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Global Imbalances & Risk Management Systems: a special look at their role during the US Financial Crisis 2007-2009

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Abstract

This Paper seeks to explain some main factors behind the Financial Crisis 2007-2009 with a special focus on the Global Imbalances and risk Management System and their role in US Financial Crisis and how these factors generated and worsen the crisis. Financial Crisis 2007-2009 which starts from the United States sub-Prime Mortgage market and spread to US financial Sector and later on spread to the rest of the world is said to be the even bigger crisis than the Great Depression of 1929. This crisis is unique in this way that in history we haven't seen such a bigger impact world wide from any crisis. This paper would analyze the main causes which are right in the heart of the crisis and least discussed.

Keywords: Current Account Deficit, Imbalances, Risk Management System, Capital Inflow, Market Turbulence
JEL clasifications: F37, F34, F33

Resumen

Este articulo trata de explicar algunos de los factores detrás de la crisis financiera 2007-2009, con énfasis especial en los desequilibrios globales y el sistema de gestión de riesgos, su papel en el sistema financiero de Estados Unidos y cómo esos dos factores generan y empeoran la crisis. La

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crisis financiera 2007-2009 que se inició en el Mercado de hipotecas de los Estados Unidos se extendió al sector financiero de Estados Unidos y más tarde se expandió al resto del mundo. Se dice que fue una crisis aun mayor que la Gran Depresión de 1929. Esta crisis es única, esto significa que en la historia del mundo no se ha visto una crisis de esta índole. En este documento se analizan las principales causas que están en el centro de la crisis y han sido poco discutidas.

Palabras clave: Déficit en cuenta corriente, desequilibrio, globales, sistema de gestión de riesgos, entradas de capital, turbulencia del mercado.
Clasificación JEL: F37, F34, F33

Introduction

The term 'financial crisis' is used too loosely, often to denote either a banking crisis, or a debt crisis, or a foreign exchange market crisis. It is perhaps preferable to invoke it only for the 'big one': a generalized, international financial crisis. This is a nexus of foreign exchange market disturbances, debt defaults (sovereign or private), and banking system failures: a triple crisis, in which the interactions are the key to causality, depth, and persistence (Eichengreen and Portes, 1987). Financial Crises could involve either bank or currency crises or indeed, both of them could take place at the same time (Daianu&Lungu, 2008). Delargy and Goodhart (1999) argue that both the late 19th century crises and those in the late 20th were more likely when loose credit conditions in the lending countries were in place. Subsequently, when credit conditions suddenly adversely changed it generated a boom and bust economic cycle.

> The classic explanation of financial crises, going back hundreds of years, is that they are caused by excesses –frequently monetary excesses– which lead to a boom and an inevitable bust. In the recent crisis we had a housing boom and bust which in turn led to financial turmoil in the United States and other countries (Taylor, 2008).

The term financial crisis is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value. In the 19th and early 20th centuries, many financial crises were associated with Banking Panics and many recessions coincided with these panics. The current tsunami in financial markets, which is believed to have been triggered by the collapse of the sub-prime housing market, has refocused the ideas of Hyman Minsky (1919–1996), a prominent member of the post-Keynesian school of economics. Many commentators are of the view that Minsky accurately anticipated the current financial crisis. (Wray, 2007) (McCauley, 2008). Some of them called this situation a "Minsky moment" (Whalen 2007, Magnus 2007).

This Crisis has many things in common like the previous Crises but there are some new things also. Especially some new financial innovations were also in the root cause of the crisis. From housing bubble to mark and market and global imbalances all participated in

the crisis. But the main focus of this paper is on the least discussed causes which I believe were the main culprit of the Crisis.

Apart from the introduction the paper has been divided into three main parts. First we would discuss the global imbalances with special regard to the capital inflow to United States and how they participated in the financial crises. Secondly the risk management system, how the failure of this system lead to the generation and worsen the crisis. Finally after some empirical analysis we would draw some conclusions.

Global imbalances

> Few among the public would be likely to pin the blame on "global imbalances": the pattern of large, persistent current-account deficits in America and, to a lesser extent, Britain and some other rich economies, matched by surpluses in emerging markets, notably China. The damage done to the financial system by lax controls, rotten incentives and passive regulation is plain. Yet underlying the whole mess was the deeper problem of imbalances. A growing number of policymakers and academics believe that these lay at the root of the financial crisis. The deep causes of the financial crisis lie in global imbalances –mainly, America's huge current-account deficit and China's huge surplus (Economist 22 jan 2009).

Global imbalances –meaning imbalances between savings and investment in the major world economies reflected in large and growing current account imbalances– did indeed play a major role in creating the current Financial Crisis (Dunaway 2009). The financial sector debacle has its origins in the "global imbalance" –the phenomenon of large current account surpluses in China and a few other countries co-existing with large U.S. deficits (Krugman 2009).

If capital inflows did not directly cause the crisis perhaps they did so indirectly by depressing real interest rates in the US and other industrial countries. Capital inflows to the US from emerging markets associated with managed exchange rates caused persistently low long-term real interest rates in both the US and generally throughout the industrial world (Dooley, Folkerts-Landau & Garber, 2009). Table 1 below shows the actual world saving and investment in United States and US investment abroad:

Table 1
Investment Flows in a Fully Globalize World

	2001	*2002*	*2003*	*2004*	*2005*	*2006*
			Trillions of Dollars			
Actual world Saving(Exc. USA)	5.02	5.23	6.21	7.44	8.27	9.16
ForeignInvestment in USA	1.61	1.67	1.84	2.10	2.31	2.52
US InvestmentAbroad	1.13	1.01	1.02	1.11	1.16	1.32
Net inwardForeignInvest.	0.84	0.66	0.82	0.99	1.15	1.20

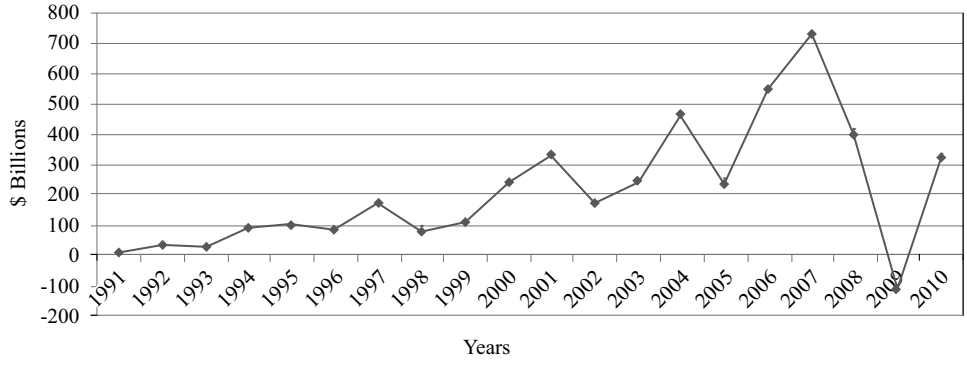
Self-made Table (Data Source: IMF)

According to Mendoza, Quadrini& Jose Rull (2008) at the end 2007 the United States reported the largest current account deficit and the lowest net foreign asset (NFA) position in its history. The NFA position reached -4.5 percent of the world's output following a trend that started in the early 1980s. Throughout this period, the U.S. foreign asset portfolio also showed marked trends: net equity and FDI climbed to 1/10 of U.S. GDP while debt obligations increased to 1/3 of U.S. GDP.

Capital inflow to united states

Over the last decade, the U.S. has experienced large and sustained capital inflows from foreigners seeking U.S. assets to store value (Caballero et al, 2008). This should not be surprising because a large amount of the capital flow into the U.S. has been from foreign central banks and governments who are not expert investors and are merely looking for a store of value (Krishnamurthy and Vissing-Jorgenson, 2008). Figure-1 below shows the net capital inflow to the United States including the foreign official assets in United States and net capital inflow to the United States.

Figure 1
Net Capital Inflow to United States ($ Billion)



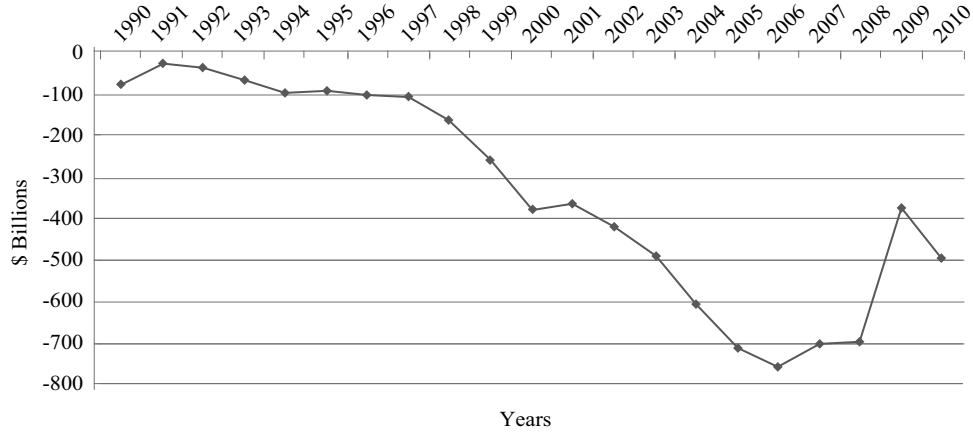
Self made figure (Data Source: Bureau of Economic Analysis 2008).

An important manifestation of the global imbalance has been the flood of money into the U.S. that kept interest rates low, inflated prices of real estate, shares and other assets. When the bubble burst the financial sector crisis surfaced. So an 'orderly' unwinding of imbalance alone helped mitigate the crisis. If this viewpoint is accepted, macro economic policies of countries need fine tuning.

US current accounts deficit

The global imbalance is reflected in large mismatches in the current account positions of some countries and its mirror image in the form of domestic savings – investment mismatches. Understanding such imbalance is not that difficult even for lay people. The U.S has been running huge current account deficits. Figure-2 below shows the high US current Account Deficits since 1997 which reached on peak in 2006.

Figure 2
U.S Current Account Balance ($ Billions)



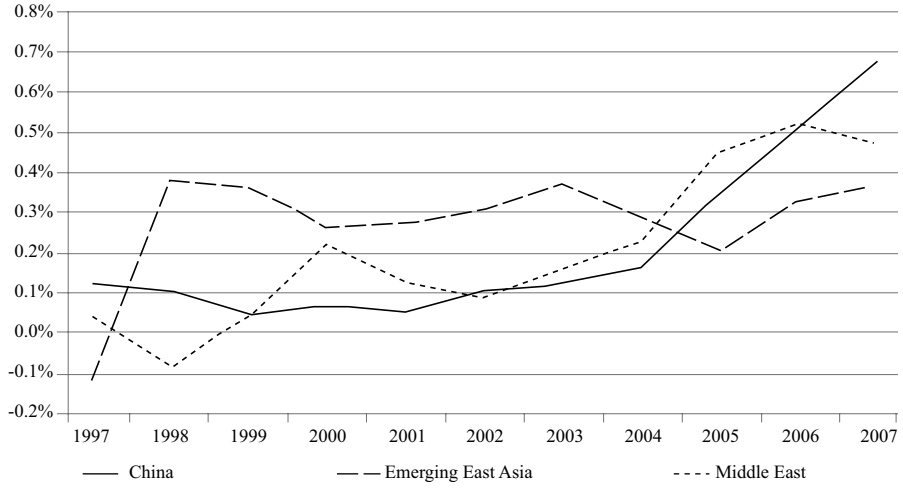
Self made Figure (Data Source Bureau of Economic Analysis 2008).

In 2007 the U.S. balance of payments deficit amounted to 790 billion dollars, which makes the U.S. the world's largest debtor state (Lim, 2008). Industrial production in the U.S. has decreased while there has been significant GDP growth the last eight years. The current account deficit related to personal over-consumption in the U.S. can be traced back to the 1980s, with the birth of consumer credit through the easy access to credit cards.

The level of the U.S. trade deficit has varied through the years, but increased rapidly in the first part of the decade of 2000, hitting a record level in 2006 when it accounted for 6.2 percent of GDP in the U.S (Bernanke, 2007). Today every country trading with the U.S. runs a current account surplus with the U.S. (Shirk, 2007). Figure-3 below shows the current account surplus of some trading partners of United States like China, Emerging Asia and Middle East.

Figure 3

China, emerging Asia and middle east current account surplus (%of world gdp)



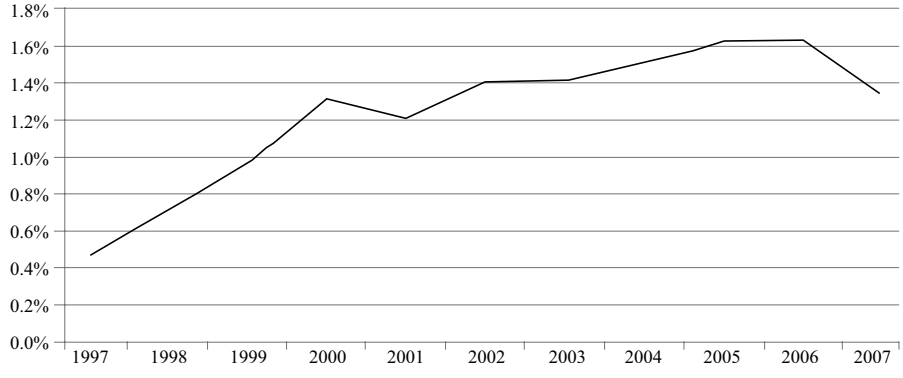
Data Source: Bureau of Economic Analysis 2008.

Increase in the trade deficit started and rapidly changed the pattern of international trade balances in the world. In 2006, the aggregate current account surplus of emerging market countries rose to 643 billion U.S. dollars, to a large degree because of China's growth (Bernanke, 2007). But the decline in U.S. saving was not the cause of the deficit. The cause of the deficit was that the rise in consumption has not been matched by a rise in industrial production or exports (Bernanke, 2007).

As economies of China, Emerging Asia and Middle East were generating large current account surplus, United States economy was on the verge of large current account deficit. Figure 4 below shows the US current account deficit in % of world GDP which is ever increasing.

Figure 4

US Current Account Deficit (% of World GDP)

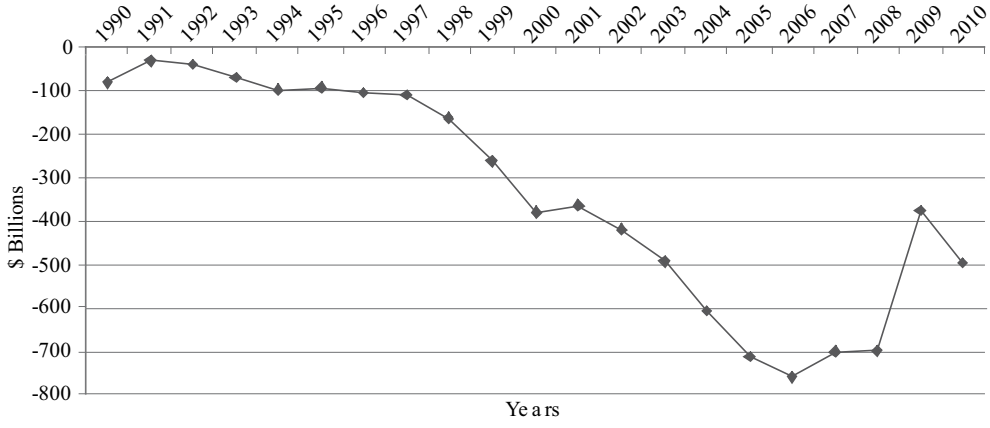


Data Source: Bureau of Economic Analysis 2008.

While comparing the current accounts of the developing countries, (Includes emergent economies (Term used by IMF) such as Hong Kong, South Korea, Singapore and Taiwan by IMF) with the United States, we observe a tremendous deficit in US current accounts balance and surplus in current accounts balance of developing countries.

According to Pearlstein &Morgen (2009) the financing of the U.S. national debt has been done primarily in Asia, and particularly in China, and has during the last five years included inflows of around two billion U.S. dollars every day (Trichet, 2005). The U.S. has in other words, been the recipient of the world's savings, while emerging economies and developing countries have been the supplier. This has happened in combination with internationally low interest rates (Summers, 2006). The huge flow of capital to the US makes the United States the world's largest borrower country of the world. Figure-5 below shows a US government debt which has tremendously increased from 1990.

Figure 5
U.S Government Debt ($ Trillions)



Self made figure (Data Source: Bureau of Economic Analysis 2008).

Why capital inflow to USA?

But the big question is what why developing countries wants to export their capital to the rich world that might be better used at home? According to the *Economist* (January 22, 2009) there were three factors: First the income of oil-exporting countries, for instance, has ballooned since 2004 because of higher prices for crude. It would have been neither feasible nor wise for oil-rich nations to spend this windfall at home; so much of it was saved and sent abroad. Second in China's tightly controlled financial system, savers have little choice. And firms, not households, account for the recent rise in net national saving. Rising currency reserves of emerging markets is perhaps. Finally, this was largely a reaction to the painful memory of

the asian crisis: asian countries wanted to insure themselves against another sudden flight of capital. Reserves need to be large enough to draw upon if foreign-currency financing suddenly dries up, and to ensure that trade flows smoothly. But reserve holdings in some emerging markets have gone way beyond levels suggested by prudential rules of thumb –enough to pay for three months of imports, say, or to cover short-term foreign-currency debt.

According to Gross (2009) there is a close correlation between the US current account deficit and reserve accumulation, but it is not perfect since the US deficit had already been very large some time before the 'search for yield' started. But before 2003 reserve accumulation had been much lower than the US deficit (which had thus been financed largely by private capital transfers). By contrast, after this date reserve accumulation increased relative to the (increasing) US deficit until, by 2006, reserve accumulation actually surpassed by far the US deficit. There is thus certainly a link between the US current account deficit and the build up of the crisis, but this not as straightforward as sometimes believed.

According to Hunt (2008) the global credit crisis that originated in the US sub-prime mortgage market can be understood as a consequence of the unsustainable nature of very large external imbalances that have evolved since the late 1990s

Global imbalance, cause of crisis?

US officials like Alan Greenspan and Ben Bernanke blame the immense pool of liquidity generated by high-savings countries in east asia and the middle east. All that liquidity, they argued, had to go somewhere. Its logical destination was the country with the deepest financial markets, the US, where it raised asset prices to unsustainable heights. The global savings imbalance – low savings in the US (Table-2) and high savings in China and other emerging markets – played a key role in the crisis by allowing Americans to live beyond their means. It encouraged financiers desperate to earn a return on abundant funds to put them to more speculative use.

Table 2
Personal Savings as a Percentage of Disposable Income, USA

Years	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
% of Savings as compared to Disposable Income	2.3	1.8	2.4	2.1	2.1	0.5	0.4	0.4

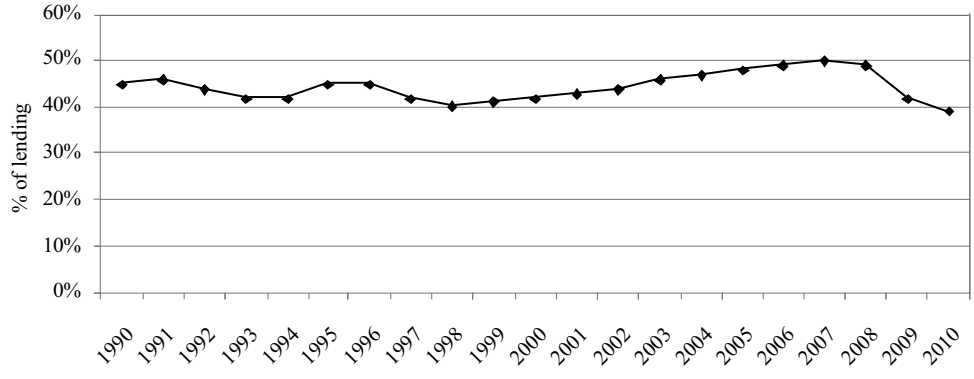
Self-made Table (Data Source: Mortgage Bankers Association, March 24, 2008).

According to Lapavitsas (2009) while personal savings as a percentage of disposable income was 9-10% during the 1970s and 1980s, it fell to around 2% in the early 2000s. By 2006-7, personal savings had collapsed to 0.4%. In 2007, the difference between aggregate

domestic savings and investment in the US approached 5% of GDP. This gap corresponded to a ballooning US trade deficit, which exceeded US$ 700 billion during 2005-2007.

Large corporations have become less reliant on bank financing. They have financed their fixed investment either through retained earnings or direct borrowing in open markets. Hence, commercial banks have had to search for new profit-making opportunities. A decisive response was to turn to consumer and real-estate loans. In the US, the share of such loans in total bank lending rose from around 30% in the 1960s to almost 50% in the mid-2000s (see Figure 6). Lending to individuals can often be predatory, an aspect that took extreme forms in the course of the recent bubble.

Figure 6
Lending to Consumers and Real Estate as a Percentage of Total Bank Lending, USA



Self made figure (Data Source: Federal Reserves).

According to Dooley & Garber (2009) low real interest rates in turn drove asset prices up, particularly for long-duration assets such as equity and real estate. At the same time, low real interest rates temporarily reduced credit risks and a stable economic environment generated a marked decline in volatility of asset prices.

Due to global imbalance investment in United States directed towards most risky businesses. Consumer spending increased regardless of the fact that the savings were very low. These risky investments largely go to housing market and mortgage lending. More and more investment in housing market increased the prices of the houses to sky. This housing bubble then burst which caused the financial crisis. One “lesson” that seems to be emerging is that international capital flows associated with current account imbalances were a cause of the crisis and therefore must be eliminated or at least greatly reduced (Mann, 2009).

Risk Management System

> Another significant factor contributing to the financial turmoil was risk-management weaknesses at large global financial institutions that created and held complex credit products. Ben S Bernanke (Chairman Federal Reserves May 15 2008).

"Risk management[1] at large Western banks was deficient and "a major cause" of the current financial crisis; the shortcomings showed a lack of judgment and governance by the banks" International Monetary Fund (Reuters 10th April 2008).

According to Baily, Robert *et al.* (2008), due to low interest rates and competitive pressures to generate high returns for investors and high profits for shareholders, several of the financial institutions failed to apply the risk management practices that they already had in place.

But Dowd (2008) accused valuation models and the way they are used. "The models of valuation will often involve marking-to model instead. Marking-to-model depends on assumptions, however, and these are open to question and possible abuse. Model-based valuations do not reflect true market prices and as we have seen again and again recently, a marked to model position can suddenly be revealed to have a market value that is only a fraction of its mode-based valuation".

In fact, the very principle of applying statistical methods to risk management is problematic: sometimes good risk management makes use of rules of thumb that constitute bad statistics, and sometimes good statistics can lead to bad risk management. This is because statistical analysis fails to allow for risk managers' need to err on the side of prudence. As one cynic recently wrote: "The statistician is trying to extract information from data, whereas the risk manager is trying to manage risks with limited information [and these are quite different tasks]. And limited information means that a good risk manager cannot afford to be anything other than prudent. Surely it is better to be careful a hundred times than to be killed just once?" (Dowd, 2007).

Although financial institutions had "Risk Management" departments but they failed to adequately judge or protect against certain risks during this financial crisis. This failure was magnified when institutions borrowed up to thirty-times their net worth. One system that many financial companies use for risk management is Value at Risk there are a few problems with the VAR system. Indeed, it is no exaggeration to say that VaR has been discredited for over a decade and its continued widespread use has long been indefensible (Artzner*et al*., 1997 Dowd, 2005).

[1] Risk Management System refers to a system of identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events

Max Olson (2009) described three types of Value at Risk (VaR).[2] Problems: F**irst**, humans are inherently good and bad at judging risks. But when it comes to finding the odds of extremely rare events (one in hundred), our natural abilities fail us. Sophisticated statistical models don't provide much relief either. Although we can't predict the frequency of rare events, VaR is built on this very ability. **The second**: the end result of any model is dependent upon the original inputs. Garbage in, garbage out. Using historical data to calculate future returns and probabilities can be extremely dangerous. **Finally**, and most importantly, the final VaR figure ignores maximum size of losses. There may be only a 2% chance that the portfolio loses more than $20 million in a one-month period. But that loss could be $21 million, or it could be $500 million. If the later wipes out the equity of the firm, then it's game over.

Banks and financial institutions weren't the only ones who bought into the VaR model. Regulators and rating agencies used the same analysis to ensure that the company had enough capital on hand or that it still deserved its triple-A rating. This type of backward-looking, false-precision risk analysis must be stopped to prevent future disasters.

The current financial crisis makes abundantly clear the importance for independent risk management. This task poses demands at every level: individual companies, global groups, regulators, government, rating agencies & international institutions.

On March 6, 2008 the Senior Supervisors Group of the Financial Stability Forum issued a report "Observations on Risk Management Practices during the Recent Market Turbulence." The report shows risk management practices that helped some institutions to avoid the worst of the losses and the practices that led to failures. Report says "Our work has consequently proved useful in clarifying for principal supervisors the areas in need of improvement in the infrastructure, processes, and practices of some firms. As acknowledged throughout this report, a number of firms had already identified, or were beginning to identify, at least some of the deficiencies we cite in their own assessments, and many were already developing plans to address those weaknesses".

Chief Financial Officer (CFO) and risk management system

Improved risk management is the top priority of CFOs in reaction to the current financial crisis, ahead of short- and long-term access to capital, according to a Towers Perrin survey

[2] Basically, it's a complex form of scenario analysis that tries to give the firm a look at how much risk is being taken. A single scenario would be something like this: "How much our portfolio would be affected if the stock market went up 5%, interest rates declined ½%, and oil prices fell 3%?" The answer would be found by looking at historical data on performance and correlation. The end result of the VaR analysis gives you a dollar amount of loss for a certain percentile. It gets the final figure from combining all the different outcomes and probabilities of every scenario. The result looks like this: "The 98th percentile, one-month VAR is -$20 million." (Meaning that 98% of the time, your holdings won't lose more than $20 million in a one-month period.)

of finance executives at major U.S. corporations. Towers Perrin commissioned the survey by CFO Research Services, an affiliate of *The Economist* and *CFO* magazin*e*, to gain insights on how companies view the seriousness of the financial crisis for their businesses. It also sought to learn about the likely impact on the way they conduct business.

The responses came from 125 top finance executives representing a solid cross section of American industry and were collected during the week of September 22, as Treasury Secretary Henry Paulson and Federal Reserve Chairman Ben Bernanke began making the rounds on Capitol Hill to pitch the administration's $700 billion rescue plan. (Towersperrin.com)

In a study published by towersperrin.com top executives think that risk management practices in banks and other financial institutions contribute highest. About 62% is of the view that the present turmoil is the result of risk management practices. Second biggest contribution to the crisis was the increased complexity of the financial instruments about 59%. While financial markets speculation is on third place with 57% executives think contributes to the crisis.

Risk Managment Sistem (RMS) and financial crisis

According to Groome (2008), the current economic crisis has brought home a number of lessons. One is that new products can hold unknown risks. Another is that risk management may not have been up to the task since many of the standard quantitative models and users of these models underestimated the systematic nature of risks. Risks were often under-estimated due in part to product complexity and over-reliance on quantitative analysis, including by rating agencies. Investors learned too late that many risk evaluations were wrong.

Investors had little ability to peer into the underlying pools. They bought on the basis of the AAA rating or monoline guarantee; assured by these ratings and the broker's promises that such investments were without risk.

The incentives to sell these loans were huge. The upshot was that people without documented income were moving into homes with nothing down, and making no mortgage payments, in order to keep commissions flowing in. During 2005 and 2006, almost every mortgage application was accepted. The market funded Alt-A (alternate documentation) and subprime mortgages. No proof of income and nothing down? No problem; welcome to your new home. Even for consumers that clearly could not afford the monthly payments, the banks and brokers structured (and advertised) mortgages at 1% interest for the first year, (during which the real interest accrues to increases of up to 15% more than the home's market value). In effect, banks and brokers were lending against a greater estimated "future market value" that never materialized. For reasons unknown, the regulators sat back and allowed banks to treat these as conforming loans. As long as the properties' market values escalated, everyone seemed to win.

According to Dowd (2008) most important reasons for the failure of financial risk management are basic economic ones. Simply put, if the incentive to take risks is strong enough, then we should expect to see excessive risks being taken. Risk managers take their orders from the senior management who often pressure them to take short-cuts, turn the other eye to meet the required targets. Therefore the ultimate responsibility should be of the senior management.

Majority of the members in a survey made by AON agreed that Board of Directors, who should have overall responsibility for risk management, senior management and specific risk managers should share the responsibility of ERM and insurance. A-One's survey shows that, the current global trend is to establish risk management committees. Chief risk officers (CRO) are required in certain industries where risk management is highly valued. One of the most important principles in corporate management is that the board of directors shall ultimately be held accountable for the corporation's interested parties. Although the specific responsibilities are allocated to various departments, the ultimate responsibility must be taken by the board. (Sharing Global Experience) Enterprise risk management during the global financial crisis.

Dowd (2008) says that until the senior management did not take the responsibility of the risk management the whole building of the financial risk management would be on sand. Dowd (2008) severely criticized senior management of taking highest possible remunerations and delivering nothing in the days of financial crisis.

According to Down (2008) problem lies in the nature of the joint stock company itself. One of the earliest and still one of the best critiques of the joint stock company is that given by Adam Smith in the *Wealth of Nations*: The directors of such companies … being the managers of other people's money than their own, it cannot well be expected that they should watch over it with the same anxious vigilance … Negligence and profusion must always prevail, more or less, in the management of such a company … Smith (1976).

Conclusions

Global imbalances, such as large trade deficits and budget deficits indicative of over-consumption, were sustainable. Private debt relative to GDP tripled over 30 years. Trade deficits increased the flow of capital into the U.S. and put downward pressure on interest rates, making the housing bubble worse.

Low interest rates, widely available capital, and international investors seeking to put their money in real estate assets in the United States were prerequisites for the creation of a credit bubble. Those conditions created increased risks, which should have been recognized by market participants, policy makers, and regulators

Failure of corporate governance and risk management systems in important financial institutions were key cause of the crisis. These institutions acted irresponsibly, take too many

risks with too little capital and depend on short term funding. Especially large investment banks and holding companies focused on risky trading activities with hefty profits.

Some large investment banks, bank holding companies, and insurance companies, including Merrill Lynch, Citigroup, and AIG, experienced massive losses related to the subprime mortgage market because of significant failures of corporate governance, including risk management. Executive and employee compensation systems at these institutions disproportionally rewarded short-term risk taking. The regulators –the Securities and Exchange Commission for the large investment banks and the banking supervisors for the bank holding companies and AIG– failed to adequately supervise their safety and soundness, allowing them to take inordinate risk in activities such as nonprime mortgage securitization and over-the-counter (OTC) derivatives dealing and to hold inadequate capital and liquidity.

Risk management may not have been up to the task since many of the standard quantitative models and users of these models underestimated the systematic nature of risks. Risks were often under-estimated due in part to product complexity and over-reliance on quantitative analysis, including by rating agencies. Investors learned too late that many risk evaluations were wrong. The incentives to sell these loans were huge. The upshot was that people without documented income were moving into homes with nothing down, and making no mortgage payments, in order to keep commissions flowing in. During 2005 and 2006, almost every mortgage application was accepted. The market funded Alt-A (alternate documentation) and subprime mortgages. No proof of income and nothing down? No problem; welcome to your new home. Even for consumers that clearly could not afford the monthly payments, the banks and brokers structured (and advertised) mortgages at 1% interest for the first year, (during which the real interest accrues to increases of up to 15% more than the home's market value.) In effect, banks and brokers were lending against a greater estimated "future market value" that never materialized

References

Acemoglu, Daron (1998), "Changes in unemployment and Wage Inequality: An Alternative Theory and Some Evidence", National Bureau of Economic Research, working paper, no. 6658, Cambridge, Cambridge Press, pp. 1-12.

Artzner, Delbaen, Eber and Heath (1999), "Coherent measures of risk." *Mathematical Finance* 9 (3): 203-228.

Bernanke, Ben S (2008) "Risk management in financial institutions". <http://www.federalreserve.gov/newsevents/speech/bernanke20080515a.htm>.

Bernanke, B. (2007); "Global Imbalances: Recent Developments and Prospects". <http://www.federalreserve.gov/newsevents/speech/bernanke20070911a.htm>.

Berman, Eli; John Bound y Stephen Machin, 1997, "Implication of Skill-Biased. Technological Change: International Evidence", National Bureau of Economic. Research, working paper, núm. 6166, Cambridge, Mass., Cambridge Press, pp. 1-40.

Bowles, Samuel; Herbert Gintis y Melissa Osborne (2001), "The Determinants of Earnings: A Behavioral Approach", *Journal of Economics Literature*, Pittsburgh, American Economic Asociation Publications vol. 39, no. 4, Pp. 1137-1176.

Caballero, R.J, E. Farhi, and P.O. Gourinchas (2008) "An Equilibrium Model of Global Imbalances and Low Interest Rates," American Economic Review, March 2008.

Chambers, Alex (2008), "Understanding the mark to market meltdown, *Euromoney*, March 01, 2008.

Dooley, Michael P., David Folkerts-Landau and Peter M. Garber (2009), "Bretton Woods II Still Defines the International Monetary System," NBER Working Paper 14731 (February).

Dymski, A.G. (1997); Deciphering Minsky's Wall Street Paradigm. *Journal of Economic Issues*. Vol. 31 No. 2.

Eichengreen, Barry (2009), "Will global imbalances return".

Kennedy, Siobhan (2007), "Embattled bank faces SEC inquiry over SIVs". The Times, nov. 5, 2007.

Keys, Benjamin; Tanmoy Mukherjee, AmitSeru and Vikrant Vig (2008), "Did Securitization leads to lax screening? Evidence from sub prime loans". <http://ssrn.com/abstract=1093137>.

Mendoza, Enrique G.; Vincenzo Quadrinim Jose-Vector Rios Rull (Sep 2008), "Financial integration, Financial Development and Global Imbalances", NBER Working papers 12909, Nacional Bureau of Economic Reserch, Inc.

Morduch, Jonathan y Terry Sicular, (2002), "Rethinking Inequality Decomposition, with Evidence from Rural China", *Economic Journal*, vol. 112, no. 476, Princeton, John Wiley-Royal Economic Society, pp. 93-106.

Posen, Adam S. and Marc Hinterschweiger (2009), "How useful were recent financial innovations? There is reason to be skeptical". <http://piie.ddlvbeta.com/blogs/?p=691>.

Setser, Brad (Oct 2007) "SIV-City", <http://blogs.cfr.org/setser/2007-710/18/siv.city/>.

Shorrocks, Anthony (1982), "Inequality Decomposition by Factor Components", *Econometrica*, vol. 50, no. 1, Chicago, mit-Press, pp. 193-211.

Silber, Jaques (1989), "Factor Components, Population Subgroups and the Computation of the Gini Index of Inequality", The *Review of Economics and Statistics*, 71, Chicago, mit-Press, pp. 107-115.

Smith, A. (1976) *The Wealth of Nations*. Oxford: Oxford University Press.

Whalen, C. (2008); A Minsky Moment: Reflections on Hyman P. Minsky (1919-1996). Journal of *Economic Issues*. Vol. 42 No. 1.

Wray, R. L. (2008), Financial Markets Meltdown. What can we learn from Minsky? The Levy Economics of Bard College. *Public Policy Brief*. No. 94.

Wray, R. L., Papadimitriou, B. D. (1999); Minsky's Analysis of Financial Capitalism. The Jerome Levy Economics Institute. WorkingPaper. No. 275.