FROM THE BANK PANIC OF 1907 TO THE GREAT DEPRESSION OF 1929 AND THE SAVINGS AND LOAN CRISIS OF THE 1980S: COMPARATIVE ANALYSIS AND LESSONS FOR THE FUTURE

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Abstract. This paper goes over three big crises with a global resonance which took place in the American economy during the 20th century. Namely, the Bank Panic of 1907, the Great Depression of 1929 and the Savings and Loan Crisis of the 1980s are examined. The paper lists the major events during the crises in question and probes the causes, consequences and ways through which each crisis was attempted to be encountered. Through this examination, useful lessons to be learned and fatal mistakes to be avoided arise.

Keywords: bank panic, global economic crisis; great depression; savings and loan debacle
Jel Codes: G01, G18, G38

1. Introduction

Although every economic crisis brings about adverse consequences, history can prove to be a very good teacher for the future. The examination of the various crises, of their causes, the circumstances under which they took place, the ways they were handled, as well as the extent to which these ways were effective has something to teach us and can avert us from making similar mistakes in the future. The American economy has always attracted scientific interest in many research areas (i.e. Saad-Lessler and Tselioudis, 2010; Shubita and Al-Sharkas, 2010; Warburton, 2012, 2013), as it is the largest national economy and it affects the economic course of many, if not all, countries.

This paper focuses on the Bank Panic of 1907, the crisis of 1929 and the Savings and Loan crisis of the 1980s. The Bank Panic of 1907 was the first economic crisis of the 20th century and proved to be a crucial moment for the financial history of the USA. The stock crash of 1929 and the Great Depression constitute maybe the most difficult period of the 20th century for the US and global economy. The S&L crisis, finally, was the most important post-war crisis of the US banking sector. It is very interesting to examine those three crises since they all determined to a great degree the structure of the economy and the course of the US and worldwide economic history in general. Furthermore, these crises and especially the Bank Panic of 1907 and the Savings and Loan Debacle appear to share common reference points and so their combined examination can lead us to useful interrelated conclusions.

The purpose of this paper is to examine elaborately the three above-mentioned crises. Upper aim of the paper is to draw useful conclusions about what each crisis can

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teach us and demonstrate actions to repeat and others to avoid. It is more common in the global literature each crisis to be examined separately. The additional value of this paper is that it examines the three crises within the same framework which allows somehow for a comparative analysis of them. In the second section of the paper a review of the literature and a more elaborate examination of the crises is attempted. In the third section the lessons that each crisis of them has to teach us are clearly set forth. The paper finishes with summary and conclusions.

2. Reviewing the Crises

2.1 The Bank Panic of 1907

The Bank Panic of 1907 was the last and most intense panic of the so called National Banking Era in the USA. What made this bank panic different from the others was that it focused on the American trusts and that there was absence of a central banking entity. Many economic researchers have tried to analyze the background and the circumstances of the panic.

According to Johnson (1908), the panic was the product of a combination of factors, such as the weak lending capacity of banks, the lack of organization and unity among them, the lack of a deposit insurance system, the deficient control over reserve levels, the agriculture-oriented demand for cash and the investors' rage because of the various scandals that had taken place. The solution to the crisis in his opinion was to be found in the creation of a new banking system which would consist of equal independent units.

Tallman and Moen (1990) examine the causes of the panic and the intervention measures that were taken. They find that unequal regulation of the various financial institutions led to the concentration of risky assets to the less regulated trusts. According to them, equal access to all investment opportunities can mitigate the peril that a collapse of a type of assets will threaten the solvency of a whole group of financial intermediaries.

Tallman and Moen (1992) in a subsequent work examined quantitatively the role of trusts during the Panic. According to them, trusts rather than banks faced the main volume of withdrawals. The percentage decrease in loans and deposits of trusts far exceeded that of state and national banks. The authors argue that the concentration of runs in trusts provides support to the information asymmetry model, since depositors of the time were informed of the heterogeneity in regulation and the differences between the assets banks and trusts held.

Boianovsky (2011) reproduces and analyzes the opinion that was issued in Sweden in 1908 by Knut Wicksell. According to this opinion, the crisis of 1907 was caused by a set of evidence received by the American people who showed that the leading financial advisors who control banks, industries and trusts are often reckless and rarely honest. This fact alarmed depositors and caused the general collapse of the US financial system.

Tallman (2012) points to the key factors that contributed to the financial crisis, examines the influence of the crisis over subsequent legislation and puts the crisis of 1907 into a historical framework associated with the size of the related business cycle. Moreover, Tallman compares the crisis of 1907 to the recent crisis of 2008. He finds that their main similarity is that they were both caused by financial intermediaries in

New York which were considered to be indirectly connected to the payments system. In addition, these intermediaries had no direct access to relative sources of liquidity.

As one can see, in the majority of the current literature it is argued that the bank panic of 1907 originated from the US financial sector and that the main reason behind it was the defective structure and regulation within the American banking system and more specifically the unequal regulation over its various institutions. The events that took place seem to confirm this opinion and disclose various scandals and wrong policies in many situations.

On 16 October 1907 F. Augustus Heinze, the president of the National Commercial Bank of New York used the resources of the bank in an attempt to seize control of the copper market by John Rockefeller, monopolizing the stock of United Copper Company. Rockefeller, however, prevented his efforts by increasing the amount of copper in the market, so the price of copper fell drifting its shares as well[3].

When depositors of the National Commercial Bank learned about the intensions of Heinze, they rushed to liquidate their deposits, as it seems from Table 1 below. The bank unable to cope with its financial obligations asked for help from the Clearing House[4]. Had Heinze not established partnership with so many bankers and institutions, might financial markets have absorbed the turmoil of his failure.

Table 1: Deposits in the US banking sector

Call Report Date	National		State		Trusts		Sum of State and Trusts		Aggregate Deposits	
Thursday, August 22, 1907	1051.74		371.99		692.74		1064.74		2116.47	
Tuesday, December 03, 1907	1120.62									
	6.55	*								
Thursday, December 19, 1907			333.46		437.73		771.19		1891.81	
			-10.36	*	-36.81	*	-27.57	*	-10.61	*
Friday, November 27, 1908	1546.37		437.25		724.03		1161.28		2707.65	
	47.03	*	17.54	*	4.52	*	9.07	*	27.93	*

* denotes percentage change from August 22, 1907 level

Source: Tallman, 2012, pg 27

The first banker that faced problems due to his relationship with Heinze was C. W. Morse, one of the heads of the National Commercial Bank. During the reorganization of the bank the Clearing House discovered that Morse was also the head of six other banks, three of which he administered with absolute autonomy. The officials of the Clearing House were anxious, since Morse had used the shares of a bank as collateral for loans he took in order to buy shares of the other banks. So if a bank failed, the

[3] The report of the events is based on the analysis of Cahil (1998), the Federal Reserve Bank of Boston (1993) and Tallman & Wicker (2009).

[4] The Clearing House was an organization, the member banks of which had agreed to exchange and edit each other's checks. The Clearing House of New York had also some other responsibilities, which are nowadays undertaken by the government.

remaining six would have the same fate, as it finally happened when the press revealed Morse's involvement in the National Commercial Bank. When the presence of Heinze and Morse threatened to extinguish the credibility to the banks of New York, the Committee of the Clearing House pressured them to resign and established an audit team in order to determine to what extent the National Commercial Bank and other troubled banks were credible. Finally, the Committee decided to support the National Commercial Bank so that it could meet the demands of its depositors.

However, the situation did not improve. On 18 October the depositors of Knickerbocker Trust Company began to withdraw their deposits when they were informed that the company's president, Charles T. Barney, was a business partner of Heinze and Morse. The situation got worse when the same day the Clearing House announced its unwillingness to help Knickerbocker. As a trust, Knickerbocker was not a member of the Clearing House. On 21 October Barney resigned from president. The next day the trust's depositors were so desperate to withdraw their money that the institution gave $8 million into three hours and was forced to close. In an attempt to prevent the collapse of the stock market, J. P. Morgan and other leading banks liquidated a part of their assets in order to replenish the accounts of the trusts, but these funds proved to be inadequate and unable to halt the panic. The secretary of the Treasury, George B. Corteglou, provided an additional sum of $25 million to prevent the collapse of trusts.

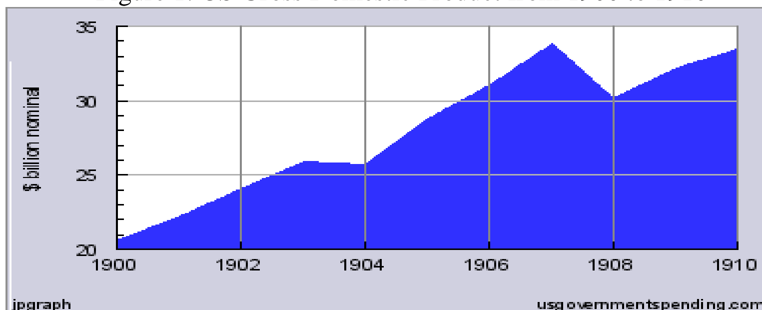
Initially, the measures ceased public anxiety. Nonetheless, media coverage of the difficulties of the banks of New York and the failure of many banks in other regions led to the spread of panic across the country. This gave rise to a chain reaction and banks requested from the Banks of New York to provide them with their reserves[5]. By the end of October, the banks of New York had granted the requested reserves depleting the funds that had been gathered in order to help them and bringing again the problems to the fore. The greatest difficulty that arouse from the bank panic was the lack of money. In order to limit deposit withdrawals the governments of Nevada, California, Oklahoma, Washington and Oregon declared bank holidays. The substitution of money with loan certificates of the Clearing House was another way used to deal with the situation. Those certificates and other money substitutes were the main mediums of transaction for more than two months.

The bank panic of 1907 damaged the economy in various ways. It reduced economic growth and undermined the overall credibility (Cahill, 1998). Real GDP fell by 12% between the second quarter of 1907 and the first quarter of 1908 as it seems from Figure 1. Interest rate spreads increased by more than 20% on October 1907 and remained over 10% for the rest of the year (Tallman and Wicker, 2009). Shortage of liquidity forced banks to temporarily postpone their loan services. Moreover, the substitution of money with certificates of the Clearing House pushed domestic transactions aside. Liquidity and cash shortage deprived entrepreneurs from resources necessary for salary payments and many firms shut down or reduced their working hours. What is more, the Clearing House's rationale during that period was to create a uniform institution, a coalition of banks, and provide aggregate information for this

[5] The banks of New York kept the reserves of most banks

coalition. There was not available information for individual institutions and that opposes to the efficient market hypothesis (Gorton, 2009).

Figure 1: US Gross Domestic Product from 1900 to 1910



Source: usgovernmentspending.com

According to Acharya, Cooley, Richardson and Walter (2011), two were the main problems that were revealed during the bank panic of 1907. First, private clearing houses also faced default risk. Second, some firms were not allowed to be members of the Clearing House due to the intense competition between trusts and commercial banks and this fact made the situation worse. The panic of 1907 disrupted financial markets to such a degree that the establishment of the Fed and the formation of the US banking system to its current form became indispensable (Tallman & Moen, 1990). In 1913 the Federal Banking Act was issued. It was designed to regulate the money supply and credit by means of buying and selling government bonds and issuing treasury bills (Cahill, 1998).

The sources of turmoil in 1907 were the trusts of New York, which were not central to the payments system (Tallman and Wicker, 2009). The national banks of New York, on the other hand, stood to the center of the system and this discrepancy increased the tension between them. Trusts chose not to be members of the Clearing House so when the panic of 1907 took place trusts had no access to the House's liquidity. The main cause of the bank panic was the instability of the financial system which allowed for disputable financial practices by devious entrepreneurs (Tallman and Wicker, 2011). The panic involved various types of distinct financial intermediaries, each of which played a unique role the same time when every type operated under a different set of regulations (Tallman and Moen, 1990). Some researchers, Sprague (1910), Kemmeren (1910) and Laughlin (1912) among them, attributed the crisis of 1907 to the structure rigidity of the US national banking system. This is not surprising since the system lacked a central banking institution which could quickly adjust the monetary base. Finally, the system lacked a lender of last resort to which a bank could turn for emergency loans if it had to deal with massive deposit withdrawals. The Clearing House of New York tried to play this role, but it typically failed (Tallman, 2012).

2.2 The Great Depression of 1929

A similar scenario about bank failures can someone find almost twenty years later, when the stock market crash of 1929 happened. Although the existence of the Federal Reserve changed in many ways the way the situation was encountered, several policy mistakes are to be identified during this period too.

The economic contraction between 1929 and 1933 was unarguably the most severe contraction of business cycle of the 20th century for the US economy. Although the crisis originated from the USA, it led to a major reduction in output and employment almost in every country in the world (Romer, 2003). The association between the stock crash of 1929 and the deep recession that followed is still questionable. Sylla (2004) in one of his papers supported the lack of connection between the two events. Dornbush and Fisher (1984) also argued that the Great Crash of 1929 cannot have caused the Great Depression, since the decrease in output started before the collapse of the stock market. These and many other researchers dealt with the stock crash and the depression of 1929-1933.

Cecchetti (1997) argues that the lessons that we gain from the crisis have to do with the operation of the Central Bank and the financial system. According to Cecchetti, the Great Depression was not caused by the stock crash of 1929 and there are several clues that lead to three unambiguous conclusions. First, the collapse of the financial system could have been avoided if the Fed had properly understood its role as a lender of last resort. Second, deflation played a major role in deepening the recession. Third, the gold standard as a system of supporting a fixed exchange rate system proved to be disastrous.

Romer (1988) argues that the collapse of stock prices in October 1929 brought about temporary uncertainty about future income and resulted in reduced demand for consumer durables. While economists separate the events of the Great Crash and the Great Depression, according to Romer it is likely that a significant relationship between the stock market crash and the acceleration of decline in real GDP between 1929 and 1930 exists.

McGrattan and Prescott (2001) are opposed to the economists' common view that stock prices, which fell by 30% in the autumn of 1929, were overvalued. On the contrary, they agree with the view of Irving Fisher, who tried to prove that the market was actually undervalued. The two economists calculate the fundamental values of common shares in 1929 and compare them to the actual price estimates. Their empirical data provide strong support that common stocks were undervalued even at their peak in 1929.

In an older point of view, Kindleberger (1973) argues that shocks to the system caused by the overproduction of certain goods, the decline of interest rates in 1927, the halt of lending to Germany in 1928 or the crash of 1929 were not so great. Similar shocks had been encountered with success in the past. The global economic system was unstable and a country should intervene and stabilize it. In 1929 the British were unable and the Americans were unwilling to do this.

Reed (1998) opposes to the opinion of many researchers who argue that free-market capitalism is to blame for the Great Depression of 1929 and promotes government intervention as a solution to the economic problems of the period. Reed debunks this common perception and highlights the central role that flimsy government policy played in raising the catastrophic crisis.

Christiano, et. al., (2004) use a Dynamic Structure General Equilibrium model in order to test the Friedman and Schwartz hypothesis (1963) that a more lax monetary policy would have reduced the severity of the Great Depression. They estimate their

model which includes 8 shocks using data from the 1920s and 1930s. They attribute the acute depression between 1929 and 1933 mainly to a sudden change in investors' preferences for currency rather than risky portfolios. Their conclusions are in accordance with those of Friedman and Schwartz.

Foreman et al., (1996) examine whether the coordination of international economic policy could have mitigated the decreases in income, output and employment. They simulate a monthly econometric model of the interactions between the biggest industrial economies (USA, United Kingdom, France and Germany). They find that national self-interest over economic policy was more important than international coordination. If the economies had followed optimal national economic policies they would have virtually avoided the global depression while at the same time they would have preserved the Gold Standard.

There is not much consensus about the circumstances under which the Great Crisis took place (Chari, et al., 2003). Widespread is the opinion that the shares of the US stock market were overvalued and the market needed to undergo a correction. However, there is also the contradictory opinion, which was expressed firstly by Irving Fisher on February 1930 that the US shares were actually undervalued before the Great Crash. This view was also supported by subsequent studies such as that of McGrattan and Prescott (2001). It is more widely accepted, though, that the operation of the central bank and the financial system as well as the gold standard played a crucial role during this period of time. A clear view of the chronicle of the crisis can be obtained through the examination of the course of the stock market during the period under consideration in Figure 2.

Figure 3: US Industrial Production 1925-1945

Source: www.tradingeconomics.com / Federal Reserve

The Index reached a peak of 381 on 3 September and closed at 351 on 15 October, displaying a slight decrease. From an intraday high of 330 on 23 October 1929, the index fell the next day (Black Thursday) at a low of 272, while at the same time there was a record volume of 12.9 million shares. The next two days the prices stabilized at the level of 299. On Monday 28 October (Black Monday), however, the Dow Jones Industrial Index closed at 261 while the next day (Black Tuesday) it fell more reaching at 212 and noted a new record volume of 16.9 million shares. These two days when the Index lost 23% of its value compared to the closing price of Saturday, are regarded as the focal point of the Great Stock Crash (Sylla, 2004). The decline in Wall Street

continued thereafter and on 13 October the index closed at 199, reflecting a fall by 48% within a period of two months.

After the Great Stock Crash, the Great Depression arose. It started in the summer of 1929 and lasted, with varying intensity, ten years (Γκαλμπρέιθ, 2000). The main severity of the depression can be dated within the period 1929-1933. During this period almost 9.000 banks failed (Wheelock, 1995). Real output and the general price level fell significantly during this period. The US industrial production fell by 47%, while real GDP fell by 30%. The General Price Level Index decreased by 33%, while the unemployment rate exceeded 20%. These and other useful data are illustrated in Figures 3-6 in Annex 1.

The most common explanation regarding the stock market crash of 1929 blames the practice of borrowing money in order to buy shares. Many historical texts contend that a frantic speculation on shares was fueled by excessive marginal borrowing (Reed, 1998). It was expected that someday the confidence to the short-term increase in stock values would weaken. When this happened in 1929 investors hustled to sell and a huge price drop incurred.

Economists have debated a lot over the causes of the Great Depression. During the 1980s and 1990s this debate focused on the role of bank failures (Wheelock, 1995). Friedman and Schwartz (1963) argue that bank panics during 1930 and 1931 reduced money supply which in turn reduced economic activity. Bernanke (1983) offers a monetary version of how bank failures contributed to the crisis. According to him, beyond their influence over money supply, bank failures also suppressed output increasing the cost of credit intermediation.

Slivinski (2008) argues that the dominant views of what caused the crisis are two. According to the first view, between 1929 and 1933 there was a sudden decline in future expectations for economic growth which led to a collapse in demand for consumption and investment. According to the second view, what the economy suffered from was not an internal weakness. Instead, it was influenced by the shocks of policy errors particularly those of the Federal Reserve.

It is commonly accepted that policy makers during the pre-crisis period made several mistakes (Sylla, 2004). They increased taxes and tariffs on imports, they attempted to balance the budget by cutting down on government spending, they reduced money supply and let banks bankrupt massively causing the household and firm expenditure to fall. The level of prices collapsed and unemployment climbed to unprecedented levels.

Many economists believe that the US Central Bank allowed or caused the large drop in money supply partly in order to keep the gold standard (Romer, 2003). If the Central Bank had pursued an expansionary policy as a consequence of the bank panic episodes, foreigners would have lost their confidence to the commitment of the USA to the gold standard. This would have led to large outflows of gold reserves and the Americans would have to devaluate their currency.

In the global literature one can also come up against the opinion that the crisis occurred through the traditional Keynesian channels of liquidity shortage and the high ex ante real interest rates. Hamilton (1987) in his paper tries to provide evidence that the Depression is more likely to have occurred through unexpected deflation and the

disruption of financial intermediation due to the bank panics. He uses three approaches in order to prove that the high deflation between 1929 and 1932 was unexpected. These approaches include official statements of the time which show that even governors of the system were expecting an expansionary monetary policy, time series analysis and data from the commodity futures markets. All three approaches lead to the conclusion that high deflation after the Crisis was not expected and this fact excludes the hypothesis that high expected deflation resulted in high ex ante real interest rates and contributed to the crisis.

The main measures that were taken in order to mitigate the adverse effects of the crisis included currency devaluation and expansionary monetary policy. Currency devaluation, however, did not seem to have led to an immediate increase in output (Romer, 2003). Nevertheless, it allowed countries to expand their money supply without worrying about the changes in gold reserves and foreign exchange rates. Fiscal policy primary through tax increases played a much more trivial role to the economic recovery of the USA. New taxes such as those on general sales, on beverages and tobacco, on personal and corporation income were imposed in order to augment the government's revenues (Snell, 2009).

The most important consequence of the Great Depression deals with the misfortune and suffering of people. During this period the standard of living dropped dramatically and a big part of the population lived under hunger. Moreover, the Great Depression and the way it was handled changed the global economy in many ways and, above all, meant the end of the gold standard.

From the Great Depression on, trade unions and the social welfare state developed substantially. In many countries government regulation and supervision, particularly that of financial markets, increased significantly. The Great Depression, finally, played an equally important role in shaping macroeconomic policies. The 1930s are considered as a hallmark for the American government. Up to then, the federal government played no active role in the stabilization of national economy, in the support of agriculture and low incomers, or the formulation of the state and local governments' policies (Snell, 2009).

2.3 The Savings and Loan Crisis of the 1980s

Another crisis that originated from the financial sector is the Savings and Loan Debacle. This crisis has been described as the biggest set of "white collar" crimes in the global history (Zimring and Hawkins, 1993). Although it happened many years later after the crises mentioned until now, it is commonly accepted that its origins trace back to the Great Depression of 1929 (Acharya et al, 2011).

According to Laughlin (1991), the S&L Debacle could have been avoided if timely action had been taken. The structure of the S&L industry was defective as non-diversified portfolios of long-term fixed rate securities were financed by short-term liabilities. Congress increased the levels of deposit insurance and allocated these deposits to entities without first controlling for their operations. In the meanwhile, the Federal Mortgage Bank of Boston reduced its capital requirements allowing troubled institutions to increase their exposure to risk and losses. Generally, according to Laughlin, the S&L Debacle was caused by internal to the industry structural problems, imprudent movements of the Congress and various regulatory faults.

Table 2: US Bank failures during the period 1980-1991

Region		Number of Failed Banks Each Year												Total Failures in 1980–91
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
Northeast	New England	1	0	1	0	0	0	0	2	0	3	9	12	28
	Middle Atlantic	1	3	6	3	1	4	0	3	1	3	7	6	38
South	South Atlantic	2	2	2	0	3	2	3	4	4	7	6	8	43
	East South Central	2	0	5	14	13	9	5	4	0	1	1	2	56
	West South Central	0	3	11	7	12	34	58	108	163	150	115	32	693
Midwest	East North Central	1	3	5	7	8	4	3	7	5	0	1	3	47
	West North Central	4	2	5	10	37	46	43	33	28	9	6	4	227
West	Mountain	2	0	3	5	12	19	26	16	19	11	14	6	133
	Pacific	0	2	3	10	11	10	11	11	13	9	4	2	86
United States		13	15	41	56	97	128	149	188	233	193	163	75	1,351

Source: Boyd & Gertler, 1994

Boyd and Gertler (1994) argue that large banking institutions were the main culprits for the unusually poor performance of the entire industry. Two were the factors that let this take place. First, deregulation and financial innovation that led to an increase in the competition within the banking sector and second, the regulatory environment that used to subsidize risk-taking by the larger rather than the smaller banks. The main view of Boyd and Gertler is that the "too-big-to-fail" assumption was a key factor behind the crisis and they support this view with panel data.

Hardin and Miranne (1997) apply the tragedy of the commons theory to the S&L debacle and show that privatization of profits and externalization of losses destroyed a whole thriving sector of the American economy. The view they support is that there is a group of problems that are not amenable to a technical solution and the S&L crisis is a very good example of such a problem.

White (2004) argues that the S&L debacle was a costly but rather decisive for the US economy event. The causes of the crisis lie, according to him, in the restrictive government policy which finally put institutions into financial difficulties in the late 1970s and 1980s. The Congress and at least three presidential governments delayed too much the withdrawal of the restrictions. When eventually the restrictions eased in 1980 and 1982, regulations related to safety and prosperity eased as well exactly the time when they ought to be strengthened.

England (1992) in her paper tries to summarize the lessons that the S&L crisis can teach us. According to her, the three most important lessons we obtain are as follows: excessive regulation was the primary cause of the problems, the federal deposit insurance was ultimately responsible for the high costs of the crisis and finally, governmental efforts to protect the industry triggered only abuse and increase in the reorganization costs.

Annex 2 includes causes and consequences of the bank crisis of the 1980s.

2.4. Comparison of three crises

A comparative review of the three under examination crises, as it is illustrated in Table 3 in the Annex, can lead us to some useful conclusions. We can also acknowledge mistakes and wrong policy actions from the past and try to draw some lessons that each crisis can offer us, something that will be attempted in the next section.

3. Lessons for the Future and Mistakes to be avoided

There are several lessons that the panic of 1907 can teach us. First of all, a uniform regulatory framework for all financial intermediaries must exist. During the period of the panic national banks were central to the payments system whereas trusts were not. Large national banks unlike trusts were operating within a framework of regulation which was determined by the Clearing House of New York. This and other discrepancies between the two types of institutions increased the competition between them.

Tallman and Moen (1990) argue that the limitation in the types of assets on which national banks could invest did not reduce the riskiness of the portfolios of the financial system. Unequal treatment of trusts and banks led to the concentration of the most risky assets to a few institutions principally trusts. Negative progress of trusts' assets increased the possibility of insolvency. If legislation had provided institutions with equal access to all investment opportunities, diversification would have reduced the risk the collapse of a type of assets to threaten the solvency of a whole class of institutions.

Although the Clearing House of New York operated to some extent as a central bank, the absence of explicit legislative delegation prevented it from accomplishing this function entirely. The crisis highlighted among others the need for the existence and operation of a reliable central banking institution which could adjust the monetary base, manage the overall provision of liquidity and act as a lender of last resort.

Monetary and fiscal systems play a major role into maintaining economic prosperity. The flawed monetary and fiscal systems of the US contributed to a great degree to the panic of 1907. The US government controlled money in a way that created inflexible money supply that was not in accordance with money demand during and after the Civil War. Federal control of money supply was a problem for the banking system and the model of free market banking probably would have been an effective remedy.

The crisis of 1907 led the US government to acknowledge that it must contribute to maintain the stability of the banking system. It also led to the creation of the Federal Reserve System. The maintenance of stability into the banking sector leads to the creation of confidence and credibility. In 1907 there was loss of this kind of credibility which led the depositors to rush and withdraw their money. This loss of credibility can be attributed to many reasons. Among those reasons are the instability of the financial system, the absence of a central banking entity and various illegal and speculative activities such as those of Heinze and Morse.

The interconnectedness between financial intermediaries was a crucial factor during the crisis of 1907. In New York, for instance, if a trust wanted to use the services of the Clearing House, it had to use a bank that was member of it (Tallman and Moen, 1995). When financial institutions are connected to each other, the banking

system becomes vulnerable. Also, back in 1907, in the absence of a central banking entity the banking sector consisted of a set of banks that provided funds to each other. The failure of one of those banks threatened the existence of all others.

The importance of existence of adequate liquidity and capitalization was another lesson that was brought to the fore by the bank panic of 1907. Banks must have access to liquidity in order to be viable and solvent. Money supply in the US was fixed to the quantity of gold. When economies were in need of liquidity, banks had to obtain deposits of gold so as to write currency against it. This procedure put a constraint over the quantity of capital available to the banking system.

The adequacy of liquidity should be under examination. And this is where the subject of strict supervision, control and regulation over banks' liquidity ratios emerges. Information regarding the solvency of financial institutions is very important, but its acquisition can be very difficult. What is more, there is need for an organization that can provide this kind of information. Unlike New York, in Chicago there was an institution acting as an official auditor, a fact that let the Clearing House recognize potential weaknesses of the banking system and so the panic in Chicago was less severe than that experienced in New York (Tallman and Moen, 1995).

Another feature of banking institutions which needs to be taken into account, as the crisis of 1907 also revealed, is the level of leverage they use. In 1907 banking institutions and trusts used high levels of leverage and relied mainly on borrowed money. The situation becomes worse when we consider that banks used to borrow money in the short term but lent money in the long.

Finally, it should be noted that the Clearing House kept information about the financial status of its members and so it could directly decide whether to provide a member with help whenever it was asked to. The exclusion of trusts from the Clearing House rendered the acquisition of such kind of information difficult for them and probably led to the isolation of Knickerbocker. The pure existence of a Clearing House cannot provide the system with the desired stability. Both New York and Chicago had a Clearing House during the Panic of 1907. The broader coverage of Chicago's Clearing House, however, and the more information it had over all the intermediaries, both banks and trusts, where crucial factors for the outcome of the panic, which in Chicago was far more mild (Tallman and Moen, 1995).

The lessons that the Great Depression has to teach us are the same disputable as its causes. Nowadays, Central Banks operate as lenders of last resort in order to provide liquidity to the banking system and boost economic growth. During the Great Depression, central banks refrained from that kind of activities and it is uncertain to what extent such a strategy is appropriate as a way out of a crisis.

The key findings to which the analysis of the Great Depression has led us are, according to Diebolt, et al. (2010), three. First of all, the response of macroeconomic policy was the major factor that contributed to the severity and duration of the Great Depression. Moreover, the lack of proper measures of monetary and fiscal policy by the Fed accelerated the Great Depression. Finally, the protectionism that characterized many countries during the 1980s magnified the recession.

An important lesson that the Great Depression can teach us is that under such circumstances protectionist legislation should be avoided because in the long run it can

reduce industries' competitiveness. During the Great Depression many countries, including the US, increased tariffs, an action that reduced international trade and increased the ferocity of the crisis.

The Great Crash of 1929 and the Great Depression that followed can teach us many lessons concerning the importance of the policy makers' ability. During the Great Depression the US Central Bank made several mistakes and so did policy makers. They reduced money supply, cut down on government spending, increased taxes and tariffs on imports and let many banks bankrupt massively. The US Federal Reserve also kept interest rates at unusually low levels for many years to support the UK sterling, which had returned to the gold standard.

All these policy mistakes shook consumer confidence in the banking system. In order to reset this confidence the US government created the Federal Deposit Insurance Corporation. This measure can prevent banking confidence from collapsing and keep the regulation of money in an economy. Rapid, active and apt intervention on behalf of the government is significant during periods of crises to ease the economic situation. The handling of the situation surely depends on the economic intelligence of those who are responsible for policy actions. According to Galbreith (2000) those who offered economic advices at the time were almost uniquely perverse.

The effort of the US Central Bank to preserve the Gold Standard had negative effects. The contribution of the Gold Standard to the causes of the Great Depression is disputable while its contribution to its spread all over the world cannot be denied. The US Central Bank reduced money supply in order to preserve the Gold Standard. If otherwise it had followed an expansionary policy after the bank panic episodes foreigners would have thought that the USA was ready to abandon the Standard.

Another fact that the Great Depression revealed, as the Bank Panic of 1907 also did, is how important the banking system's stability is within an economy. When the banking system is stable, so are future expectations for economic growth. A decline in those expectations brings about a reduction in consumption and investment. Policy errors contribute utterly to the formation of those expectations.

Many researchers and analysts consider the practice of borrowing money to buy shares as a main cause of the Great Stock Crash. That was a fatal mistake on behalf of the investors of that time. Generally investors should be more careful with their investment choices. They should have a stock investment plan which would contain rules and restrictions concerning risk and money management.

The need for greater transparency is another subject highlighted by the events during the period 1929-1933. This transparency can prevent the creation of speculative "bubbles" which lead most times to stock market crashes. It also prevents banks from owning other financial institutions and from getting involved in transactions of high risk.

From the examination of the Stock Crash of 1929 and the Great Depression we can come to a few more conclusions. First of all, banks, financial markets and generally economies are strongly interlinked and the problems of a country or sector can spread to the others. Secondly, the Great Depression revealed the bad corporate and banking structure that existed.

To sum up, according to the European Commission (European Commission, 2009) five are the main lessons from the Great Crisis. First, it is important that public preserves its confidence in the banking system. Second, aggregate demand should be maintained and deflation should be avoided. Third, it is important that international trade be preserved and protectionism be avoided. Fourth, financial markets should remain open and have no capital restrictions. Finally, international cooperation should be cultivated and phenomena of nationalism be averted.

The Savings and Loan Crisis was just an educative event as the previous ones. It has been described as the biggest set of "white collar" crimes. Fraud and greed were the main features of the political system of that period. The officials of the Congress made great campaign donors to wealthy savings and loans, the US government let them engage in gambling activities through lax regulation and accounting firms let sick institutions continue operating. It is of high importance that no industry has influence over its regulators so that they can remain independent.

It has been argued that this crisis could have been avoided if timely measures were to be taken. The structure of the industry was defective due to its sensitivity to interest rate risk, while non-diversified portfolios of long-term fixed interest rate assets which were financed by short-term liabilities proved to be a disastrous combination. If there is something we can learn from the crisis with certainty is that when the government provides a deposit insurance system, it should at the same time use apt accounting and strict supervision and control. Furthermore, the "too-big-to-fail" common assumption cannot characterize any kind of policy.

The Savings and Loan Debacle, above all, demonstrated the importance of capital as a shield which will ensure the requisite solvency and will protect the deposit guarantor. Moreover, it will discourage the saving units from taking on high risks, since they will hazard larger sums. The capital levels that these units maintain should be in proportion with the risks they undertake. Liquidity is of great importance for all financial institutions and for the insurance agencies as well. The insurance agency for the savings and loans during the 1980s did not have adequate reserves based on real risk assessments and thus could not intervene and help troubled institutions. The regulators of the time were given too few financial resources to supervise an industry that was entering new investment fields and was given great new jurisdictions.

The importance of the accounting practices in use is another issue that the Savings and Loan Debacle put forward. The regulatory authorities can easily be deluded by the industry they regulate. Moral hazard is indeed a problem hard to avoid. The Savings and Loan debacle, thus, demonstrated the need for application of stress-tests to financial institutions and the need to monitor their structure, composition and size. Transparency is very important as this crisis demonstrated. The Savings and Loans were not forced to declare their assets to the market and so they could hide their insolvency until their loans started to default (McCoy, Pavlov & Wachter, 2009)

The crisis also demonstrated the need for immediate corrective measures that means the need for increase of the restrictions over the activities of the saving units once it gets clear that their funds drop significantly. Furthermore, the crisis demonstrated the need for the existence of a uniform regulatory framework which will

ensure the deposit guarantor and the need for existence of adequate and appropriate examiners and auditors for the saving units.

Supervision, control and regulation imposed to the Savings and Loans should have been stricter. They were slack partly because the Savings and Loans' role was narrowly defined but this situation altered during the 60s, 70s and 80s when financial innovation came to the fore and created new and more complex risky assets which were very difficult to be supervised and controlled (OECD, 2011). An important lesson that we can derive from the savings and loan debacle is that when regulators have become obsolete due to market evolution it is not enough to repeal recklessly the boundaries of the risks that are being created.

4. Resume and Conclusions

The aim of this paper is to examine three major crises of 20th century, namely the Bank Panic of 1907, the Great Depression and the Savings and Loan Crisis. All three crises started from the USA, although their effects were channeled globally. They also seem to share to a great degree common causes, consequences and ways of management. The upper aim of the combined examination of these crises is to draw useful lessons for the future.

The bank panic of 1907, in brief, revealed the need for a lender of last resort and for a uniform and homogeneous regulation of all bank institutions. It also demonstrated the importance of information over the financial condition of these institutions and the need for systematic control and supervision of them.

The Great Depression has taught us important lessons for the function of the central bank and the financial system in general, as well as for the disastrous contribution of the gold standard to the deterioration and contagion of the crisis. It also demonstrated the importance of maintaining the confidence of investors and of keeping markets open to international trade.

The Savings and Loan Crisis pointed the significance of keeping sufficient capital and diversifying portfolios. It also highlighted the need for existence of an appropriate regulatory framework that will supervise the financial condition of the savings and loans and will force them to keep capital levels commensurate with the risk levels they undertake. It, finally, rendered apparent the importance of existence of a deposit guarantor and specialized auditors and inspectors.

The comprehension of the past can be a powerful tool for the confrontation of the future. It is therefore very important that policy makers learn the lessons past has to teach them and try to lead economy into growth and prosperity avoiding mistakes that have proven to be detrimental for the economy. However, every crisis is a distinct event and takes place under distinct circumstances. A combined examination of crises can be subject to great criticism.

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Annex 1

Figure 2: The course of Dow Jones Industrial Average Index (1929-1933). Source: finance.yahoo.com

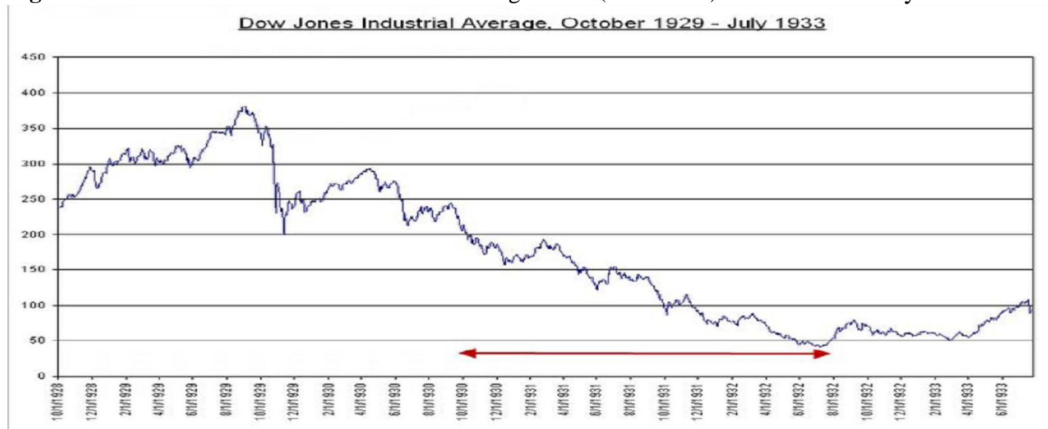
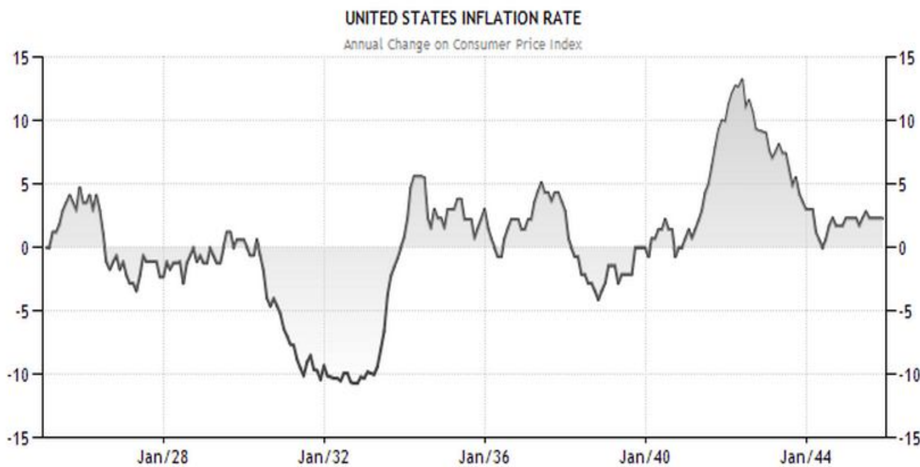
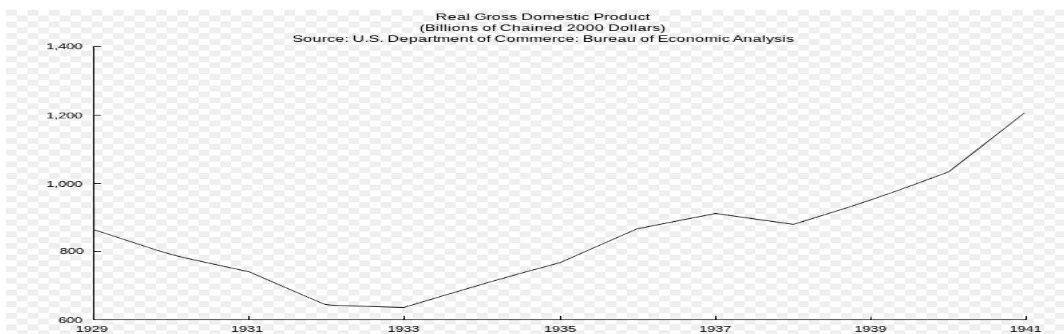


Figure 4: US Inflation Rate 1925-1945



Source: www.tradingeconomics.com /Bureau of Labor Statistics

Figure 5: US Real Gross Domestic Product 1929-1941



Source: Federal Reserve Bank of St. Louis

Figure 6: US Unemployment Rate 1929-1942Source: The Econ Review- www.econreview.com

Annex 2. Savings and Loan Crisis.

The most prevalent causes of the Savings and Loan Crisis in the global literature have to do with the structural problems of the industry, the imprudent actions of the policy decision makers and the imperfect and restrictive regulatory environment of the financial sector in general. There is, however, an intense disagreement over whether the regulatory framework of the time was too loose or too restrictive. The analysis of the events that took place during the crisis reveals these points of view.

The federally insured savings and loan system was established in the early 1930s in order to promote the construction of new homes during the Great Depression and to protect the financial institutions from the kind of destruction that followed the panic of 1929. The Federal Mortgage Banking Act of 1932 established the Federal Home Loan Bank Board (FHLBB), whose purpose was to create a reserve system that would ensure the availability of mortgage money to finance housing and to supervise savings and loans (Calavita et al., 1997).

For several decades the supervision and regulation imposed by the FHLBB to the savings and loans was very slack partly because these institutions had a very narrowly defined financial role and (Acharya et al, 2011). This situation changed during the 1970s, when interest rates rose sharply and the savings and loans began to seek for higher profits.

The regulation of the savings and loans was sufficient to oversee them regarding their traditional operations. However, this regulation became inadequate because of the financial innovation that developed gradually during the 1960s, 1970s and 1980s (Moysich, 1997). Financial innovation created new risky assets and increased the potential profit margins for banks and the competition between them. New legislation deregulated the banking industry in the early 1980s. The units were now allowed to have up to 10% exposure to bonds and direct investments (Mishkin, 2004). At the same time, government regulators continued to loosen the restrictions regarding the

allocation of savings and loans by loosening the regulation regarding safety and credibility, lowering capital requirements and changing the accounting rules (Acharya et al, 2011).

The monitoring system of the savings and loans imposed a loose regulatory framework and also had flimsy foundations. The operations of examination and monitoring were absolutely separated from each other. As a consequence, no agent had the sole responsibility for the failure of an institution (Moysich, 1997).

Three are the main players that seem to have borne the overall responsibility for the situation created (Benston and Kaufman, 1990):

(1) The US Federal Reserve Bank, which allowed an increase of money supply during the 1970s to levels that, caused double-digit inflation which in turn led to higher nominal interest rates. Then, in 1979 the Federal Reserve Bank increased abruptly and unexpectedly interest rates aiming to reduce inflation directly. Thus, the market value of the assets of many savings and loans fell below the value of their deposits.
(2) The elected members of the Congress and the Council, who ignored the fact that large and unexpected increase of interest rates, would cause great economic damage to the institutions.
(3) The FHLBB which failed to warn the officials and the public about the hazards and the fragile nature of a sector which financed long-term fixed-rate assets with short-term liabilities.

From 1985 on, it became clear that the savings and loans faced significant problems. The increase of interest rates and inflation combined with ceilings on deposit yields led to important capital outflows from banks and thrifts. Regulation put constraint over the rates thrifts and other financial institutions could pay on deposits. When inflation exceeded this limited return over deposits, depositors rationally withdrew their capitals from the depository institutions (Silva, 2009). The insolvency of many institutions became a frequent phenomenon which became far more intense during the period 1987-1988 (Curry and Shibut, 2000), as it seems from Table 2 below. The Insurance Agency for the savings and loans did not have sufficient funds to intervene. This led to the continuation of operation of troubled institutions that had a further motive to engage in activities with high risk expecting equivalent high yields.

The response of the American government to the first signs of fraud in the mid-1980s was controversial and contributed ultimately to the crisis. A close examination of this response reveals that the members of the savings and loan industry were able to protect themselves by putting pressure on key members of the Congress. The cooperation between government officials and institution managers seems to have played a major role in preventing the legislative regulation (Calavita et al, 1997).

Many researchers have tried to analyze the role that fraud and corruption played to the S&L crisis. Black (2005) coins the word “control frauds” to describe frauds that

were made by people that controlled big corporations. These people controlled other resources as well such as lawyers, accountants, appraisers and lobbyists. Calavita et al (1997) use several statistics on order to show that fraud played a trivial if not the most trivial role to the S&L crisis. Francis (2010) argues that the S&L debacle included the cooperation between bankers, their service providers, such as auditors, and government. According to him, members of the Congress were actively involved in the perpetuation of fraud which aggravated the crisis.

The most important action of the government in an attempt to deal with the crisis was the Financial Institution Recovery Reform and Enforcement Act (FIRREA) in 1989 (Brumbaugh and Litan, 1991). This Act referred almost exclusively to the savings and loan crisis and created the Resolution Trust Company whose aim was to close all the troubled institutions and to provide funds to pay off their depositors. However, the negative net value of a large and growing part of insolvent institutions could easily exceed the reserves of this Corporation. At the same time, the portfolios of thrifts were restructured trading below market mortgages for Market-Backed Securities that could be sold and losses were amortized. By this way thrifts also solved the problem of mismatch between their assets and liabilities (McCoy, et al., 2009).

The main approach of banking authorities to the crisis was regulatory forbearance, which means that they either redefined their rules in order to make them less restrictive or they looked at other directions when restrictions were violated (Friedman, 2000). The most extreme form of regulatory forbearance was that imposed by the Federal Savings and Loan Insurance Corporation, which let insolvent or marginally insolvent S&L sometimes for periods that reached several years. American regulators also allowed some big banks operate for a long period with minimum capitals.

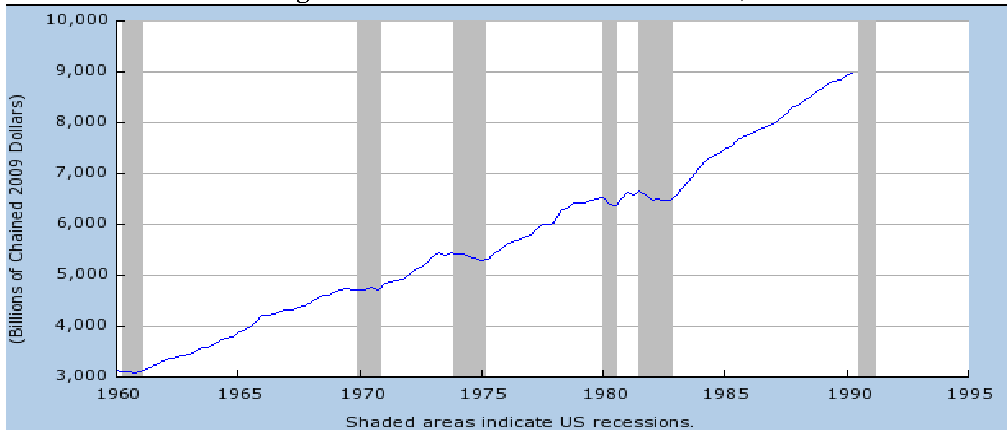
Whether FIRREA improved ultimately the regulation of the savings and loans is not entirely clear. The criticism that FIRREA accepted was that not only did it fail to confront the adverse condition of the institutions, it even failed to understand the major issues of the reform of the deposit insurance and of the regulation that this insurance required. Generally, it was argued that the US government and other authorities responsible for banking and S&L crises management proved to be unprepared to deal with the savings and loan debacle.

The savings and loan crisis was one of the worst financial disasters of the 20th century. Two aspects of the damage to the savings and loans had generally consequences to the overall economy (Congress of the United States, 1992). The first was the detrimental effect on the national capital stock as these institutions directed some of the national investments towards ineffective investment plans. The other aspect stems from the fiscal policy implied by the deposit insurance system.

The losses of the savings and loans seem to have cost the nation a major amount of income and production, as it seems from Figures 7 and 8 below. Based on rough estimates, the deterioration of all economic variables due to the crisis was far from insignificant. Heavy was also the blow for the taxpayers. The esteemed cost for the

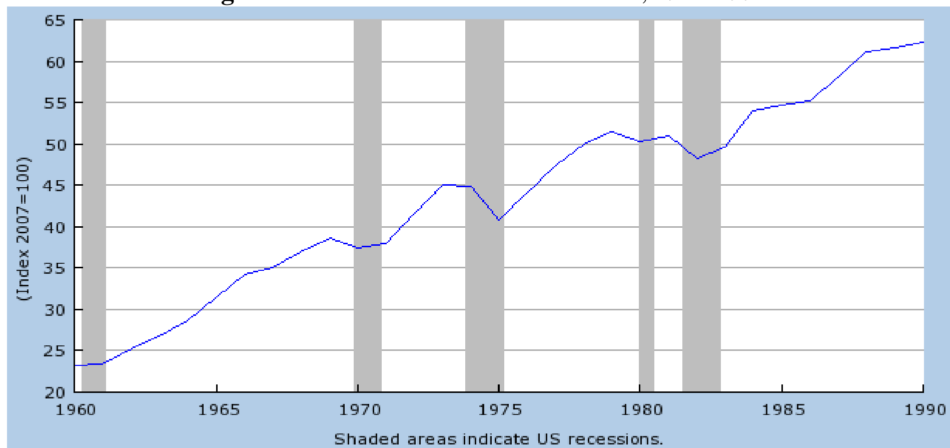
taxpayers, not including the interests over the government bonds that were sold in order to finance the rescue of the industry, was about $150-$175 billion (Calavita, et al., 1997).

Figure 7: US Real Gross Domestic Product, 1960-1990



Source: Bureau of Economic Analysis

Figure 8: US Industrial Production Index, 1960-1990



Source: Board of Governors of the Federal Reserve

Annex 3

Table 3. Comparative review of 3 crises

Crisis	Main Features	Commonly Aknowledged Causes	Measures Taken	Main Consequences
Bank Panic of 1907	*Originated from the US financial sector and more specifically from the financial intermediaries(trusts) of New York but disseminated worldwide *Absence of a central banking institution and an Insurance Agency	*Instability of the financial system *Lack of ogranization and unity, deficient control, defective structure and regulation within the american banking system *Several policy mistakes and disputable financial practices by enterpreuners *Lack of a central banking entity and of a deposit insurance system *Weak bank lending capacity	*General reformation of the US banking system , increase of control over the National Commercial Bank and other troubled banks and trusts and provision of them with funds *Establishment of the Fed and Issuance of the Federal Banking Act	*Major deterioration of most economic variables(e.g. GDP, interest rates) *Significant drop in the standard of living *Imposition of more strict regulation and control especially in the banking sector *Lack of money and liquidity among banks, trusts and firms
Stock Crash and Great Depression of 1929-1933	*Originated from the financial markets of USA and disseminated throughout the world *Existence of the Federal Reserve *Followed by a deep recession	*Unstable global economic system *Several policy mistakes particularly by the Federal Reserve, lack of control over the financial system and excessive marginal borrowing *Efforts to preserve the gold standard *Decline in future expectations for economic growth	*Currency devaluation *Expansionary Monetary Policy *Tight fiscal policy (tax icreases)	*Major deterioration of most economic variables (e.g. industrial production, GDP, General Price Index, unemployment) *Misfortune and suffering of people and uncertainty about future income *End of the gold standard *Increase in government regulation and supervision particularly of the financial markets *Trade unions and the social welfare state developed substantially
Savings and Loan Debacle of the 1980s	*Originated from the US financial sector and more specifically from the sector of the Savings and Loans and spread to the rest of the world *Existence of a central banking institution and of an Insurance Agency	*Instability of the Savings and Loan sector *Defective structure and insufficient regulation of the Savings and Loan industry *Imprudent actions of the Congress and the Federal Reserve, cooperation between government officials and institution managers and many "white collar crimes" *Financial innovation *Bad economic conditions-remnants of the Great Crisis of 1929	*Issuance of the Financial Institution Recovery Reform and Enforcement Act in 1989 to control for banking institutions, close the troubled ones and provide funds to pay off their depositors *General reformation of the banking sector	*Major deterioration of most economic variables (e.g. national capital stock, income, production) *Heavy burden for taxpayers and drop of the standard of living *Imposition of more strict regulation and control