

Crash 08: a regulatory debacle to be mended

By

Giorgio Szegö

SPECIAL PAPER 189

LSE FINANCIAL MARKETS GROUP PAPER SERIES

March 2010

Giorgio Szegö researches the theory of financial regulation and has authored more than 300 papers and books. He holds a degree in Physics from the University of Pavia, and has held teaching and research positions at Purdue University and the Research Institute of Advanced Studies. Any opinions expressed here are those of the authors and not necessarily those of the FMG. The research findings reported in this paper are the result of the independent research of the authors and do not necessarily reflect the views of the LSE.

Crash 08: a regulatory debacle to be mended.

Giorgio Szegö[§]

Abstract

The major financial crises of the last 30 years are analyzed and some common features brought to light: lax supervision, easy money, risk appetite, legislative follies and regulatory mistakes. The current crisis contains all these elements. The current disaster were brewed in USA in the '80ies by some regulatory acts aimed at proving that, contrary to the opinion of most economists trouble-makers, free lunches do exist. The US money market has shown a complete reversal since 1981 with falling average rates and a growing market "intolerance" to interest rates increases. This change has been largely caused by the introduction in 1981 of Adjustable Rate Mortgages that enhanced the effects of the rate rises. The many recent studies and regulatory proposals are then compared. While there is an amazing general consensus on the causes of the crash, regulatory proposals, ranging from the UK Conservative Party "white paper", to the disappointing US plan, present some differences.

[§] Professor Emeritus of Financial Economics, "La Sapienza", University of Rome. With the exceptions of the US and UK regulatory proposals of June-July 09, the whole content of this paper was presented at a Lecture given at the Financial Regulation Seminar, Financial Market Group, LSE on Monday June 22nd 2009.

While I keep the sole responsibility for error and mistakes, I wish to acknowledge the very useful comments received from Robert Eisenbeis an eyewitness of many important events, and the great help provided by Loretta Mester, Senior Vice-President for Research of the Federal Reserve Bank of Philadelphia.

Crash 08: a regulatory debacle to be mended.

Giorgio Szegö[§]

Synopsis.

§ 1 Past vs. current crisis: a comparison.

§ 2 Identification of common causes.

§ 3 Main past regulatory acts and their phasing out.

§ 4 Studies on the current crisis and regulatory proposals

§ 5. Comparison among proposals.

§ 6 Conclusions

§ 1. Past vs. current crisis: a comparison.

All economic crises are different. In particular the current one, that began more than two years ago¹, has some unique features.

In the following pages, I shall analyze the past crises and critical cases and compare them with the current one. The chosen sample does not claim to be complete, but to include the most interesting events. The aim of this comparative study is to detect possible similarities in the underlying motivations, the triggering events and avoidable human mistakes.

The analysis will consider the following ten cases:

1. U.S. Savings and Loans Crisis of the '80ies.
2. Continental Illinois, 1984.
3. Japan Bank Crisis, 1990...
4. Scandinavian Bank Crisis, 1992.
5. The U.S. Stock market crash of 1987.
6. Metallgesellschaft, 1993, and Long Term Capital Management (LTCM) 1998.
7. Drexel-Burnham-Lambert bankruptcy, 1990.
8. The U.S. Stock Market crisis of 2000-2002.
9. Enron bankruptcy, 2001.
10. The crash of 2008.

All these events have already been subject to extensive investigations. Here I shall try to bring to light the most relevant aspects. Let me explain the motivations for my specific selection, which includes only post 1980 events that took place in the main industrialized countries and are closer to our current state of the world. I believe that some lessons on how to decrease the probability of

[§] Professor Emeritus of Financial Economics, "La Sapienza", University of Rome. With the exceptions of the US and UK regulatory proposals of June-July 09, the whole content of this paper was presented at a Lecture given at the Financial Regulation Seminar, Financial Market Group, LSE on Monday June 22nd 2009.

While I keep the sole responsibility for error and mistakes, I wish to acknowledge the very useful comments received from Robert Eisenbeis an eyewitness of many important events, and the great help provided by Loretta Mester, Senior Vice-President for Research of the Federal Reserve Bank of Philadelphia.

¹ The first overt signs of the crisis showed themselves in the first weeks of March 2007 with the sudden crash of the stocks of the major US Mortgage Brokering Firms, in particular Indy Mac, Fieldstone, New Century, and Countrywide. These events were followed by the publication of the IMF Global Stability Report of April 07 and by the FBI Mortgage Fraud Report in May 07.

future crisis and how to mend the current mess can be learned from their analysis. While each of these crises is formally different from the other, they have many common features and critical points: the first three deal with depository institutions and real-estate bubbles. The 1987 stock market crash is an example of technical mishaps and uncoordinated regulations. The next events: LTCM and Metallgesellschaft, DBL and Enron technically were not crises, but are good examples of disregard of unlikely events, of discretionary actions of authorities, of “creative” accounting practices, but also of compulsive ad hoc legislative reaction. The current crash unfortunately contains all the malpractices that we have discovered in the previous cases.

1. 1980. U.S. S&L Crisis².

The U.S. Savings and Loan debacle of the ‘80ies has some similarity with the current sub-prime crash. That debacle was triggered by collapse in value of real estate in oil-producing states - Texas, Louisiana, and Oklahoma - due to the sharp fall of oil prices in the early ‘80ies. This decline followed the increase of oil (and property) prices of 1979-81³.

The underlying cause was however liberalization in the activities of S&Ls and competition with commercial banks, introduced via the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of March 1980. This act liberalized the sources of funds as well as their possible uses for S&L. In particular the thrift institutions were allowed at National level to issue NOW (Negotiable Orders of Withdrawal) accounts. As rightly predicted by Kareken, and by Kane⁴ the (unwanted?) consequence of this Act was the dismantling of Regulation Q, one of the cornerstones of the existing regulatory system⁵. The deregulation of S&Ls allowed thrift institutions to compete with banks in deposit collection without being subject to the strict regulations of the latter. On the other hand, S&Ls were de-facto forced to concentrate their lending in real estate.⁶

The triggering event of the disaster was the jump of interest rates in 1979-82 (Fig. 1). In 1980-82 the FF rate reached the level of 20%. At the beginning in 1979 the FED started a slow increase of short term interest rates in order to preempt inflationary pressures. Unfortunately, the 1980 oil crisis deteriorated the financial situation. This led to a raise of short-term cost of funding. The costs soon became much higher than the return on portfolios of mortgage loans, a large proportion of which was issued at fixed rate. This mismatch jeopardized S&L.

By 1986, 50% (more than 700) of all thrift institutions defaulted. At the end of 1994 the number of failed institutions reached 1300, with a total monetary loss of \$600 billions. The ultimate cost of the crisis for the taxpayer is estimated to have totaled around \$160 bn. These events contributed to the large budget deficits and recession of the early ‘90ies.

The original loss estimates were in the range of trillions of U.S. \$, but they were contained by an interesting therapy, the creation in 1989⁷ of the Resolution Trust Corporation (RTC). This government institution was given a limited life: it was due to end its activity on Dec. 31st 1995 and to transfer the pending activities to the Federal Deposit Insurance Corporation (FDIC). Bad assets (real estate and mortgages) owned by failed S&L were all transferred to RTC. This allowed these assets to be sold gradually and not dumped on the market all at once. During its operational life, RTC resolved 747 institutions and disposed assets with a book value exceeding \$455 billion. RTC

² See US General Accounting Office, 1989. See also White, 1991.

³ Oil price for barrel, 1979 \$74, 1980 \$98, 1981 \$ 85, 1982 \$ 71,,1986 \$ 28.

⁴ Kareken, 1983, and Kane, 1985.

⁵ See section §3.

⁶ Note that until 1989, when the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) transferred the control to a branch of the FDIC, these thrift institutions were insured and supervised by the very lenient FSLIC. See Cargill and Garcia, 1985, Chapters 5 and 6.

⁷ Via the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA).

was a unique example of public-private partnership. Indeed private sector partners would acquire a partial interest in a pool of assets, manage, and eventually sale them. Recently it has been pointed out that government-owned asset-management firms are ineffective – often because of political meddling⁸ - but unfortunately no efficient alternative solutions have been put forward. Brady, Ludwig and Volcker⁹ have proposed the reconstruction of RTC to handle the current mess. From a general viewpoint, we can conclude from this positive experience that temporary regulatory instruments can be very effective if given a credible limited life: financial market conditions do change and some solutions that are effective in some circumstances may be damaging in some others.

While the S&L crisis was triggered by oil price jittery, the underlying cause was a not well thought legislation (DIDMCA) that de-facto buried the Glassl-Steagall system without any replacement and let loose the rather inexpert and undercapitalized S&Ls. Possibly lobbying from the politically powerful S&L played a big role.

Contrary to the 2007-8 case, the 1980 crisis was not amplified by crisis-enhancing factors like the mark-to-market accounting rule, the pro-ciclycal bank Capital Requirements and the Originate-to-Distribute system. In spite of the \$ 160 billions¹⁰ public losses, that contributed to the large budget deficit of the early '90ies and to the following recession, in the '80ies most banks remained unscainted. The consequences of the current disaster may be much more severe, long-lasting and with wider economic consequences than the U.S. S&L debacle.

2. The Continental Illinois bailout of 1984.

The importance of the bailout of the Continental Illinois National Bank and Trust Company of Chicago in 1984 goes far beyond the consequences for its stakeholders, since it is considered to be the event that formalized the disputable “too-big-to-fail” doctrine. At that time, Continental Illinois was the seventh largest bank in the United States as measured by deposits. On May 9, 1984, the bank became insolvent.

Like the S&L crisis, the crash of this bank from Chicago was also caused by energy sector loans that had begun to turn sour on Continental when the Oklahoma and Texas oil boom of the late 1970s and early 1980s lurched into recession. In addition to that, due diligence was not properly conducted by John Lytle, an executive in charge of oil lending, and other leading officers of the bank. Lytle later pleaded guilty to a count of defrauding Continental of \$2.25 million and receiving \$585,000 in kickbacks for approving risky loan applications. He was sentenced to three and a half years in a federal prison.

Continental Illinois was defined as "too big to fail", (TBTF), by the regulatory agencies. The Federal Reserve and Federal Deposit Insurance Corporation (FDIC) feared that a failure could cause widespread financial trouble and instability.

By May 17, 1984, regulatory agencies and the banking industry had arranged billions of dollars in emergency funding. In a move that still remains controversial, the FDIC extended a guarantee to uninsured depositors and creditors at the bank giving credibility to the notion that some banks should be considered TBTF. The FDIC infused \$4.5 billion to rescue the bank.

The emergency help was followed by a package of permanent measures, making Continental the largest bank in the history of US banking ever to be rescued by government agencies.

The Continental episode is noteworthy because it focussed attention on important banking policy issues, in particular on the effectiveness of supervision. In the wake of the event, some members of Congress questioned the role of bank regulators (in this case, the Office of the Comptroller of

⁸ Laeven and Valencia, 2008.

⁹ Brady, Ludwig, and Volcker, 2008.

¹⁰ Likely one tenth of the current bill!

the Currency). In the following House hearings, the Comptroller of the Currency, C. T. Conover, spelled out the names of the banks deemed TBTF, the eleven largest US banks, granting them a license to misbehave. It is surprising that the only remaining lesson from this event is the concept that all large financial institutions are TBTF, and not that mismanagers could go to jail!

3. Japan Banks and Real Estate Crash.

In 1988, I received a Christmas postcard from the famous Japanese economist, Prof. Shigeto Tsuru. After the greetings and family news he wrote: “nowadays a parcel of land of the size of this postcard in central Tokyo will be priced \$ 5000: I do not know where we are heading to”.

The Japanese crisis of the 1990ies and early 2000s had roots similar to the American S&L crisis: the collapse of a real estate bubble that left banks holding trillions of yens in loans that were virtually worthless. Unfortunately for quite a long time, Japan’s leaders underestimated how badly the real estate collapse would hurt the country banks.

As in the United States, a policy of easy money had fuelled stock and real estate speculation, as well as reckless lending by banks. The U.S. balance of payment deficit fed the Japanese financial surplus and caused a strong appetite for profitable investments from banks and induced the real estate price bubble¹¹. Herding was an essential element. The bubble started in 1983 and busted 1987, leaving banks with strongly devaluated mortgage guaranties. Real estate prices by 1990 had declined 30% below their 1983 levels and 70% below their peak values. This led to the bank crisis.

Many in Japan thought that low interest rates and economic stimulus measures would help banks to recover on their own. In late 1997, however, a string of bank failures set off a crippling credit crisis.

Fearing more bad news if banks were forced to disclose their real losses, Japan’s leaders allowed banks to keep loans to “zombie” companies on their balance sheet and used different funds, in part privately financed, in order to relieve banks of their bad assets.

In the Japan crisis, we cannot detect any exogenous triggering event: it is a typical case of endogenous boom-burst crisis.

4. Scandinavian Bank Crisis, 1992¹².

From 1991 to 1993, with a peak in 1992, the banking system of all Nordic countries went practically bankrupt. The total losses ranged from 2% of GNP in Sweden to almost 11% in Finland.

Scandinavian financial markets in the early 1980s were dominated by a set of regulations that limited banks’ ability to set interest rates and to extend credit. The radical financial liberalization of the mid- to late 1980s removed caps on lending and interest rates and caused a significant rise in credit. Increased competition among financial institutions led to a race to secure market share. Banks did not have enough time to develop appropriate procedures to evaluate and manage risk, and governments reduced supervision to create a free-market environment. The removal of limits on international capital flows further boosted credit supply, as banks could obtain foreign funding. The existing fixed exchange rates regime limited risk.

The rise in asset prices in Sweden, Norway, and Finland in the mid- to late 1980s was steep. House prices in the five years up to their peak roughly doubled in nominal terms. In real terms, the sharpest rise was in Finland, where house prices in the five years up to the peak rose 80%, compared to 44% in Sweden and 38% in Norway

¹¹ See Kindleberger and Aliber, 2005

¹² See, for instance, J.P. Morgan-Chase, 2008.

The rise in asset prices expanded leverage. Credit demand rose as borrowers' net worth increased, and credit supply was more ample as collateral values and bank balance sheets improved. Nominal private nonfinancial sector debt in the five years up to the peak rose 87% in Finland, 67% in Sweden and 52% in Norway.

The growth rate of credit extended by banks, in Finland was even more pronounced than in Sweden and Norway.

The first economy to turn down was Norway. Monetary policy started to tighten in 1986 as the government strived to contain inflationary pressure and maintain confidence in the fixed exchange rate system. Policy tightening was quickly followed by a decline in asset prices and a turn in private-sector behaviour. Households turned more cautious and started to consolidate their financial positions, likely encouraged by tighter credit availability as banks struggled with nonperforming loans. A recession began in 1988, lasted two years and caused a 4.2% fall in GDP level.

Credit and business cycles lasted longer in Sweden and Finland and continued to accelerate through the second half of the 1980s. After a consequent rise of inflationary pressures, monetary policy tightened. Debt servicing costs rose significantly, which forced cutbacks in other spending. Fiscal policy also tightened in both economies. The policy tightening provided the shock to turn down the credit and business cycles, a process that was then amplified by declining asset prices. Households and corporates began to retrench and credit availability declined as nonperforming loans increased dramatically.

The Swedish recession began in 1991 and lasted two years; the peak to trough move in GDP level fell 5.8% and the unemployment rate moved up 6.8% points. The Finnish recession began in 1990, lasted just over three years and involved a much deeper contraction; the GDP fell 13.3% and the unemployment rate increased of 13.4%. The downturn in Finland was particularly deep, more than twice what was experienced in Norway and Sweden. The gains in asset prices and borrowing were greater in Finland, especially in real terms, which likely made the economy more vulnerable to the policy shock that eventually hit. The subsequent devaluation of the currency eased the pressure on the export sector, but worsened the financial crisis

In summary we can conclude that the crisis was triggered by a bust in a real estate bubble, while the underlying cause was the extensive availability of inexpensive funds made possible by the liberalization of foreign borrowing by domestic banks.

The successfully adopted therapy was the establishment of a government-owned asset-management company to take over and sell the non-performing loans from banks: in a way banks were nationalized, and re-privatized, when back in health.

5. 1987 U.S. Stock Exchange crash

From the close of Tuesday Oct. 13 to the close on Monday Oct. 19 the Dow-Jones Industrial Averages stock market index (DJIA) declined of about one third with a loss in all traded stocks of about \$ 1 trillion. During the crisis stock repurchases by approximately 650 issuers took place. While no specific triggering event can be earmarked, the crash was enhanced by automatic selling induced by portfolio insurance techniques, and by the strong disconnection between cash and derivative markets, with huge differences in the margin requirements and in the speed of order execution¹³.

Investors in the futures market had to put down only about 5 percent of the value of a stock-index futures contract. By contrast, in the stock exchange they were required to put down at least 50

¹³ Bookstaber, 2007, pg. 21. Note that at that time these financial instruments were rather new, having been introduced by several commodity exchanges in the early '80ies.

percent of the equity value. This rule, in effect since 1974 and policed by the Federal Reserve, was meant to limit speculation in the market.

The “philosophical” rationale for this difference in margin requirements is that a futures contract is merely a promise - a good-faith deposit - to buy or sell the basket of stocks at a future date at a set price, not an actual purchase of those stocks.

A stock-index futures contract provides the investor an opportunity to bet on the overall direction of the market. One futures contract is the equivalent of trading dozens, if not hundreds, of individual stocks, meaning it is far more "efficient." The cheaper entry fee and the increased efficiency of the stock-index futures market, combined with computer-assisted investment strategies known generically as program trading, have made for an explosive mixture¹⁴.

The problem is that when two related but different markets interact: one will eventually dominate the other. In '87 it happened that the stock-index futures market became dominant and the stock market adopted some qualities of the futures market. Thus the stock market moves rapidly up or down regardless of the economic fundamentals of the specific companies. The proposal to increase stock index futures margins might inhibit this shift.

There is nothing wrong in commodities markets where prices are formed in the very liquid futures market and not in the cash market. In November 1987, spot trading on NYSE stopped, and the opening prices could be derived from the Major Market Index, that was still traded at the CBOT.

The therapy suggested in the following “Brady Report”¹⁵ was the introduction of market circuit breaker mechanisms. The unification of clearing systems and uniform margins across marketplaces was also recommended. Contrary to the current U.S. plan, the Paulson plan¹⁶, attacked by some U.S. economists¹⁷, envisioned the merger of Commodity Futures Trading Commission (CFTC) with Securities and Exchange Commission (SEC)¹⁸.

6. Metallgesellschaft, 1993¹⁹, and LTCM 1998²⁰.

The crisis of Metallgesellschaft and the much more relevant one of the hedge fund Long Term Capital Management, LTCM, have been triggered by very similar factors: a totally unusual and unexpected change in market regimes. The underlying cause in both events was the disregard for such “extreme events” that led to the neglect of the wise principle “never say never”. In the case of LTCM, the triggering event was the irrational interest rate spread reversal induced by the Russian debt moratorium of August '98. Like many other investors, LTCM heavily bet on a reduction of the spread among interest rates of the Euro-currencies due to merge into the Euro from Jan. 1 1999. The Russian moratorium that shortly followed the South-East Asian financial crisis spread an irrational panic and a move against the weaker Euro-currencies.

Long Term Capital Management (LTCM) met enormous losses²¹ and unsustainable margin calls. This hedge fund was characterized by very high leverage: its previous success story caused its fast and large expansion. While the management of LTCM did not volunteer any information on its financial strategies, eager investors were begging to be accepted, and furthermore banks were very eager to provide credit²². It is evident that they were either unable or uninterested to obtain

¹⁴ See Kwast, 1986.

¹⁵ Report of the Presidential Task Force on Market Mechanisms, 1988; Report by the Division of Market Regulation, US SEC, 1988.

¹⁶ US Department of the Treasury, 2008.

¹⁷ Krugman, 2008.

¹⁸ Note that even financial derivatives markets are controlled by CFTC and not by SEC.

¹⁹ See, for instance Culp and Miller, 1994, and Edwards, 1995.

²⁰ See Edwards, 1999, and Lowenstein, 2001.

²¹ See, for instance, Lenzner, 1998, and Edwards, 1999.

²² At the beginning of its life, LTCM made good profits on riskless arbitrage, when these opportunities dried out and the amounts of fund under management increased, it started investing in uncovered position.

the figures on the total debt of the fund. At the time of the “spread earthquake” of 1998, the fund’s liquidity was not sufficient to cover margin calls in temporarily losing derivative contracts. The size of LTCM positions was such that it de-facto blackmailed the FED, challenging to let it fall²³. The FED limited his role to the organization of the rescue operation²⁴.

This event proves the need for stricter control on all financial intermediaries; both on banks that have collectively lent outlandish amounts of money to LTCM as well as on funds. We all agree on the difficulty of regulating and controlling hedge funds, but any care for systemic risk would have suggested bank regulators to force banks to limit the amount that could be lent to any single borrower.

Also the Metallgesellschaft²⁵ crash, while of a much smaller size and without any systemic impact, was similarly triggered by an unexpected reversal from (usual in oil market) backwardation to contango. The company sold 10 years oil contracts, that were hedged via short-term derivatives. The strategy was designed under the assumption of the persistence for the backwardation mode for the whole duration of the contract. The ultimate player, Deutsche Bank decided to close the position biting a \$ 1.3 billion bullet. Again “never say never”!

It is also worth recalling two other cases: the **Drexel-Burnham-Lambert** bankruptcy, of 1990, and the **ENRON** default in 2001. Were both hit by the curse of the pioneers?

7. Drexel-Burnham-Lambert (DBL) bankruptcy.

DBL was a very innovative investment bank. It created Colletaralised Debt Obligations (CDO) and was heavily involved in underwriting “High Yield” (Junk) Bonds for start-up companies, thus decreasing their financing costs, but antagonizing commercial banks. In addition to issuing these bonds it became a marker-maker for them, “guarantying” their liquidity and thus further decreasing their costs. The trigger of DBL crash was the indictment of an important DBL trader, Mr. Milken for insider dealing and the \$650 millions fine retribution inflicted to DBL by SEC in September 1988. The current view is that also in this case personal conflicts played a crucial role; DBL was the main competitor of Dillon, chaired by N. Brady, who was nominated Secretary of the Treasury in September 1988²⁶.

The political appetite of R. Giuliani, who built the insider trading case, also played a crucial role. Sometimes the dividing line between market-making and market manipulation is very blurred. In any case this was a sort of kindergarten play if compared with the stock repurchases of \$34 billions worth of shares buybacks, possibly motivated by the desire to maximize stock option values by Citigroup, Lehman Brothers, Merrill Lynch and Morgan Stanley managers in 2007-08. Altogether between 2003 and 2007 these main U.S. companies spent \$1.7 trillion to purchase their stocks, and everybody is now paying the price for this gigantic market manipulation²⁷. Nobody now has been indicted. Unfortunately FED bail-outs are very discretionary: it saved LTCM, Merrill Lynch, and Bear-Sterns, while DBL and Lehman Brothers were abandoned to their fate!²⁸

²³ According Lowenstein, 202, pp 202-4, and to an eyewitness testimony, W. Buffet expressed his willingness to bail out the hedge fund, but its offer was not regarded as adequate by Merrywater, the dues-ex-machina of LTCM. This is the first case of a Large Complex Banking Organization (LCBO), so defined by Stern and Feldman 2004, pg 32.

²⁴ FED intervention, even at no cost for the US taxpayer was strongly criticized by many economists for its implicit encouragement to risk-taking. See Stern and Feldman 2004, pg. 83. As a behavioral comment, note that Bear-Sterns, recently bailed out by the FED with an infusion of \$30 bn. of taxpayer money, refused to join the lifeline!

²⁵ See, for instance, Lenzner, 1998, Edwards, 1994, and 1999 and Krugman, 2009.

²⁶ On Sept. 15 by President Reagan. In 1987 he chaired the Presidential Task Force on Market Mechanisms. According to Fromson et al, 1990, the CEO of DBL, Fred Joseph, “was not a nice guy”. This fact did not play well with the banks which were expected to continue lending short-term to DBL. That of not being a nice guy seems to be the financial world equivalent to “not having a good character” the subjective slander expression used in the academia.

²⁷ Lazonick, 2008, and Di Noia and Micossi, 2009.

²⁸ See Stern and Feldman, 2004, pp 19-20.

DBL anticipated the mistakes that led to the 2007-8 crash, relying on short term borrowing to finance its junk bonds operation and prizing quantity over quality.

8. ENRON Bankruptcy, 2001.

Enron rapid growth was largely due to clever marketing. Enron was named "America's Most Innovative Company" by *Fortune magazine* for six consecutive years, from 1996 to 2001!

In 1999, Enron was trading about 500 products including credit derivatives, bankruptcy swaps, pulp, gas, plastics, paper, steel, metals, freight, TV commercial time. The company's aggressive investment strategy made Enron the biggest wholesaler of gas and electricity, trading over \$27 billion per quarter. The firm's figures, however, had to be accepted at face value. Thus, Enron could record gains from what over time might turn out losses. The company's fiscal health became secondary to manipulating its stock price allowing a continued infusion of investor capital that allowed debt-ridden Enron to grow: the blueprint of a Ponzi scheme.

As was later discovered, many of Enron's recorded assets and profits were inflated, or even wholly fraudulent and nonexistent. Debts and losses were transferred into entities formed "offshore" that were not included in the firm's financial statements. Fictitious financial transactions between Enron and its off-shore entities were used to take unprofitable deals off the company's books.

In August 2000, Enron's stock price hit its highest value of \$90. At this point Enron executives, who possessed the inside information on the hidden losses, began to sell their stock. As executives sold their shares, the price began to drop. Investors were fooled into buying or holding Enron shares under the illusion that their price would soon rebound.

By August 2001, Enron's stock price had fallen to \$42, in October, to \$15. At the end of the year it was revealed that its reported financial condition was sustained by an institutionalized, systematic accounting fraud. "Creative" mark-to-market accounting procedures, which allowed accounting as current, anticipated future profits and inflated unrealistic earning predictions, were used.

Enron filed for bankruptcy protection in late 2001. The scandal affected the wider business world, and caused the death of Arthur Andersen accounting firm. According to data provided on January 2002 to the U.S.-Senate Committee on Governmental Affairs, investors lost over \$80 billion from the stock's collapse.

The scandal also brought into question the accounting practices of many corporations throughout the United States and was a factor in the approval of Sarbanes-Oxley Act of 2002²⁹.

SEC indicted many Enron executives on charges, including fraud, conspiracy, insider trading and lying to auditors for helping perpetuate schemes to lie to investors and employees.

The Enron scandal was caused by endogenous factors and was a precursor of the Madoff scam and provides another example of the dangers connected with M-t-M accounting.

9. The U.S. 2000-2002 stock market crisis, the mother of the current crisis.

The recession of 2001 has been one of the most mysterious events of economic history. Its trigger and even the starting date is debatable. The triggering event seems to have been the year 2000 computer panic, or as U.S. cryptograph-maniacs like to say "the Y2K scare"³⁰. This event increased manifold the business of computer and software firms during the first part of 1999 and causes a rise of their share values. In the last quarter of 1999, investors realized that this surge in business was temporary and had reached its end. Stock values tumbled down, investors lost faith and the stock market witnessed a sell off in March 2000. According to the National Bureau of Economic

²⁹ This law is considered by many economists (for instance S. Ross) as a typical hurried legislation. In view of the additional costs imposed on listed companies, it caused a decline of trades in NY Stock Exchange

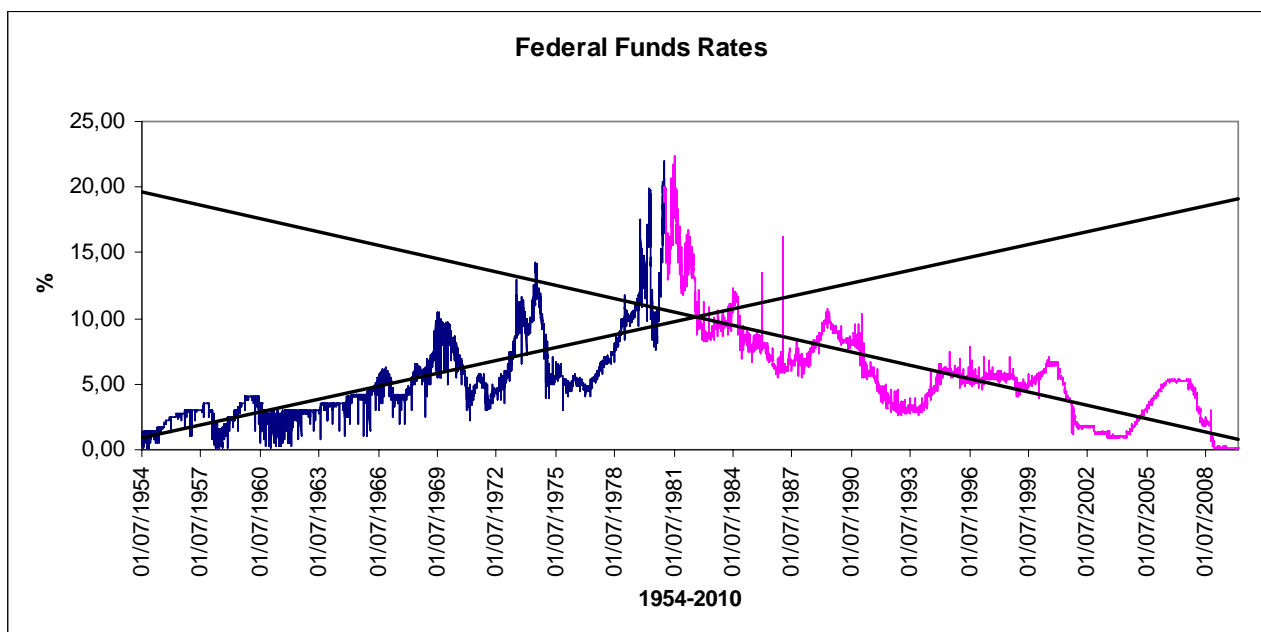
³⁰ Indeed many computer programs allowed only two spaces for dates, it was justly recognize that it could be impossible to distinguish the year 2001 from 1901. Software had to be rewritten and computers replaced.

Research the recession started in March 2001³¹. Note that some symptoms of malaise, like a decline of corporate profits, were already evident during the last quarter of 1999; new house construction, net inventory investment, receipts and surpluses started declining during the second quarter of 2000. The Fed kept increasing rates until January 2001 when it started a drastic reduction that took the rates down to 1% in July 2003. The recovery was possible because the economy was doped by the low level of interest rates and the seed for the current crisis was sown.

10. The current crisis³².

Fig. 1 presents the historical evolution of the U.S. Federal Funds Rate. We are witnessing a downtrend that started in 1981. The period of very low interest rates, i.e. below 2%, never seen since the '50ies, started in December 2001 and lasted three years until December 2004. We recall that this reduction of interest rates was motivated by the recession that officially begun in the third quarter of 2001. During these three years period, the rate reached a minimum of 1%.

Figure 1 The roller coaster of U.S. Financial Fund rates.



From July 1st 2004 the FED engineered a gradual increase of the rates that reached the value of 5.25% by July 2006 and stayed at that level until September 2007, when a rapid decline was decided reaching the 0 - 0.25% level since January 2009.

The three years (Dec. 2001 - Dec. 2004) during which the rates had the value of 2% or lower were one on the causes of the continuous appreciation of the real estate values. Low interest rates were also the fuel of the Originate-to-Distribute (O-t-D) system that in turn enhanced housing prices and created a speculative bubble³³. This allowed a huge equity extraction from residential real estate, increased risk appetite and caused concentration of investments in Real Estate³⁴. The

³¹ The rather self glorifying NBER Report of November 26, 2001, states that “the (ended) expansion lasted exactly 10 years, the longest in the NBER chronology.

³² There exists a vast literature on the subject. In addition to the ten studies that will be critically analysed in Section 3, the following papers are relevant: IMF, Global Financial Stability Report, April 2007, pp. 2-10 on triggering event, and mortgage delinquencies; Greenspan and Kennedy, 2007, and 2008 on equity extraction; Szegö, 2009 on frauds; Gorton, 2007 on ABS; King, 2008 on maturity mismatch; Goodhart, 2007 on regulatory problems.

³³ See Szegö, 2009 for a detailed discussion. See also Greenspan and Kennedy 2005 and 2007.

³⁴ Mortgage debt in USA became much cheaper than credit cards debt since the Tax Reform Act of 1986 eliminated interest rates deductions on consumer loans, while retaining those on mortgages.

large investment in residential real estate mortgages even to substandard applicants was politically encouraged³⁵. The unchecked originate-to-distribute system, made originating institutions rather insensitive to risk. The system, essentially financed via short-term Commercial Papers (CP)³⁶, took advantage of the cheap money of the period 2004-2007, was supported by opaque derivatives, and offering circulars, and enhanced by the 2004 SEC authorization to investment banks to rise their leverage limit from 12.5% to 30%³⁷.

The rapid rise of interest rates that took place from July 2004 through Sept 2007³⁸ caused the default of many mortgagors with adjustable rates contracts, induced a decline of property markets, and triggered the current crisis.

From the above figure, we learn how the U.S. economy has changed since the 1980s. From the 1950s to the 1980s, rates showed an upside trend, while since 1981 the trend was downside. This downside pattern in interest rates, that is visually evident in Figure 1, is documented by the declining values of the peaks and of the troughs:

Peaks: May 1981: 20%; Aug. 1984: 11.75; Feb. 1989, 9.85%; July 2000: 6.54%; June 2007: 5.24%

Troughs: Dec. 1982: 8.50%; Nov. 1987: 6.25%; May 1993: 3%; July 2003: 1%; January 2009: 0%.

Figure 1 shows that the behaviour of U.S. economy clearly has drastically changed since 1981. In my opinion, the main cause is the expansion of Adjustable Rate Mortgages. While in early 1981 they accounted for only 8% of the total, in 1984 they covered 64% of the total³⁹. The development of the market share of ARM will be discussed in Appendix 1.

I shall not discuss the motivations of the choice between FRM (Fixed Rate Mortgages) and ARM. Very likely, the interests of lenders played an important role in the decision of the applicants⁴⁰.

Any increase of rates has a very strong impact on mortgagors, and severe consequences on the whole economy. It is known from portfolio theory that an increase of interest rates or the anticipation of an increase has a much greater impact on the market portfolio than a reduction⁴¹, however since 1981 this intolerance seems to have considerably grown. At the current level of interest rates, monetary decision-makers are in a trap.

The increase of interest rate started in August 2003, as shown in Figure 1, was not much different from similar past decisions, but this time caused a complete havoc. In order to make a more precise assessment of the impact of this interest rate upswing on Adjustable Rate Mortgages (ARM), we shall next compare the yearly costs connected with these total rates at current LIBOR, i.e., after the increase of 2003, with the theoretical costs in absence of this increase, using the figures on the total interest-sensitive yearly payments derived in Appendix 1⁴².

³⁵ DIDMCA of 1980, issued during Carter presidency, imposed to the Federal mortgage-insuring institutions Fannie Mae, etc. to minority groups. This rule was reinforced during the Clinton and Bush administrations. See Szegő, 2009.

³⁶ More precisely via Asset-Backed Commercial Papers (ABCP)

³⁷ See Szegő, 2009 for a detailed discussion.

³⁸ An average 25bp increase every 2 months.

³⁹ See Dhillon, Shilling, and Sirmans 1987. In US in 1980 was approved the Depository Institutions Deregulation and Monetary Control Act (DIDMCA), meant to deregulate the US financial system, but the unintended macro consequences were dire. This act was followed in May 1981 by regulatory changes on Adjustable Rate Mortgages, decided by the Federal Home Loan Bank and adopted by all federal chartered Mortgage institutions Fannie Mae, etc.

⁴⁰ Teaser mortgages start with fixed rates for the first 2-3 years, then switch to adjustable rates, mostly indexed to some key rate, for the remaining 28 or 27 years – most mortgages have a length of 30 years. The mortgage performs well during the first part, and the loan officer obtains a good bonus, but in the case of rising interest rates, the mortgagor cannot meet its obligations.

⁴¹ This asymmetry is a direct consequence of the quadratic form of the efficient frontier. See Szegő 1972, pg. 4.13, 1980, pg. 80 and Szegő 1985, pg. 171.

⁴² I have obtained these results by first deriving the yearly reimbursement of the principal on the basis of a notional interest rate of 5%. See last column of Table 1.

The computation of the total adjustable yearly payments is presented in Appendix 1. From June 2003 through June 2007, 12 months LIBOR rates rose from 1.2% to 5.4%. The total additional cost for the Adjustable rate mortgagors for 1-4 family residences, in these four years reached the amount of \$ 43.85 billion. If we repeat our computation for all kinds of mortgages, the estimated bill reaches \$ 76.60 billion⁴³, practically identical to the amount of the 2003 tax cut.⁴⁴ Of course, while the tax cut was in favor of all taxpayers, this ARM-induced levy has hit about 4 million households. Note that this additional cost is not uniformly spread across all ARM holders, but it affects much more the ones with relatively more recent debts⁴⁵, approximately 3 million household.⁴⁶ Unfortunately this figure does not fully convey the measure of the crisis. Many of the homeowners hit by the increases have not been able to service their debts and their properties have been foreclosed.⁴⁷ Under the current market conditions, the market value of many foreclosed properties is very depressed. The total loss for the US economy induced by the increase in interest rates of 2003 via ARM is much higher than \$ 76.60 billion, it is rather in the range of \$ trillions.

Table 1. Total costs derived from the interest rates increase.

Year	Libor current rates %	Total Adjustable Yearly Payments (\$ billion)	Interest on TAYR at current rates	Interest on TAYR at 1.20%	Differences (\$ billion)
2003	1.2	209.82	2.52	2.52	0.00
2004	1.8	245.44	4.42	2.95	1.47
2005	3.8	285.43	10.85	3.43	7.42
2006	5.4	396.59	21.42	4.75	16.67
2007	5.5	309.86	17.14	3.72	13.42
2008	2.8	305.23	8.55	3.66	4.89

Total cost of LIBOR rate increase 2003-2008 on 1-4 Family Houses: \$ 43.85 billion

Estimated total cost of LIBOR rate increase 2003-2008 on all mortgages \$ 76.60 billion

The double mistakes of drastically reduce interest rates from 2001 through 2003 and then reverse the decision and sharply increase them, do not compensate each other. We note that during these acts, US financial markets behaved in the most perverse ways. The increase of interest rates was accompanied by an growth of stock market and by a decline of USD exchange rates.

For sure the crisis was enhanced by managerial misbehaviour: indeed, it seems that the goal of financial intermediaries in the last decade moved from corporate value maximization to bonus maximization.

§2 Identification of common causes.

In the analysis of the past and present crises, the large number of common causes calls our attention:

- Herding and consequent bubbles.

⁴³ Estimation based on Mortgage Debt Outstanding, Table B-75 Economic Report to the President 06/01/2010, Board of Governors of the Federal Reserve, according to which the ratio between all mortgages and 1-4 fam. properties is 1.6

⁴⁴ The 2003 Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) decided a cut of \$ 60.8 bn.

⁴⁵ In particular, the ones originated in the more recent years, i.e. after half way of the mortgage life, say after 1991. For instance, using the most common repayment schedule, from 2003 to 2007, the yearly payment for a \$ 300,000 mortgage with 2% spread, almost doubled jumping from \$ 13,959 to \$ 25,783, if originated in 2003, from \$ 17,324 to \$ 23,984 for ARMs originated in 1991, and from \$ 12,260 to \$ 16,160 for ARMs originated in 1982.

⁴⁶ These figures are based on an average mortgage size of \$ 240,000.

⁴⁷ In 2009 in USA the number of foreclosures has reached the 2.8 millions and still rising. See Simon, 2009.

- Not well planned regulatory acts on financial markets and intermediaries.
- Large availability of inexpensive funds, increasing risk appetite.
- Concentration in real estate investments.
- Excessive leverage and disregard for extreme events and systemic risk.
- Interconnections between cash and derivative markets.
- Opaque financial statements and Mark-to-Market (M-t-M) accounting practices.
- Off-shore loss laundering.

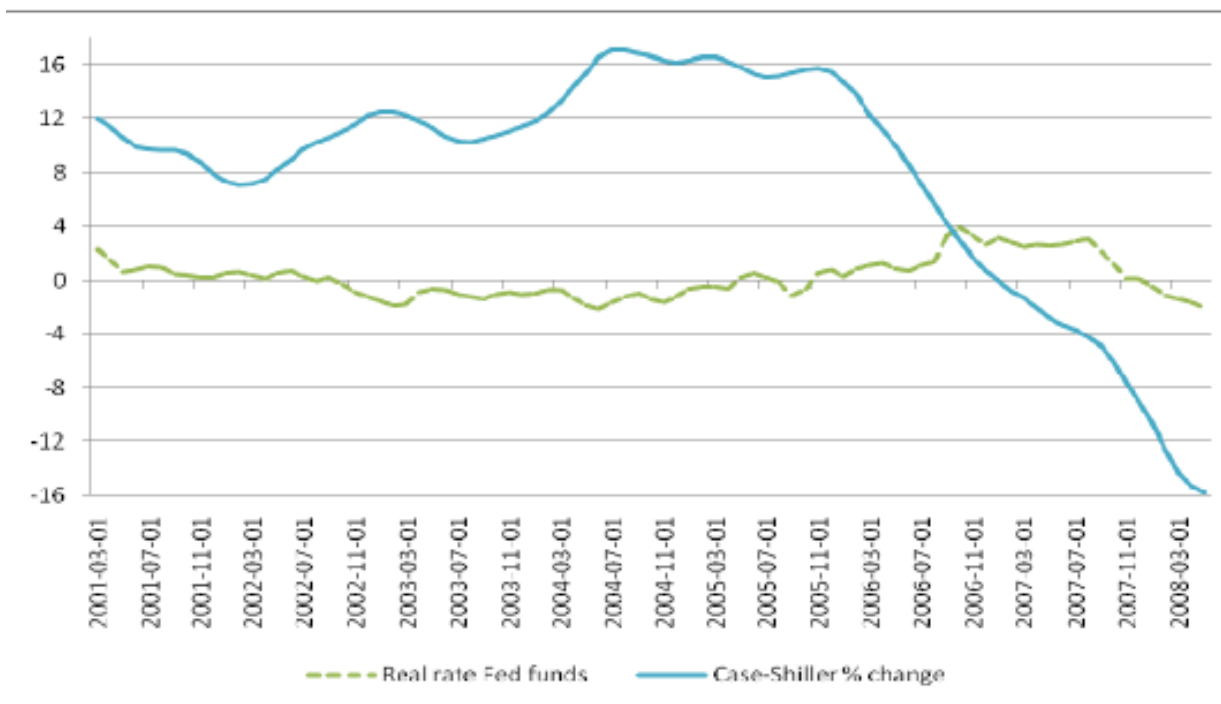
While all these pathologies are evident in the current crisis, the first three had a large role also in the cases of S&L, Japan and Scandinavia; the excessive leverage and risk appetite caused the fall of LTCM.

After the introduction of a new regulation, usually under the stimulus of some crisis and public outcries⁴⁸, the system adapts itself to a new equilibrium. The regulation may be costly and inefficient, but it is usually enforced. A sudden relaxation of rules forces a change in strategies among financial intermediaries.

This fact is evident in the S&L and in the Scandinavian crises: the intermediaries were not trained to operate in the new environment and bound to make mistakes. In addition, the 2004 SEC relaxation of leverage constraints on investment banks played a major role in current crisis.

All these events were enhanced by the large availability of inexpensive funds: in U.S. real interest rates were negative from 2001 through 2005 (see Fig. 3).

Figure 3. Real Interest rates vs. variations in real estate prices.



Source: Fratianni, 2008.

Scandinavian banks were suddenly allowed to borrow abroad; S&L could compete with commercial banks via the interest-bearing NOW⁴⁹ accounts. This factor induced a “race for yield” among intermediaries and a complete disregard of risks. U.S. investment banks in particular

⁴⁸ Brunnermeier et al., 2009, pg. 1.

⁴⁹ Negotiable Order of Withdrawal from interest-bearing saving accounts at S&L

originated trillion of \$ worth of Asset Backed Securities (ABS) and of other structured financial products.

These two factors: deregulation and availability of cheap funds, provides a motivation for the concentration of lending into real estate operations. Indeed the easy, albeit wrong, predictions of potential profits in this sector are very simple. Also inexperienced decision-makers (like most bank board members) can understand them: the related questions are very simple. Sector growth or contraction depends on very few endogenous factors.

On the contrary more technologically complex projects (biotechnologies, etc.) require professional, and costly, expertise, and involve predictions based on multi-factor scenarios. Indeed we may conclude that financial intermediaries are lazy!

The monetary policy mistakes of too low interest rates had the consequence of excessive leverage and disregard for systemic risk. The current crisis was enhanced by the very efficient Originate-to-Distribute (O-t-D) or “shadow” financial system that allowed the sale of mortgage-backed fixed income securities: both their originations as well as their purchases were financed by issues of short term commercial papers. At global level the system was hyper-leveraged. There are strong similarities between the O-t-D financial system, the case of LTCM, and at a limit with the Madoff scam. Note that in the ‘90ies during the heydays of LTCM, U.S. interest rates were not particularly low. The extremely high borrowing capabilities of the group were based on reputation, the good credentials of the group, and not on assessment on the type of investment. Also in the current crisis, the structured financial instruments, end products of the originate-to-distribute chain, were bought not after a careful analysis of the opaque offering circulars, but in virtue of the reputation of the seller, mostly U.S. investment banks, which kept a large portfolio of these products. Unfortunately the main scope of offering circulars was not to clarify the financial aspects of the investment, but to shelter the originators from any possible damage claim.

In the last years with the help of the originate-to-distribute system, investment banks have replaced commercial banks as main suppliers of credit. On the other hand, by issuing indexed loans, banks have swapped interest risk for counterparty risk and they have become brokers. On a global level banks are much better equipped than borrowers to control medium-long term interest rate risks connected with mortgages. All these developments have a strong influence on the risk structure of the financial intermediation system. Opaque statements and misuse of M-t-M accounting rules allowing easy hiding of losses and risks were essential factors of the Enron crash as well as of the current crisis. The opaqueness of offering circulars allowed the transfer of unperceived risk of structured securities.

§ 3. Main past regulatory acts and their phasing out.

I shall now return to the opening statement of the Brunnermeier et a. report, concerning the timing and weight of financial reforms⁵⁰ and presented in point 6 of the previous paragraph. Indeed as pointed out by Rajan⁵¹, in any new regulatory proposal there are always some losing and some winning parties. A political consensus can be reached only if the losers obtain some compensation.

From the analysis of the past crises, it has been possible to reach two conclusions:

⁵⁰ Brunnermeier et al., 2009, pg 1.

⁵¹ Rajan, 2004.

1. Many crises can be associated with the phasing out of restrictions⁵².
2. Real Estate investments are a financial death kiss.
3. Limited-time interventions (RTC and similar Scandinavian solutions) have generally been successful.

In this section, I shall analyse the motivations and the basic consequences of the following main regulatory acts:

- a) U.S. Bank acts, 1933-35.
- b) Their decommission , 1980.
- c) EU unique authorization system.
- d) Capital requirements saga.

Note that each of these four acts has unique characteristics. The first U.S. bank act was rightly labelled Emergency Banking Act (Robinson-Steagall Act, 1933), and was enacted under public pressure at the height of the economic crisis. The second was possibly unplanned, but enforced by competition. The third, still uncompleted, is a very successful agreement between different partners. The fourth was a completely artful construction which allowed bank supervisors, without any specific political mandate, to strongly influence economic policies.

a) **U.S. Bank acts, 1933-35.**

U.S. banking regulations of 1933-35 were enacted through four different acts: the Emergency Banking Act (Robinson-Steagall Act, 1933), the Banking Act (Glass-Steagall) of the same year, the Federal Deposit Insurance Act of 1934, and the Banking Act of 1935. The system so designed was very coherent and self-consistent and based upon three pillars: deposit guaranty, no competition between banks, and low probability of public losses. The competition was made impossible by forbidding payment of any interest on the demand deposit (Regulation Q of the Glass-Steagall Act), geographic expansion and introduction of new products. Deposit insurance decreased the probability of banks runs, thus stabilizing the system and compensated the elimination of any interest. The system that was an implicit pact between depositors, banks and government, “froze” the U.S. banking system. Interest rate control and the prohibition to commercial banks to be involved in underwriting activities and to own shares were justified by the need of preventing banks to exploit the public-supported deposit insurance provision. Deposit insurance, that has been recently criticized⁵³, must be seen as the main innovation. I shall return to this system in point 6. of section § 5.

b) **Decommission of Glass-Steagall and neglect for systemic problems.**

The “Glass-Steagall” system lasted until the late '70ies. Its phasing-out was accelerated by legislation, the DIDMCA act of 1980, but it was essentially induced by two market innovations: NOW accounts and MMMF accounts, both uninsured. In those years customers had lost memories of the bank defaults of the 30ies and prized profits over safety. Negotiable Order of Withdrawal (NOW) allowed holders of interest-bearing accounts, mostly at Thrift institutions, to transfer to a third party the right of withdrawing sums from one’s account. For all practical purposes, this order had the same functions of a check. Money Market Mutual Funds (MMMF) were funds allowing an immediate liquidation of shares. In 1972 the only form of demand money was provided by checking accounts at commercial banks, in 1981 the amounts invested in NOWs and MMMFs

⁵² In addition to the Japanese and Scandinavian crises, we note that Furman and Stiglitz, 1998, blame East-Asian crisis on local Governments for undertaking rapid financial and capital-account deregulation without addressing the concomitant need to beef up their supervisory capacity.

⁵³ Demirguc-Kunt, and Detragiache, 2002.

reached the same level of checking accounts, in 1991 their share was more than double⁵⁴. The de-banking process was started⁵⁵. In a way it is surprising to see how long it took to abandon system introduced in 1933-35. The possibility of liquidation on demand of mutual funds shares that is the basis of MMMF, did not require any ad-hoc legislation. On the contrary, the negotiability of orders of withdrawal from interest-bearing S&L accounts needed some legal blessing, which took place at national level in 1980 via DIDMCA. The unfair advantage thU.S. given to S&L was redressed in 1982 with the Depository Institutions Act (Garn-St.Germain) that allowed also banks to offer Money Market Deposit Accounts (MMDA) thus enabling all depositors to choose between insured, zero interest checking accounts, and uninsured interest-bearing bank accounts⁵⁶. The 1980 U.S. legislation signals the beginning of a period of total disregard for systemic stability issues, that only now, in view of the current crisis, are taken again into account. Their gradual disregard that reached its apex with the ill-conceived Basel regulation led the way to a highly volatile financial system.

c) **EU unique authorization system.**

The financial regulatory system in the EU is very relevant because it was not designed under pressure, but it was the result of careful planning and intensive negotiations. The main design is contained in the first bank directive of 1977⁵⁷ that adopted the principle of unique authorization: i.e. the principle under which the regulatory agency of each member state was empowered to authorize a credit institution incorporated in that state to operate throughout the union. This solution was motivated by the unwillingness of most states to delegate the authorization power to a centralized institution. The unique authorization obviously implied a harmonization of the connected requirements, and a precise definition of banking operations, which is contained in the first bank directive. The uniform authorization requirements are rather bland. Unfortunately, in 1989 the second bank directive⁵⁸ adopted the risk-adjusted capital requirements as only condition. The system experienced a first crisis in 1991 with the bank BCCI. This was an Arab-owned institution incorporated in Luxembourg, but operating in 69 different countries, in particular in the UK, where the managing offices were located. After a long investigation, started in 1986, strong evidence of illegal behaviour surfaced and the Bank of England acted to close the operations. In theory, the bank was due to be supervised by the Luxembourg banking authority, which did have neither the technical skill nor the information to act. A later Directive⁵⁹ solved this conflict of competence between the country of incorporation and the one that hosted the management offices and delegated supervision to the country in which the central management offices are located. In view of the recent growth of intercountry banking operations, it is likely that the EU will be forced to further amend the system. In the case of a bank, incorporated and managed from a small country and operating in a much larger country, will the smaller state be willing and/or able to control, and possibly rescue it?

Since the introduction of the EURO and the devolution of the monetary policy to EU, some kind of centralized supervision will be eventually introduced. The recent decision to establish a systemic risk control group⁶⁰ is a step in this direction. I just hope that the bad UK and U.S. experience of multiple regulatory/supervisory agencies will not be followed. Memoranda of Understanding

⁵⁴ Gorton and Pennacchi, 1993.

⁵⁵ Allen and Santomero, 1997, and 2001.

⁵⁶ Note that MMA do not guaranty neither the payment of interests nor the principal.

⁵⁷ Directive 77/780/CEE of Dec. 12, 1977.

⁵⁸ Directive 89/646/CEE of Dec. 15, 1989, followed by Directive 89/647/CEE of Dec. 18, 1989 “on a solvency ratio for credit institutions”.

⁵⁹ Directive 95/26/EC, issued with a view to reinforcing prudential supervision.

⁶⁰ The European Systemic Risk Board.

outlining the role of each agency are interesting philosophical exercises, but in practice wishful thinking: the implementation of each task strongly depends on the will, the power and the capabilities of each authority. Another weak point of the European regulatory system is the lack of a common bankruptcy law. How to adopt the same Capital Requirements throughout all member states without first agreeing on a definition of bankruptcy, is a well kept secret!

d) **Capital requirements saga.**

While the basic design of the EU financial regulatory system is a good example of international co-operation, it is somewhat surprising that the EU adopted without any second thought, mandatory capital level, as the only tool to control bank risk and possible public costs. The immediate critiques of the Academia⁶¹ were completely disregarded by the regulators that never asked the question if capital could have any effect in controlling banks or if it was equivalent to the idea of driving a car using “bridles and spurs”. Only the “Emperor’s New Clothes” syndrome⁶² can explain the whole exercise. The functionaries taking part to the Basel meetings were on average technical staff from central banks, some of them with scarce knowledge of statistics, unfortunately while they were short in wisdom, they were long in self-esteem⁶³! They produced an enormous amount of work, and came out with the 500 plus pages proposal. They reported to their supervisors that clearly were even less technically competent, that consequently reported to their supreme commanders at the central banks. Everybody, in the best tradition of the “Emperor New Clothes”, swallowed “hook, line, and bait” and did not question the snow job put in front of them. Throughout the chain of command, it seems that nobody screamed, “The Emperor is nude”! What is the scope of this exercise? Which are its costs, benefits and dangers?

The worries continuously expressed by the Academia⁶⁴ were ignored and the critics labelled as professional troublemakers.

It is interesting to retrace the history of Capital requirements. They were born out of the U.S.A-UK harmonization agreement of 1987. The economic motivations of this step, that was the year after adopted by the 12 countries⁶⁵, are still not clear. It is important that each bank be informed about the leverage ratio of its counterparts, but why a costly harmonization⁶⁶? Regulators still have to learn that all trades between banks take place between informed and consenting adults! The gossip⁶⁷ according to which the whole exercise was a move against the less capitalized Japanese banks does not seem completely unfounded.

§ 4 Studies on the current crisis and regulatory proposals.

The “sub-prime crisis” has motivated many studies on its causes and possible remedies. Without claim of completeness, I shall briefly summarize the main results and recommendations. Before

⁶¹ Allen and Gale, 2003, Daniellson et al. 2001, Hellwig, 2008, Kashyap et al., 2008, Stiglitz, 2008 B, Szegö, 1993.

⁶² Daniellson, 2002.

⁶³ I have personally tried to convince one of these Basel fans about the potential dangers of the Capital requirements system, and providing them with copies of the more recent studies, with no result. I must conclude that while wars are too serious to be left to generals, financial regulations are too important to be left to regulators.

⁶⁴ Recently in private conversation one member of the De Larosière group blamed academia for “not having warned regulators of the dangers connected with the Basel capital requirements”!

⁶⁵ Group of 10 + Luxembourg and Switzerland. .

⁶⁶ Allen and Gale, 2000.

⁶⁷ Fratianni, 2008. Mr. Cooke, the proponent of “risk”-weighted capital requirements, in an interview justified the decision of using capital as a mean of controlling banks, by stating “it is there and easy to measure”.

proceeding with this review, it is important to point out the amazing basic consensus among them. I shall analyze the following group of fifteen studies:

- 1) Chicago Booth School of Business, Various Issues of *The Global Financial Crisis*. Main contributors: Douglas Diamond, Anil Kashyap, Raghuram Rajan, Luigi Zingales.
- 2) Anil Kashyap, Raghuram Rajan, and Jeremy Stein, *Rethinking Capital Regulation*, Federal Reserve Bank of Kansas City, Jackson Hole Conference, August 2008.
- 3) Martin Hellwig, Systemic Risk in the Financial Sector: an Analysis of the Subprime-Mortgage Financial Crisis. Preliminary Report, Max Plank Institute, Bonn, November 2008.
- 4) Joseph E. Stiglitz, *Government Failures vs. Market Failures: Principles of Regulation*. Preliminary September 2008, and February 2009.
- 5) U.S. Securities and Exchange Commission, *Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-to-Market Accounting*, SEC, December 30, 2008.
- 6) De Larosière Group, *Report by the High-Level Group on Financial Supervision in the EU*, Chaired by Jacques de Larosière, February 25, 2009.
- 7) Markus Brunnermeier; Andrew Crocket; Charles Goodhart; Avinash Persaud; Hyun Shin, *The Fundamental Principles of Financial Regulations*, Geneva Reports on the World Economy, January 2009.
- 8) The London Summit *The Road to the London Summit: The Plan for Recovery*, HM Government, London, March, 2009.
- 9) G-20 Finance Ministers *Global Plan for Recovery and Reform*, London, April 2, 2009.
- 10) Di Noia, Carmine, and Stefano Micossi, *Keep it Simple: Policy Responses to the Financial Crisis*. CEPS, March 25, 2009.
- 11) The U.S. Department of the Treasury *Bueprint for a Modernized Financial Regulatory Structure*, (Paulson Plan), Washington, March 2008.
- 12) U.S. Department of the Treasury, *Financial Regulatory Reform: a New Foundation*, Washington, June 17, 2009.
- 13) Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis*. London, March 20, 2009.
- 14) HM Treasury, *Reforming Financial Markets*, London, July 2009.
- 15) UK Conservative Party, *Plan for Sound Banking*, London, July 2009.

1) Since the beginning of the crisis, the University of Chicago Booth School of Business has started a frequent, random publication on the web, labelled "The Global Financial Crisis". The main contributors have been Douglas Diamond, Anil Kashyap, Ragurajan Rajan, and Luigi Zingales. In my opinion their most important messages and suggestions are the following:

Do not hurry to revise the problematic financial regulatory system, but act only after the crisis has subdued. This recommendation can be summarized by the sentence "put out the fire before fixing the sprinkler!" The second important message is addressed to the U.S. Federal Government and can be read as: "do not throw good money after bad". This applies to various large injections of public money to problem institutions: AIG, Bear-Sterns, GM, etc. The advice is to use instead

existing well experienced tools like Chapter 11. In view of the emergency situation, it is suggested to simplify the connected procedure and to create what can be labelled “Quickie Chapter 11”. Last, but not least, they advocate strong action against the highly paid managers that are responsible for the crash! In conclusion “Kick out the rascals”.

2) The second interesting study is the one entitled “Rethinking Capital Regulations”, presented by Kashyap, Rajan, and Stein at the Federal Reserve Bank of Kansas City Jackson Hole Conference in Aug. 2008. While I do not agree with their suggestions on the implementation of Capital Requirements, they state, “time-invariant capital requirements are analogous to forcing a homeowner to hold a fixed fraction of his home’s value in savings, as a hedge against storm damage – and then not letting him spend down these savings when the storm hits”.

3) This view is shared by Martin Hellwig who argues: “any position in the bank’s balance sheet that serves as a buffer against unforeseen contingencies ceases to serve this buffer function when a regulator imposes a rule stipulating a minimum amount for this position”. This is the *paradox of banking regulation*.

4) Joseph Stiglitz in his 2008 Jackson Hole lecture on “Government Failures vs. Market Failures”, rightly argues that: “Strict enforcement of capital adequacy requirements can act as an automatic destabiliser” and in a later statement at the Davos World Economic Forum⁶⁸, he claims that after the current crisis, Basel 2 is dead. Stiglitz also states that opaque products need to be standardized and traded only on transparent exchanges.

5) Before commenting on SEC study on Mark-to-Market accounting, I wish to recall that “Mark-to-market” has been defined⁶⁹ as a “present to the world given in the early ‘90 by SEC Commissioner R. Breeden, against Greenspan’s opinion”. This rule, adopted by the International Accounting Standard Board forces all firms to account in their books each asset according to its “market value”. This procedure, that could make some sense in case of traded securities with high turnover and small volatility, becomes a “weapon of mass destruction” in the case of illiquid, non-standardised, un-traded assets like CDOs and other structured products. There are very basic flaws of the M-t-M idea even in the case of traded assets, since M-t-M cannot provide the true value of a multiple assets portfolio. The total lack of co-ordination among regulatory agencies is appalling. Not surprisingly the SEC study “does not recommend a suspension of existing fair value accounting standards, ...but measures must be taken to improve its application”. On the other hand, important international organizations like IMF⁷⁰, OECD⁷¹, and BIS⁷² have pointed out the dire consequences of the M-t-M rule, and they have reached the conclusion that market pricing models cannot give a fair estimate in the presence of liquidity problems and panics. The voices to defend M-t-M rules have been very weak and originated by the accounting establishment, only. An important contribution is due to Plantin, Supra, and Shin⁷³ proves that the worst damage of the

⁶⁸ February 2009. The suggestion to proceed with a proper entombment of the Basel rules is also contained in Stiglitz, 2008 A.

⁶⁹ H. Jenkins, *Why M-t-M are a fabulous failure*, WSJ, March, 5, 2008

⁷⁰ IMF Global Financial Stability Report, October 2008, Cap 3.

⁷¹ OECD, *The subprime crisis: size, deleveraging and some policy options*, April 2008.

⁷² BIS Quarterly Review, June 08, pp.6-7

⁷³ G. Plantin, H. Supra, H. S. Shin, *Marking-to-Market: Panacea or Pandora’s Box?* 2007.

M-t-M rules concerns long-term, illiquid, senior assets, the very ones that are more present in banks' portfolios. A recent study By Leuz and Laux⁷⁴ can be regarded as pro M-t-M. Clearly we are witnessing a fight between accountants and economists!

6) A thorough report was prepared under the auspices of the EU by a working group chaired by de Larosière; it is interesting to note that even this group, institutionally committed to Basel Capital requirements rules, advocates their fundamental review. Unfortunately no suggestions are put forward, and it makes the rather facetious suggestion of "gradually increasing capital requirements" without explaining why, when, and how. It is clear that under current market conditions any increase in regulatory capital can be achieved only via a credit crunch. Is that what they want to achieve? The working group is strongly advised to spend some time in studying the three previous reports: Kashyap et al., Stiglitz and Hellwig⁷⁵. After this lip service in favour of the existing system, the report contains some interesting suggestions: improve liquidity management, strengthen banks' internal controls, improve quality of management and board, coordinate action with the International Accounting Standard Board, reassess the regulatory system of investment banks, and finally, standardize opaque structured products. While most of these suggestions are shared by other studies. I shall comment on two well motivated proposals: the improvement of liquidity management and the co-ordination with the International Accounting Standards Board, IASB. Liquidity availability via statutory reserve has been the main safety provision in banking operation before the current capital requirement fashion. It was dismissed as too costly. A more advanced mandatory liquidity management system may become the backbone of a more rational bank regulatory system. The last point is motivated by the well documented enhancement of the current crisis due to the mark-to-market rule. There seems to be a total lack of co-ordination between IASB and regulatory institutions. Between lines, one can see that the committee questions mandate as well as representativity of IASB.

7) Geneva Report on the World Economy N.11.

This report, due to Burnmeister et al., begins with an interesting statement: "the vast body of financial regulation ...is normally extended incrementally, frequently to close a loophole which some earlier fraud or financial disaster has exposed. Even such measures as may have seemed to involve a discrete jump in the regulatory process.... turn out, after closer inspection, to have been largely an attempt to agree on.... pre-existing 'best practices', without much overt attempt to rationalise them against fundamental principles, or underlying theory. Exceptions occur only after major crises, as in the U.S.A after 1929-33, and, perhaps, now." While from the simply chronological point of view, this statement is correct, I am not sure that in many cases political demands allow a "rationalization". A closer analysis of the U.S. regulatory interventions of 1933-35 shows more a revenge against banks induced by public opinion, than the design of a rational system. In the next pages, I shall return to this pessimistic point of view in 6. of Section § 5.

The report points out that banks are informatically segregated. This fact implies that they are not subject to the discipline generated by market feedback that increases the unit cost of loans to non banks according to their leverage level, thus controlling and de-facto limiting their debt level. Market discipline must therefore be replaced by regulation and that constraints on banks' leverage must be imposed. This course of action, advocated by Berger, Herring and Szegö in 1995⁷⁶, has been recently sponsored among others, by the Swiss National Bank⁷⁷, and by the CEPS

⁷⁴ Leuz and Laux, 2009.

⁷⁵ And others mentioned in note 38.

⁷⁶ Berger, Herring and Szegö, 1995

report of March 2009 (see the following point 8). Contrary to risk-weighted capital requirements, a bound on leverage does not have a procyclical impact. In addition, this study emphasizes the importance of *liquidity* management, and advocates its regulation. It also expresses strong doubts on the use of Bank capital as a regulatory tool.

8) The London Summit *The Road to the London Summit: The Plan for Recovery*, HM Government, London, March, 2009; G-20 Finance Ministers, *Global Plan for Recovery and Reform*, London, April 2, 2009.

While the the outcome of the summit (Global Plan..) reads like a book of dreams, I give very “high marks” to this report, prepared by the UK Government as a blueprint for the London Summit of (March 2009). In addition to the accusations against the pro-cyclicality of the current capital requirements, in particular in conjunction with mark-to-market accounting rules, this report emphasizes the need of improving macro prudential regulation. Note that this recommendation has been, albeit partially, fulfilled by the EU with the establishment of the European Systemic Risk Board, devoted to the monitoring of systemic risk. The report also emphasizes that the crisis, and in particular the real-estate downturn was not predictable since “traditional macro warning signs were absent”. The lack of precise warning signs seems to be present in all crises⁷⁸ and in particular in the current one⁷⁹. Going back to the Global Plan, the only important decision is the trebling of resources made available to IMF, to \$ 750 bn, quite a turnaround from the anti-IMF attitude prevailing just few months ago. The 20 countries also agree to supplement the risk-based capital requirements with a leverage control provision and to extend regulation and oversight to all systemically important financial institutions and markets.

9) CEPS, March 25, 2009.

This very interesting study due to Di Noia and Micossi, not only joins the chorus of the claimants that “Basel approach to regulatory capital is flawed”, but it comes out very strongly in favour of a simple limit to leverage level. Indeed this system, that, as previously mentioned, has strong economic motivations, has the advantage of simplicity....and therefore not welcome to model-selling companies! This report stresses two additional important factors, the total discretionarily of interventions of the U.S. Federal Reserve Bank exemplified by the difference of decisions between the Bear-Sterns and Lehman Brothers cases, and the contradiction of the too-big-to-fail doctrine and the encouragement given to some large banks (Bank of America, J.P. Morgan) to become even larger. A stronger position against mismanagement is advocated. Unfortunately, we can detect important similarities between the years preceding the current crisis⁸⁰ and the situation leading to the 1929-35 crisis⁸¹.

10) The Department of the Treasury *Blueprint for a Modernized Financial Regulatory Structure*, (Paulson Plan), Washington, March 2008, and U.S. Department of the Treasury, *Financial Regulatory Reform: a New Foundation*, Washington, June 17, 2009.

⁷⁷ See J. Blume, 2008.

⁷⁸ See Caballero and Kurlat 2009.

⁷⁹ See Szegö, 2009.

⁸⁰ Notably US stock manipulation via buybacks for the amount of \$ 1.7 trillion, that took place in 2003-07 according to Di Noia and Micossi, 2009, pg. 19.

⁸¹ See Chernow, 2009.

The first proposal (Paulson Plan) begins with a very precise acknowledgement of the sad state of U.S. Financial regulation “The current regulatory framework for financial institutions is based on a structure that developed many years ago. The regulatory basis for depository institutions evolved gradually in response to a series of financial crisis, ...but for most part the underlying structure resembles what existed in the 1930s”. Clearly the superposition of state and federal powers creates many problems, in particular in the area of insurance that are outside federal powers. I would have expected sweeping reform proposals, but the only real (minor) intervention is the proposal to merge CFTC and SEC. From the operational viewpoint, it proposes the creation of a new Mortgage Origination Commission with the task of evaluating the adequacy of each state system for mortgage originators before the mortgages are securitized.

As correctly pointed out by Zingales⁸² “in U.S.A....each financial crisis led to the creation of a new agency”.

11) Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis*. London, March 20, 2009; HM Treasury, *Reforming Financial Markets*, London, July 2009; UK Conservative Party, *Plan for Sound Banking*, July 2009.

This very thorough study, after the presentation of what went wrong devotes some pages to a very thorough analysis of the damage caused by the adoption also by regulators of VAR as a risk measure, which is not⁸³. The well-taken criticism of VAR is summarized in the statement that “VAR...may convey the message that risk is low and falling at the precise time when systemic risk is high and rising.” Unfortunately, this correct statement is contained in a section entitled “Misplaced reliance on sophisticated math”. The section should have been entitled “stubborn regulatory reliance on wrong models, in spite of precise caveats”! The report presents some very wise proposals: to increase of quantity and quality of bank capital; eliminate procyclicality in Basel 2 implementation; create countercyclical capital buffers; to offset procyclicality in published accounts; to introduce a gross leverage ratio backstop; to contain liquidity risks in individual banks and the systemic level. It is surprising that this study, which contains a session entitled “Fundamental theoretical issues” does not question the role of mandatory capital requirements, that seem to be imposed by divine command, and it does not even consider worth replying to the Joseph Stiglitz’s statement “Basel 2 is dead”⁸⁴. This contradiction becomes evident in the discussion on the need on introducing also a bound on gross leverage ratio, like in the U.S.A and in Canada⁸⁵, justified by the fact that “The crisis revealed that assets which are believed to be low risk because highly liquid can become highly illiquid and risky...”. Very true, but why not just scrap the risk-adjusted capital requirement, as proposed by Di Noia and Micossi in the CEPS 2009 study? Another important point is the proposal of correlating capital requirements to economic conditions, say macro management of capital requirements. Turner’s review recommends also that capital be mostly “core Tier 1, common equity and retained earnings”⁸⁶.

§ 5. Comparison among proposals.

First, let me recall the common causes of the main crises:

⁸² Zingales, 2009.

⁸³ The warnings of the Academia, Daniellson et. a. 2001, Szegö 1993, 2002, and 2004, and even by IMF, 2007 B, pp.52-62 have been ignored by regulators.

⁸⁴ Stiglitz, 2008 A, and 2009.

⁸⁵ FDICIA of 1992 states that banks with leverage ratio below 2% must be liquidated. See also Garcia, 1995 and Turner’s Review pg. 67.

⁸⁶ See also Valencia 2008.

1. Originate-to-distribute and trust in originators.
2. Low interest rates.
3. Increased risk appetite, excessive leverage.
4. Real estate investments, and bubble.
5. Equity extraction from residential properties.
6. Managerial misbehavior, opaque investments and budgets.
7. Systemically risky dimension.
8. Adjustable rate mortgages.
9. Regulatory errors.
10. Herding and panic.

Before presenting a critical comparison of the proposals presented in the 14 studies and legislative proposals that I have summarized, I must present my own views.

I do not have any faith in the effectiveness of Memoranda of Agreement or of Harmonization among possibly competing authorities. Unfortunately, it is true that bad money chases good money. In our contest, a lax or lenient supervisory authority “crowds out” any more efficient one. The current crisis was indeed enhanced by the indulgent attitude of the SEC on Investment Banks⁸⁷. Not even if the different supervisory authorities do not openly compete, there are unavoidable differences in efficiency and determination.

I can claim to have produced one of the first critiques to the “risk-adjusted capital requirements” in 1993, followed by many other negative comments. The Basel Committee was amply warned about pro-cyclicality dangers⁸⁸. and the possible damages connected with the use of VaR as a risk measure⁸⁹

Next I shall compare the conclusions reached in the 15 documents summarized in the last section, finding an amazing basic consensus in the analysis and proposals.

1. Do not rush! This suggestion that implies to think carefully before acting, is shared by “The Global Financial Crisis Report” of the Chicago Booth School of Business, the J. Stiglitz 2008 paper, and by the CEPS 2009 Report by Di Noia and Micossi. The weak point of this suggestion is that it does not take into account the political timing. i.e. as stressed in the Brunnermeier et al. 2008 Geneva Report on the World Economy N° 11, the possibility of reaching a decision only immediately after a catastrophe. In the following point 6., I shall present my pessimistic view on the probability of major reform in the shaky financial supervisory-regulatory U.S. system. This warning is in particular addressed to the U.S. decision-makers that have the tendency to shoot-out-of-the-hip, as documented in the proposal contained in the Paulson Blueprint⁹⁰ of creating “a new federal Commission, the Mortgage Origination Commission”, just because the current crisis was triggered by mortgages. This is a good example of “band-aid legislation”. What about the next crisis, not originated by mortgages?

2. All studies agree on the fact that time-invariant, **risk-weighted Capital Requirements** are procyclical. Are all the warnings previously ignored by the Basel mob⁹¹ now listened to?

Risk-weighted capital requirements are inefficient and dangerous, or at least must be completely revised. This view is shared, albeit with different strength level by all reports, raging from “CAR in

⁸⁷ They were all US, with the possible exception of Nomura, the only remaining?

⁸⁸ See Clerc et al., 2000.

⁸⁹ See Danielsson et al., 2001, Szegö, 2002 and Szegö, 2004.

⁹⁰ U.S. Department of the Treasury, 2008.

⁹¹ All connections with the famous old Alec Guinness movie “The Lavender Hill mob” are incidental.

search for a Rationale” by Allan and Gale, 2003; “Basel is dead” by J. Stiglitz 2009, to “Basel cannot be used as a regulatory tool”, as stated by Kashyap et al. (2008) and by Hellwig (2008), to “Basel must be reviewed”, as stated in the de Larosèrie report of 2009. All these negative documented views, as pointed out in Paragraph 4 d), have been completely ignored by the committee. I doubt that the prevailing mood and the dominating interests will change!

Do we have to control the capital level of financial intermediaries? Since banks are subject to weak market discipline, leverage ratio must be limited. Due to the declining differences between financial intermediaries, this constraint would have to be the same for all, regardless of supervisory agency⁹². This is one of the main proposal contained in the 2009 report by Di Noia and Micossi. Of course this can be labelled wishful thinking! The G-20 Global Plan for recovery and Reform (2009) as well as The Turner Review (2009) suggests to add the control of leverage ratio to the disastrous “risk-adjusted capital requirements”. Unfortunately this solution has proved itself to be worthless in the U.S.A where it has been introduced in 1992 via FDICIA⁹³. Law-makers seems to be more interested in prescriptions than in enforcing their application!

Unfortunately also the measurement of the leverage is not without questions. How do we account capital? At book or at market value?

3. Most reports stress the importance of **liquidity management**. In my opinion, the supply of liquid instruments is crucial. Liquidity, not capital, should be used to control financial intermediaries.

4. One of the components of the crisis has been the rushed assets’ downloading, forced by the explosive combination of capital requirements and mark-to-market accounting of suddenly **illiquid “structured financial products”**. As already pointed out, the financial aspects of these instruments were very opaque: they were traded only Over the Counter, bought by banks and other investors essentially cheated by some originator, usually a big name investment bank. The whole O-t-D system did not fulfil the high hopes of improving lender self-control via a continuous reappraisal of the counterparty risk. Since the system allowed an immediate resale of assets, it discouraged careful (and costly) reassessment. The current system is therefore completely dependent on the originator. The current crisis has been enhanced by the O-t-D system. It would be advisable to control it without destroying it. The obvious solutions are to force each owner of securitised assets to keep them in its portfolio for a certain time and or to keep a certain relevant fraction of the assets. In my opinion both solutions would vastly increase costs and destroy the system. We are left with the option of further increasing the costs that must be covered by the originators in case of default. In the case of mortgages, this would imply to rule out contracts with “teaser” conditions⁹⁴. It is noteworthy to point out that adjustable rate contracts decrease market risk for the issuer, but increases counterparty risk. Originators are technically more competent than borrowers to master market risk. Systemic risk connected with adjustable rate contracts is high. Standardization of many structured products would allow their trade on public exchanges improving the price formation. The current system can be summarized in the sentence “trust the originator”! Can we improve its ways?

5. Most reports stress also the need of a thorough revision of **Fair Value** accounting rules and of co-ordination between the International Accounting Standards Board and the financial regulatory

⁹² The lack of co-ordination between US supervisory agencies has been one of the major causes of the current crisis.

⁹³ See Garcia, 1995.

⁹⁴ Teaser mortgage contracts have fixed rate interests in the first two-three years, and then switch to indexed rates. These mortgage conditions help mortgagors to meet the first payments, but at the same time they shelter originators from the connected losses. On a macro level they do induce perspective home owners to take financial commitments that in the long run turn out to be unbearable, and reduce the disciplining effect connoted with the clause forcing originators to repurchase at book value all early (2 - 3 years) delinquent mortgages.

agencies. Even the SEC 2008 report, the most pro Mark-to-Market among all studies recommends that “the accounting for financial asset should be readdressed”. Vague and subjective expressions like “fair”, should not find hospitality in any serious economic document!

6. One unfortunately unanswered question deals with the increasing number of institutions defined **Too-Big-to-Fail**, or Large Complex Banking Organizations, that could well be not banks. Opposite to the current trend, I believe that all efforts should be made to limit intermediaries’ size. As pointed out in the excellent 2004 study by Stern and Feldman, the problem is dominated by two contrasting elements factors: protection of the “widows and orphans” using financial services and the immoral “moral hazard” associated with the wanton exploitation of the public protection operated by financial managers. Deposit insurance and other public safety nets minimize the probability of “bank runs”. The greater the expected level of protection the higher is the risk tolerance of creditors of a financial institution, and therefore of the financial institution itself. It must be pointed out that the problem is not limited to banks, but to all financial intermediaries, included hedge funds and not limited to depositors, but to all kind of creditors, holders of any debt instrument issued by the intermediary. In order to constrain the damages, and to limit moral hazard, some insolvent financial intermediary must be liquidated. The perceived short-term benefits connected with a rescue operation, have long-term negative effects, encouraging the growth of intermediary size tempted by the enlarged public safety net. As shown by the events of the last 10 years, the systemic risk increases with the size. Clearly, liquidation is difficult in the case of large organizations. It would then be advisable to limit the size of intermediaries. After all, in the financial service industry, after an initial increase, economies of scale start declining. Why should taxpayers foot the bill of managers’ megalomania?

7. In the past state-**contingent rules** have proven to be very efficient. During the presentation of the past crises in § 2, we have found other examples of successful temporary solutions, notably the Resolution Trust Corporation in U.S.A, and similar solutions in Sweden.

Capital Requirements or better leverage limits could be changed according to economic conditions. The same applies to liquidity buffers that in my view should become the core of rational bank regulatory system, replacing the nefarious and irrational capital requirements.

What are the probabilities of some drastic regulatory intervention, in particular in the U.S., where the current crisis originated? Is the remark made by Burnmeister et a. that “regulations are rationalised against fundamental principles, or underlying theory occur only after major crises, as in the U.S.A after 1929-33, and, perhaps, now” well founded?

Unfortunately on a closer look the U.S. experience of the ‘30ies does not allow optimism. The three main provisions: separation between investment and commercial banking, interest rates control, and deposit insurance, more than a grand rational design seem to have been imposed by demagoguery or by emergency. Indeed the first two rules seems to be dictated by the public demand of banks’ blood, while the last one (deposit insurance), imposed by the need to stop bank runs. Recent results by Kroszner and Rajan⁹⁵ have shown that the underwriting activities of commercial banks was on average not so immoral as painted in the report of the Pecora Commission⁹⁶ that motivated the separation. Finally it has been shown that deposit insurance so increases moral hazard in bank management to offset all positive effects⁹⁷. It could be advisable to allow the supervisory authorities to modify the amounts insured according to economic condition, as long as that the principle “banks never fail” would not be introduced.

⁹⁵ Kroszner and Rajan, 1994 and 1997.

⁹⁶ Chernow, 2009.

⁹⁷ Demirguc-Kunt, and Detragiache, 2002.

We note that the U.S. bank legislation of the 30'ies did not rationalize the supervisory system, it kept the functions both the Federal Reserve and the Office of the Comptroller of the Currency, and introduced two additional Federal supervisory agencies: the Federal Deposit Insurance Corporation in 1933, and the Securities and Exchange Commission (SEC) in 1934.

8. I shall discuss next the U.S. and U.K. recent regulatory proposals. In the U.S. the following proposals have been presented: The Department of the Treasury Blueprint for a Modernized Financial Regulatory Structure, (Paulson Plan), Washington, March 2008, and U.S. Department of the Treasury, Financial Regulatory Reform: a New Foundation, Washington, June 17, 2009.

The first proposal (Paulson Plan) begins with a very precise acknowledgement of the sad state of U.S. Financial regulation "The current regulatory framework for financial institutions is based on a structure that developed many years ago. The regulatory basis for depository institutions evolved gradually in response to a series of financial crisis, ...but for most part the underlying structure resembles what existed in the 1930s". The "blueprint" states: "the U.S. regulatory structure reflects a system, much of it created over seventy years ago, grappling to keep pace with market evolutions and facing increasing difficulties, at times, in preventing and anticipating financial crises." Clearly, the superposition of state and federal powers creates many problems, in particular in the area of insurance that are outside federal powers. At the Federal level, depository institutions currently can be regulated and supervised by five different agencies: the Office of the Controller of the Currency, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Office of Thrift Supervision, and the National Credit Union Administration. Their jurisdictional boundaries often blur and overlap. Mutual funds, investment banks, real estate brokers, credit card, and insurance companies that have an increasingly important role in the financial system, are outside the jurisdiction of these five agencies. The blueprint makes Short-Term, Intermediate-Term and Long-Term Recommendations. Among the Short-Term actions, it suggests the revival of The President's Working Group on Financial Markets, Created in 1988 on the wake on the '87 stock market crash. Next, it recommends the creation of the Mortgage Origination Commission, with the task of evaluating the adequacy of each state system for regulating the participants in the mortgage origination process. In the intermediate term, it recommends to close the Office for Thrift Supervision, rationalize the federal supervision of state-chartered banks and establish on Office of Insurance Oversight within the Treasury, and to merge CFTC with SEC. The envisaged long-term regulatory structure follows a objective-based approach with three goals: Market Stability, Prudential Financial Regulation and Business Conduct Regulation. The first task is given to the Federal Reserve, while for some unexplained motivation the second goal will be given to a new authority. The FDIC will be reconstituted as Federal Insurance Guarantee Corporation in charge of providing deposit insurance, but without any supervisory power. The plan does not clarify the final fate of OCC, and does not clarify the authority (the FED?) that will be in charge of supervision of Investment banks, of mutual funds, etc.

The more recent U.S. proposal (Financial Regulatory Reform, A new Foundation: rebuilding Financial Supervision and Regulation, June 17, 2009) proposes to establish 4 (four) new agencies: a new Financial Services Oversight Council, a new National Bank Supervisor, a new Consumer Financial Protection Agency, a new Office of National Insurance. The Federal Reserve will be empowered to control market infrastructures. It proposes to require that all standardized O-T-D derivatives be executed via regulated and transparent venues. Obviously, it recommends that CFTC and SEC should harmonize their rule. The National Bank supervisor should inherit the supervisory powers of OCC and OTF.

In the case of U.K. the following proposals have been presented: Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis*. London, March 20, 2009; HM Treasury, *Reforming Financial Markets*, London, July 2009; UK Conservative Party, *Plan for Sound Banking*, July 2009.

The Turner report and the following White Paper⁹⁸ presents a very precise analysis of what went wrong, but it is very short on suggestions. Also in U.K. regulatory and supervisory responsibilities are divided among three different institutions: the Treasury, the Financial Services Authority (FSA), and the Bank of England. As quite correctly stated by George Osborne, Shadow Chancellor of the Exchequer, in the presentation of the Conservative Party “this threepartite regime is very dysfunctional, institutional jealousies and blurred lines of responsibilities means that everyone gets involved but no one is in charge”. In the recent U.S. Government proposals, even the project of merging the CFTC (based in Chicago) with the SEC (New York) is absent. We recall that the '87 stock market crash was clearly enhanced by the differences in rules between these two organizations.

Like generals that are always prepare their armies to fight the previous war, regulators are tooling up to fight the previous crisis. Decision-makers are still obsessed with banks; they do not seem to have realized that in the last decades we have witnessed a “debanking”⁹⁹ process. In the current crisis, commercial banks were on average gullible victims. The main culprits have been the U.S. investment banks that exploited their almost unregulated status and their hill-gotten reputation to feed extremely risky investment into the O-t-D pipeline¹⁰⁰. From a systemic point of view financing via short-term debt is the same as financing via demand deposits.

I would have expected sweeping reform proposals in U.S., but unfortunately, while the Paulson Plan was very futuristic, the current one is rather obscure. As correctly pointed out by Zingales¹⁰¹ “in U.S.A....each financial crisis led to the creation of a new agency”. Possible since this crisis is more severe than others now it is proposes the establishment of four new agencies. I am just surprised that it the current plan does not recommend the creation of two distict agencies, one for the protection of widows, another for the defense of orphans! All the plans seem to have ignored one of the main causes of the crisis: residential properties equity extraction; instead of talking about consumer protection it would have been more to the point to consider the problem of protection from consumers!

§ 6 Conclusions.

1. We are forced to ask ourselves a very important question. Have seen the end of possible monetary policy intervention? Indeed, in order to stimulate a flagging economy or to quench inflationary threats, monetary authorities used as primary weapons interest rates. Now short rates are near to zero, but in the last decades economies have become hypersensitive to interest rates increases. Well motivated decisions to raise them have soon caused economic downturns. The high level of indexed debts and the high leverage of the economic agents have, in my opinion, caused this situation. The case of Japan is a sad example. Lawmakers should first of all intervene to reduce the interest rate dependence of the economy. Adjustable rate mortgages modifies the balance of risk distribution between

⁹⁸ HM Treasury, *Reforming Financial Markets*, July 2009.

⁹⁹ Allen and Santomero, 1997, and 2001.

¹⁰⁰ In most countries, the origination activities could have been performed by universal banks, that are supervised as commercial banks and must follow the same rules.

¹⁰¹ Zingales, 2009.

- borrowers and lenders: lenders transfer market risk to borrowers in exchange of an increased credit risk. The overall risk is increased. Such mortgages should be outlawed,
2. Control of managerial incentives is even more important than defining new risk measures¹⁰². We are looking for another Pecora or Giuliani! Share buybacks, unless financed by undivided profits, and approved by the majority of shareholders, must be forbidden: they may hide market manipulations. For larger companies they must be also authorized by the market supervisory authority. Bank and money managers must be licensed, and their license possibly revoked.
 3. Most crises are connected with real estate bubbles. Can they be controlled? Why financial institutions are so eager to finance real estate projects and not industrial ones? At micro level are the former easier to appraise?
 4. Too large intermediaries are uncontrollable, may cause unacceptable systemic risks and are possibly very costly for taxpayers. The size must be limited by law. This will allow liquidation of exceedingly leveraged institutions. Size can be controlled by introducing size-related levies. Long term indexed loans to households should be prohibited: they are systemically dangerous.
 5. All cases are motivated by excessive leverage. Adopt leverage-based core capital requirements. Control the leverage of unregulated institutions (hedge funds, etc.) by limiting the total amount that can be lent by the regulated institutions.
 6. The seeds of the current mess were planted in the good-meaning U.S. deregulatory legislation of the '80ies. Politicians should keep in mind that "there is not such a thing as a free lunch"! As summarized in Appendix 2, minor US financial regulatory interventions turned out to have unintended strong negative systemic consequences.
 7. Abandon dreams of international harmonization: the world is too large. This has become an alibi for not doing anything and an excuse for errors. Impose co-ordination between the different regulatory groups (for instance IASB and bank supervisory agencies). The Basel committee vastly exceeded its mandate. Political authorities, Governments, representing taxpayers, should reaffirm their authority.

Main caveat:

During the 1929-35 about 11,000 (mostly small) U.S. banks failed. The then U.S. Secretary of the Treasury, A. Mellon believed in "weeding out" the system. Depositors lost \$ 160 billions (of 1930 \$!), panic spread, banks build up reserves and stopped credit, thus enhancing the crisis.

In the current circumstances insisting on banks' strong recapitalization NOW (See de Larosière Group Report and Financial Stability Board statements) may cause a credit crunch and amplify the economic downturn.

In his very interesting short 2004 paper, Rajan points out that financial reforms should start during recovery from an economic downturn, and use budgetary surpluses to compensate the losing parties. This makes economic sense, but is not politically realistic. Unfortunately I do not have much hope for reforms, it would be sufficient if the authorities do not make mistakes that could amplify and prolong the current crisis.

¹⁰² See Barone-Adesi, 2008.

Appendix 1.

This appendix is devoted to the computation of the total interest-adjustable part of the yearly payments at the end of all years from 2003 to 2008, for all 30 years ARM (1-4 families properties) originated from 1982.

Table A 1. ARM Mortgages Originations (1-4 Families) and yearly rates 1982-2008.

A	B	C	D	E	F	G	H	I	J	K	L
year	1-4 Family Mortgage Origination (bn \$)	Market Share ARM	1-4 Family ARM Mortgage Origination (bn \$)	Adjustable part of yearly payments end 2003 (bn \$)	Adjustable part of yearly payments end 2004 (bn \$)	Adjustable part of yearly payments end 2005 (bn \$)	Adjustable part of yearly payments end 2006 (bn \$)	Adjustable part of yearly payments end 2007 (bn \$)	Adjustable part of yearly payments end 2008 (bn\$)	LIBOR average yearly rates	Interest-adjustable part of payments : years 1-27 5% rate.
1982	96	41	40	0,95	0,824	0,72	0,64	0,54	0,436		4,98%
1983	203	40	81	2,08	1,9197	1,6686	1,458	1,296	1,0935		4,91%
1984	204	62	125	3,37	3,2125	2,9625	2,575	2,25	2,00		4,83%
1985	250	51	148	4,22	4,0848	3,8036	3,5076	3,0488	2,664		4,74%
1986	500	30	150	4,53	4,275	4,14	3,855	3,555	3,09		4,66%
1987	507	43	215	6,86	6,493	6,1275	5,934	5,5255	5,0955		4,56%
1988	446	58	259	8,68	8,2621	7,8218	7,3815	7,1484	6,6563		4,47%
1989	453	38	172	5,81	5,762	5,4868	5,1944	4,902	4,7472	8,8	4,37%
1990	459	28	126	4,59	4,3848	4,221	4,0194	3,8052	3,591	8,5	4,26%
1991	566	23	130	4,91	4,732	4,524	4,355	4,147	3,926	6,3	4,15%
1992	893	20	179	6,7	6,7662	6,5156	6,2292	5,9965	5,7101	4,2	4,03%
1993	1080	20	216	8,7	8,4456	8,1648	7,8624	7,5168	7,236	3,7	3,91%
1994	769	39	279	11,6	11,2437	10,9089	10,5462	10,1556	9,7092	5,2	3,78%
1995	640	32	204	8,69	8,466	8,2212	7,9764	7,7112	7,4256	6,1	3,64%
1996	785	27	212	9,26	9,0312	8,798	8,5436	8,2892	8,0136	5,9	3,48%
1997	833	22	184	8,23	8,0408	7,8384	7,636	7,4152	7,1944	6,2	3,35%
1998	1656	12	199	9,07	8,8953	8,6963	8,4774	8,2585	8,0197	5,6	3,19%
1999	1379	21	372	17,34	16,9632	16,6284	16,2564	15,8472	15,438	5,8	3,02%
2000	1138	24	283	13,41	13,1878	12,9048	12,6501	12,3671	12,0558	6,9	2,85%
2001	2243	12	269	13	12,7506	12,5354	12,2664	12,0243	11,7553	3,8	2,76%
2002	2854	17	485	23,81	23,4255	22,989	22,601	22,116	21,6795	2,2	2,57%
2003	3812	18	686	34,16	33,6826	33,1338	32,5164	31,9676	31,2816	1,2	2,37%
2004	2773	35	830		40,587	40,753	40,089	39,342	38,678	1,8	2,06%
2005	3927	31	938		0	45,8682	46,0558	45,3054	44,4612	3,8	1,80%
2006	2726	21	572		0	0	27,9708	28,0852	27,6276	5,4	1,60%
2007	2306	10	230		0	0	0	11,247	11,293	5,4	1,35%
2008	1509	6	90		0	0	0	0	4,401	2,8	1,09%

	Av. 29		2003	2004	2005	2006	2007	2008
TOTAL (bn \$)		7674	209,97	245,4354	285,4316	306,597	309,8627	305,2791

I wish to comment on the data, the methodology and the results presented in Table A.1.

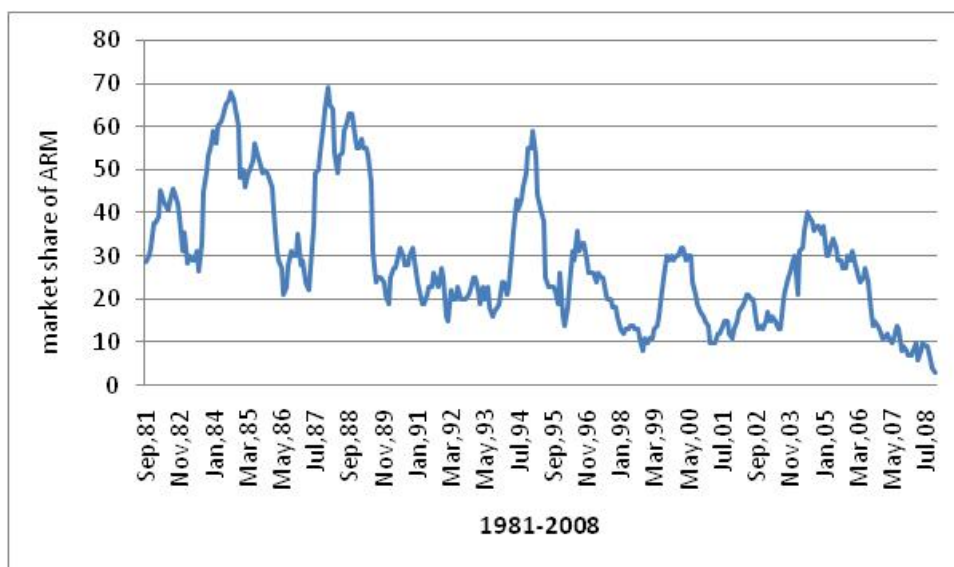
The main data are the mortgage originations on 1-4 family properties and published by the MBA (Mortgage Bankers Association). Since these are data provided by the members of the association, the real amounts could be higher. The Board of Governors of the Federal Reserve publishes data on the mortgage outstanding¹⁰³. We have used them to estimate the mortgages value on all

¹⁰³ Estimation based on Mortgage Debt Outstanding, Table B-75 Economic Report to the President 06/01/2010, Board of Governors of the Federal Reserve.

properties from the total value of all mortgages on 1-4 family houses. In column C, the ARM's market share is reported (ARM/Total Mortgages). The quarterly data were provided by the Federal Housing Finance Board while the yearly data from the Joint Center for Housing Studies of Harvard University¹⁰⁴. The quarterly data deal with "conventional home purchases", while the yearly data with "one family" houses. On a yearly basis, the figures coincide.

We should notice that the market share is quite unstable, as seen in Figure A.1. The average loan amounts of ARM became larger than the ones obtained via FRM since 1993 and the difference kept increasing until the market meltdown of May 2008. In the last ten years, the average loan amount of ARM has exceeded \$ 240,000. Only ARMs issued after 1982 have been taken into account, after 1982 mortgages started to be insured by the Federal Chartered Mortgage Institutions, Fannie Mae, etc.

Figure A 1. Market share of ARM 1981-2008. Estimated outstanding 2008: \$ 5 trillion¹⁰⁵.



The development of total mortgages of 1-4 family houses (column B), as well, has not been stable: they sharply declined in 1994-96, as was the case for the ARM market share, reflecting the increase of interest rates (see LIBOR rates in column K, and Fig.1).

Column D, reporting the monetary value of all ARM 30 year contracts after 1982, is a combination of columns B and C.

In mortgage contracts, the debt is extinguished via a pre-defined sequence of periodic installments that allow a continuous repayment of precise quota of the principal and of the interest on the residual debt. The most common payment schemes assume installments of constant amounts. Among the various possible solutions, we have chosen the so-called "French scheme" that is based on a gradual decrease of the residual debt. We must point out that the property of constant installments can be precisely satisfied only in the case of FRM: in the case of ARM, the part of the installment connected with the interest on the residual principal may change and the amount charged may vary. The size of the variation depends on the relative weight of part covering the due interest vs. the repayment quota. In this scheme, the first installment is made up of a small fraction of repayment of the principal, and a much larger one connected with the due interest. This latter part declines in the following installments due to the reduction of the residual debt. In

¹⁰⁴ JCHS 2006, Table A 3.

¹⁰⁵ The estimate based on Mortgage Debt Outstanding, Table B-75 Economic Report to the President 06/01/2010, Board of Governors of the Federal Reserve Multiplied by the average ARM market share computed in Table 1.

column L we list the sequence of interest related payments as percentage of the borrowed amount. These figures are computed for a notional 5% interest rate (average of LIBOR rates for the period under observation) for 30 year mortgages. We shall use column L only to derive the yearly interest-related quota.

We shall next compute at the end of 2003, 2004,..... the total interest-adjustable fractions of all yearly payments connected with the outstanding mortgages issued in the preceding years. This is done by successively applying the data of column L to the portions of column D from 1982 to 2003, 2004,.... The results are presented in columns E, F, G, H, I, and J. Note that the maximal percentage of interest-adjustable payment (498%) applies to the most recent mortgages for which the very small amount of the principal has been returned. The percentage decreases with the age of the mortgage. For each year, we compute the total interest-adjustable amount that ranges from \$209.97 billion of 2003 to \$305,279 billion of 2008.

Appendix 2

US regulatory acts with relevant negative unintended consequences.

1977: Community Reinvestment Act (CRA). With sticks and carrots, it induced banks to offer mortgages to low income minority groups. CRA was an important factor in lowering lending standards, and gave incentives to low income borrowers to purchase home mortgages that they could not afford, both important ingredients of the current mortgage crisis.

1980: Depository Institution Deregulation and Monetary Control Act (DIDMCA), begins the repeal of the Glass-Steagall provisions.

1981: Regulatory changes on Adjustable Rate Mortgages, decided by the Federal Home Loan Bank and adopted by all federal chartered mortgage institutions Fannie Mae, etc.

1984: Exact definition of the banks too-big-to fail made at a House hearing by the Comptroller of the Currency. This statement affected stock value and behavior of the 11 largest US banks.

1986: Mortgage debt in USA became much cheaper than credit cards debt since the Tax Reform Act of 1986 eliminated interest rate deductions on consumer loans, while retaining those on mortgages, since interest rates on collateralized loans (mortgages) are much lower than the ones applied on credit cards, this fiscal advantage increased the spread! Note that the amount of mortgages doubled from 1985 (\$ 250 billion) to 1986 (\$ 500 billion).

1995: The Department of Housing and Urban Development increased the goals of GSE (Fannie Mae, and Freddie Mac) of purchasing mortgages originated by low and moderate-income housing from 30% in 1995, to 40% in 1996. In return, banks were allowed to repackage and sell these sub-prime loans. These goals were continuously increased to 50% in 1999 and to 56% in 2004.

1995: GRA is revised causing a further decline of lending standards, the reduction and eventual elimination of down payments and of required documentation. Banks were de facto forced to grant \$1 trillion of sub-prime loans.

1999: The Gramm-Leach-Bliley Act (GLBA), also known as the Financial Services Modernization Act, reintroducing Universal Banking.

2004: SEC authorized investment banks to rise their leverage level from 12.5% to 30%.

References

- Allen, Franklin, and Douglas Gale, 2000, *Is Convergence of Capital Adequacy Regulation Desirable?*, *Journal of Finance*, 58, 2745-2781.
- Allen, Franklin, and Douglas Gale, 2003, *Capital Adequacy Regulation: In Search for a Rationale*, In R. Arnott, B.Greenwald, R.Kanbur, and B.Nalebuff eds. *Economics for an Imperfect World: Essays in Honour of Joseph Stiglitz*, MIT Press, Cambridge, MA.
- Allen, Franklin, and Douglas Gale, 2007, *Understanding Financial Crises*, Oxford University Press, Oxford.
- Allen, Franklin, and Anthony Santomero, 1998, *The Theory of Financial Intermediation*, *Journal of Banking and Finance*, 21, 1461-1485.
- Allen, Franklin, and Anthony Santomero, 2001, *What do Financial Intermediaries Do?*, *Journal of Banking and Finance*, 25, 271-294.
- Bank of International Settlements, 2008, *Quarterly Review*, June.
- Barone-Adesi, Giovanni, 2008, *Financial Stability: the Role of Regulation*. Presented at the 7th International Summer School on Risk Measurement and Control, Rome, June 30th- July 8th.
- Berger, Allen, Richard Herring, Giorgio Szegö, 1995, *The Role of Capital in Financial Institutions*, *Journal of Banking and Finance*, 19, 393-430.
- Blum, Jurg, 1999, *Do Capital Requirements Reduce Risk in Banking?*, *Journal of Banking and Finance*, 23, 755-772.
- Brady, Nicholas, Eugene Ludwig, and Paul Volcker, 2008, *Resurrect the Resolution Trust Corporation*. *WSJ*, September 17.
- Bookstaber, Richard, 2007, *A demon of our own design*, J. Wiley, Hoboken, N.J.
- Brunnermeier, Markus; Andrew Crocket; Charles Goodhart; Avinash Persaud; Hyun Shin, 2009, *The Fundamental Principles of Financial Regulations*, Geneva Reports on the World Economy 11, London, January.
- Caballero, Ricardo, and Pablo Kurlat, 2009, *The "Surprising" Origin and Nature of Financial Crises: A Macroeconomic Policy Proposal*, Presented at the Federal Reserve Bank of Kansas City Jackson Hole Conference, August 21.
- Cargill, Thomas, and Gillian Garcia, 1985, *Financial Reforms in the 80ies*, Hoover Institution Press, Stanford, CA.
- Chernow, Ron, 2009, *Where is our Ferdinand Pecora?* *New York Times*, January 5, 2009.
- Clerc, Laurent; Françoise Drumetz; Oliver Jaudoin, 2000, *To what extent are prudential and accounting arrangements pro-or countercyclical with respect to overall financial conditions?* BIS Autumn 200 Central Bank Economists' Meeting on "Marrying the Micro and Macro-Prudential Dimensions of Financial Stability", Published in the Proceedings BIS, March 2001.
- Culp, Christopher, and Merton Miller, 1994, *Hedging a Flow of Commodity Deliveries with Futures: Lessons from Metallgesellschaft*, *Derivatives Quarterly*, Fall, 7-15.
- Daniélsson, Jón, Paul Embrechts, Charles Goodhart, Con Keating, Felix Mennich, Olivier Renault, Hyun Song Shin, 2001, *An Academic Response to Basel II*. Special Paper n° 130, FMG, LSE, London.
- Daniélsson, Jón, 2002, *The emperor has no clothes: Limits to risk modelling*. *Journal of Banking and Finance*, 26, 1252-1272.
- De Larosière Group, 2009, *Report by the High-Level Group on Financial Supervision in the EU*, Chaired by Jacques de Larosière, February 25.
- Demirguc-Kunt, Asli and Enrica Detragiache, 2002, *Does Deposit Insurance Increase Bank Stability?* *Journal of Monetary Economics*, 49, 1373-1406.

- Dhillon, Upinder, James Shilling, and C.F. Sirmans, 1987, *Choosing between Fixed and Adjustable Rate Mortgages*, *Journal of Money Credit and Banking*, 19, 260-267.
- Di Noia, Carmine, and Stefano Micossi, 2009, *Keep it Simple: Policy Responses to the Financial Crisis*. CEPS Bruxelles, January.
- Edwards, Franklin R. (Ed.), 1979, *Issues in Financial Regulation*, McGraw Hill, New York.
- Edwards, Franklin R., 1995, *Derivatives can be Hazardous for your health: the case of Metallgesellschaft*, *Derivatives Quarterly*, Spring, 8-17.
- Edwards, Franklin R., and Michael Canter, 1995, *The Collapse of Metallgesellschaft: Unchangeable Risks, Poor Hedging or Just Bad Luck?* *The Journal of Futures Markets*, 15, 211-264.
- Edwards, Franklin R., 1999, *Hedge Funds and the Collapse of Long-Term Capital Management* *J. Economic Perspectives*, 13, 189-210.
- Ferguson, Thomas, and Robert Johnson, 2009, *Too Big to Bail: The "Paulson Put", Presidential Politics, and the Global Financial Meltdown*, *International Journal of Political Economy*, 38, 3-34.
- Financial Services Authority, 2009, *The Turner Review A Regulatory Response to the Global Banking Crisis*, London, March, 18.
- Fromson, Brett; Fredrick Katayama, and Joshua Mendes, 1990, *Did Drexel get what it deserved?* *Fortune*, May 12.
- Furman, Jason, and Joseph E. Stiglitz, 1998, *Economic Crisis: Evidence and Insights*, *Brookings Papers on Economic Activity*, 2, 1-114.
- G-20 Finance Ministers, 2009, *Global Plan for Recovery and Reform*, London, April 2.
- Garcia Gillian, 1995, *Implementing FDCIA's mandatory closure rule*, *Journal of Banking and Finance*, 19, Special Issue on *The Role of Capital in Financial Institutions*, Edited by Berger A., Herring R. and Szegő G. 723-726.
- Goodhart, Charles, 1999, *Myths about the Lender of Last Resort*. *International Finance*, 2, 339-360.
- Goodhart, Charles, 2007, *The Regulatory Response to the Financial Crisis*, Memo.
- Gorton, Gary, 2008, *The Panic of 2007*, Federal Reserve Bank of Kansas City, Jackson Hole Conference, August 4.
- Gorton, Gary, and George Pennacchi, 1993, *MMMF and Finance Companies: Are They the Banks of the Future?* In M. Klausner and L.J. White, *Structural Changes in Banking*, Chicago Un. Press, Chicago.
- Greenspan, Alan, and James Kennedy, 2007, *Sources and Uses of Equity Extracted from Homes*, FEDS WP 2007-20, Federal Reserve Board, Washington, D.C., published in 2008 in *Oxford Review of Economic Policy*, 24, 120-144.
- Hartmann, Philip, 2008, *Lessons from the Financial Market Turmoil*. Presented at the International Summer School on Risk Management and Control, Rome, June 30-July 4, 2008.
- Hellwig, Martin, 2008, *Systemic Risk in the Financial Sector: an Analysis of the Subprime-Mortgage Financial Crisis*, Preprint of the Max Plank Institute, Bonn, November.
- Hoshi, Takeo, and Anil Kashyap, 2004, *Japan Financial Crisis and Economic Stagnation*, *Journal of Economic Perspectives*, 18, 3-26.
- HM Treasury, 2009, *Reforming Financial Markets*, The Stationery Office, London, July.
- International Monetary Fund, 2007 A, *Global Financial Stability Report*, April, IMF, Washington, D.C.
- International Monetary Fund, 2007 B, *Global Financial Stability Report*, IMF, Washington, D.C., October
- International Monetary Fund, 2008, *Global Financial Stability Report*, October, Washington D.C.
- JCHS, 2006, *The State of the National Housing 2006*, Joint Center for Housing Studies, Harvard University. Cambridge, MA, 2006.
- Jorion, Philippe, 2000, *Risk Management Lessons from Long-Term Capital Management*, *European Financial Management*, 6, 277-300.

Jenkins, Holman, 2008, *Mark to Meltdown?*, The Wall Street Journal, March 5.

J.P. Morgan Chase Bank, 2008, *Lessons from the 1990s Scandinavian Banking Crisis*, London.

Kane, Edward J., 1985, *The Gathering Crisis in Deposit Insurance*, MIT Press. Cambridge MA.

Kareken, John H., 1983, *The First Step in Bank Deregulation: What About the FDIC?*, American Economic Review, May, pp. 198-204.

Kashyap, Anil, Raghuram Rajan, and Jeremy Stein, 2008, *Rethinking Capital Regulation*, Federal Reserve Bank of Kansas City, Jackson Hole Conference, August.

Kindleberger, Charles, and Robert Aliber, 2005, *Manias, Panics and Crashes; a History of Financial Crises*, Palgrave-MacMillan, London.

King, Mervyn, 2007, *Turmoil in Financial Markets: what can central banks do?* Bank of England, London, September 12.

Kroszner, Randall, and Raghuram Rajan, 1994, *Is the Glass-Steagall Act Justified? A study of the U.S. Experience with Universal Banking Before 1933*. American Economic Review, 84, 810-32.

Kroszner, Randall, and Raghuram Rajan, 1997, *Organization structure and credibility: Evidence from commercial bank securities activities before Glass-Steagall Act*, Journal of Monetary Economics, 39, 475-516.

Krugman, Paul, 2008, *The Dilbert strategy*, New York Times, March 31.

Krugman, Paul, 2009, *The big squander*, New York Times, November 20, pg. A35:

Kwast, Myron, Ed., 1986, *Financial Futures and Options in the U.S. Economy*. Board of Governors of the Federal Reserve System, Washington.

Laewven, Luc, and Fabian Valencia, 2008, *Systemic Banking Crises: A New Database*, IMF WR708/224, November.

Laux, Christian, and Christian Leux, 2009, *Did Fair Value Accounting Contribute to the Financial Crisis?*, Chicago Booth Research Paper No. 41, October 12.

Lenzner, Robert, 1998, *Archimedes on Wall Street*. Forbes Magazine, October 19, 21-24.

Lowenstein, Roger, 2001, *When Genius Failed*, Harper & Collins, NY.

Organization for Economic Cooperation and Development 2008, *The subprime crisis: size, deleveraging and some policy options*, Paris, April.

Padoa-Schioppa, Tommaso, 2004, *Regulating Finance. Balancing Freedom and Risk*, Oxford University Press, Oxford.

Plantin, Guillaume, Hraesh Sapra e Hyun Song Shin, 2008, *Fair value accounting and financial stability*, Financial Stability Review, Banque de France, October, pp.85-95

Rajan, Raghuram, 2004, *Why are structured reforms so difficult?* Finance and Developments, June, 56-57.

Report on the Presidential Task Force on Market Mechanisms, (Brady Report), 1988, January, Washington.

Roubini, Nouriel, 2008, *Ten Fundamental Issues in Reforming Financial Regulation and Supervision in a World of Financial Innovation and Globalization*, RGE Monitor.

Santomero, Anthony, and Paul Hoffman, 1998, *Problem Bank Resolution: Evaluating the Options*. The Wharton School, Financial Institution Center, WP. 98-05-B.

Simon, Ruth, 2009, *Banks Ramp up Foreclosures*, The Wall Street Journal, April 15, Pg. A1

Stern, Gary, and Ron Feldman, 2004, *Too Big to Fail. The Hazards of Bank Bailouts*, Brookings Institution Press, Washington, D.C.

Stiglitz, Joseph, 2008 A, *Discussion on the Subprime Crisis, Financial Regulation, and Hedge Funds*, Task Force on Financial Market Regulation, Columbia University, February 6.

Stiglitz, Joseph, 2008 B, *Government Failure vs. Market Failure: Principles of Regulation*. Preliminary, September

Stiglitz, Joseph E., 2009, *Davos Economic Meeting 2009*, February.

- Szegő, Giorgio, 1972, *Modelli Analitici di Gestione Bancaria*, Tamburini Editore, Milano.
- Szegő, Giorgio, 1980, *Portfolio Theory*, Academic Press, New York, etc.
- Szegő, Giorgio, 1993, *Pseudo Risk-Adjusted Capital Requirements; Many Thorns, Little Flowers*. Harvard University, Boston, May 21st.
- Szegő, Giorgio, 1995, *Il Sistema Finanziario*, McGraw-Hill, Milano.
- Szegő, Giorgio, 2002, *Measures of Risk*, Journal of Banking and Finance, 26, 1253-1272.
- Szegő, Giorgio (ed.), 2004, *Risk Measures for the 21st Century*, Wiley, Chichester.
- Szegő, Giorgio, 2009, *The Crash Sonata in D Major*. Journal of Risk Management in Financial Institutions, 3, 31-45.
- The London Summit 2009, *The Road to the London Summit: The Plan for Recovery*, HM Government, March.
- U.K. Conservative Party, 2009, *Plan for Sound Banking, Policy White Paper*, July.
- U.S. Department of the Treasury, 2008, *The Department of the Treasury Blueprint for a Modernized Financial Regulatory Structure*, Washington, March.
- U.S. Department of the Treasury, 2009, *Financial Regulatory Reform; A New Foundation*, Washington, June 17.
- U.S. Securities and Exchanges Commission, 1988, *The October 1987 Market Break*, SEC, February, Washington D.C.
- U.S. Securities and Exchange Commission, 2008, *Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-to-Market Accounting*, SEC, December 30.
- U.S. General Accounting Office, 1989, *Trouble Financial Institutions: Solutions to the Thrift Industry Problem*, GAO, Washington, DC.
- Valencia, Fabian, 2008, *Banks' Precautionary Capital and Persistence of Credit Crunches*, IMF, WP/08/248, Washington, October.
- White, Lawrence, 1991, *The S&L Debacle*, Oxford University Press, Oxford.
- Wolf, Martin, 2008, *Seven Habits Finance Regulators Must Acquire*. Financial Times, May 6.
- Zingales, Luigi, 2009, *A New Regulatory Framework*,

References

- Allen, Franklin, and Douglas Gale. "Is Convergence of Capital Adequacy Regulation Desirable?", *Journal of Finance*, 58, , 2000, 2745-2781.
- Allen, Franklin, and Douglas Gale. "Capital Adequacy Regulation: In Search for a Rationale", In R. Arnott, B.Greenwald, R.Kanbur, and B.Nalebuff eds. *Economics for an Imperfect World: Essays in Honour of Joseph Stiglitz*. Cambridge, MA: MIT Press, 2003.
- Allen, Franklin, and Douglas Gale. *Understanding Financial Crises*. Oxford: Oxford University Press. 2007.
- Allen, Franklin, and Anthony Santomero. "The Theory of Financial Intermediation". *Journal of Banking and Finance*, 21, 1998, 1461-1485.
- Allen, Franklin, and Anthony Santomero "What do Financial Intermediaries Do?", *Journal of Banking and Finance*, 25, 2001, 271-294.
- Bank of International Settlements *Quarterly Review*, June 2008.
- Barone-Adesi, Giovanni "Financial Stability: the Role of Regulation". Presented at the 7th International Summer School on Risk Measurement and Control, Rome, June 30th- July 8th, 2008.
- Berger, Allen, Richard Herring, and Giorgio Szegö. "The Role of Capital in Financial Institutions". *Journal of Banking and Finance*, 19, 1995, 393-430.
- Blum, Jurg. "Do Capital Requirements Reduce Risk in Banking?" *Journal of Banking and Finance*, 23, 1999, 755-772.
- Brady, Nicholas, Eugene Ludwig, and Paul Volcker. "Resurrect the Resolution Trust Corporation". *Wall Street Journal*, September 17, 2008.
- Bookstaber, Richard. *A demon of our own design*, Hoboken, N.J., J. Wiley, 2007.
- Brunnermeier, Markus; Andrew Crocket; Charles Goodhart; Avinash Persaud; Hyun Shin, The Fundamental Principles of Financial Regulations, *Geneva Reports on the World Economy 11*, London, January.
- Caballero, Ricardo, and Pablo Kurlat. "The "Surprising" Origin and Nature of Financial Crises: A Macroeconomic Policy Proposal." *Presented at the Federal Reserve Bank of Kansas City Jackson Hole Conference*, August 21, 2009.
- Cargill, Thomas, and Gillian Garcia. *Financial Reforms in the 80ies*. Stanford, CA: Hoover Institution Press, 1985.
- Chernow, Ron. "Where is our Ferdinand Pecora?". *New York Times*, January 5, 2009.
- Clerc, Laurent, Françoise Drumetz, and Oliver Jaudoin. "To what extent are prudential and accounting arrangements pro-or countercyclical with respect to overall financial conditions?". BIS Autumn 200 Central Bank Economists' Meeting on "Marrying the Micro and Macro-Prudential Dimensions of Financial Stability", *Published in the Proceedings BIS*, March 2001.
- Culp, Christopher, and Merton Miller "Hedging a Flow of Commodity Deliveries with Futures: Lessons from Metallgesellschaft." *Derivatives Quarterly*, Fall, 1994, 7-15.
- Daniélsson, Jón, Paul Embrechts, Charles Goodhart, Con Keating, Felix Mennich, Olivier Renault, Hyun Song Shin. "An Academic Response to Basel II. *Special Paper n° 130*, FMG, LSE, London, 2001.
- Daniélsson, Jón. "The emperor has no clothes: Limits to risk modelling." *Journal of Banking and Finance*, 26, 2002, 1252-1272.
- De Larosière Group. "Report by the High-Level Group on Financial Supervision in the EU, Chaired by Jacques de Larosière". February 25, 2009.
- Demirguc-Kunt, Asli and Enrica Detragiache. "Does Deposit Insurance Increase Bank Stability?" *Journal of Monetary Economics*, 49, 2002,1373-1406.
- Dhillon, Upinder, James Shilling, and C.F. Sirmans. "Choosing between Fixed and Adjustable Rate Mortgages". *Journal of Money Credit and Banking*, 19, 1987, 260-267.

Di Noia, Carmine, and Stefano Micossi. *Keep it Simple: Policy Responses to the Financial Crisis*. Bruxelles: CEPS. January 2009.

Edwards, Franklin R. (Ed.). *Issues in Financial Regulation*. New York: McGraw Hill, 1979.

Edwards, Franklin R. "Derivatives can be Hazardous for your health: the case of Metallgesellschaft" *Derivatives Quarterly*, Spring, 8-17, 1995.

Edwards, Franklin R., and Michael Canter. "The Collapse of Metallgesellschaft: Unchangeable Risks, Poor Hedging or Just Bad Luck?" *The Journal of Futures Markets*, 15, 211-264, 1995.

Edwards, Franklin R. "Hedge Funds and the Collapse of Long-Term Capital Management". *Journal of Economic Perspectives*, 13, 189-210, 1999.

Ferguson, Thomas, and Robert Johnson. "Too Big to Bail: The "Paulson Put", Presidential Politics, and the Global Financial Meltdown". *International Journal of Political Economy*, 38, 2009, 3-34.

Financial Services Authority. *The Turner Review A Regulatory Response to the Global Banking Crisis*, London: FSA March, 18, 2009.

Fromson, Brett, Fredrick Katayama, and Joshua Mendes. "Did Drexel get what it deserved?" *Fortune*, May 12, 1990.

Furman, Jason, and Joseph E. Stiglitz. "Economic Crisis: Evidence and Insights". *Brookings Papers on Economic Activity*, 2, 1998, 1-114.

G-20 Finance Ministers. *Global Plan for Recovery and Reform*, London: HMS, April 2, 2009.

Garcia Gillian. "Implementing FDCIA's mandatory closure rule". Special Issue on *The Role of Capital in Financial Institutions*, Edited by A. Berger, R. Herring, and G. Szegő. *Journal of Banking and Finance*, 19, 1995, 723-726.

Goodhart, Charles. "Myths about the Lender of Last Resort". *International Finance*, 2, 1999, 339-360.

Goodhart, Charles. *The Regulatory Response to the Financial Crisis*. London: FMG, LSE, Memo. 2007.

Gorton, Gary. "The Panic of 2007". *Federal Reserve Bank of Kansas City, Jackson Hole Conference*, August 4, 2008.

Gorton, Gary, and George Pennacchi. "MMMF and Finance Companies: Are They the Banks of the Future?" In M. Klausner and L. J. White (Eds.), *Structural Changes in Banking*, Chicago: Chicago Un. Press. 1993.

Greenspan, Alan, and James Kennedy. "Sources and Uses of Equity Extracted from Homes". FEDS WP 2007-20, Federal Reserve Board, Washington, D.C., 2007, published in *Oxford Review of Economic Policy*, 24, 2008, 120-144.

Hartmann, Philip. *Lessons from the Financial Market Turmoil*. Presented at the International Summer School on Risk Management and Control, Rome, June 30-July 4, 2008.

Hellwig, Martin. Systemic Risk in the Financial Sector: an Analysis of the Subprime-Mortgage Financial Crisis, *Preprint of the Max Plank Institute*, Bonn, November, 2008.

Hoshi, Takeo, and Anil Kashyap. "Japan Financial Crisis and Economic Stagnation", *Journal of Economic Perspectives*, 18, 2004, 3-26.

HM Treasury. *Reforming Financial Markets*. London: The Stationery Office, July, 2009.

International Monetary Fund. *Global Financial Stability Report*. Washington, D.C.: IMF, April, 2007.

International Monetary Fund. *Global Financial Stability Report*. Washington, D.C.: IMF, October, 2007

International Monetary Fund, *Global Financial Stability Report*, Washington D.C.: October, 2008,

JCHS. *The State if the National Housing 2006*, Joint Center for Housing Studies, Cambridge, MA: Harvard University, 2006.

Jorion, Philippe. "Risk Management Lessons from Long-Term Capital Management". *European Financial Management*, 6, 2000, 277-300.

Jenkins, Holman. "Mark to Meltdown?" *The Wall Street Journal*, March 5, 2008.

J.P. Morgan Chase Bank. *Lessons from the 1990s Scandinavian Banking Crisis*, London, 2008.

Kane, Edward J. *The Gathering Crisis in Deposit Insurance*. Cambridge MA: MIT Press, 1985.

Kareken, John H. The First Step in Bank Deregulation: What About the FDIC?, *American Economic Review*, May, 1983, 198-204.

Kashyap, Anil, Raghuram Rajan, and Jeremy Stein. "Rethinking Capital Regulation". *Federal Reserve Bank of Kansas City, Jackson Hole Conference*, August 2008.

Kindleberger, Charles, and Robert Aliber. *Manias, Panics and Crashes; a History of Financial Crises*, London: Palgrave-MacMillan, 200.

King, Mervyn. *Turmoil in Financial Markets: what can central banks do?* London: Bank of England, September 12, 2007.

Kroszner, Randall, and Raghuram Rajan. "Is the Glass-Steagall Act Justified? A study of the U.S. Experience with Universal Banking Before 1933". *American Economic Review*, 84, 1994, 810-32.

Kroszner, Randall, and Raghuram Rajan. "Organization structure and credibility: Evidence from commercial bank securities activities before Glass-Steagall Act". *Journal of Monetary Economics*, 39, 1997, 475-516.

Krugman, Paul. "The Dilbert strategy". *New York Times*, March 31, 2008.

Krugman, Paul. "The big squander". *New York Times*, November 20, 2009, pg. A35.

Kwast, Myron (Ed.). *Financial Futures and Options in the U.S. Economy*. Washington D.C.: Board of Governors of the Federal Reserve System. 1986.

Laewven, Luc, and Fabian Valencia. "Systemic Banking Crises: A New Database". *IMF WR708/224*, November, 2008.

Laux, Christian, and Christian Leux. "Did Fair Value Accounting Contribute to the Financial Crisis?" *Chicago Booth Research Paper No. 41*, October 12, 2009.

Lenzner, Robert. "Archimedes on Wall Street. *Forbes Magazine*, October 19, 1998, 21-24.

Lowenstein, Roger. *When Genius Failed*. New York: Harper & Collins, 2001.

Organization for Economic Cooperation and Development *The subprime crisis: size, deleveraging and some policy options*, Paris: April, 2008.

Padoa-Schioppa, Tommaso. *Regulating Finance. Balancing Freedom and Risk*. Oxford: Oxford University Press, 2004.

Plantin, Guillaume, Hraesh Sapra e Hyun Song Shin "Fair value accounting and financial stability" *Financial Stability Review, Banque de France*, October, 2008, 85-95

Rajan, Raghuram. "Why are structured reforms so difficult?" *Finance and Developments*, June, , 2004, 56-57.

Report on the Presidential Task Force on Market Mechanisms, (Brady Report), Washington D.C. January, 1988.

Roubini, Nouriel. "Ten Fundamental Issues in Reforming Financial Regulation and Supervision in a World of Financial Innovation and Globalization." *RGE Monitor*. 2008.

Santomero, Anthony, and Paul Hoffman. "Problem Bank Resolution: Evaluating the Options". *The Wharton School, Financial Institution Center*, WP. 98-05-B, 1998.

Simon, Ruth. "Banks Ramp up Foreclosures". *The Wall Street Journal*, April 15, 2009, Pg. A1

Stern, Gary, and Ron Feldman. *Too Big to Fail. The Hazards of Bank Bailouts*, Washington, D.C.: Brookings Institution Press, 2004.

Stiglitz, Joseph. *A Discussion on the Subprime Crisis, Financial Regulation, and Hedge Funds*, Task Force on Financial Market Regulation, Columbia University, February 6, 2008.

Stiglitz, Joseph. *Government Failure vs. Market Failure: Principles of Regulation*. Preliminary, September 2008.

Stiglitz, Joseph E. *Davos Economic Meeting 2009*, February, 2009.

Szegő, Giorgio. *Modelli Analitici di Gestione Bancaria*, Milano: Tamburini Editore, 1972.

Szegő, Giorgio. *Portfolio Theory*, New York: etc. Academic Press, 1980.

- Szegő, Giorgio. *Pseudo Risk-Adjusted Capital Requirements; Many Thorns, Little Flowers*. Harvard University, Boston, May 21st, 1993.
- Szegő, Giorgio. *Il Sistema Finanziario*. Milano: McGraw-Hill, 1995.
- Szegő, Giorgio “Measures of Risk”, *Journal of Banking and Finance*, 26, 2002, 1253-1272.
- Szegő, Giorgio (ed.). *Risk Measures for the 21st Century*, Chichester: Wiley, 2004.
- Szegő, Giorgio. “The Crash Sonata in D Major”. *Journal of Risk Management in Financial Institutions*, 3, 2009, 31-45.
- The London Summit. *The Road to the London Summit: The Plan for Recovery*, London: HM Government, March 2009.
- U.K. Conservative Party. *Plan for Sound Banking, Policy White Paper*, July 2009,.
- U.S. Department of the Treasury *The Department of the Treasury Blueprint for a Modernized Financial Regulatory Structure*, Washington D.C. March , 2008.
- U.S. Department of the Treasury. *Financial Regulatory Reform; A New Foundation*, Washington D.C. June 17, 2009.
- U.S. Securities and Exchanges Commission. *The October 1987 Market Break*. Washington D.C.: SEC, February, 1988.
- U.S. Securities and Exchange Commission. *Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-to-Market Accounting*. Washington D.C.: SEC, December 30, 2008.
- U.S. General Accounting Office. *Trouble Financial Institutions: Solutions to the Thrift Industry Problem*. Washington, DC., GAO, 1989.
- Valencia, Fabian. “Banks’ Precautionary Capital and Persistence of Credit Crunches” IMF, WP/08/248, Washington, October 2009.
- White, Lawrence. *The S&L Debacle*, Oxford: Oxford University Press, 1991.
- Wolf, Martin. “Seven Habits Finance Regulators Must Acquire”. *Financial Times*, May 6, 2008.
- Zingales, Luigi. “A New Regulatory Framework”, *City Journal*, March 21, 2009.