up to and including one year)[30] between the Foreign Exchange Reserve[31] in absolute terms, which provides us with information about the profligacy indebtedness of one country without appropriate guarantee in Foreign Exchange Reserve. It is also fair to point out that this indicator was used before to assessing Asian Financial crisis in an Early Warning Model by Zhuang and Dowling (2002). On contrary, sound Foreign Exchange Reserve management is important because of they can increase a country´s or region´s overall resilience to shocks, improve the ability to respond effectively to financial crisis and reduce financial and reputational costs[32].

This situation has been associated just with the Euro currency adoption which produced an interest rates falling only in the early 2000s, a momentarily surge in confidence as institutions and a false sensation of risk reduction. It was believed that the incomes of the periphery Euro-zone member countries were expected to converge to those of Europe´s northern core economies, exacerbated the expectation of economic improvement and future wealth-fare in PIIGS countries, spending beyond their own means. At the same time the monetary policy became more expansionary, causing reduction of the interest rate, increasing the domestic demand, bidding up the price of *no tradable* goods to *tradable* as the real state sector, attracting more investment in the no tradable sector with less productivity, and increasing the rates of *wages* relative to *productivity* loosing competitiveness. "The single

[29] (Note: by the "EZ periphery" I mean Greece, Portugal, Ireland, and maybe Spain. Italy has not really been accused of such behavior, to my knowledge, and it seems generally accepted that it is much more the victim of contagion rather than the cause of the crisis.) http://streetlightblog.blogspot.com/2011/09/what-really-caused-eurozone-crisis-part.html

[30] According to the Bank of International Settlements (BIS), statistics.

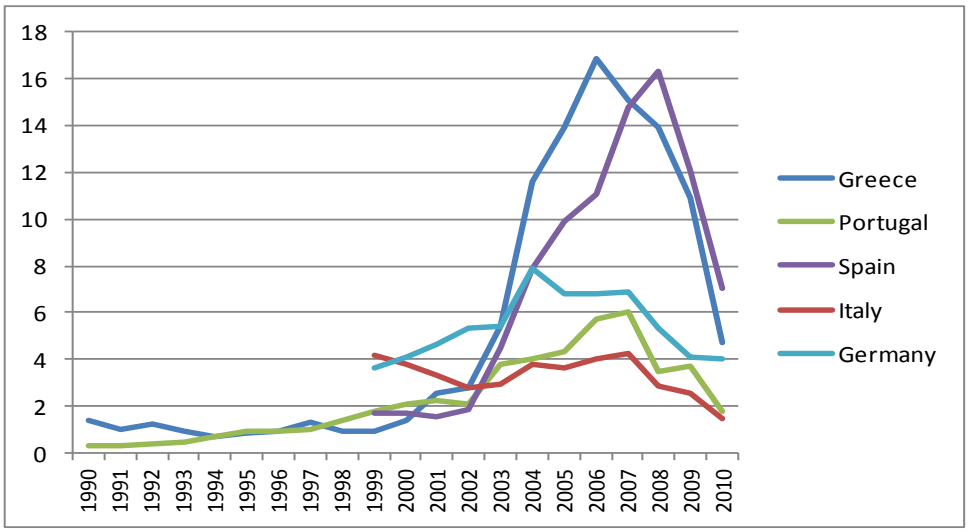
[31] Total reserves comprise holdings of monetary gold, special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued at year-end (December 31) London prices. World Bank.

[32] International Monetary Fund (2000). Guideline for Foreign Exchange Reserve Management.

monetary policy of the Euro-zone was too loose for the countries which enjoyed the temporary biggest boom and accentuated their inflation and competitiveness losses; consequently, paradoxically PIIGS countries have become increasingly uncompetitive since adopting the Euro" (Dadush, 2010).

In the Graph N° 4.1, the *moral hazard* index shows that the surge of the over indebtedness has been produced after the introduction of the Euro and accentuated around 2003. Initially, paradoxically, these countries showed a transitory improvement. Furthermore, some governments were hiding information about the real situation. So, according to this graph Greece and Spain have been ones of the most profligate countries, of course they have not been provided a level of confidence to markets that their countries can meet their external financial obligations on time. At the same time just in these two countries the average annual growth rate of credit to private sector between 2000 and 2011 years have been presented the highest rate increasing, with more than 13 and 12 percent respectively (De Haan, 2012). However, if we include the index of Germany (core North Euro), we notice that this country has been keeping a more stabilizing index in the 2000s.

Graph N° 4.1.- Short Term External Debt / Foreign Exchange Reserve (Absolute annual rates)



Source: Bank for International Settlements and World Bank

The financial situation of *Ireland* is even more compelling according to this indicator, this ratio reached 500 times, see Graph N° 4.2. Therefore, it shows that there has not been interest by Irish authorities in maintaining its foreign currency liquidity to absorb external

shocks, dealt with stoppages of external inflows, suddenly outflows of capitals or when the access to external borrowings will be scary, to cope effectively with possible financial crisis. One of the main causes in the current Ireland´s financial situation is because the government has maintained implicitly guarantees for the six domestic main banks. For instance, issued special bonds by September 2008 and September 2009 to support these banks by removing their risk loans, especially from homeowners and property builders, who were over indebtedness under the boom of the real state sector and the access to low cost credits provide by the EMU; in the context that the house prices in Ireland quadrupled between 1996 and 2007 (Whelan, 2011).

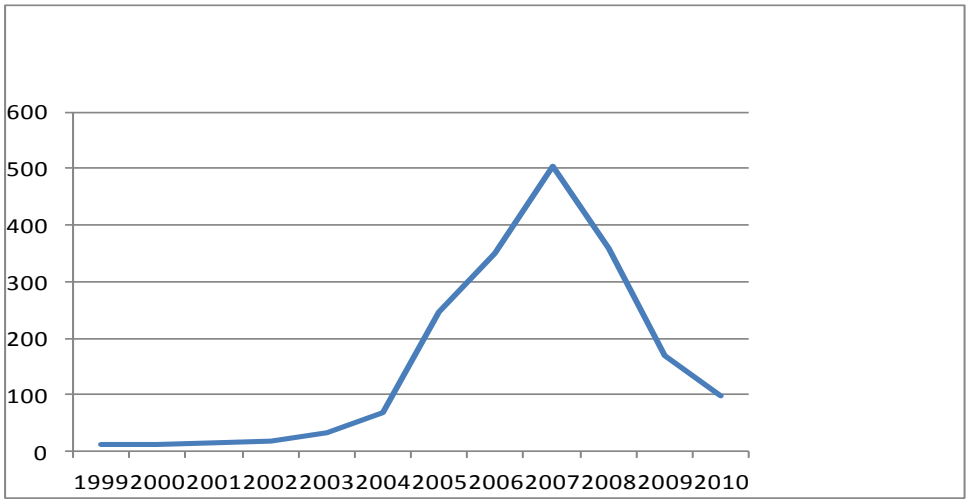
After collapsing of the real state sector and becoming the banking crisis, the government decided to nationalize some of the banks and recapitalized others; the average annual growth rate of credit to private sector between 2000 and 2011 has been more than 11 percent (De Haan, 2012). It is also fair to point out that the increasing of the Irish public spending was more than other Euro-zone countries and presented with a structural deficit; consequently, the annual growth of government expenditure in Ireland has been higher than Spain, Greece, Italy and Portugal, led to be unsustainable the government debt[33].

The rescue of the Ireland hugely expanded financial sector cost around 13.9 percent of GDP[34], the Irish banks lost more than € 100 billion because of defaulted loans to property developers and homeowners made real state or property bubble burst, along with unemployment increased and loosing of competitiveness in the private sector, austerity and deficit in the public sector accounts. So, Irish banks lent money building owners, which in turn generated a real state bubble, loss of competitiveness and also a detriment in the trading sectors. The average annual growth rate of credit to private sector has been more than 11 percent between 2000 and 2011 (De Haan, 2012). Later, some executives of the principal Irish banks were obligated to resign, contributing to financial panic of creditors and increasing the long-term government bond yield spreads regarding core countries.

Graph N^{o} 4.2.- Irish Short Term External Debt / Foreign Exchange Reserve (Absolute annual rates)

[33] Some authors said that in the case of Debt with the rest of the world, the most dramatic case was Ireland which moved from a net creditor position of 52 percent of the GDP in 1999 to a net debtor position of 71 per cent of the GDP in 2008 (De Haan, 2012).

[34] Dadush, Uri and Stancil, Bennett (2010). Europe´s Debt Crisis: More than a Fiscal Problem.



Source: Bank for International Settlements and World Bank

4.3.- Foreign Exchange Reserve disappeared

Another related variable that can be used to show the *moral hazard* behavior of these countries is the profligacy in maintaining considerable Foreign Exchange Reserves to deal with financial disequilibrium, which have been decreased in all these Western countries in the last decade after the introduction of the Euro currency. Undoubtedly, this behavior can be understand as the disinterest of the governments to complying with their creditors, repaying their External Debts, dealing with external liabilities and international adverse shocks, and manipulates their domestic currency (the Euro) in order to protect their international commercial and financial operations. Additionally, let us not forget that high Foreign Exchange Reserve allows countries getting better credit ratings by international grading agencies and less cost in their international finance operations and access to financing.

Table N^{o} 4.1: Simple Annual Average of Foreign Exchange Reserves in Months of Import of good and services (1990-2009)

	1990-94	1995-99	2000-04	2005-09
USA	2.42	1.45	1.06	1.21
Greece	4.50	6.62	1.95	0.40
Portugal	8.72	5.04	2.85	1.32
Ireland	1.82	1.25	0.40	0.05
Italy	3.02	2.32	1.69	1.71
Spain	5.44	3.81	1.55	0.49

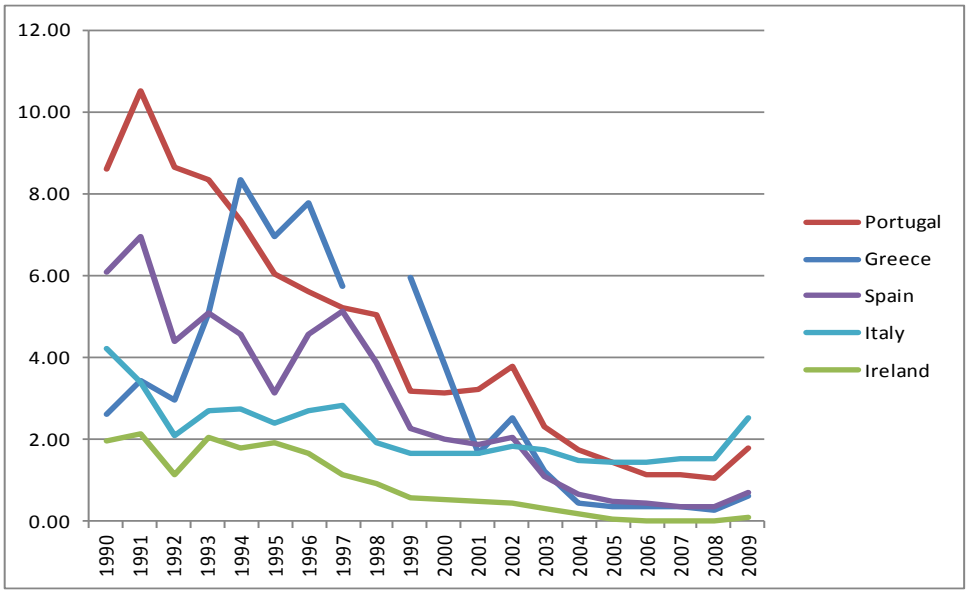
Source: World Bank

In the Table N° 4.1, that shows us the average Foreign Exchange Reserves (FER) in months of imports for different periods (lustrums), we can see clearly how Greece, Portugal, Ireland, Italy and Spain have been profligates with this economic stock variable (FER); in months of imports they dramatically decreased. For instance, in the case of Greece, since 5.44 months of imports in the 1990s, felt toward less than one month in the 2005-09s, in average. In the case of Portugal, since 6.88 months of goods and services imports in the 1990s, felt towards 1.32 months in the last 2000s. Similarly, in the case of Spain, since 4.62 months of imports in the 1990s, felt toward 0.49 month in the last 2000s[35]. Indeed, the most dramatic situation is the case of Ireland, since 1.82 months in the first 1990s, felt toward less than 5 percent of only one (1) month of imports in the last 2000s. This last result actually coincided with the previous assessment.

There is no doubt that this international financial situation could be seen again as a result of the *moral hazard* problem in periphery countries, because of the fact that by issuing Euros as international reserve and transactional currency they could have been helped to finance their own imports of goods and services from third countries, especially from developing countries which their domestic currencies are not considered international reserve. Moreover, because of the accumulation of high Foreign Exchange Reserve allows countries the possibility to repaid their External Debts and liabilities, we can understand that they have been not willing to fulfill external creditors on time; furthermore, dealing with the sudden stoppages of capital inflows or outflows. In absolute terms (Graph N° 4.4) we can see how the Foreign Exchange Reserves have been quickly reduced in these periphery countries, while in Germany has been increasing, after the introduction of Euro.

Graph N° 4.3: Total Foreign Exchange Reserves in Months of Imports (1990-2009)

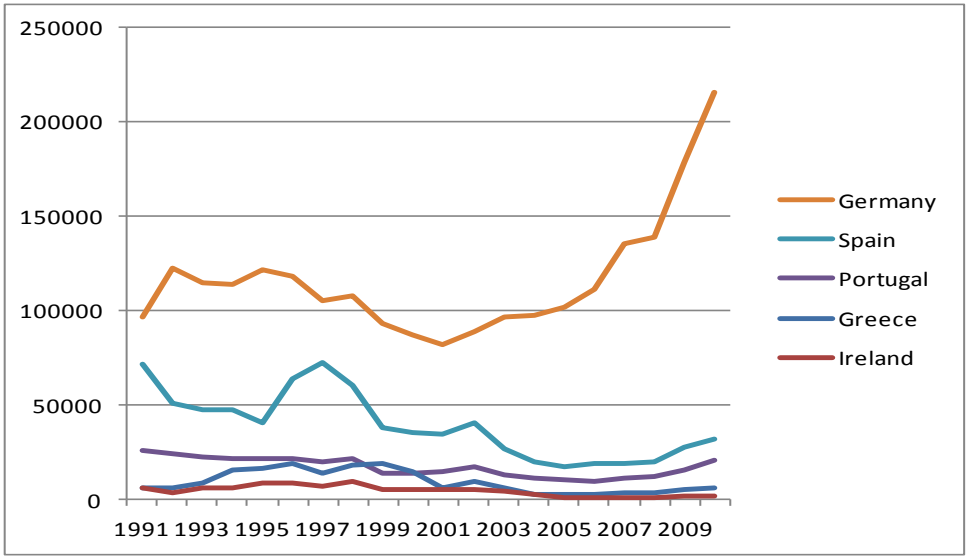
[35] This compelling situation has originated that by the end of April 2012, Standard and Poor´s Rating Agency downgraded Spain in two levels, reaching the category of BBB^{+}, in negative perspective; because of there existed the risk that the government support banks and increase its Public Debt.



Source: World Bank

On the other hand, nowadays developing countries as East Asian and Latin American economies, after suffering compelling financial crisis have been disciplinary maintained high Foreign Exchange Reserves in the last years. For example, in the case of Chile, Peru, China and Korea, among others, their current stock of Foreign Exchange Reserves can finance more than ten (10) months of their imports. Let us not forget that monetary authorities keep up with Foreign Exchange Reserves with the aim to finance external imbalances, avoiding adjust dramatically their economy activity. Of course, in the Fixed Exchange Rate regimen Central Banks maintain Foreign Reserves even if not to neutralize the operations of automatic mechanism (Ossa, 1997). The optimum average amount of FERs is determined by the need to reach an optimal combination between the external adjustment and financing in these countries; and the benefits are given by the avoided economic adjustment cost.

Graph N^{o} 4.4: Total Foreign Exchange Reserves in US$ million (1991-2010)



Source: World Bank

4.4.- Huge Fiscal Imbalances

This subsection assesses other main indicators that show us how periphery European countries (PIIGS) have been mismanaging their own Public Budgets in the 2000s with the aim to avoid possible Financial Crisis, becoming later the Sovereign Debt Crisis. So, I can start with the result of the Public Finance, Table N^{o} 4.2, in which clearly we can realize that those countries unfortunately have not been disciplinary managed their fiscal operations, living these governments inconsistently beyond their own means and tax revenues. Additionally, after introducing Euro and the reduction of the interest rate and the possibility to access cheap credit, "the per capita employee compensation (average wage) rose by an annual average of 5.9 percent (included private and public sectors) in these PIIGS countries, faster than North countries with only 3.2 percent. Furthermore, the increase in the periphery was not matched by improvements in labor productivity" (Dadush and Stancil, 2010); which in turn led periphery lost international competitiveness.

Table N^{o} 4.2: Annual Average of General Government Deficit/Surplus (% GDP)

	1995-99	2000-05	2006-10
Belgium	-2.44	-0.47	-2.28
France	-3.44	-2.78	-4.58
Greece		-5.22	-9.68
Ireland	0.82	1.45	-9.96
Italy	-4.34	-3.08	-3.54
Portugal	-3.82	-3.73	-6.14
Spain	-4.18	-0.12	-4.14

Source: European Commission-Eurostat

Periphery countries have been maintained high Fiscal Deficits in the second lustrum of 2000s, in spite of the fact that they had been getting a sporadic and short reduction only in the first 2000 years, just after introducing the Euro, and also as a result of one of the restrictions introduced European Monetary Union states in the "Maastricht Treaty" (1992) and then in the "Stability and Growth Pact" (1997). This policy was adopted in order to reduce their Fiscal Budget Deficits ceiling of less than 3 percent of GDP and their External Debt ceiling of less than 60 percent of GDP; as well as acknowledging the inherent risk of crisis due to the fact that the introduction of the new common currency in this very heterogeneous economically speaking European commercial block (Sandoval, Bertrand, and others, 2011)[36].

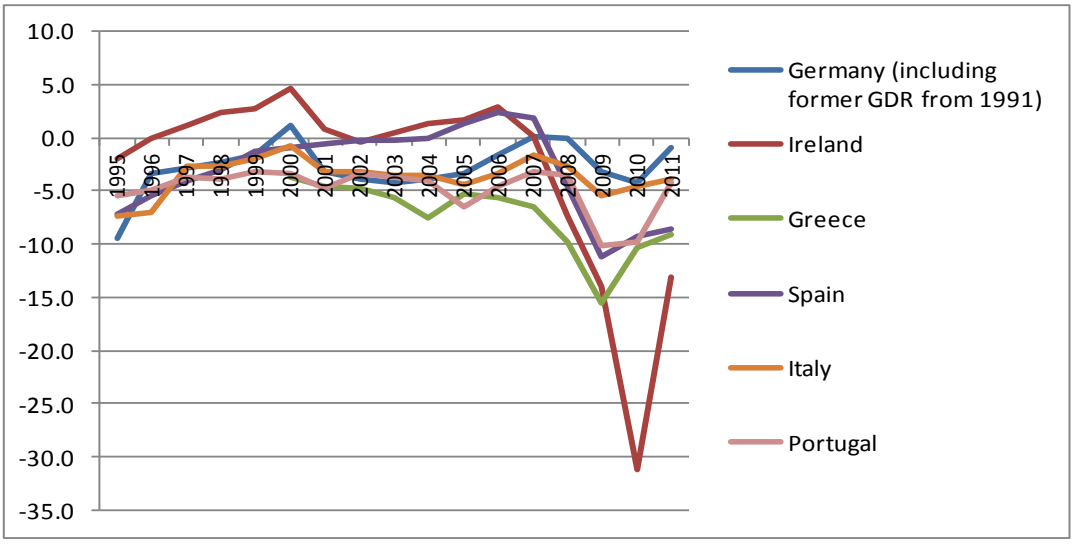
However, it seems that these restrictions were taken into consideration by policymakers only in this small period because later, in the 2006-10 years the Fiscal Deficits were dramatically increased; especially, in the cases of Ireland (reached 32 percent of the GDP in 2010), Greece, Portugal and Spain, which in turn meant that these countries had been accumulating a high stock of Public Debts. On the other hand, in average Italy was maintained its Public Deficit at the same level and the core Euro-zone countries were reduced its Deficit showing less levels than the periphery, for instance Germany reached only 1 percent of GDP in 2011[37].

[36] Furthermore, they agreed greater coordination in monetary and economic policies from members of the Monetary Union, lowering the degree of national sovereignty and clout for certain member states. The Europe Sovereign Crisis (Sandoval, Bertrand, and other, 2011: 3).

[37] It is also fair to point out that in the last months these countries have made efforts in order to restore confidence, especially in the Fiscal scope strengthening the rules governing the budgetary discipline. This is why central bankers call upon the European governments to increase the emergency facility as soon as possible (De Haan, 2012).

As we can see in the Graph N° 4.5, in the 2006-10 years the annual average Central Government Deficits increased in Ireland, Greece and Portugal regarding the five previous years. In the case of Portugal the highest public spends, among other causes, have been associated with the political situation as the large costly *Carnation Revolution* (1974-2010). Therefore, the government was hazardously bolstered public-private partnerships, risky credits, external consultancy and private advisory for more than three decades. At the same time, they were attempting to control the military insurgences in the former Portugal colonies (provinces) in the Africa continent through costly army conflicts, led increasing its military and administrative spends; with a lot of dead people that led suffered dissent and social discontent, included some international punitive sanctions, with undoubtedly adverse impact in its public financial accounts. So, the boom associated with the Euro introduction, interest rate falling and private demand increasing period was short, losing competitiveness quicker than other periphery countries, with poor log-term growth prospect[38].

Graph N° 4.5: General Government Deficit/Surplus (% GDP)



Source: European Commission-Eurostat

Even though *Portugal* was doing better efforts than Greece in order to control its public finances, as well as reaching "Maastricht Treaty" indicators, it is unclear if really they (and other governments) reached reduction in their Public Debt in the first years of Euro currency introduction because there were some allegations of corruption and false public

[38] Ali, Shimelse (2010). Portugal´s Growth Challenge. Paradigm Lost: The Euro in Crisis.

information in some periphery countries, especially in the case of Greece. For instance, the European Sovereign Debt Crisis began on October 2009, after announcing corruption behavior of the Greek First Minister George Papandreou at the Parliament; who said that the former government had been hidden real official information about its large Public Debt and Government Spending[39]. It is fair to point out that the former Portugal First Minister was unable to prevent when the first symptoms of crisis appeared in 2005; later they required financial assistance from International Monetary Fund and European Commission.

Regarding the case of *Greece* that historically has maintained compelling Public Debt problems, especially under having abundant access to cheap capital by joining to the Euro-zone in 2002, fueled by flush capital markets and increased investor confidence, "there are several deeply entrenched features that created conditions for underlying the current financial crisis, chiefs among these are pervasive state control of the economy, a large and inefficient public administration, increased endemic tax evasion and reduce revenue to financing public spends; furthermore, government in this country has been very generous with public workers increasing their salaries and pensions and widespread political clientelism" (Nelson and other, 2010). Moreover, according to journalist comments Greek government (and Italy) was using sophisticated financial instruments to mask their Fiscal imbalances, supported by specialists linked with international private financial agencies, this a political irresponsibility. Later the four principal commercial banks[40] have been received financial support from the European Financial Stability Facility Fund as a clear example of externalization of the cost risk.

In the case of *Spain*, its high Public Debt has been caused basically by financial private sector, not by the public sector, the Debt is basically private, triggering the bubble of price in the real state. In this way, the Fiscal Deficits in these countries have been an indication that their governments have been profligacy in maintaining sustainable Finance accounts, especially in the last 2000 years (Table N^{o} 3.1). As some authors pointed out, the behavior of the Public Debt-GDP ratio is one gauge of what is happening with the government finances, because of Gross Domestic Product (GDP) is a rough measure of the government´s tax base. A declining of Public Debt-GDP ratio can suggest that the

[39] Claessens, Stinj and others 2011.

[40] National Bank, Alpha, Eurobank and Piraeus Bank on May, 2012 received US$ 22.5 billion, after losing around US$ 28 billion in the re-scheduling of Greek debt in March.

government is living within its means, for example, in the case of Germany (see Graph N° 5.6); on contrary, a rising like in Ireland, Portugal, Italy, Spain and Greece[41] means that the government indebtedness is increasing relative its ability to raise tax revenue (Mankiw, 2001), as we can see in the Table N° 4.2.

In Table N° 4.3 and Graph N° 4.6, we can see how the total Central Government Debt of these countries have been increasing in the 2000s, Greece and Portugal have been financed their spending with the support of domestic and external creditors, because their domestic Gross Saving rates have been small and decreasing, reaching in average only rates of 7.97 and 11.30 percent of GDP in the last 2006-10s, see Table N° 4.4. Consequently, residents (government and private sectors) have resorted to borrowing from abroad creditors to finance their domestic investment and imports in the international markets, as we can see in the Current Account Deficit evaluation, Table N° 4.5 and Graph N° 4.7. Making downgrading the Government Debts documents status in some European countries by some grading agencies[42]. For instance, "in the 2000s Greece had abundant access to cheap capital, fueled by flush capital markets and increased investor confidence after adopting the Euro in 2001, but unfortunately these capital inflows were not used to increase the competitiveness of the economy"[43], neither to invest in tradable sectors; they were used to finance current spending of the government and finance real sector state projects.

Table N° 4.3: Simple Annual Average of Central Government Debt, Total (% GDP)

	1995-99	2000-04	2005-09
BELGIUM	118.62	100.13	87.57
FRANCE	60.78	64.47	72.40
GREECE	109.17	125.61	129.03
IRELAND	55.03	35.51	41.55
ITALY	127.06	115.23	110.87
PORTUGAL	60.95	62.71	72.96
SPAIN	63.92	52.39	36.59

Source: World Bank

[41] February 2012 Greek government approved to reduce spends € 300 million in pension cuts, 22 percent reduction in the minimum wage and cut the state sector workforce in 150,000 people by 2015. This cut was needed to secure € 130 billon second package of aid from Euro-zone finance ministers.

[42] The three most important International Agencies are Moody's, Fitch Ratings and Standard & Poor's.

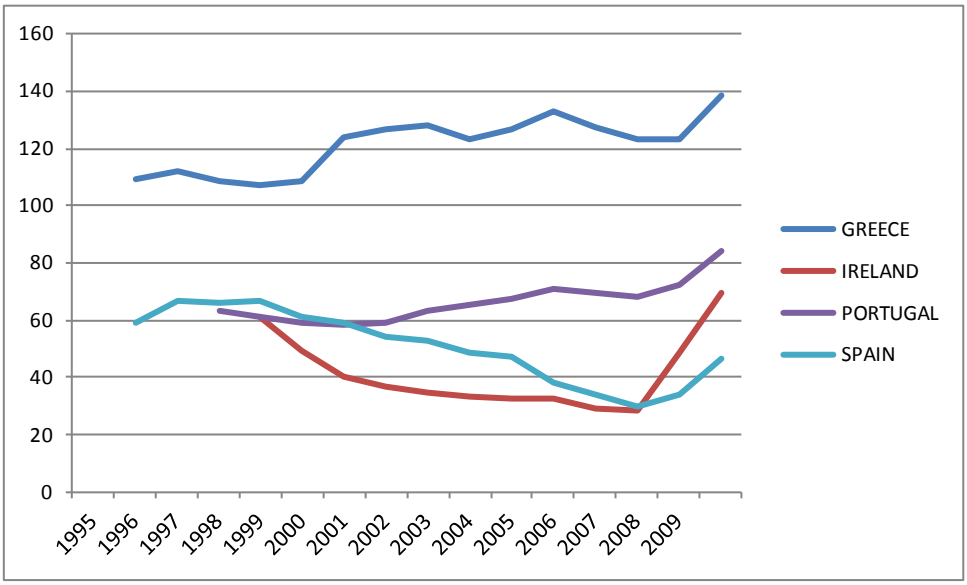
[43] Nelson, and other (2011). Greece Debt Crisis: Overview, Policy Responses, and Implications.

The increasing of the Public Debts in these countries have been through the emission of different modern and sophisticated financial instruments, of course we are coming from a world where financial innovation has been profoundly. It seems that it could not harm sometimes, hence should command a favorable predisposition from financial regulators in approval terms; which in turn led to be European countries almost impossible to repaying their increasing Public Debts obligations without bailout operations or the financial support from third parties such as European Central Bank (ECB) and/or International Monetary Fund (IMF), creating later a special fund called "European Financial Stability Facility" in May 2010. Let us not forget that one of the major benefits of joining Euro-zone was have access to greater liquidity and a lower cost of capital; therefore, for high indebted countries such Italy, Greece[44], Portugal, Spain and Belgium this means that they could borrow larger amounts at longer maturities and lower prices in "domestic currency"[45].

In spite of creating European Financial Stability Facility (EFSF) funded with € 750 billons, to support Sovereign Debt Crisis and reach financial stability around Euro-zone states by providing financial assistance[46], the problems in these countries still without getting helpful solutions. So, later in October 2011, and February 2012, the Finance Ministers of the Euro region have joined in order to strengthen the EFSF fund, increasing it in € 1 Trillion to bolster financial situation of members especially Greece and Portugal. Furthermore, they were agreed to create Fiscal Union with strict fiscal rules, according to technical recommendations of specialists from different countries, with the aim to reduce concerns related investors about the ability of a country to implement fiscal consolidation[47]; however, the current situation in the EMU shows us that while in the North (core) sub region countries are seem to convergence in terms of Deficit and Public Debt levels, in the periphery PIIGS the reality is very different between countries (at the same time, between these two economic European sub blocks).

Graph N^{o} 4.6: Central Government Debt, Total (% of GDP)

[44] Italy did a better job than Greece of managing its fiscal affairs during the crisis, however its Public Debt as a percentage of the GDP is still higher than that of Greece (Dadush and Eidelman, 2010)
[45] Jones, Erick (2011). "The Euro and the Financial Crisis".
[46] For instance, recapitalize Banks or buying Sovereign Debt.
[47] Rummel, Ole (2012). The Sovereign Debt Crisis: How to severe are the Challenges?



Source: World Bank

4.5.- Compelling Behavior of Savings, Investment and External Imbalances

Regarding the Gross National Savings, if we make an assessment in the last two decades in blocks of five years (lustrums), we can notice more precisely its decreasing in these countries in the 2000s. We can see that Greece has been the most profligacy country regarding its Saving rate, since having acceptable more that 20 percent of its GDP in 1990s as a National Saving rate, this country ends up in average with less than 8 percent in the last 2000s. In the case of Portugal which in the first half of the 1990 decade had more that 22 percent of its GDP as Gross National Saving by the end of the first 2000 decade, ends up with around 11 percent in average between 2006 and 2010.

Undoubtedly, both reductions have been as a consequence of the facilities for the easy access to foreign credits and reduction of the interest rate in the 2000s by joining to the Euro-zone and the long run unsustainable welfare state policies; which in turn disincentive economic agents making efforts to save money. This compelling situation means that especially both countries had not been prepared to finance their domestic investment (public and private) and improvements of productivity and competitiveness, as well as deal with external and financial crisis. On contrary, they have been requiring high external financing through negative Net Foreign Investment (NFI), accumulating Current Account Deficits and huge External liabilities, as we can see in the Table N^{o} 3.5 and Graph N^{o} 3.7, regarding core countries (Germany).

Table N° 4.4: Simple Annual Average of Gross National Saving (% GDP)

	1991-95	1996-2000	2001-05	2006-10
Belgium			24.68	23.86
France	21.75	20.56	19.88	19.30
Greece	22.08	17.15	14.32	7.97
Ireland	22.10	26.31	25.25	17.32
Italy	21.99	21.43	20.29	18.02
Portugal	22.35	20.35	16.86	11.30
Spain	22.02	22.46	22.99	20.25

Source: World Bank

In this way, another relevant analysis to assess the possibility of financial crisis in advance is the Current Account of Balance of Payments (BoP), whose annual Deficits have been compelling increased in the first decade of 2000s, see Graph N° 3.7. Of course, the highest annual average rate increasing precisely in Greece, from 6.79 to 12.47 percent of the GDP (5.68 percent of increasing), the focus of the crisis, followed by Spain (3.05 percent of increasing), Ireland (2.28 percent of increasing), Portugal (2.14 percent of increasing) and Italy (1.72 percent of increasing in their Deficits), between the first and the second lustrums of 2000s. According to the Warning Alert System (Zhuan and Dowling, 2002) estimated for 1997 Asian Financial Crisis, the Current Account and Capital Account (of the Balance of Payments) indicators are on average more reliable than other types of indicators in assessing vulnerability and increasing of the risk to financial crisis. Besides, according to my previous assessment about former financial crisis in developing world, it said that Current Account Deficit (BoP) has been presented in all of them (Briceño, 2003).

Also it is fair to point out that in the case of the United States of America the annual average of the Current Account Deficit is almost similar between these two 2000´s sub-periods (lustrums), maybe because of the fact that U.S.A. Dollar has been using as: (i) reserve currency (store of value), (ii) international mean of payments and (iii) unit of account for a long time; before being in force the Euro currency (1999). For example, in the international commerce of goods and services, remittances of migrant workers, international loans from multilateral and private financial institutions, Foreign Direct Investment, Official Development Assistance, among other international operations. Additionally, the highest

productivity in this industrialized country allows it gaining long run sustainability in this external indicator, while the reality in the Euro periphery countries is different.

Table N° 4.5: Simple Annual Average of the Current Account Balance Deficit (BOP, % GDP)

	1991-95	1996-2000	2001-05	2006-10
Greece	-1.31	-4.06	-6.79	-12.47
Ireland	2.12	1.22	-1.12	-3.40
Italy	-0.02	1.53	-0.94	-2.66
Portugal	-0.62	-7.03	-8.74	-10.88
Spain	-1.95	-1.73	-4.66	-7.68
USA	-1.07	-2.64	-4.82	-4.34

Source: World Bank

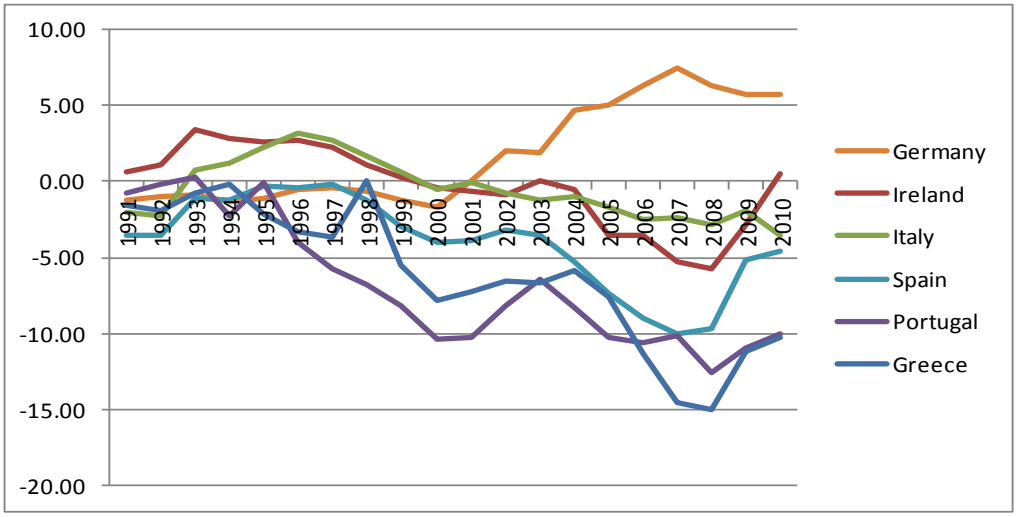
Let us not forget that according to the sustainability related theory of this Current Account of Balance of Payments, it is possible that countries may have Deficits for some years to help them finance their imports of capital goods and technology, especially for the tradable sectors, as exporting industries (including their inputs), or/and imports of national substitute goods, but not always. Furthermore, healthy international finance´s countries need long run equilibrium on the external financial sector too. Indeed this kind of persistent Deficit in developed or industrialized European countries could be understood not only as a weak of one macro fundamentals as a result of the domestic demand increasing in no tradable sectors like the real state, but also as a part of the *moral hazard* problem resulted from having the possibility to issuing an international paying and reserve currency such as Dollars and Euros. So it is believed that countries became careless; especially, in the case of periphery Euro-zone since 2000[48].

Consequently, as showed Graph N° 3.7 these Current Accounts Balance becoming deficit in some countries, and other deepened their deficits, especially since 1999-2000 years (like a break point), with the introduction of the Euro. Likewise, it is not wonder that according to basic macroeconomic identities and the *Theory of Gaps* of Hollis Chenery (1966), there is a clear relation between the behavior of the three economic variables analyzed

[48] Let us not forget that when Europe introduced the Euro in 1999, most of the political leaders, economist and bankers, thought that the Euro would become a competitor of the U.S.A. Dollar as a reserve currency and the financial obligation denominated in Euros would be trusted as much as those in the United States. Cavallo, D. Yale University lecture, 2011.

before, such as the increasing of the Government Balance Deficit, low Gross National Savings and the high Current Account Deficits of these Euro zone periphery countries, which have been incurred and profound in 2000s. As we can see, since the components of the Gross Domestic Product (GDP:Y) are the Consumption (C), Investment (I), Government purchases (G), and Net Exports (NX), Exports less Imports (of goods and services), we can get the follow relation (economic identity).

Graph N° 4.7: Current Account Balance (BOP, % GDP)



Source: World Bank

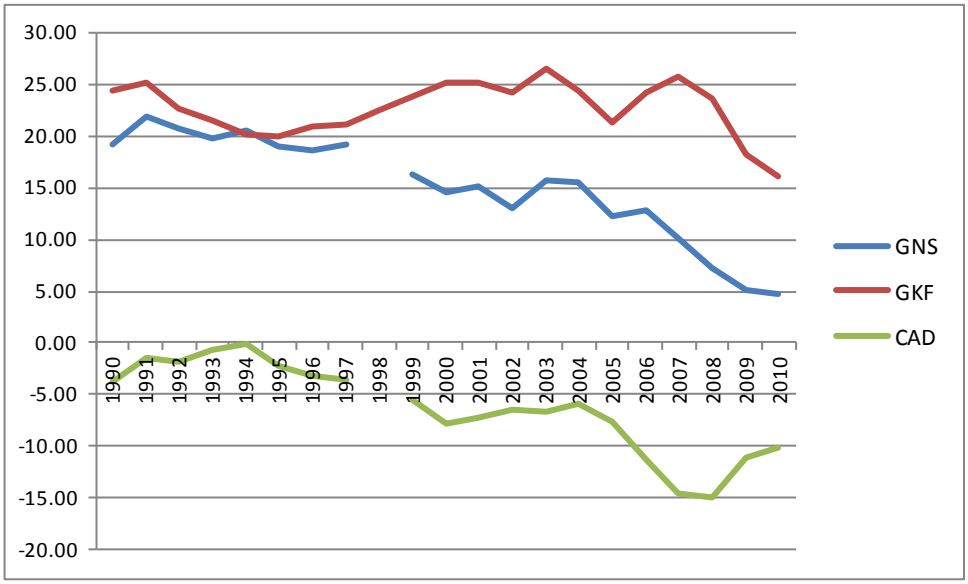
$$Y = C + I + G + XN, \text{ which can be rewrite:}$$

$$Y - C - G = I + XN, \text{ then, being } S = Y - C - G$$

$$S = I + XN; \text{ or } S = I + NFI$$

Which means that the Gross National Saving (S) must be enough with the aim to finance Domestic Investment (I) and Net Foreign Investment (NFI) equals the Net Exports (NX); however, because of especially in the cases of Greece and Portugal Domestic Savings (S) have been dramatic decreasing in the 2000s, the economic agents (Public and Private sectors) have been financing their investments (I) by negative NFI. This is equivalent to the Current Account Deficit (BoP), which in turn means a high accumulation of external liabilities (indebtedness) of those countries. Therefore, in the Graph N° 3.8, we can see how the gap between Domestic Investment and National Saving has been financed by accumulating of negative Net Foreign Investment in Greece.

Graph N^{o} 4.8: Greek Gross National Saving (GNS), Gross Capital Formation (GKF) and Current Account Deficit (CAD) as % GDP



Sources: European Commission-Eurostat and World Bank

In the Graph N^{o} 4.8, we can see clearly the changes in this economy (Greece) after 1999, the year of Euro introduction[49], before Gross National Saving (GNS) and Domestic Investment or Gross Capital Formation (GKF) were very close; therefore, the negative Net Foreign Investment (NFI) or Current Account Deficit (CAD) was smaller. Later, after 2000, the National Savings rate has been fallen compelling because of the Government Budget Deficit (GBD) increasing, as well as in part because of the private saving felt too, deepening something which has been called by the economic literature as the "Twin" Deficits (GBD and CAD). Therefore, in these countries the difference between the decreasing in the Gross National Saving and the relative increase of the Domestic Investment has been financed by the larger negative Net Foreign Investment, indicating that foreigners were buying more assets in Greece than Greek investors were buying abroad with increasing financial costs. Greece was going into high Public and Private External Debts.

In this way, foreign investors "get worried and became increasingly nervous that the Greek Government´s Debt was too big, and that it would default on its Debt, they started to demand higher interest rates for buying and holding Greek bonds, in order to compensate investors for the higher risk involved in holding Greek government bonds, but they also drove

[49] However, it is fair to point out that Greece joined Euro-zone recently in 2002.

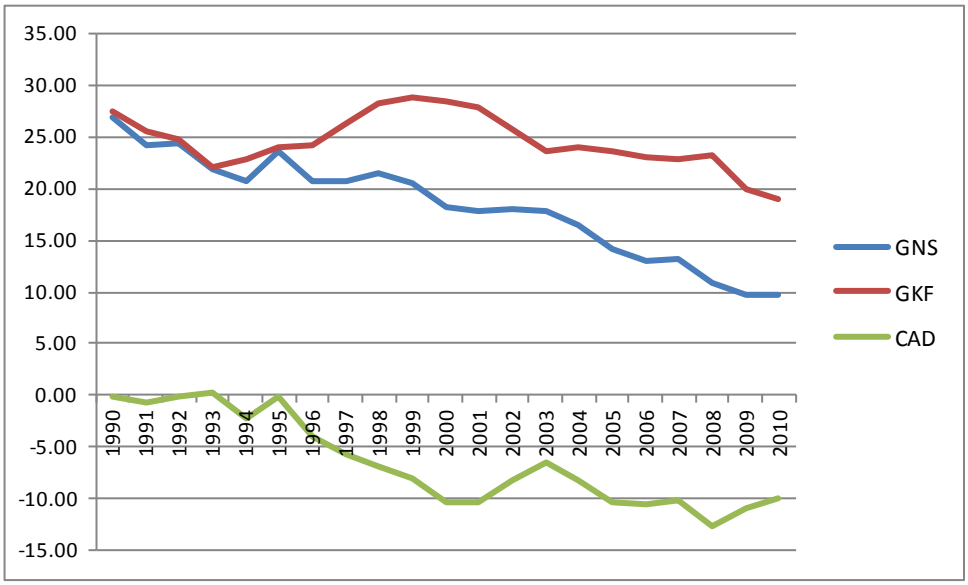
up Greece´s borrowing costs, exacerbated its Debt levels, and caused Greece to veer towards default"[50]. Therefore, the market spread between the 10 years Greek´s bonds relative to 10 years German´s bonds increasing since 2009 very quickly[51], the cost of the Greek Debt has surged dramatically. At the same time financial institutions were adversely affected according with the implicit relationship between both variables, and also because of some of the financial institutions had been obtained a huge amount of public bonds.

The case of Portugal is very similar Greece. It has been presented an increase in domestic spending accompanied by deteriorating of the Current Account Balance. The excess of Gross Capital Formation (GKF) or Domestic Investment has been financed not only with Gross National Saving (Domestic Savings) but also with accumulation of Current Account Deficits or negative Foreign External Investment since 1990s. Furthermore, between 1995 and 2000 the private saving dropped around 7 percent, while the investment increased; consequently, the gap has been expanding, see Graph N^{o} 4.9. In the 2000s, the GKF and the GNS have been reduced at the first time. However, the level of the first was higher, therefore the gap continued, especially due to the increasing of the General Government Deficit, according to the overspending related with the over bureaucratized civil service, unclear private-state partnership, which in turn fueled investment bubbles, etc. Consequently, the Current Account Deficit was broader and soared around 10 percent of the GDP in the second lustrum of 2000, which has been financed by costly external borrowings.

Graph N^{o} 4.9: Portuguese Gross National Saving (GNS), Gross Capital Formation (GKF) and Current Account Deficit (CAD) as % GDP

[50] Greece Debt Crises: Overview, Policy Responses, and Implications.

[51] Unfortunately, the situation for the follow years is even more complicated, so for 2012 Greek economy is felling around 5 percent, entering in recession according to Greek Governador of Central Bank Yorgos Provópulos.



Source: European Commission-Eurostat and World Bank

4.6.- Other causes

Another similar cause presented in the Europe Sovereign Debt Crisis, United States of America mortgage crisis and other financial crises has been the boom in the Real State sector supported irresponsible by the government, creating a bubble asset price; which for instance, after breaking in the USA in 2007 became the financial crisis. Consequently, the felt down of the *asset prices* and break up the bubble has been one of the main factors in the current financial crisis in developed countries (Allen and Carletti, 2009). It is also fair to point out that the dramatic artificially increased of the *house prices index* was presented in other European countries like Spain, Ireland, Iceland and United Kingdom.

For some authors, this situation could be seen as a result of the low interest rate policy adopted by the U.S.A. Federal Reserve and other Central Banks, after the collapsing of the technology stock bubble by the end of 1990s[52]. In this way, the situation in Spain was more dramatic, construction sector value-added reached 17 percent of GDP, in ten years the Spanish housing prices more than doubled, reached a peak in 2006, the country started more homes than the United Kingdom, Germany, France and Italy combined (Dadush and Eildeman, 2010). The boom in this non trade sector led Spain increases the wages higher than other EU country, contributed to weak its productivity and loos of competitiveness.

[52] Adrian and Shin (2009), Brunnermeier (2009), Greenlaw et al. (2008) and Taylor (2008). Cited in Allen and Carletti, 2009.

V.- CONCLUDING REMARKS AND POLICY IMPLICATIONS

As in previous financial crisis in developing countries caused by absence of suitable financial regulation and implicit guarantees of the governments for financial institutions, the origins of the current financial crises is in maintaining implicit and explicit government guarantees for some private financial institutions (banks) without deductibles. This creates a vicious circle between Banking and Sovereign Debt Crises amid irresponsible political indecisions, which in turn originate *moral hazard* behavior with overexposure to private credit default, irresponsible private borrowers, over expenditure, awkward and risky investments and consequently assets price bubble, accumulation of large deficits in the Current Account of Balance of Payments, among other disequilibrium.

Financial crisis in developing countries were originated because of the fact that governments had been inconsistently keeping over valuated Fixed Exchange Rates for a long time; consequently, their Real Exchange Rates were over valuated, loosing competitiveness, damaging the international commercial sectors (exporting) and creating real state bubble and high Deficit in the Current Account (BoP). These facts have been presented again in the currently international financial crises, for some EU countries the Euro currency is very over valuated.

Periphery EU countries and the core have had serious problems to reconciling asymmetric monetary, fiscal and external needs, their efforts in order to prevent excessive Public Debt and avoid financial bailout were unsuccessful. Consequently, these problems have been reducing the attractiveness of the Euro currency as an alternative (i) reserve asset, as well as a (ii) medium of exchange and/or (iii) unit of account in the international transactions. So, in the next years the U.S.A. Dollar will continue being the dominant foreign currency, preferred for global transaction and reserve asset. It has been estimated that around 85 percent of the Foreign Exchange transactions, 60 percent of the official Foreign Exchange Reserve and the half of the Foreign Securities will be denominated in U.S.A Dollars (Glick, 2012).

Because of *moral hazard* behavior has been one of the main factors in most of the financial crisis, it is important to come up with the explicit prohibition for the Central Banks to rescue or bailout directly and discretionally commercial financial institutions without appropriate deductibles and credible punishments with the aim to *internalize the risk cost*. It is known the world over that in the past hyperinflation processes mainly were originated by monetary financing from Central Banks emissions toward Central Governments (monetization of Fiscal Deficits). After that, governments progressed under the explicit prohibition to finance government budgets in the primary financial markets by the Central banks, at the same time hyperinflation has been disappeared. Moreover, governments (Central Banks) around the world should not expect that the credit rating international agencies (Moody´s, Standard and Poor´s and Fitch IBCA) evaluate their financial situation; as well as it is important to prevent mistakes by the efforts of more transparent public institutions like Central Banks, Financial Regulators and Finance Ministries.

In order to mitigate possibilities of future financial crisis around the world, especially in developing countries, it is very important that Micro and Macro Prudential Regulations have been institutionalized, according to intrinsic problems in international financial markets and the high volatility of capital inflows toward developing countries affected by global factors (especially, in the case of Short-term Capital flows) and domestic factors (especially, in the case of Long-term Capital flows). These economic policy tools have proved been effectively in order to avoid high volatility of capital inflows in emerging markets in the last years; furthermore, the grade of implementation should be according to the financial instruments that the countries are dealing with, such as financial derivatives as well as the participation of Short-term Capital inflows.

Another important lesson for policymakers is one trivial, developing countries and small countries with open capital accounts need Float Exchange Rates. It is not convenient establishing hard fixing or attaching local currency to the Euro or U.S.$., because these episodes have been proved overvaluations, losing of competitiveness and reducing of the trade activities and the Gross Domestic Product. Like nowadays in the cases of Latvia, Estonia and Lithuania which currencies were attached to the Euro. Last but not least, it is very important to keep up with legally independent and technical Central Banks, far from politician influences, increasing their accountability and reduce their discretionarily intervention.

Finally, in these financial crises have existed *weak fundamental* problems such as imbalances in the Public and External sectors caused by Government Spending, Fiscal Deficit and/or the Public Debt, reduction of the Domestic Saving; consequently, the Deficit in the Current Account of the Balance of Payments has been increasing with reduction of Foreign Exchange Reserve. This has been especially happened as a consequence of the EMU and Euro currency introduction as a competitor of the US$, that caused a reduction of the interest rate and the availability of huge fresh capitals for their members, bolstering *moral hazard* behavior of economic agents *externalized their risk costs* and investing in unprofitable and nontrade sectors loosing competitiveness their economies.

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ANNEX: EUROZONE FINANCIAL AND ECONOMIC STATISTICS

This annex presents official statistics that show the behavior of economic agents in the periphery Euro-zone countries, government and private sectors, especially from those countries which have been more affected by the Sovereign Debt Crisis *so- called* PIIGS. Those statistics are related with General Government Deficit/Surplus, Public Debt (Central Government Debt), Gross National Savings and Investment, Current Account Deficit in the Balance of Payments and the Foreign Exchange Reserve. Definitely, the best predictors of financial crisis should be the high Government Debt (caused by increasing Fiscal Deficits accumulation), the increase of the Current Account Deficit and the reduction of Foreign Exchange Reserve.

Table N^{o} 1.A: General Government Deficit/Surplus (% of GDP)

	2003	2004	2005	2006	2007	2008	2009	2010
Belgium	-0.10	-0.30	-2.70	0.10	-0.30	-1.30	-5.80	-4.10
France	-4.10	-3.60	-2.90	-2.30	-2.70	-3.30	-7.50	-7.10
Greece	-5.60	-7.50	-5.20	-5.70	-6.50	-9.80	-15.80	-10.60
Ireland	0.40	1.40	1.70	2.90	0.10	-7.30	-14.20	-31.30
Italy	-3.60	-3.50	-4.40	-3.40	-1.60	-2.70	-5.40	-4.60
Portugal	-3.00	-3.40	-5.90	-4.10	-3.10	-3.60	-10.10	-9.80
Spain	-0.30	-0.10	1.30	2.40	1.90	-4.50	-11.20	-9.30

Source: European Commission-Eurostat

Table N^{o} 1.B: General Government Deficit/Surplus (% of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002
Belgium	-4.50	-4.00	-2.20	-0.90	-0.60	0.00	0.40	-0.10
France	-5.50	-4.00	-3.30	-2.60	-1.80	-1.50	-1.50	-3.10
Greece	:	:	:	:	:	-3.70	-4.50	-4.80
Ireland	-2.00	-0.10	1.10	2.40	2.70	4.70	0.90	-0.40
Italy	-7.40	-7.00	-2.70	-2.70	-1.90	-0.80	-3.10	-3.10
Portugal	-5.00	-4.50	-3.40	-3.50	-2.70	-2.90	-4.30	-2.90
Spain	-7.20	-5.50	-4.00	-3.00	-1.20	-0.90	-0.50	-0.20

Source: European Commission-Eurostat

Table N° 2.A: Central Government Debt, Total (% of GDP)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BELGIUM	106,76	105,41	101,96	95,81	90,71	89,41	85,62	82,60	87,84	92,35
FRANCE	60,67	59,75	63,41	68,08	70,44	72,30	67,95	66,80	72,21	82,75
GREECE	123,91	126,70	127,70	123,17	126,55	132,88	127,11	123,25	123,43	138,47
IRELAND	40,03	36,87	34,78	33,58	32,29	32,70	28,91	28,40	48,56	69,21
ITALY	119,39	118,52	115,77	111,35	111,13	113,34	109,65	104,84	107,64	118,90
PORTUGAL	58,24	59,10	63,48	65,14	67,61	70,57	69,61	67,74	72,49	84,40
SPAIN	58,92	54,44	52,97	48,32	47,28	38,38	34,02	30,06	34,04	46,47

Source: World Bank

Table N° 3.A: Gross National Saving (% GDP)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Belgium		24.54	24.28	25.09	24.81	25.48	26.34	24.54	20.09	22.86
France	21.12	19.75	19.24	19.81	19.47	20.37	20.91	20.37	17.41	17.47
Greece	15.14	13.03	15.67	15.46	12.28	12.86	10.10	7.23	5.04	4.63
Ireland	24.01	23.64	26.01	26.51	26.08	25.74	21.59	16.59	12.99	9.71
Italy	20.78	20.86	19.86	20.35	19.61	19.71	20.07	18.05	16.20	16.05
Portugal	17.75	18.03	17.80	16.56	14.17	12.97	13.20	10.95	9.64	9.75
Spain	22.42	23.36	23.81	22.95	22.39	22.28	21.26	19.66	19.21	18.82

Source: World Bank

Table N° 3.B: Gross National Saving (% GDP)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Belgium										
France	19.76	19.33	18.29	18.33	18.85	18.74	19.77	20.90	21.86	21.53
Greece	21.99	20.69	19.83	20.61	19.06	18.62	19.21		16.29	14.49
Ireland	22.79	19.89	21.99	22.11	23.90	26.34	27.02	26.76	26.01	25.45
Italy	19.82	18.88	19.56	19.59	21.69	22.00	22.23	21.40	21.04	20.49
Portugal	24.29	24.45	21.95	20.75	23.61	20.72	20.79	21.47	20.49	18.26
Spain	21.88	20.07	19.94	19.45	22.07	21.67	22.51	22.77	22.80	22.56

Source: World Bank

Table N° 3.C: Gross Capital Formation (% of GDP)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Belgium	21.15	19.16	19.40	20.87	21.91	22.44	22.88	24.01	19.88	20.19
France	19.56	18.59	18.46	19.22	19.97	20.86	21.96	21.95	19.10	19.35
Greece	25.15	24.18	26.53	24.40	21.40	24.22	25.69	23.68	18.31	16.19
Ireland	22.81	22.19	23.43	24.82	27.32	28.18	26.14	21.58	14.42	10.79
Portugal	27.79	25.82	23.56	24.06	23.63	23.13	22.83	23.15	19.92	18.99
Spain	26.35	26.63	27.38	28.28	29.48	30.98	30.98	29.09	24.42	22.99

Source: World Bank

Table N° 3.D: Gross Capital Formation (% of GDP)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Belgium	21.68	21.44	20.82	20.89	20.68	20.54	20.99	21.21	21.42	22.58
France	20.87	19.24	16.82	17.65	17.91	17.03	16.83	18.16	18.81	19.89
Greece	25.27	22.60	21.51	20.27	19.99	20.92	21.23	22.58	23.83	25.28
Ireland	18.99	16.06	14.94	15.94	18.22	19.71	21.43	23.33	23.74	24.06
Portugal	25.56	24.77	21.99	22.79	24.02	24.24	26.29	28.18	28.78	28.50
Spain	25.30	23.40	20.87	21.05	21.90	21.70	22.06	23.45	25.12	26.28

Source: World Bank

Table N° 4.A: Current Account Balance (BOP, % GDP)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	-7.24	-6.56	-6.64	-5.91	-7.59	-11.28	-14.62	-15.04	-11.16	-10.26
Ireland	-0.65	-0.89	0.06	-0.58	-3.52	-3.51	-5.33	-5.80	-2.82	0.46
Italy	-0.06	-0.76	-1.28	-0.95	-1.67	-2.55	-2.42	-2.87	-1.93	-3.49
Portugal	-10.31	-8.21	-6.47	-8.36	-10.33	-10.67	-10.15	-12.64	-10.93	-10.00
Spain	-3.95	-3.24	-3.50	-5.25	-7.38	-8.98	-10.02	-9.69	-5.14	-4.57
USA	-3.88	-4.32	-4.68	-5.32	-5.93	-6.00	-5.08	-4.74	-2.68	-3.23

Source: World Bank

Table N^{o} 4.B: Current Account Balance (BOP, % GDP)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Greece	-1.57	-1.93	-0.72	-0.13	-2.19	-3.30	-3.61	0.00	-5.48	-7.89
Ireland	0.59	1.12	3.47	2.85	2.57	2.77	2.30	1.15	0.25	-0.37
Italy	-2.05	-2.30	0.76	1.25	2.22	3.16	2.70	1.63	0.67	-0.52
Portugal	-0.81	-0.17	0.25	-2.23	-0.11	-4.05	-5.73	-6.82	-8.14	-10.39
Spain	-3.53	-3.52	-1.14	-1.24	-0.33	-0.36	-0.14	-1.21	-2.93	-3.99
USA	0.05	-0.82	-1.29	-1.74	-1.55	-1.61	-1.70	-2.46	-3.24	-4.21

Source: World Bank

Table N^{o} 5.A: Total Foreign Exchange Reserves in Months of Imports (2000-09)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
USA	0.87	0.96	1.15	1.23	1.08	0.92	0.93	1.08	1.11	2.01
Greece	3.86	1.67	2.54	1.22	0.46	0.35	0.36	0.36	0.29	0.64
Portugal	3.14	3.24	3.80	2.34	1.75	1.45	1.17	1.15	1.04	1.80
Ireland	0.54	0.52	0.46	0.30	0.18	0.05	0.04	0.03	0.04	0.09
Italy	1.68	1.65	1.85	1.77	1.51	1.46	1.47	1.54	1.54	2.54
Spain	2.02	1.88	2.07	1.11	0.66	0.50	0.47	0.38	0.37	0.71

Source: World Bank

Table N^{o} 5.B: Total Foreign Exchange Reserves in Months of Imports (1990-99)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
USA	2.74	2.60	2.31	2.40	2.06	1.96	1.66	1.26	1.29	1.08
Greece	2.62	3.44	2.98	5.10	8.35	6.98	7.78	5.76		5.96
Portugal	8.63	10.54	8.66	8.37	7.38	6.07	5.61	5.25	5.08	3.20
Ireland	1.96	2.14	1.16	2.05	1.80	1.93	1.65	1.15	0.94	0.59
Italy	4.21	3.39	2.08	2.70	2.74	2.43	2.73	2.85	1.94	1.66
Spain	6.12	6.96	4.43	5.08	4.59	3.15	4.56	5.16	3.91	2.26

Source: World Bank