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COLLEGE OF MANAGEMENT
FINANCIAL SERVICES FORUM

Perspectives on the Global Financial Crisis From Emerging Managers and Public Policy Makers

Full Version

James L. Grant PhD
Associate Professor of Accounting and Finance
University of Massachusetts Boston
And President, JLG Research

August 25, 2014

FINANCIAL SERVICES FORUM
COLLEGE OF MANAGEMENT
UNIVERISTY OF MASSACHUSETTS BOSTON

Perspectives on the Global Financial Crisis

From

Emerging Managers and Public Policy Makers

Edited Manuscript:

James L. Grant PhD
Associate Professor of Accounting and Finance
University of Massachusetts Boston
And President, JLG Research

With Special Contribution from:

Richard T. Selden, PhD
Carter Glass Professor of Economics Emeritus
University of Virginia

Version:
February 25, 2014

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Foreword

This manuscript attempts to capture the perspectives of emerging managers and public policy makers as evinced in the perspectives of graduate students and others who were enrolled in my newly developed course on the global financial crisis—first offered in the 2010 Harvard Summer Economics Program--at a time when students were engaged in the midst and aftermath of the most severe U.S. and worldwide recession since the Great Depression of the early 1930s. The many perspectives gathered on the causes, consequences, remedies, and perhaps more importantly, a glimpse at student thoughts, concerns, and worries at the time--have been collected from the final paper that I assigned in the global crisis course over three cohorts of students including, (1) the Harvard Summer Economics Program of 2010 (Cohort 1), (2) A "Special Topics" course at the University of Massachusetts Boston during Spring semester 2012 (Cohort 2), and (3) the same course offered in the Harvard Summer Economics Program during the summer of 2012.

While we have all heard the many opinions and perspectives on the global economic and financial crisis from academia, government, industry among others, we have yet to hear from emerging managers and public policy makers, as captured in this manuscript by the perceptions, beliefs, and positions of graduate students and others of similar standing who will likely hold the reins to managing the global economy and political and societal developments in the years to come. With this in mind, this manuscript attempts to fill the missing void of opinions and perspectives of the next generation of managers and public policy makers—as their opinions and views will likely influence the lives of all for years to come.

About the Editor

James L. Grant is Associate Professor of Accounting and Finance at the University of Massachusetts Boston and President of JLG Research. Dr. Grant has served as advisory analyst at major Wall Street firms including Credit Suisse Asset Management and GAM. Dr. Grant holds a PhD in Business from the University of Chicago's Booth School of Business, and he has been a featured speaker at industry conferences on value-based metrics. Dr. Grant has served on editorial advisory boards including the *Journal of Portfolio Management* and the *Journal of Investing* (currently). Dr. Grant has published several articles in finance and investment journals and he has contributed chapters to investment books. Dr. Grant is the author of *Foundations of Economic Value Added* (Second Edition), the co-author of *Focus on Value: A Corporate and Investor Guide to Wealth Creation*, and co-author and co-editor (with Frank J. Fabozzi) of *Equity Portfolio Management* and *Value-Based Metrics: Foundations and Practice.* His writings on the value-based metrics approach to equity securities analysis have been adopted by the CFA® Institute. Dr. Grant is also Independent Director and Chairman of the Board of Directors of Centre Funds.

Acknowledgements

I would like to acknowledge Dr. Richard T. Selden, Carter Glass Professor of Economics Emeritus at the University of Virginia, a distinguished guest lecturer in the global financial crisis course that I offered in the Harvard Summer Economics Program. "Dick" taught two classes on macroeconomic theory and polices-in the context of the "Classical" (pre-Keynesian) and Keynesian persuasions-with application of how competing economic theories would relate to the causes, consequences, and prescriptive remedies of economic and financial crises in general and with specific application to the recent global financial crisis. Dr. Selden's lectures on macroeconomic policy were highly regarded and appreciated by the students enrolled in the course. Included in this manuscript is Dr. Selden's paper, "A Classical Perspective on Macro Policy," which I invite all to read for a more comprehensive and balanced understanding of how competing economic theories--both Classical and Keynesian—apply to financial and economic crisis.

I would also like to acknowledge the Harvard Summer Economics Program and the University of Massachusetts Boston for giving me the opportunity to develop and offer a timely course on the global financial crisis. I wish to thank Eric Pinsoneault and other graduate -research assistants at the University of Massachusetts Boston who helped me launch and continually update this manuscript. I also thank Gregory Scott and Joel Grant for comments provided on the papers as they first arrived.

James L. Grant, PhD

Editor and Instructor Papers:

James L. Grant-Course Instructor, ECON S1945: The Global Financial Crisis, Harvard Summer Economics Program 2010, 2012; MBA AF697 Special Topics: The Global Financial Crisis, University of Massachusetts Boston, Spring 2012

--Grant, James L, A Perspective on US Regime Change and the Global Financial Crisis, *Journal of Asset Management*, October 2009

(http://www.palgravejournals.com/jam/journal/v10/n4/abs/jam200912a.html)

Richard T. Selden-Invited Guest Lecturer, ECON S1945: The Global Financial Crisis Harvard Summer Economics Program 2011, 2012

--Selden, Richard T, "A Classical Perspective on Macro Policy" Mimeo, June, 2012 (with application to the global financial crisis; full text version included herewith following list of selected student papers)

DISCLAIMER:

The opinions expressed in this Manuscript on the Global Financial Crisis are based solely on those of the selected contributors. As such, the opinions of the authors along with their purported supporting data and evidence should *not* be interpreted as a guarantee of accuracy, nor for providing financial or investment advice in times of economic and financial uncertainty such as that which recently occurred during the financial crisis. While additional papers were submitted as part of general course requirements, not all papers are included herewith for several reasons including: formatting issues, incompleteness, lack of contact information, space limitations, and notably, to achieve a measure of balance among the collected papers from the student cohorts over the years 2010 to 2012. Student papers from the summer of 2011 were not included in this manuscript due to lack of contact information to obtain a representative sample of opinion from this cohort.

A Perspective on the Global Financial Crisis from Emerging Managers

And Public Policy Makers

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EDITOR PERSPECTIVE (OPINION):
The Global Financial Crisis:

With numerous, interesting, and valid perspectives on the Global Financial Crisis presented in this manuscript, I would like, as Editor, to be upfront about my own opinion: As expressed here and elsewhere (e.g., "A Perspective on US Regime Change and the Global Financial Crisis," *Journal of Asset Management*, October 2009), the Crisis was, in my view, caused primarily by misguided social engineering policies pursued by the U.S. government and the quasi-governmental entities ("Fannie," "Freddie") that encouraged or allowed individuals as borrowers to qualify for mortgages which they could not afford; this, in conjunction with overly accommodative and restrictive monetary (erratic interest rate) policies pursued by the U.S. Federal Reserve System in the pre-Crisis period. Wall Street's role in "hatching" the Crisis—via misapplied financial engineering--was in the Editor's view either complicit with, or secondary to, the role of the U.S. governments'; as the ensuing U.S. housing boom was the Street's next great trading opportunity following the bursting of the tech bubble at the century turn. Moreover, the lingering economic woes and high unemployment rates that we have witnessed in the aftermath of the Crisis—both in the U.S. and worldwide--can be largely attributed to the naïve view that government stimulus programs *a la* Keynes (or otherwise) can somehow turn a deeply troubled economy around; when--*unlike the private sector*—government has no formal decision-making framework (meaning NPV and EVA analyses) for rationalizing capital in a way that promotes wealth creation, economic growth, and sustainable growth in employment.

James L. Grant, PhD

December, 2013

ECONOMIC FOUNDATIONS:

A Classical Perspective on Macro Policy

Richard T. Selden PhD
Carter Glass Professor of Economics Emeritus
University of Virginia

Preface

With publication of The General Theory of Employment, Interest, and Money in 1936, John Maynard Keynes invented modern macroeconomics. Prior to The General Theory, economists studied the causes of business cycles, changes in the value of money, and the determinants of long-run economic growth primarily via a simple framework of analysis, the "equation of exchange," which focused on the relation between the quantity of money in an economy and total spending.

Keynes's most important innovation was his insistence that it is more fruitful to analyze total or "aggregate" spending by separating it into its major components: spending by households ("consumption"), firms ("investment"), governmental units, and the rest of the world ("exports" minus "imports"). Further, he emphasized the irrelevancy of total spending; what matters for a healthy economy is spending on currently produced goods and services, measured by the gross domestic product, rather than the much larger total spending figure that includes trading in previously produced items, and even in financial assets.

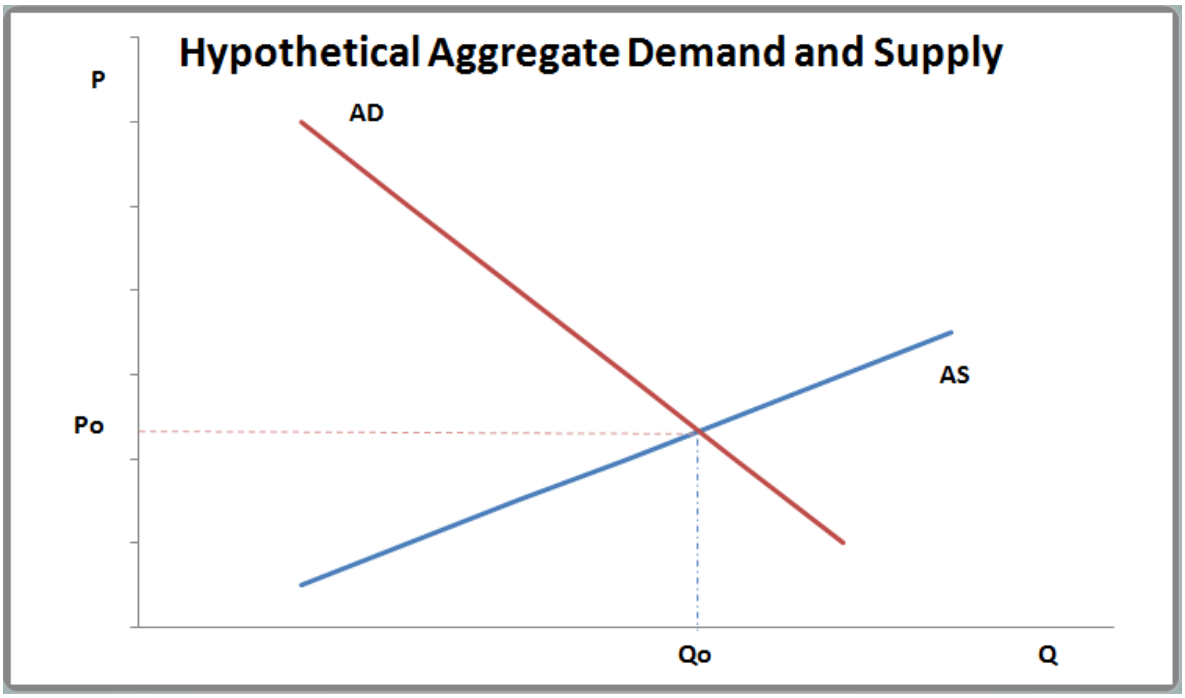
Clearly, almost all contemporary economists utilize Keynes's macroeconomic framework. A glance at college macro textbooks shows this to be true: with few if any exceptions they devote only a chapter or two to pre-Keynesian theory (I.e., "classical" macroeconomics), usually regarding it as an outmoded historical curiosity.

This paper offers a more sympathetic view of pre-Keynesian macro theory. I believe that a "beefed-up" classical model can provide rich insights into recent macro issues--insights not readily revealed by standard Keynesian analysis. But before we tackle the classical model a brief review of Keynesian economics is in order.

Keynes, in a Nutshell

The main issue explored by modern macroeconomics is what determines the aggregate level of output (Q)--and by extension, the levels of employment and unemployment. As in microeconomics, modem macro theorists examine this issue in a demand-supply framework. Both the aggregate demand for output (AD) and aggregate supply (AS) depend on prices of goods and services, measured by a broad index (P) of current output prices. AD slopes downward to the right, AS upward to the right. Equilibrium occurs where AD and AS intersect. Figure 1 illustrates hypothetical AD and AS curves. With levels of P shown on the vertical axis and Q on the horizontal axis, in equilibrium Q is Q-zero and P is P-zero.

Figure 1



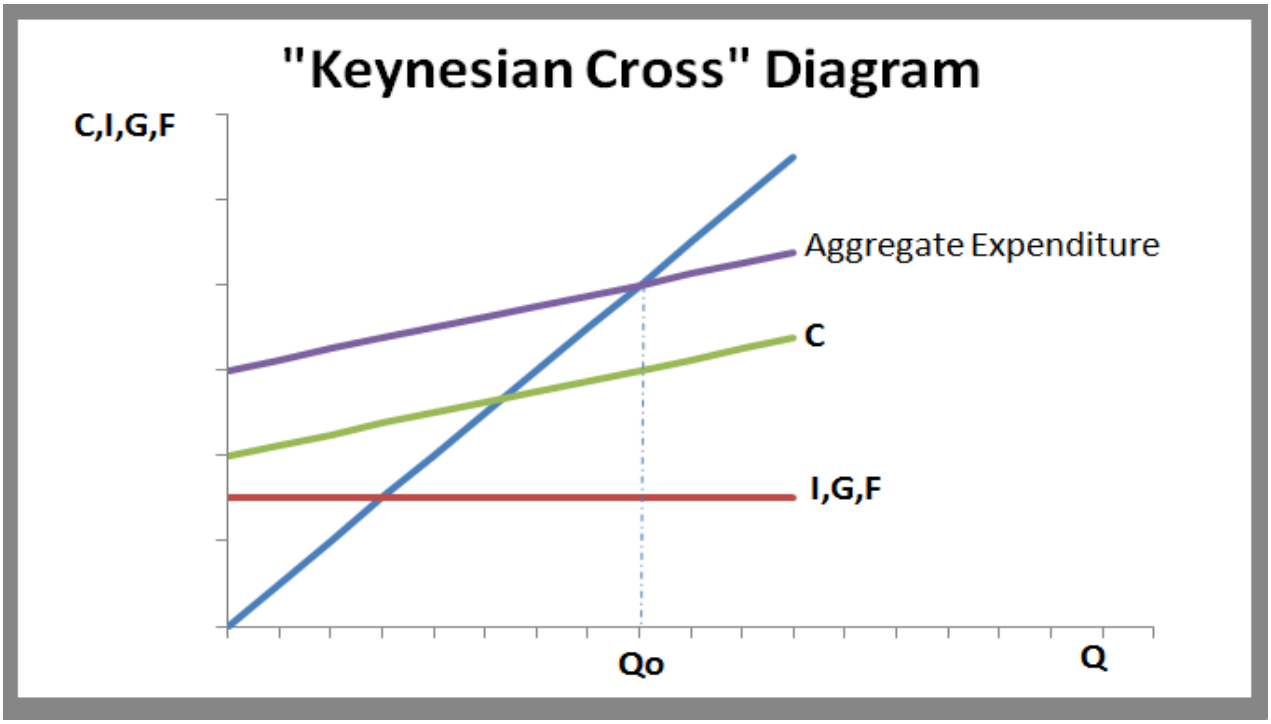
Obviously, the levels of Q and P depend on the shapes ("elasticities" in economists' lingo) of AD and AS. But equally important is the possibility of rightward or leftward shifts in either curve. Indeed, Keynes believed that recessions reflect collapses in AD, primarily due to the periodic unwillingness of businesses to undertake investment projects. The General Theory, in fact, was basically a theory of aggregate demand.

We need to understand the underpinnings of the AD curve. Let's begin with Keynes's basic building block, the "Keynesian cross" diagram, which measures real gross domestic

product, Q, on the horizontal axis, and the components of demand for Q on the vertical axis, also stated in real dollars, as functions of Q. These components are total expenditures by households ("consumption," designated by C), by firms ("investment" I), by units of government (G), and by other countries (F, which is "exports" minus "imports").

Figure 2 shows a hypothetical Keynesian cross diagram which, for simplicity, merges the components other than consumption into a single horizontal line. Keynes's key assumption was that the consumption component of total demand ("the consumption function") rises as Q rises, <u>but at a less than proportional rate</u>. Thus a 1% rise in Q results in a rise in C of less than 1%.

Figure 2

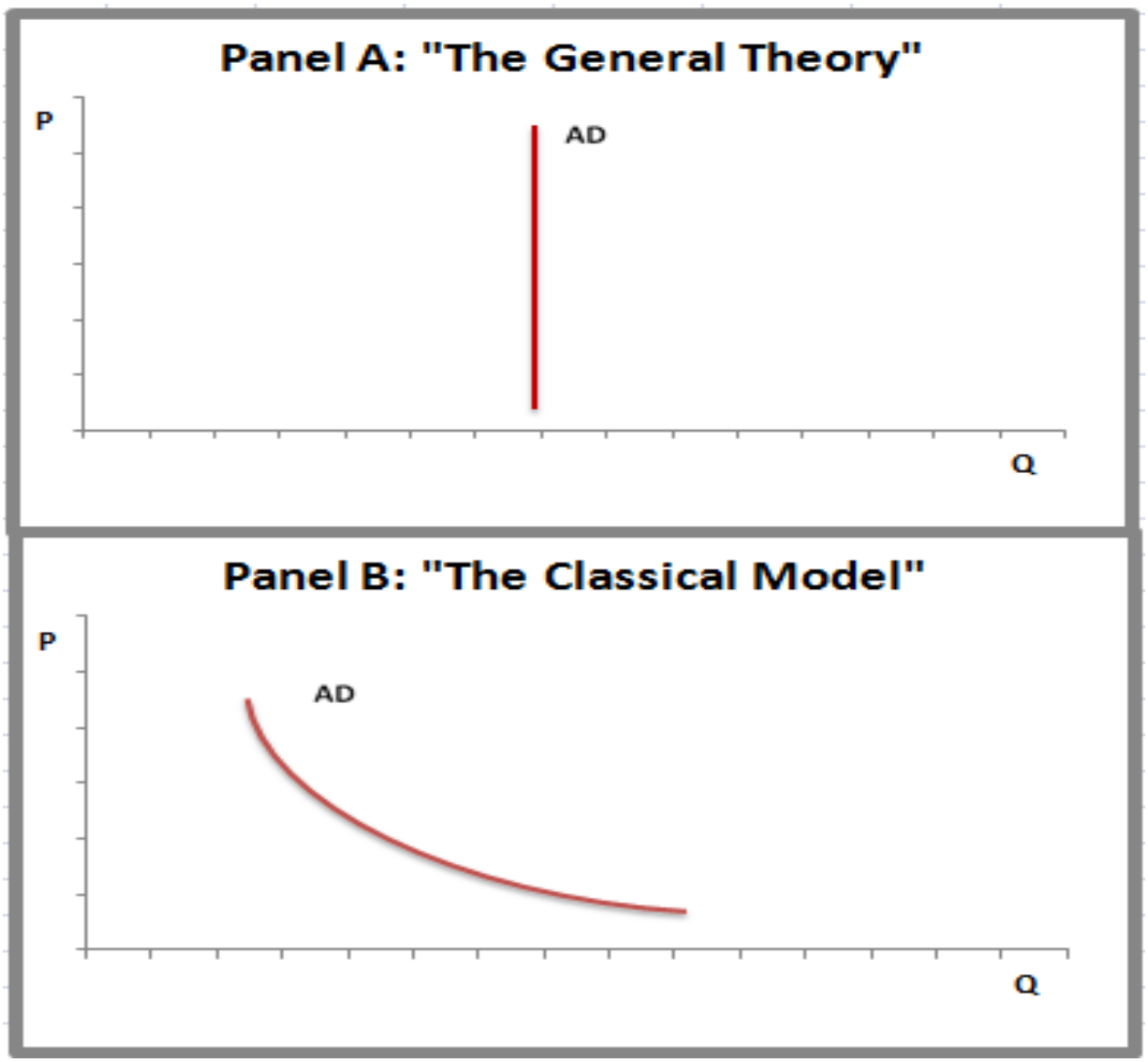


To obtain total demand for current output at various levels of Q we add the horizontal line and the consumption function in Figure 2. The diagram also includes a 45-degree reference line; in equilibrium, total demand for current output ("aggregate expenditures") must lie along that line.

Returning to Figure 1, in order to have a downward-sloping but non-vertical AD curve there must be some component of total demand that's sensitive to the price level P. That is, a fall in P must stimulate greater demand for at least one of the four components. Keynes considered this possibility in The General Theory but concluded that changes in P have little effect on AD. Critics--most famously his Cambridge colleague and former teacher, Professor A. C. Pigou--quickly took issue with Keynes, pointing out that a fall in P results in a higher real value of cash balances, M/P, which should lead to an upward shift in the total demand curve, hence to an increase in Q. The implication is clear: under Pigou's assumption, AD cannot be vertical (I.e. its elasticity with respect to P must be greater than zero, in absolute terms).

So we have an empirical issue. According to Keynes circa 1936, AD has little if any sensitivity to the level of P, implying that AD is virtually vertical, as shown in panel A of Figure 3. (Pigou's AD curve is shown in Panel B of Figure 3) Modern Keynesians have backed away from this extreme position, but the issue of AD's elasticity remains a point of difference between Keynesians and non-Keynesians.

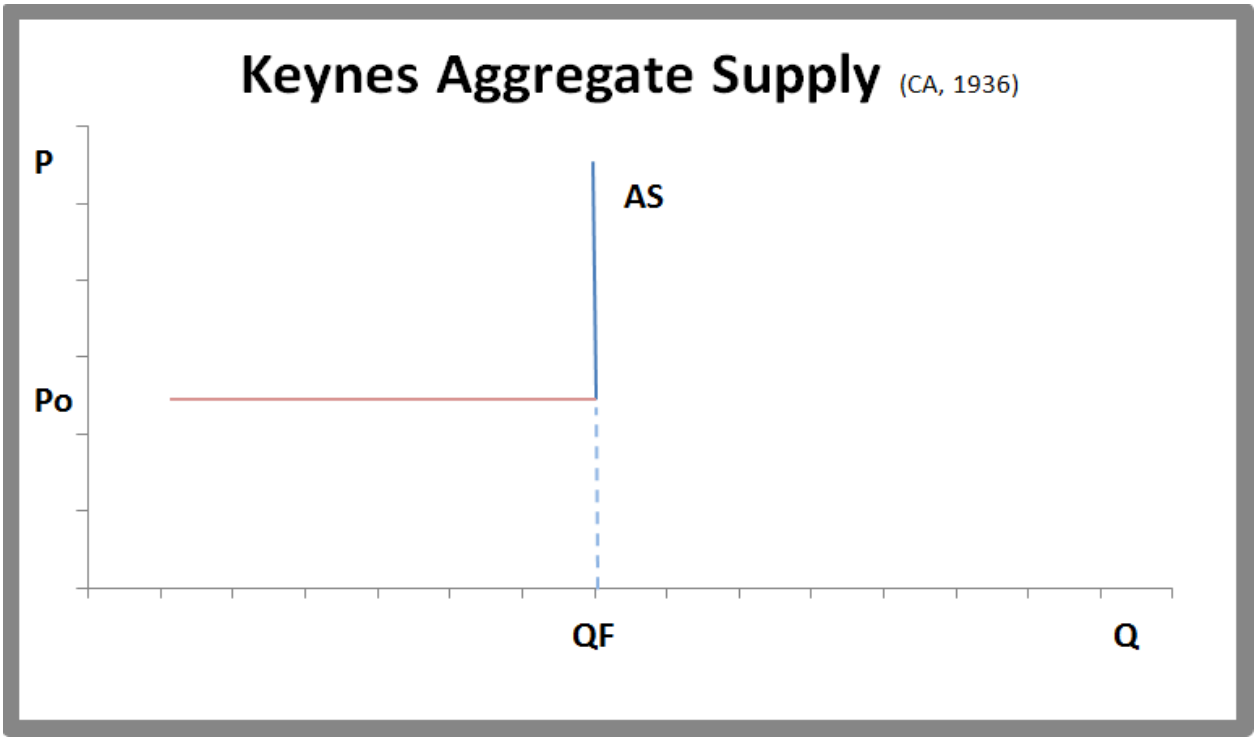
Figure 3



Keynes's views on aggregate supply can be depicted as an inverted L, shown in Figure 4. The vertical part of AS illustrates a classical world of "full employment," a situation in

which changes in AD have no impact at all on Q. The horizontal segment, in contrast, shows what happens in a typical recession: P remains essentially unchanged, he argued, due to downward rigidity of nominal wage rates. Keynes offered several reasons for downward wage rigidity; clearly, he took it as a basic fact of life.

Figure 4



A Simple Classical Model

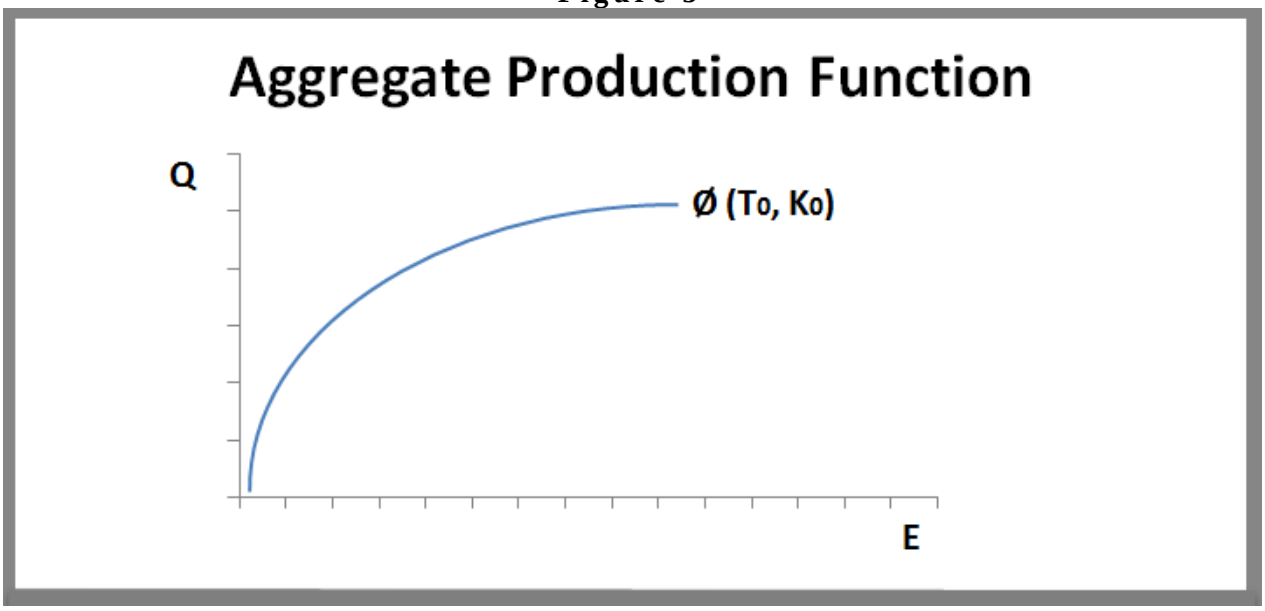
Keeping this simplified Keynesian macro model in mind, I turn now to macro theory as it existed before publication of The General Theory. Pre-1936 literature on monetary theory is vast and is still worth close study-- including important contributions by Keynes himself. Yet I never have found a clearly articulated macro model that captures all of the core elements of

classical macroeconomics. In what follows I attempt to fill this gap, and to do so using Keynes's framework of analysis.

I begin with Irving Fisher's equation of exchange, MV=PT, where M is the money stock, V its turnover rate ("velocity of circulation"), P a broad price index, and T total transactions during some period, expressed in dollars. While we lack direct measures of V, this isn't a problem since it is simply equal to PT/M. By 1936, practitioners of the equation of exchange were using a slimmer version, replacing the irrelevant T by Q, real gross domestic product. In this version, V is the income velocity of money. Note that PQ, the right side of the equation, is nominal gross domestic product, Y, while P is the implicit deflator of gross domestic product.

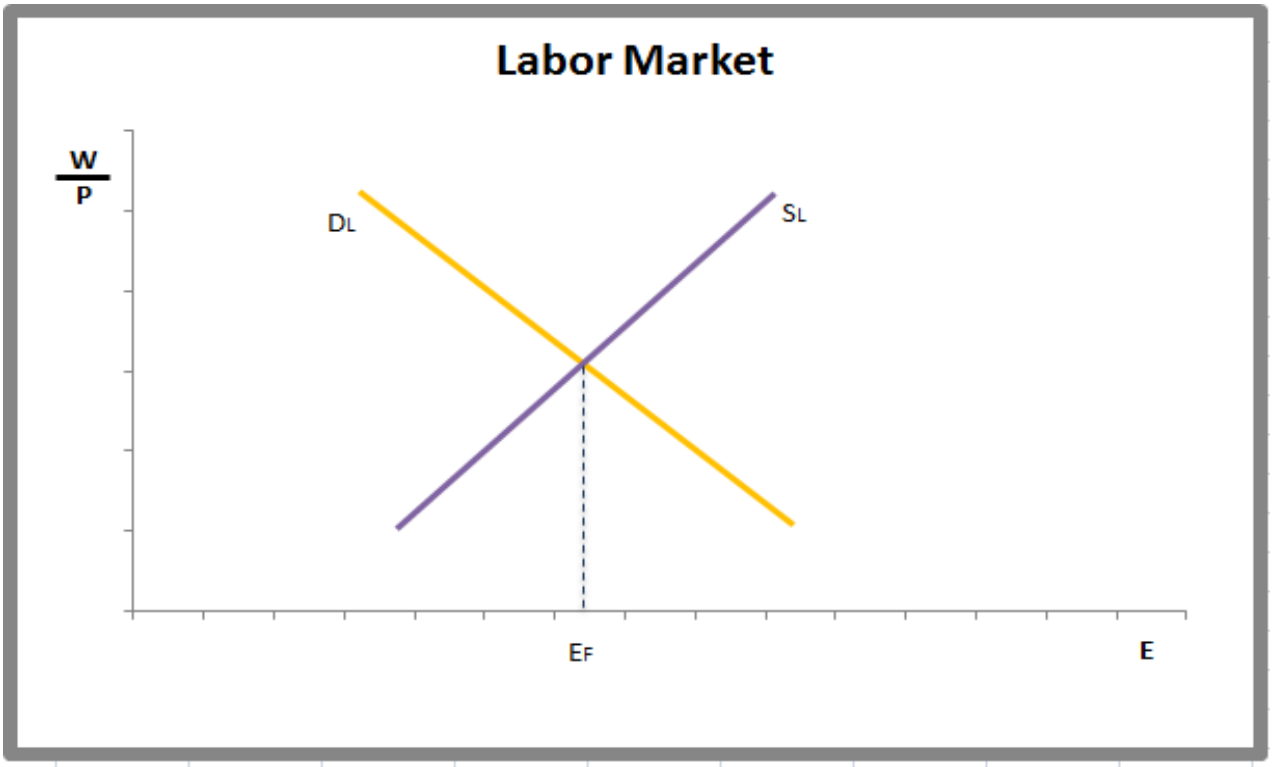
My classical model has three building blocks. There's an aggregate production function that assumes a given stock of capital K and a given state of technology T. K includes not only items such as machinery and factories but also land-in short, all productive inputs other than labor. (See Figure 5) This function relates employment E, on the horizontal axis, and real gross domestic product Q. The function is concave downward, reflecting the most fundamental principle in economics, the hypothesis ("law") of diminishing returns. Note that a change in K or T will shift the production function: increases in K or improvements in T, for example, will cause an upward shift or rotation in the function, implying an increase in labor productivity.

Figure 5



Second, there's a labor market. For simplicity I assume complete homogeneity within the labor force. Labor supply is an increasing function of the real wage rate, defined as the nominal wage rate divided by the price level P. Demand for labor depends on employers' estimates of the added value expected from hiring additional workers. These estimates reflect the marginal physical productivity of labor multiplied by the market value of the extra output. Classical analysis, it should be noted, described only long-run tendencies. Hence it is assumed that the labor market tends toward equilibrium at full employment. Full employment exists when labor demand equals labor supply. (Figure 6) In classical analysis, short-run imbalances in the labor market are eliminated by adjustments in the nominal wage rate to restore equality between labor demand and supply.

Figure 6



The third building block is an aggregate demand function relating Q and P. This brings us to a stark difference between Keynes and the classics. In contrast to Keynes's analysis of AD on a sector-by-sector basis, the classical AD curve reflects the quantity theory of money ("Q.T."), a hypothesis about the cause of inflation which asserts that an x% rise in M will have no lasting impact on either V or Q, thus causing an x% rise in P. Note that the Q.T. does not deny the possibility of changes in P due to changes in V or Q that are unrelated to changes in M. In other words, the Q.T. does not insist that all inflations must be due to growth in M, though a

study of history suggests few (if any) exceptions. For example, it's possible for P to rise in an agricultural economy due to Q being depressed by a severe drought. Further, P could rise due to a reduced Q associated with destruction of factories and farms during wars or natural disasters.

Accepting the Q.T. implies a curious result: the classical aggregate demand turns out to be a rectangular hyperbola, its level depending on the values of M and V! For given values of M and V, the left side of the equation of exchange is a constant, equal to nominal gross domestic product; so we have PQ = a constant. The elasticity of aggregate demand with respect to P is -1, a result that differs sharply from Keynes, as can be seen in panel B of Figure 3.

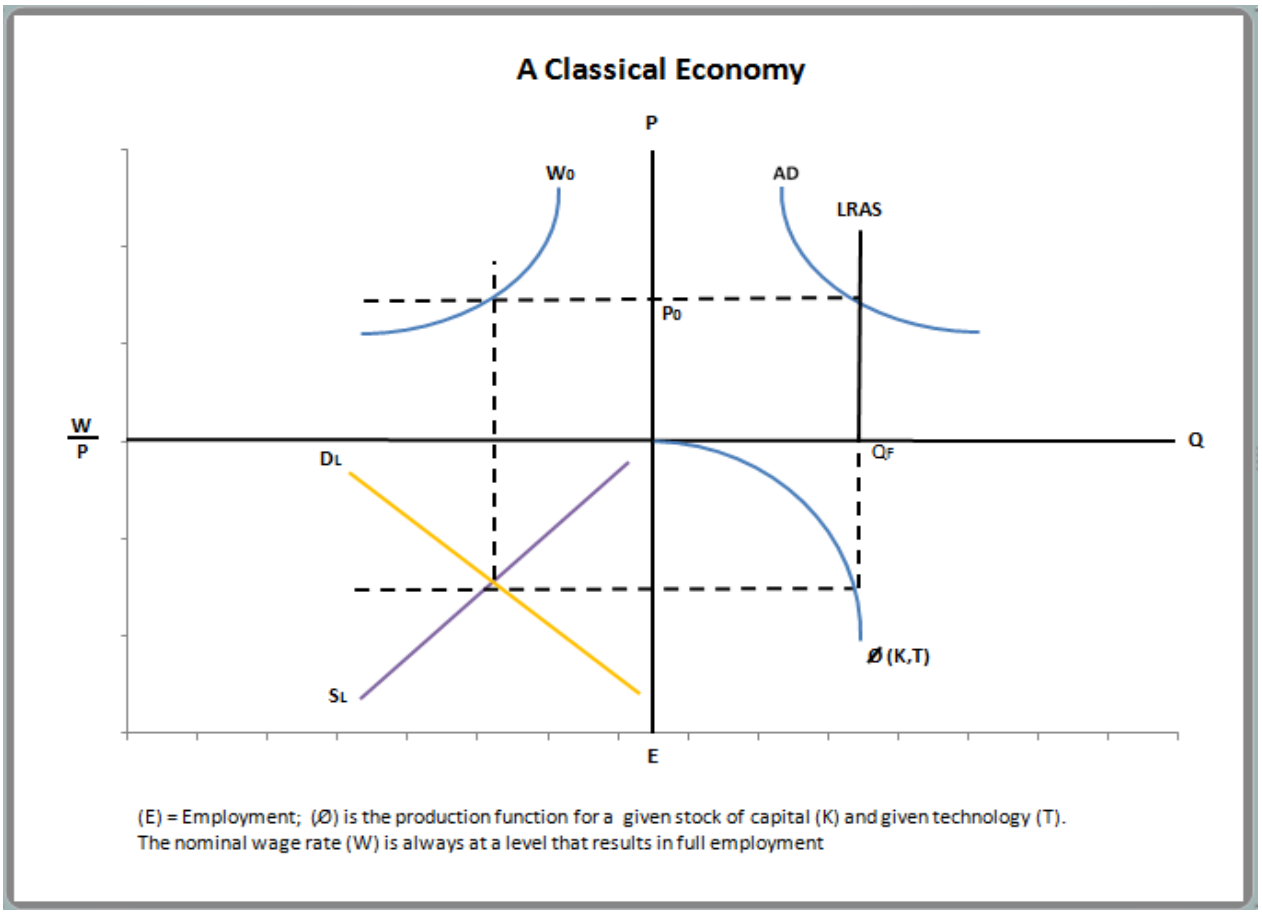
Assembling the Blocks

I now place the building blocks in a 4-corner diagram showing equilibrium values for P, Q, total employment E, and both real and nominal wage rates. (Figure 7) With a given nominal wage rate W, shown in the northwest quadrant, and labor market equilibrium (i.e. no unemployment), shown in the southwest quadrant, we know how much labor is employed. Turning to the production function in the southeast quadrant, we find the level of Q in a fully employed economy. Finally, in the northeast quadrant we have a vertical long run aggregate supply curve above this level of Q. The intersection of aggregate demand with aggregate supply determines P.

In the classical world, changes in M don't affect the real variables Q, E, V, K, and T; hence an x% change in M results in exactly an x% change in P. This is the famous "classical dichotomy," according to which monetary policy affects only P and other nominal variables

such as nominal interest rates in the long run. Money is said to be "neutral" in this model, a thoroughly "classical" result.

Figure 7



"Supply-Side Economics"

During the 1970s "supply-side economics" came into vogue. Actually, this was nothing but classical economics, renamed to call attention to Keynes's neglect of aggregate supply. But the emergence of supply-side economics had important policy implications. Compare Keynesians and supply-siders on the effect of a tax cut. Keynesians, focusing on short-run

stabilization policies, argue that tax cuts will boost aggregate demand, resulting in some combination of increases in P and Q. Supply-siders, in contrast, argue that the main impact will be a rightward shift in aggregate supply, for two reasons: (1) employment will rise due to higher after-tax real wage rates and (2) there will be a counterclockwise rotation of the production function due to a rise in the stock of capital triggered by higher expected after-tax returns. So both schools expect a rise in Q and E, but they have different inflation forecasts: Keynesians expect tax cuts to drive up P; for supply-siders, tax cuts are expected to drive P down.

The basic disagreement here is about time: Keynesian analysis focuses explicitly on the short run, classical analysis on the long run. In Marshallian microeconomics, the short run is a period in which capital is fixed. But how can capital be fixed when investment-by definition, an increase in capital-is taking place? This has always puzzled me. Keynes's assumption of a fixed capital stock seems reasonable for, say, a single year, but extending it over the several years of a typical business cycle seems to be a mistake. I believe the supply-siders' focus on long-run aggregate supply is an important correction of Keynesian economics.

Reaganomics

Shortly after his January 1981 inauguration, President Reagan proposed a radical shift in U.S. macro policies, aimed at curbing double-digit inflation and stimulating growth. His plan had four parts, the first three straight out of supply-side economics. Proposal one: deep across-the-board cuts in individual income tax rates to foster more labor market participation.

Proposal two: cut the corporate income tax rate and liberalize depreciation rules to boost investment spending. Proposal three: deregulate the private sector, again to stimulate investment. The expected impacts of his proposals are evident from my classical model. (Figure 7)

As you can imagine, if you weren't alive in those days, Reagan's supply-side plan was angrily denounced by Keynesians, who insisted it would worsen the ongoing rapid inflation while skewing national income and wealth toward the rich. But Reagan had another card up his sleeve, a monetarist card: his fourth proposal was to fight inflation with monetary tightening.

Monetarism

When we think of monetarism, we think immediately of Milton Friedman, its godfather. Monetarism extends classical macroeconomics to the short run. Friedman agreed with Keynes that macro theory shouldn't neglect the short run. He also agreed that periodic collapses in aggregate demand cause most short run business fluctuations (i.e. "cycles"). But Friedman was not a Keynesian in any other respect.

Keynes thought that the main source of falling aggregate demand was declines in private investment spending. This wouldn't be a problem if P and nominal wage rates adjusted quickly, but in fact they don't. The result is periodic spells of unemployment and shrinking output. The only sensible remedy, he argued, is more government spending or tax cuts to offset the decline in private demand.

Friedman starts with a classical aggregate demand curve that depends on M and V. For him, the basic cause of a collapse in demand almost always is a monetary or financial shock. He developed this theme at length in extensive empirical studies, most notably the monumental historical study with Anna J. Schwartz published in 1963. Contrary to Keynes's belief that fiscal policy is far more potent than monetary policy, Friedman reached the opposite conclusion. Monetary policy is so powerful, he believed, that trying to use a flexible policy to "iron out business cycles" would usually be counterproductive, likely to increase short-run instability. The problem with a flexible policy is that the effects of changes in monetary growth occur mostly after long lags. Worse still, they vary in length from one occasion to the next, making it virtually impossible for central bankers to time policies correctly. **It** would be far better, said Friedman, for central bankers to ignore short-run fluctuations, selecting instead a rate of growth in M compatible with long-run stability in P.

Returning to Reagan's 1981 plan, Friedman was sure that monetary tightening would win a tug-of-war with fiscal easing. There was a risk, of course, that tighter money would create a recession, and in fact one began soon after the plan was adopted. But the electorate, as usual, had forgotten about "Reagan's recession" by November 1984. Aside from that unsurprising and probably unavoidable early stumble, I believe that Reaganomics amply achieved its objectives.

Rational Expectations

While monetarism identified weaknesses in Keynesian economics, both schools of thought were criticized by Robert Lucas and others for faulty modeling of inflation expectations. The Lucas critique pointed out that the impact of macro policies depends on whether or not the public has anticipated them. Fully anticipated policies have little or no impact on real variables such as Q and E if economic agents are rational, because rational agents know that the ultimate impact will be solely on P. This implies that aggregate supply is vertical even in the short run. Hence monetary policy is likely to be ineffective as a tool of short-run stabilization.

This conclusion leaves only two options for policy makers. They might try to avoid transparency, keeping the public guessing about future policy actions. However, hardly anybody thinks this is a good idea. The other option is to focus exclusively on P, leaving the private sector to its own devices as far as employment and output are concerned. Most advocates of this view favor adoption--and announcement--of a policy rule aimed at achieving a stated goal for P.

This is paradoxical: Friedman and Lucas recommend the same policy, but for very different reasons. For Friedman, monetary policy is anything but neutral, but it's too dangerous to use; hence it's better to settle for stable noninflationary growth in M. For Lucas, monetary policy (as well as other macro policies) is impotent due to rational expectations; hence again, it's better to aim at a stable (and presumably low) rate of inflation.

Deflation

Most central bankers dislike inflation, but many have an even greater dread of deflation. Partly this reflects lingering memories of the Great Depression, when prices fell sharply and unemployment reached catastrophic levels. Japan's experience since the early 1990s, an era of stagnation and deflation ("the Japanese disease"), also weighs heavily on today's central bankers. An obvious indicator of fear of falling prices is the Fed's informal inflation target of 2% per year, a rate well above zero. The fear is that deflation could lead to a trap from which there is no escape. I'll return to this in a moment.

It's obvious from Figure 7 that a downtrend in P can result from either a fall in aggregate demand or an increase in aggregate supply-two very different situations, with different policy implications. We should applaud deflation due to increases in aggregate supply; it's the best of all worlds. Basically, this describes the U.S. economy in the last third of the 19th century.

Deflation due to a fall in aggregate demand is more problematic. To see why, consider another proposition from Irving Fisher. According to Fisher, rational credit market participants look at real rather than nominal rates of interest; real rates take account of expected inflation during the life of a loan. This means that the nominal interest rate should be equal to the real rate plus expected inflation.

While the logic of Fisher's equation is undeniable, there are practical difficulties in measuring both the real interest rate and expected inflation. Still, we can get reasonable

estimates of inflation expectations from surveys and econometric models, and the yields on TIPS (treasury inflation protected securities) provide information on real interest rates.

The problem with deflations due to falls in aggregate demand is that the nominal interest rate, with trivial exceptions, faces an effective floor of zero. This means that a negative expected rate of inflation (i.e. an expected deflation) implies a real rate above zero; and the greater the expected deflation, the higher the real interest rate will be. Most central bankers regard this sort of "liquidity trap" as a real threat-a situation in which they have, so to speak, shot all their bullets and are powerless to help an economy return to full employment.

I disagree. These fears stem from a view of the transmission mechanism of monetary policy that focuses solely on the central bank's ability to manipulate short-term interest rates, plus a belief that the demand for M becomes infinitely elastic as interest rates approach zero. However, empirical evidence contradicts this view, as Robert Hetzel, a Federal Reserve Bank of Richmond economist, found for Japan in a paper published in 2003. According to the model developed earlier, central banks always can restore aggregate demand to a full employment level by expanding M through open market operations. That should be their objective rather than fretting over the level of interest rates and the possibility of deflation.

Supply Shocks: The Case of Oil

Our classical model also throws light on policy options when supply shocks occur. To make the discussion more concrete, I'll focus on the effects of an oil shock such as the one

that took place in 1973-74. In the fall of 1973 there was an abrupt quadrupling of crude oil prices, due to a radical cutback in oil exports from many of the world's major producers. For the U.S. economy and many others that had been relying heavily on oil imports, the spike in crude prices had serious consequences. Oil, of course, is a major input for many industries. As an example, consider the generation of electricity, which can be done with various of technologies. Electric utility companies must decide which of several fuels to use to drive their generators: coal, oil, natural gas, or nuclear materials. The fuel choice decision, of course, is guided strongly by cost, along with other considerations.

The quadrupling of crude prices in 1973 immediately rendered many electricity generating plants obsolete; in many instances, it no longer made sense to use oil-based technologies to produce electricity. The practical effect was a clockwise rotation of the production function. And as we have seen, any change in the production function means a change in the (still vertical) aggregate supply curve. In this instance, aggregate supply shifted to the left.

Assuming for the moment that aggregate demand is unchanged, the clear result must be a rise in P, as well as a decline in Q. (See Figure 7) Note that under these circumstances the central bank would not be able to reverse the decline in Q by adopting an easier monetary policy; the only result of such an attempt would be a further rise in P. Conceivably the central bank might opt for monetary tightening, rather than easing, hoping to keep P at its original

level, but this would risk plunging the economy into a demand-induced recession on top of the adverse impact of the spike in oil prices.

The Recent Crisis: What Would Milton Say?

All of us, I suspect, have encountered bumper stickers or media blogs that ask "what would Jesus do?" At the risk of being thought sacrilegious, I close by pondering Milton Friedman's probable reaction to recent events. My credentials for attempting this are as good as anybody's. He was my teacher in the 1940s and my thesis supervisor in the early 1950s, and I remained close to him for the rest of his life.

First, I am sure Friedman would agree with Alan Greenspan that it's unwise for central banks to try to burst speculative bubbles. That certainly was his view about the Fed's efforts to break the back of speculations in stocks and real estate in the 1920s. I'm also pretty sure he took a dim view of the Fed's attempts over the last decade or so to use flexible policies to reduce short-run instabilities.

I believe Friedman would have considered the recession of 2007-09 to be just a typical downturn brought about by monetary/financial shocks, similar to most earlier recessions. The problem this time was not so much a slowdown in monetary growth, although M2 growth did fall in the months right before the December 2007 cycle peak. I believe Friedman would have attached more significance to events in credit markets. Earlier in 2007 U.S. banks had belatedly begun tightening credit standards (see the charts in Federal Reserve Bank of St.

Louis, Monetary Trends, March 2011, p. 7), which they had loosened greatly during the housing bubble. Even though interest rates remained stable, there was a growing unease, which became real alarm in July 2007 with the failure of two Bear Steams hedge funds. The collapse of Bear Steams itself in March 2008, followed by the Lehman Brothers failure and other dramatic signs of financial weakness in the fall, turned what would have been a mild recession into a serious one. This, I believe, is the way Friedman would have seen it.

Perhaps more interesting would be Friedman's assessment of Fed policy during and since the recession. I'm sure he would applaud the Fed's actions to avoid the monetary shrinkage of the 1929-33 disaster. That said, however, I'm also certain he would be highly critical of the degree of monetary ease over the last couple of years- including, of course, the "quantitative easing" programs initiated in November 2010. The problem facing the U.S. and the rest of the world today is not unemployment and slow growth; it is inflation. An interview of Friedman about four months before he died in 2006 (http://www.econlib.org/cgi-bin) leaves no doubt of his views on this.

Chairman Bernanke, implicitly relying on a Philips curve model of inflation, dismisses such fears. What Bernanke neglects is that the effects of monetary policy are usually long delayed, as Friedman showed half a century ago. By the time Bernanke spots clear evidence of an inflation problem, Friedman would say, it will probably be too late.

Richard T. Selden

June 2012

HARVARD COHORT: Summer 2010

Chapter 1

"Keeping up with the Joneses" Mentality: Not a Sound Basis for Public Policy

Jennifer M. Grygiel

Since 2006, I have worked for the Committee on Capital Markets Regulation (n.d) (Committee); which is directed by Professor Hal S. Scott of Harvard Law School. This is an independent and nonpartisan 501(c)(3) research organization dedicated to improving the regulation of U.S. capital markets. In May 2009, the Committee issued a report entitled, "The Global Financial Crisis: A Plan for Regulatory Reform," that put forth 57 recommendations for effective regulation and reform of the U.S. financial system.

Given my work at the Committee, I have had significant exposure to the research and policy discussions surrounding the global financial crisis. The following is a personal examination of the

global financial crisis and its possible causes. I begin by reflecting on my own experience as it relates to the American Dream. This is followed by a discussion of the psychological and political factors that may have contributed to the crisis.

The American Dream

Most Americans are introduced to the idea of the American Dream early in their childhood. Before children even know what they may want later in life, parents often begin to mold their future. Sometimes the dreams are realistic and achievable, and sometimes they are not.

In my own childhood, I was lucky enough to live in the same house that my parents owned, for 18 years, until I went to college. Four years later, I was on my own and landed a job as a teacher in Denver, CO where I rented my first apartment in 2001. A few years later, in 2006, my twin sister married and then promptly bought her first house. Not too long after that I started to have an odd feeling, a feeling that I was starting to fall behind, because I was still unmarried and now renting an apartment in Massachusetts. Sibling rivalry can be very strong amongst twins, and my experience was exacerbated by the fact that my sister traded in her maiden name, Grygiel, for Jones. I had no idea at that time that I had entered into a very dangerous state of mind. I was officially trying to "keep up with the Joneses" and the massive U.S. housing bubble was just about to burst.

If you look up the American dream on Wikipedia (n.d.) it states: "Home ownership is sometimes used as a proxy for achieving the promised prosperity" and "ownership has been a status symbol separating the middle classes from the poor." I think this statement sums up what I was feeling. It

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also explains why I started looking to purchase a condo in 2006. After briefly speaking with a loan officer, I was offered a subprime loan and was told that I could finance the entire loan as long as I took out private mortgage insurance (PMI). I really wanted to purchase a home and put a lot of consideration into this purchase. My sister had a house, my brother had one too, and I was used to having a nice home like the one that my parents provided. Thankfully, my parents were the type of people who bought everything in hard earned cash, and I just didn't have the mentality to take on so much financial risk, even though I was assured at that time that housing prices were sure to go up and that I could refinance later if need be. Just a few years later, I would realize that 2006 was the peak of the housing bubble, and for the first time in a long while, I was very thankful that I was a renter.

When I read Bruce Yandle's (2010) article "Lost Trust," I was introduced to George W. Bush's law entitled the American Dream Downpayment Act. This law was designed to assist people who could not afford the down payment that often prevented low-income families from purchasing a home. I had no idea this law existed and it makes no sense to me at all how the government thought that this was a feasible undertaking. I can see how popular this Act would be with voters who benefited from this program, and how it could have helped Bush win a second term in office. I will talk more about politics later.

Unraveling of a Dream

In September 2008, institutions began to collapse (e.g., Lehman bankruptcy) and it was soon acknowledged by many that there was a global financial crisis.

Bruner (2009) does a good job of summing up some of the fallout from the 2007-2009 Panic:

- Unemployment rose from 4.5% in June 2007 to 6.7% in November 2008.
- The U.S. Government made financial commitments of around $8.2 trillion dollars, in order to stem the crisis.
- The Treasury purchased $229 billion in preferred stock of 209 financial institutions and put $151 billion into nonbank corporations.
- Creation of the $700 billion dollar Troubled Asset Relief Program (TARP).
- Nationalizing of Fannie Mae and Freddie Mac (estimated $5 trillion dollar cost).
- Corporate bankruptcies rose significantly.
- Stock market fell 38.5% in 2008.
- Globally, equity investors lost $30 trillion in value.

Bruner (2009) claims that during the 2007-2009 Panic "financial support by the government extended farther into the private sector than at any time since the Great Depression."

Given the information from Bruner, I'd like to take a moment to reflect on Paul Krugman (2009) and his recent book on depression economics as it relates to the global financial crisis. Krugman is frustrated by the speed of government action during the 2007-2009 crisis, and noted that the government was not acting quickly enough and that not enough money was being injected to stem the crisis. It's hard to believe that with all the funds the government had already injected, it's possible that the government may not have stimulated the economy enough in order to put us on a track to financial recovery. The book does not delve that deeply into the crisis, but Krugman

does have one section on his thoughts about how to deal with it. He states, "the obvious solution is to put in more capital. In fact, that's a standard response in financial crises." Regarding the massive $700 billion TARP fund he says, "…even if the full $700 billion is used for recapitalization, it will *still be small*, relative to GDP…." Krugman's other top concerns were that sufficient funds were not making it to key places like the shadow banking system. He was also concerned that banks that received bailout funds would hoard the money instead of lending it out.

Before this crisis hit, I felt pretty good about my future and assumed that I would be able to continue to grow professional and personally—life was pretty good. But given the current state of play and the crisis at hand, I've realized that the world has changed, and with it, my dreams have changed, too.

Psychological Pitfalls

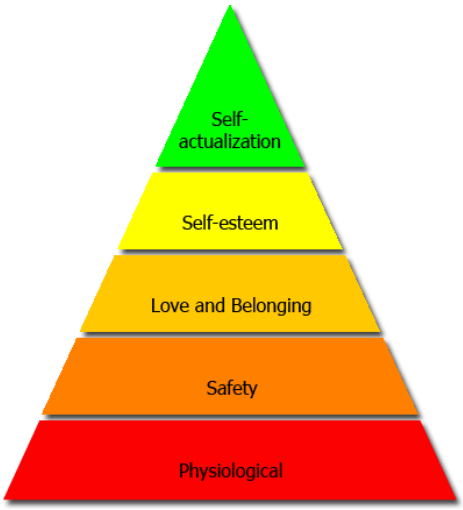
During the course of my education, I have been exposed to many of the more technical factors that may have contributed to the crisis (e.g., credit default swaps (CDS), deregulation, contagion, the repeal of the Glass-Steagal Act, the Community Reinvestment Act (CRA), subprime loans, the housing bubble, and credit rating agencies to name a few). However, until recently I had not thought much about the higher-minded discussions taking place about psychology and politics and the roles that they may have played in the crisis.

Shefrin's (2009) paper entitled, "How Psychological Pitfalls Generated the Global Financial Crisis," makes several impressive observations and some that align with the "keeping up with the

Joneses mentality" that I previously discussed. When you think about the size and scope of the crisis and the major players that were affected by it, it's hard to even begin to try and explain how some of the most intelligent individuals, running some of the most prestigious companies in the world, could have been so reckless. Shefrin blames psychological pitfalls like categorization, overconfidence and groupthink. He specifically calls out AIG as one of the firms that greatly underestimated their risk exposure to subprime mortgages and claims that they failed to assume the worst and were not acting "rationally." As a result, they unknowingly assumed massive amounts of default risk in the area of subprime mortgages. I read this and I found myself asking: how could everyone have, collectively, got caught in such a dangerous and risky financial vortex?

My (untested) theory is that the "keeping up with the Joneses mentality" is formed by the exposure of an individual to a *combination* of multiple psychological pitfalls that are generated by a connected population of model individuals (e.g., not mentally ill) that are all *individually* seeking to fulfill Maslow's hierarchy of needs (Figure 1, hierarchy). I surmise that as one travels up the hierarchy, greater energy (risk) is needed to attain higher goals. The hierarchy essentially grows in intensity, much like a funnel. And "keeping up" in relation to this hierarchy is necessary and becomes a matter of survival, as there is a threat of falling down the hierarchy into lower ranks as you start to ascend it. The threat of falling to lower ranks is high, as the lower ranks could ultimately affect your physical health to the point of death.

Figure 1



Source: http://www.letsstartthinking.org/quickreference/maslow-need-hierarchy.asp

I find it interesting that my inquiry into the global financial crisis has lead me to think so deeply into psychology, to delve into thinking that this crisis may have been caused by humans trying to ensure their own survival. This theory could explain why people were collectively driven to take excessive risks to attain home ownership and why executives and corporations took on excessive risk to attain higher financial returns. In our culture, owning your home is a key step to climbing up through the hierarchy. Making large amounts of money also ensures that you will be able to keep your house, while allowing you to feel additional self-esteem benefits, as our society values personal wealth because of what it implies.

Politics

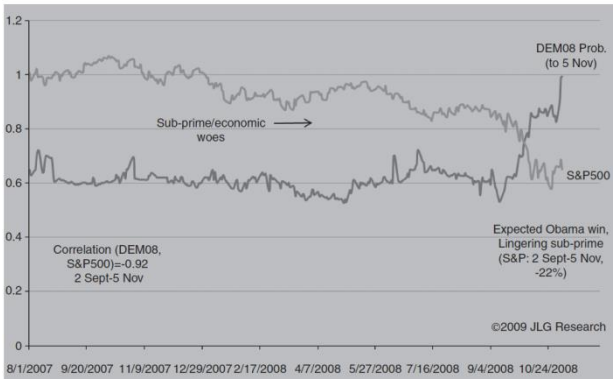
I've come to realize that politics is inherently flawed, because politicians and government officials are essentially professionals that are subject to significant amounts of moral hazard in the sense that holding an elected office or government position is their job (and how they pay the

bills). How can a policy maker do what is good for the public if it would mean self-sacrifice? How could they put regulations in place that would prevent them from owning a new home or from making additional money, if they themselves were seeking this?

In my opinion, American presidents, are subject to the most extreme amount of moral hazard, more than other policy makers or elected officials. This is the highest and most powerful position in our society (and arguably the world) and the drive for reelection is incredibly intense. For the first four years of their presidency, they are likely to be biased towards an agenda and policies that would get them elected for a second term (e.g., the American Dream Downpayment Act).

Also, presidents can only serve for eight years at most, which means that the market will experience a leadership change at least every eight years and possibly a major disturbance if power swings to another political party and the incoming president has a different agenda. This cyclical turnover subjects the financial system and markets to huge sweeping changes in years that political power changes between Democrats and Republicans. Unfortunately, I believe a large part of our economic woes derive from the fact that no party ever gets to see their policies through. As a result, the market is constantly trying to adapt to a volatile political environment that has ever changing regulations, laws and leaders with different visions. James Grant's (2009) article, "A Perspective on US Regime Change and the Global Financial Crisis" takes a closer look at the effects of regime change and how it affects capital markets. He puts forth the idea of a possible connection between the prospective election of Barack Obama and the 25-38% decline in U.S. and global equity markets from September 2008 to February 2009. I would support this notion, especially after reviewing Figure 2 below.

Figure 2



Source: http://www.palgrave-journals.com/jam/journal/v10/n4/abs/jam200912a.html

The above figure shows the market declining 5% on the first full day of trading following the 2008 U.S. Presidential Election; while other figures in the Grant study show similar 5% election-related announcement declines. Grant notes that other factors may have contributed to the downturn, but that it is plausible that the reaction to the election also played a role in the market downturn.

Conclusion

Reflecting back on my earlier comment about private mortgage insurance (PMI), for those that are looking for some fuel for the next housing bubble, this could be a likely suspect. A July 29, 2010 press release by the Mortgage Insurance Companies of America (MICA) stated that they "pledged to play a critical role in the future of housing finance by continuing to enable first-time and lower income families to purchase homes safely and soundly." Below is a statement by

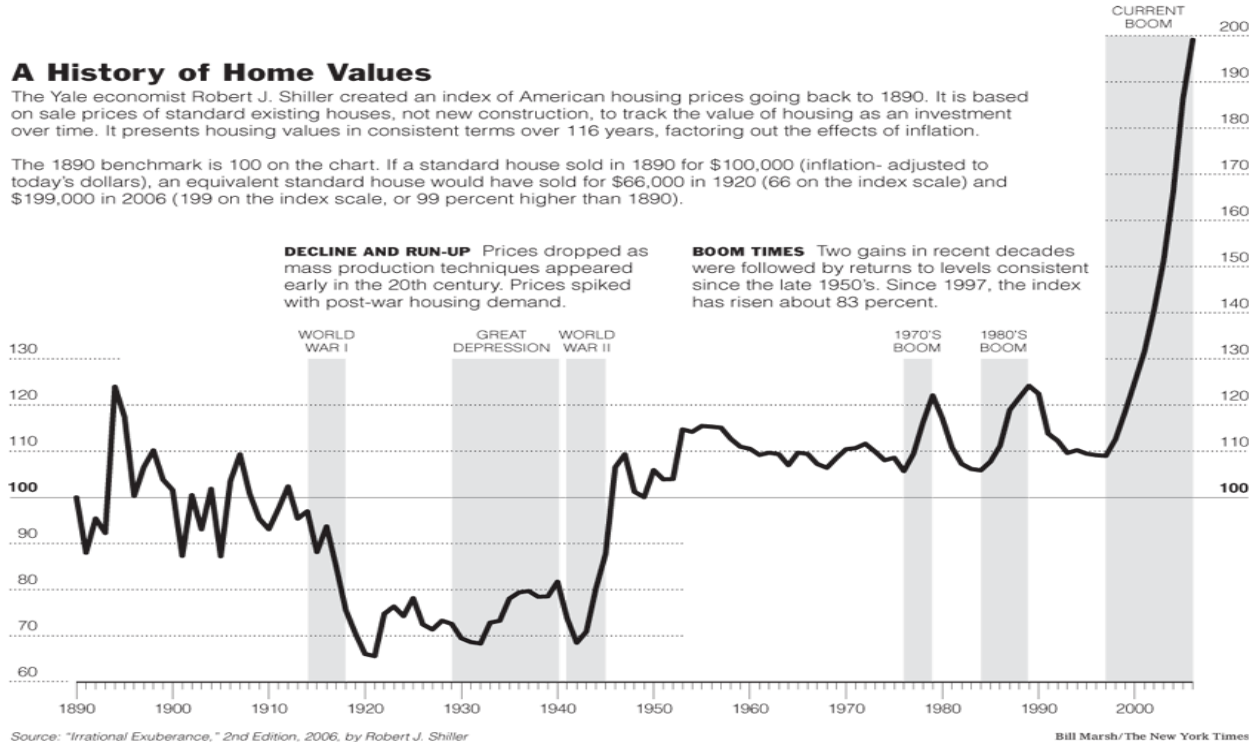
MICA's President Patrick Sinks regarding the planned expansion of the mortgage insurance industry:

> Today the [mortgage insurance] industry is well positioned to help expand affordable housing opportunities in a responsible manner. Under strong capital rules from state insurance regulators, the MI industry has sufficient capital to increase their total insurance exposure by $261 billion a year for the next three calendar years. If this additional volume is realized it would mean that approximately 1.3 million additional mortgages would be insured in each of the years.

Unfortunately, this is heading right back to what I see as the core of the financial crisis—people extending beyond their financial capabilities in order to "keep up with the Joneses." PMI is just another vehicle that will allow borrowers to take on too much risk. I believe that increased use of PMI could lead to another vicious housing bubble.

Although I would really love to own my own home, I have resigned myself to the fact that I'm going to be a renter for a good long while. After reviewing the now famous Case-Shiller chart on the history of home prices (Figure 3), I believe that it will be several years before the market is able to correct itself to reveal a more accurate housing price, especially since government intervention is interfering with the market in order to keep housing prices afloat. Unfortunately, I believe that the government programs, (e.g., first time and repeat homebuyer tax credits) put into place to prop up the housing sector, will only delay this correction and once again put truly affordable housing out of reach of most Americans.

Figure 3



Source: http://www.nytimes.com/imagepages/2006/08/26/weekinreview/27leon_graph2.html

Somewhere the American Dream turned into a free lunch (free house), and as the saying goes "There's no such thing as a free lunch." We are all currently paying for the housing bubble, and unfortunately, the new American Dream is employment—many people are now wishing for a job.

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Chapter 2

An Irrational Public Exuberance for Housing

Enrico Ferrari

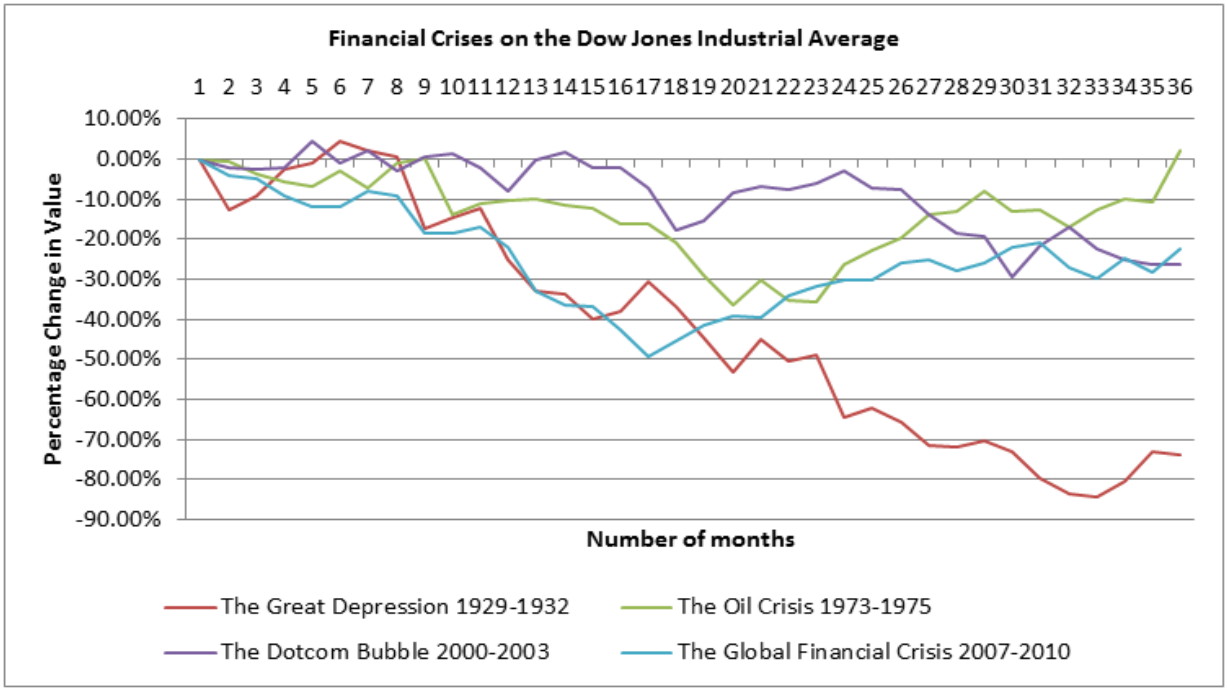
Introduction

We are currently witnessing the so called 'Subprime Crisis', the worst financial crisis since the Great Depression of 1930s, and the result of a speculative bubble on the housing market that started to burst in the United States in 2006. After the dotcom bubble, the monetary policy makers kept interest rates low for an excessive length of time, promoting excess risk taking. Also, a low inflation rate discouraged monetary policy makers from increasing interest rates. As a consequence of low interest rates, borrowing money became easier, and the ease with which individuals could access credit lines boosted aggregate consumption. Moreover, the United States' utopian choice to make home financing accessible to almost everyone in order to give every citizen the possibility of buying their own home, at the time encouraged a growing demand for real estate assets, helping housing prices to increase continuously.

During this time, institutions constructed financial models based on the assumption that housing prices would increase indefinitely. But clearly, if there existed in the economy an asset that persistently grows in value, everyone would buy it at a certain price and then wait and then sell it at a higher price. By doing that in a loop everyone would eventually become infinitely rich; can you imagine a world like that? This misconception led financial institutions to lower their risk management standards. Then, when housing prices collapsed, the value of any securities tied to

the real estate market plummeted, leaving the financial system irreparably damaged on a global scale. As a consequence of all this 57 banks failed, the unemployment rate increased to 10%, the Dow Jones Industrial Average fell 53.8 percent. Also, in response to the crisis, the Board of Governors of the Federal Reserve decided to increase the money supply by 125% between September 2008 and May 2009, in order to compensate for the shortage of liquidity in the market. To understand how serious the current Financial Crisis is, Exhibit 1 compares the effect of four different crises on the Dow Jones Industrial Average. These include 'The Great Depression', 'The Oil Crisis', The Dotcom Bubble' and more recently, 'The Global Financial Crisis'.

Exhibit 1. Comparison among different Financial Crises



Source: Wharton Research Data Services (WRDS)

The Real Estate Market

Until recently there was no data on the long term performance of housing prices either for the United States or for foreign countries. Nobody seemed interested in what happened more than thirty years ago. Obviously, nobody was evaluating the real estate market and its potential for speculative excess. That being said, the first person who developed a housing market index is Professor Robert Shiller, the author of the book called "The Subprime Solution".

During the financial crisis many people rationalized the increase in housing prices, arguing that we were running out of land, the population was constantly increasing, construction costs were rising exponentially, and the scarcity of building materials made home prices increase day by day. However, if we look at Exhibit 2 we see that there were no fundamental changes in construction costs, population, or long-term interest rates at the time of the boom, indicating that there was no rational reason for such an increase in home prices. This suggests that most of the factors driving people's thinking were social.

Exhibit 2. Robert Shiller Index of Housing Market Prices

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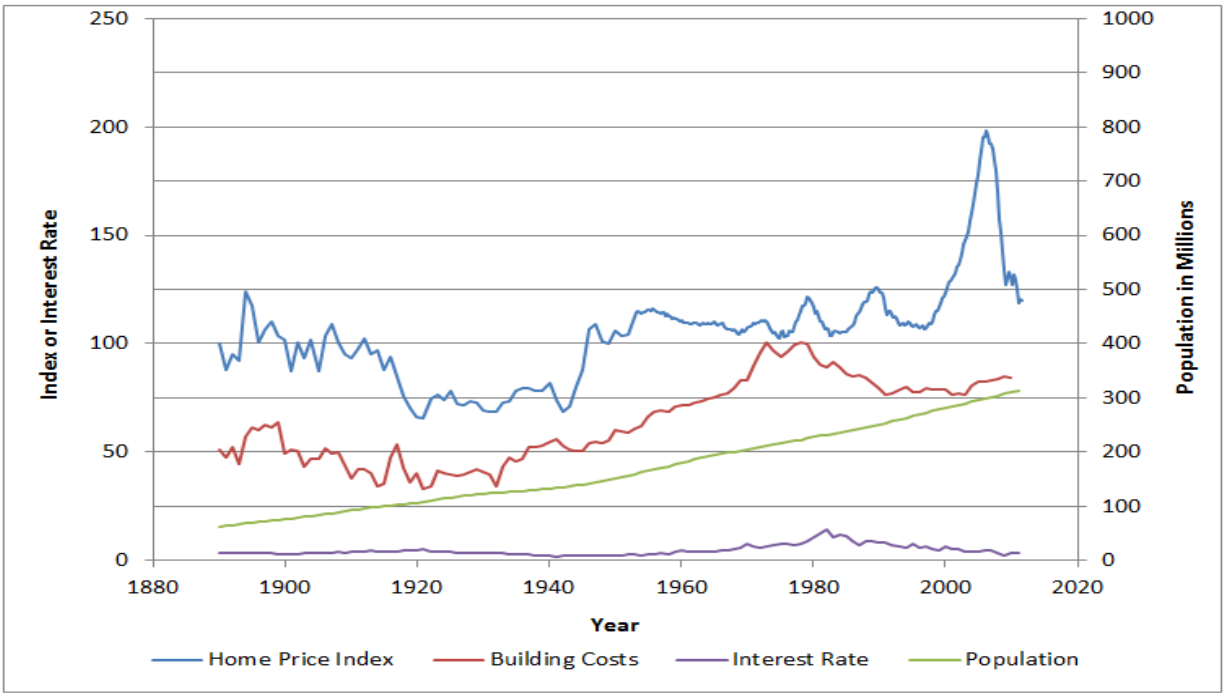

Source: Professor Shiller's Webpage

The Bubble Psychology

In my view, the housing bubble became so big because we, as human beings, don't really understand bubbles, and we especially don't know how to deal with them. Even the most intelligent and informed people did not seem to understand that an 'epidemic of irrational public exuberance' for housing investments was setting the stage for a financial crisis.

The behavior behind a speculative bubble resembles a person playing with a slot machine. A person who wins money at a slot machine is likely to play again and again until he loses everything. This is exactly what happened during the housing market bubble. Housing prices were constantly increasing, and so-called smart investors couldn't stop taking advantage of the

situation to make money. They probably knew that this was dangerous but they lived in the illusion that this time was different.

The most important thing to understand about speculative bubbles is that a social contagion of boom thinking lends increasing credibility to stories that appear to justify the belief that the boom will continue. Such a social contagion spreads like an epidemic and it is amplified by the marketplace and by the excessive optimism of people. Even the most intelligent people begin to adopt an overly optimistic view, and start to disregard their own independent and individually collected information just because they believe that everyone else could not be wrong.

While stock prices fluctuated prior to the recession, housing prices rose year after year from 1996 to 2006. The predictability of housing price increases was impressive. People started believing in the 'real estate myth', according to which, housing prices will increase forever because the amount of available land in the world is fixed. Bubble thinking caused the trend in prices to continue for a time, and while this trend seemed irrational for the stock market, it looked very rational for the housing market. In fact, it was really easy to make money in real estate during the boom in the 2000s if one knew how to take advantage of the momentum in home prices. However, many people got caught by the bubble because they stopped thinking that the increase in housing prices was only a momentum phenomenon and that they should exit the market before it crashed. They naively believed that the boom in real estate prices would not end.

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How Can You Keep Flipping a Coin and Always Get Tails?

According to the Efficient Market Theory developed by Eugene Fama, market prices should fully reflect the information available in the market. But Exhibit 3 shows that the Dow Jones Industrial Average fell continuously during the recent financial crisis. Indeed, during the crisis the path of the index seemed quite predictable as the value of the Dow Jones Industrial Average decreased almost every day. If the market is in fact efficient, then the market should have just crashed all in one day, but it actually took a long time for the index to reach its lowest value. In my opinion this is due to the fact that the market takes a long time to realize it is in the middle of a crisis and to change from an optimistic mood to a pessimistic one. For example, during a period of economic expansion, people tend to think that nothing bad can happen and they justify every signal of a crisis as a temporary imbalance that the market will fix by itself. This is why the market takes a long time to reflect full information. This is also why many savvy hedge funds were able to make a lot of money by short-selling securities during the global crisis.

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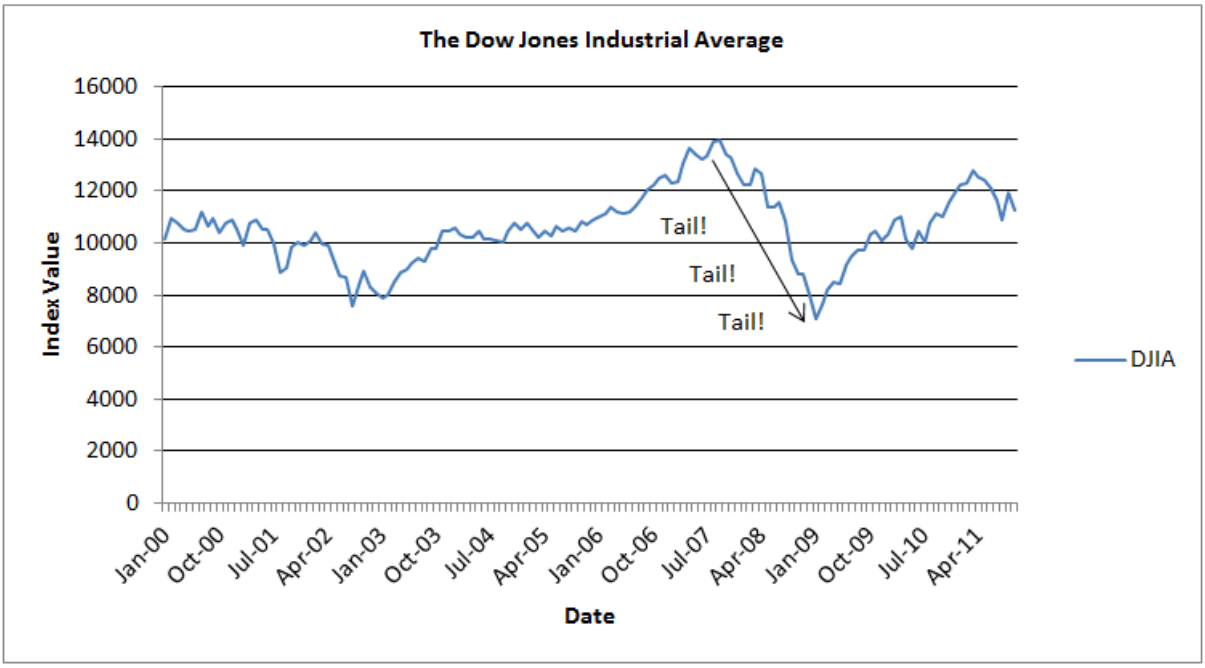
Exhibit 3. The Global Financial Crisis Effect on the Dow Jones Industrial Average

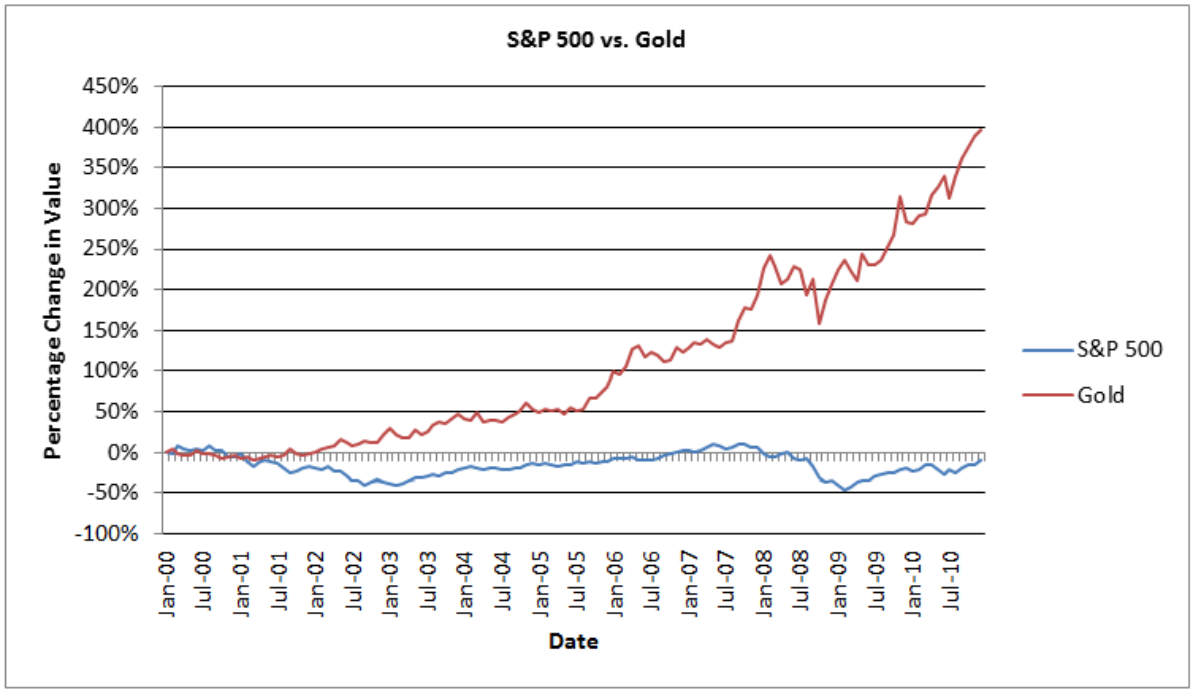


Source: WRDS

The Gold Mania

What did people do as soon as they realized we were in the middle of a global financial crisis? They wanted to invest in something tangible, some scarce resource that will increase in price, namely gold. Gold has historically been a natural hedge against a market free fall and inflation. If we look at Exhibit 4, we can see that while the market price of the S&P 500 was decreasing, gold kept increasing. Interestingly though, when the S&P 500 actually crashed, the demand for gold fell, and hence the price of gold fell in tandem with the stock market. People actually started buying gold much later, when they realized that the global financial crisis was real.

Exhibit 4. S&P 500 vs. Gold from 2000-2010



Source: WRDS, World Gold Council

A Look Under the Hood

To shed some light on this irrational behavior in the precious metals market, I performed a stock analysis on five companies that operate in this industry: Eldorado Gold Corporation, Red Back Mining, Silver Wheaton Corporation, AngloGold Ashanti Limited, and Randgold Resources. At the time of the analysis, these companies were the best performers of the investment fund 'USAA Precious Metals and Minerals (USAGX)'. The purpose of the analysis was to investigate whether these precious metals companies were being priced according to fundamentals or whether these companies were being valued instead by their perceived hedging characteristics. Along the lines

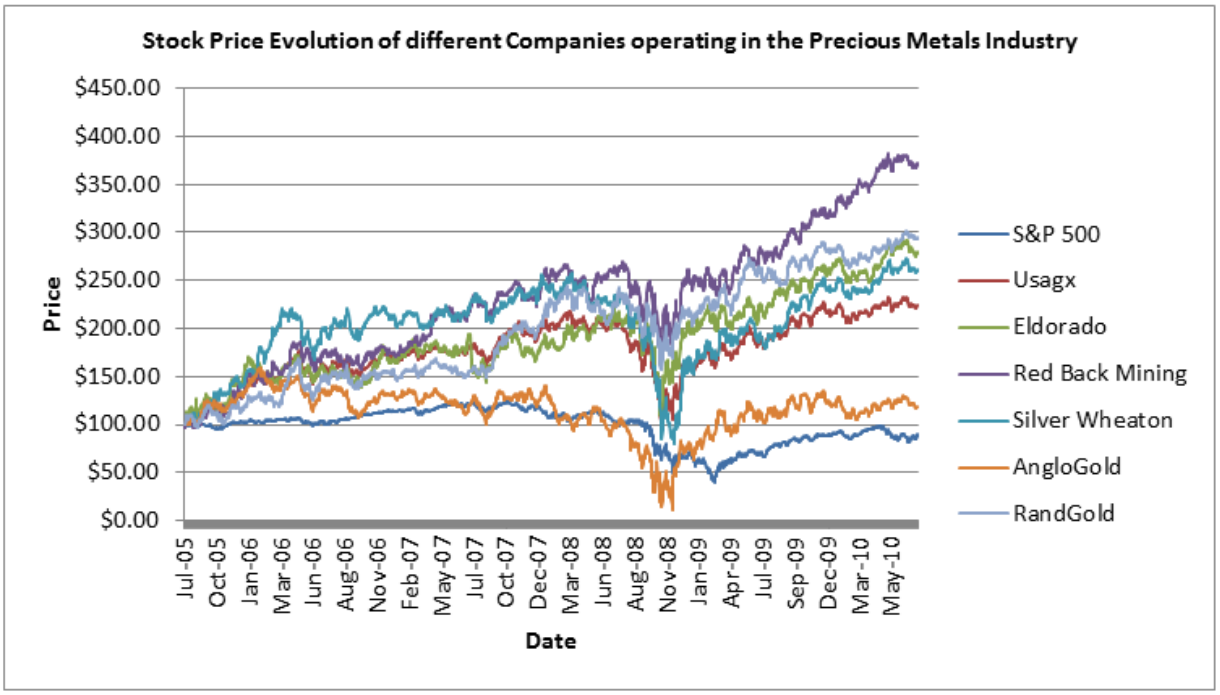
of general financial theory[1], I performed a traditional financial statement analysis, an Economic Value Added (EVA) analysis, and a Discounted Cash Flow (DCF) valuation on the stocks. I found interesting results: while almost all of these metals companies had solid performance, as reflected in their stock price growth, *none* of the selected companies was a wealth creator.

Exhibit 5 shows the price path for the five metals companies. Almost all of these investments more than doubled in value during this time. Conversely, if we look at the performance of the S&P 500, which is the lowest line on the graph, we can see that its final price was even lower than its initial one. But do their fundamentals tell us the same about these stocks?

Exhibit 5. Investment Path for 5 Companies operating in the Precious Metals Industry

Compared to the S&P 500 and to a Gold Oriented Investment Fund (Usagx)

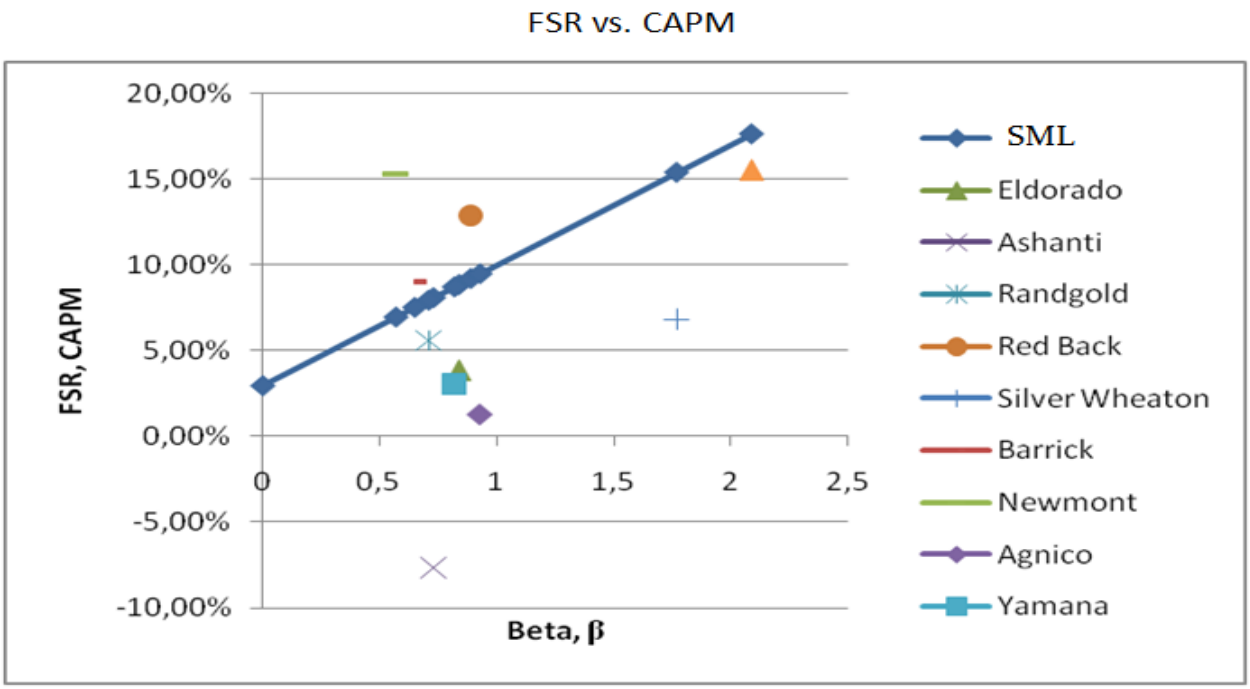
[1] See Fabozzi and Grant (1999); Grant (2003); Abate, Grant and Stewart (2004)



Source: Author

Exhibit 6 shows us how the companies performed in terms of their Fundamental Stock Return versus their expected return implied by the Capital Asset Pricing Model (CAPM), a form of traditional securities analysis [see Fabozzi and Grant, 1999, or Grant 2003]. According to the CAPM, a stock's expected return should be a linear combination of a variable called β, a coefficient that represents the sensitivity of the stock to the Market, and thus a measure of non-diversifiable risk. Most of the stocks analyzed fell below the so-called Security Market Line, a line representing the equilibrium relationship between risk and return. This suggests that the stocks presented in the exhibit were largely overpriced, since their expected return was lower than that implied by their risk, as measured by beta (the sensitivity to the market).

Exhibit 6. FSR vs. CAPM



Source: Author

Also, if we look at the Economic Value Added (EVA) Spread, which is a measure of surplus value generated by an investment, vs. Capital Growth, we see in Exhibit 7 that none of the companies shown were growing with a positive EVA-Spread [see Grant 2003, or Abate, Grant, and Stewart 2004]. This could be positive if the companies were pursuing a positive restructuring, but their capital growth condition is mixed, which seems at odds with the great growth in stock price. Finally, a DCF analysis (not shown), which, by discounting future cash flow projections, reveals how attractive an investment is, reveals that all five of the precious metals companies were overvalued, even when making optimistic assumptions on their future revenues, operating margins, and investments. Taken together, it appears that the selected metals

firms were being valued off their hedging and/or speculative characteristics rather than their underlying fundamentals, which were poor at the time.

Exhibit 7. EVA-Spread vs. Capital Growth

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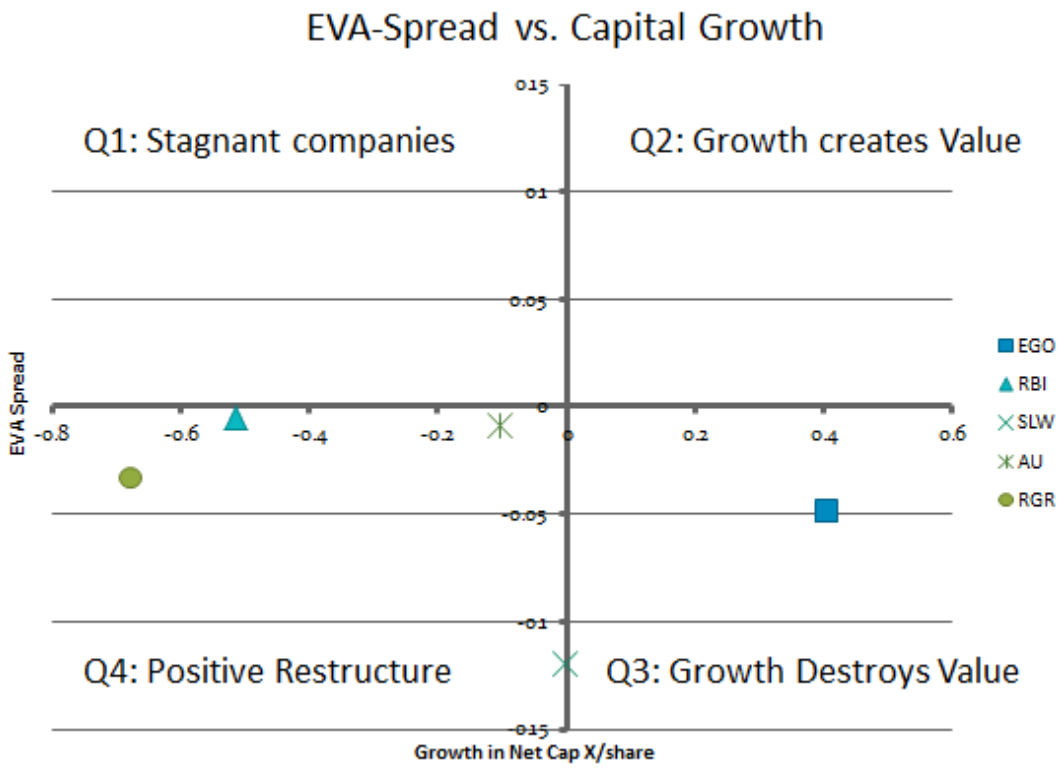

Source: Author

Where Lays the Next Crisis?

After examining the causes and consequences of the recent global financial crisis, I believe we are at risk of yet another bubble, this time in gold. As noted, none of the selected precious metals companies that we analyzed appeared to be a wealth creator. Yet investors did not seem to be looking at fundamentals when buying precious metal companies' stocks. Rather, they were looking for a hedge against the crisis, or they wanted to speculate. If people start believing that gold prices will always increase and investors continue their speculative behavior based on this assumption, then we are at risk of another bubble in the market. In conclusion, I strongly believe

in Modern Portfolio Theory as the engine of value creation in the economy. Modern Portfolio Theory is not dead as a result of the global financial crises; it was however egregiously misused in the recent global financial crisis by investors looking for abnormal returns at the expense of the whole economy.

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Chapter 3

The Global Financial Crisis: A Political Economy Approach

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Abstract

The current global crisis began as a bubble burst of the mortgage market in the United States that spilled over to the entire financial market of the US, and afterwards onto the integrated World financial market. There hasn't been sound evidence given in support of the idea that the causes of the crisis lie within the self-regulating free market. The causes lie primarily in the activities of political power, i.e. in the extensive government regulation, which has, under the strong influence of interest groups and lobbing power of financial companies, led to favoritism of macroeconomic policies and inefficient resource allocation. Therefore the solution to the crisis isn't in strengthening interventionist and regulation power of the state, but in creating the proper market institutions that increase economic freedom without privileging powerful political groups or by discriminating the weak. The paper will provide insights on how the crisis began, followed by an explanation of its regulatory causes. Afterwards it will link it to the Great Depression and finish with the prospects of recovery.

Origins of the crisis

The global financial crisis originated in the United States housing and mortgage market, where people were buying and selling houses in hope of making a profit. People invested mostly borrowed money to buy real estate because they thought it was a safe investment with a constantly increasing price. As an answer to this increased demand in the housing market, financial institutions increased their credit expansion by lowering credit standards and decreasing their interest rates. This resulted in two effects: it increased the debt of the households[2] and it increased the banks demand for credit sources. The lack of capital caused banks to seek financing from other institutions until the amount of debt became unsustainable[3].

This lethal combination of easy credit and rising debt accumulation, accompanied by large inflows of foreign funds, fueled a housing construction boom which led to the rise of the US housing bubble. Based on these rising prices and financial innovation[4] many investors both from the US and worldwide invested in the housing market. When prices collapsed, investors started reporting losses and the public, due to home values now being worth less than the mortgage loan, entered into foreclosure. The downward spiral seemed unstoppable.

The growing debt accumulation of US households was officially supported by the housing policies of the Clinton and Bush administrations through the idea that every citizen should have a

[2] The trend of lagging growth of real wages compared to the real GDP growth added to this increasing household debt and a decrease of domestic savings.
[3] Lehman Brothers has borrowed 30 times more than the amount of its own capital. This was impossible to return in the case of a credit crunch in the housing market. (SEC – Lehman Annual Report, pg. 29)
[4] Recognized through the creation of various new financial derivatives such as mortgage-based securities and collateralized debt obligations.

home. The lack of financial strength and the poor credit worthiness of many US households was compensated by the government with its measures such as the Tax Relief Act, Community Reinvestment Act (CRA), or by monetary policy. The government was encouraging commercial and investment banks to issue loans by guaranteeing them through its government entities such as Fannie Mae and Freddie Mac. This increased the scope of investing in real estate, affected the growth of real-estate prices, and led to loosening of the criteria for new subprime mortgages. This, in turn, opened space for financial innovation of securities and derivatives.

Regulatory, monetary and political causes of the "Great Recession"

In my view, there is no evidence to provide support for the claim that the systemic risk that drove the economy into a wretched state was created by the banks or Wall Street. The fact that they possess an urge for profits doesn't provide a plausible explanation of why the system suddenly crashed. In order to understand what forces drove the economy into such a state, one needs to examine motives other than greed and understand the regulatory and political decisions that shaped the incentives of banks and Wall Street.

The bubble psychology and risk aversion

Robert Shiller warned about the upcoming boom on the real-estate market that could lead to an unprecedented chain of events causing a nation-wide recession. In his book "The Subprime Solution"[5] (2008) and in some of his earlier pieces he explained the boom by creating an index

[5]Robert. J. Shiller, *The Subprime Solution. How Today's Global Financial Crisis Happened, and What to Do about It* (Princeton, New Jersey: Princeton University Press, 2008).

of US Real Home Prices. He emphasizes that the highest growth in housing prices took place between 1998 (right after the official decision of the US government that everyone should have a home, no matter what the price) and 2006. A house that was worth $110,000 by the end of 1998 was worth $200,000 by the middle of 2006, presenting an 85% increase in price. Shiller describes a bubble as an "increase in prices that has no rational economic explanation. The high prices are only temporary as an effect of the enthusiasm of the investors, rather than a consistent evaluation of their asset value"[6] (Shiller, 2008). The prices were increasing up until the point when the demand for housing could not justify these high prices any longer. This led to a downward pressure on the prices which started to fall by the end of 2006. All this led to the previously described downward spiral where the owners found themselves unable to repay the loans they took.

Shiller's main idea was that the boom in housing prices from 1997-2006 was a "contagion of market psychology" or "boom thinking". He likes to emphasize, that "we as a society do not understand speculative bubbles". The government couldn't cope with this situation, as they "couldn't establish the new kinds of financial institutions that could have managed the boom"[7] (Shiller, 2008). What Shiller omits in such a conclusion are the factors behind the housing boom. He tends to blame it all on market psychology saying that the market participants were wrong for believing in the sustainability of the bubble. The real question is, however, why did the market

[6] Robert. J. Shiller, *The Subprime Solution. How Today's Global Financial Crisis Happened, and What to Do about It* (Princeton, New Jersey: Princeton University Press, 2008).

[7] Robert. J. Shiller, *The Subprime Solution. How Today's Global Financial Crisis Happened, and What to Do about It* (Princeton, New Jersey: Princeton University Press, 2008).

participants invest in real estate? Maybe one answer is the bursting of the stock market bubble in the 1990s. When investors lost money as the stock market bubble burst, they may have looked to real estate as a safe investment, promising stable returns.

The graph (not shown) showed when stock market prices went down, this was followed by a corresponding increase in real-estate prices. A possible conclusion would be that people found a new asset to invest in. When profits are low on the stock market, why not turn to the real-estate market. This is not irrational, as Shiller would suggest. Money always flows to where it yields the highest return. To suggest that people were irrational when substituting the stock market with the housing market would be wrong. However, this still doesn't explain the increasing riskiness of the system.

The reasons why banks acted the way they did does not lie in the deregulation of the banking sector. Rather the excessive leading practices originated from overregulation and the artificial demand for housing created by politicians who now seek answers of why and how the system got so corrupt and overcome with risk. The free and efficient market was prevented from discriminating against those who were making inefficient and risky decisions. The central government regulators enacted policies to increase affordable housing and mortgage investments. Extensive indebtedness and risk-taking, combined with an increase in housing prices upon which the growth of the financial sector was fueled, were all a consequence of government-instituted policies. The banks were only following the decisions that the government institutions were guiding them into.

Laurence Siegel (2009) offers an interesting analysis of how governments have used their macro policies throughout modern history to annihilate risk and achieve a "riskless society"[8]. Their intentions may have been good, however the outcomes of these intentions proved to be disastrous in many cases. Siegel stresses how we cannot be sure that it was Keynesian policy that drove the US economy out of the Great Depression. He is also suspicious of whether the government actually insured the era of the Great Moderation[9], making a strong case that the Great Moderation didn't in fact take place at all. The only time that government actually "fixed the problem was when it caused it" – the Great Inflation. All of this proves a point that fiscal and monetary policies fail in their main goal – to eliminate risk. A fiscal stimulus will have only the effect of driving up the public debt, which must later be paid off by either inflation or taxation. "The increasing size of the government and the increasing size of the government debt can only create more risk in a society than ever before." [10]

Siegel develops an explanation of an artificially created cycle that describes what happens when people start believing in the almighty power of the state. The cycle begins when a crisis occurs and the government intervenes in the economy by increased spending in order to boost the economy and starts the road to recovery. As the crisis resolves there is no way of knowing what results would have occurred if the government had not intervened. Maybe the effect on the economy would have been far better, maybe not. After the crisis an era of strong growth implies

[8] Laurence B. Siegel, "A Riskless is "Unattainable and Infinitely Expensive"", in L.B. Siegel (ed.), *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 1-19.
[9] The Great Moderation is an era of low business cycle fluctuations and market shocks started in the 1980s, believed to be caused by structural and institutional changes in the Western world.
[10] Laurence B. Siegel, "A Riskless is "Unattainable and Infinitely Expensive"", in L.B. Siegel (ed.), *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 1-19.

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easy money, the rise in equity prices and accumulating debt which all lead to the next crisis. This time expectations are formed upon the same response as before, leading to the final effect that governments only tend to grow over time. Siegel emphasizes that "It is certainly imaginable that, having grown to a size where the people are just barely willing to pay the taxes needed to support the government, a crisis can occur that is so severe that the government is simply out of ammunition." Hence, his starting and ending conclusion is – "a riskless society cannot exist."[11] Siegel's article proves a strong point on why various government-led solutions cannot persist over time. The argument presented in this paper revolves around that particular point. The desire of regulators to eliminate risk from the system by determining what kind of decisions businesses should make, or by guiding their investment incentives, leads to the creation of a high level of systemic risk that becomes inherent to society.

The GSEs; Fannie Mae and Freddie Mac

The Government Sponsored Enterprises (GSEs) were buying mortgage loans from banks on the subprime mortgage market. They could then either keep these loans as a monthly source of revenue or decide to sell them as mortgage backed securities (MBSs). The banks used the money from selling their loans to acquire new mortgage loans. This made it easier for consumers to obtain a mortgage which increased demand for housing. As the demand for housing increased so did housing prices.

[11] Laurence B. Siegel, "A Riskless is "Unattainable and Infinitely Expensive"", in L.B. Siegel (ed.), *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 1-19.

Peter Wallison[12] (2009) offers excellent insight into the functioning of the GSEs. He discards the notion that Wall Street led to the boom on the subprime mortgage market. Mr. Wallison believes the true culprits were Fannie Mae and Freddie Mac, two prominent GSE's who continuously purchased mortgages from banks in the run-up to the crisis. These GSEs had acquired more subprime mortgages than rest of the market altogether. Their advantage was funding at a very low cost which meant that they had "no competition for any asset they were willing to buy." Once they entered the subprime mortgage market it was only a matter of time before they would take it over. And the only way they would make profits is if the market kept on growing. Wallison's conclusion is that "Fannie and Freddie were, by and large, the creators of the subprime and Alt-A[13] boom, and that they did this for political reasons and *not* for the economic reasons that would motivate a Wall Street firm."[14] In addition, Wallison finds an interesting study done by the Fed. The study showed that "the GSEs were not even successful in reducing interest rates for middle-class home buyers—the central justification they always claimed for their existence." [15]

In addition to this, Alan Greenspan had been warning Congress of the potential hazardous effects that Fannie and Freddie could bestow upon the system. Congress neglected many warnings and

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[12] Peter J.Wallison, "Not a Failure of Capitalism—A Failure of Government", in L. B. Siegel (ed.) *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 189-204.

[13] Alt-A mortgages were designed for risky borrowers with lower credit scores.

[14] Peter J.Wallison, "Not a Failure of Capitalism—A Failure of Government", in L. B. Siegel (ed.) *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 189-204.

[15] Peter J.Wallison, "Not a Failure of Capitalism—A Failure of Government", in L. B. Siegel (ed.) *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 189-204.

did nothing. Even now it is interesting to note that for some reason the need to reform Fannie and Freddie has been neglected by the new regulatory bill in Congress. Maybe the GSE's influence among Congress members, especially those who wrote the bill (Senator Dodd for example) is still intact as the funds are 'flowing' from the GSEs to the Congress members[16].

Community Reinvestment Act; political encouragement of affordable housing

One of the pressures created on Fannie and Freddie to enter the subprime mortgage market was the Community Reinvestment Act (CRA). Although the CRA was legislated back in 1977 it was revised several times since. The most important revision arrived in 1995 when the government changed the Act so as to "force the banks who issue mortgage loans to prove a more active contribution to lending towards unprivileged social groups within their communities such as minorities"[17] (Niskanen, 1995). The regulator was even threatening law suits on those banks that did not lend to minorities in the legally prescribed amounts.

[16] Both of the companies were strategically giving large donations to those politicians who were sitting in the boards regulating their industry. Fifteen of the 25 listed members of the House and the Senate that gained the most campaign funds were either members of the House Financial Services Committee, the Senate Banking, Housing & Urban Affairs Committee or the Senate Finance Committee. Senator Dodd, the one with the most granted champagne funds, is the chairmen of the Senate Banking Committee. (Center for Responsive Politics)

[17] William A. Niskanen**,** Repeal the Community Reinvestment Act. [online] Testimony Before the Subcommittee on Financial Institutions and Consumer Credit Committee on Banking and Financial Services. *United States Senate*. March 8, 1995. Available at: [www.cato.org/testimony/ct-ni3-8.html].

The banks, along with the GSEs, were in this case following the government's policies. They weren't deliberately lowering interest rates or their credit standards. The reasons banks were giving loans to people who, 20 years ago couldn't even dream of becoming homeowners, lies primary in politically governed decisions. These decisions only increased the risk of the banking sector. This way the government, through encouraging homeownership, created artificial demand on the real-estate market. Due to rising social injustice, and due to their policies of resource redistribution, the government regulation led to even riskier loans and poor investment decisions resulting in an even bigger misallocation of those very resources. Loan requirements were softened due to the short-run interests of politicians thinking only of how to win the next election and remain in power. The affordable housing idea proved to be nothing more than a cheap political trick.

Rating agency oligopoly

In 1975 a government regulating agency, the SEC, gave oligopoly status to three rating agencies in the US. S&Ps, Moody's and Fitch became the only agencies that had the right to give out official ratings to various market securities. They were set as NRSROs (*Nationally Recognized Statistical Rating Organizations*) and they were the only ones good enough to comply with SECs regulatory requirements in order to evaluate the riskiness of a security.

The effect of this policy was that three rating agencies, although private, could use any techniques they wished for evaluating the riskiness of a company or an asset, even though "their financial success didn't depend on the outcomes of these techniques to produce a certain

something that someone is willing to buy"[18](Friedman, 2009). If the rating agencies are making bad decisions, and therefore sending the wrong signals to investors, they don't account for their decisions because they are being protected by their oligopoly status. Their imprecision and bad evaluations couldn't have hurt them in terms of making a profit because they didn't have any competition to punish them for doing a poor job. For example, according to Friedman (2009) "Moody's hasn't updated its main statistical assumptions on the American mortgage-backed securities market since 2002. This means that the dynamics of an unprecedented growth on the real-estate and the mortgage market wasn't taken into account at all". [19] Such behavior could have been prevented in an open competition credit ratings market in which imprecision and neglect in estimates would have been punished by the loss of reputation, clients and money.

The Recourse Rule

Rating agencies errors are important because existing banking regulation standards demand that banks fill up their assets with AAA rated securities. The reason why investment and commercial banks engaged in buying mortgage backed securities lies in another regulatory decision – the "recourse rule" enforced by the Fed in 2001 as an American form of the Basel regulations.

[18] Jeffrey M. Friedman, "A Crisis of Politics, Not Economics: Complexity, Ignorance, and Policy Failure", *Critical Review* 21(2-3) (2009), pp. 127-183.

[19] Jeffrey M. Friedman, "A Crisis of Politics, Not Economics: Complexity, Ignorance, and Policy Failure", *Critical Review* 21(2-3) (2009), pp. 127-183.

According to this rule, American banks' official reserve requirements were raised on commercial, corporate and mortgage loans, and lowered for investing into asset-backed securities, such as MBSs, as long as these bonds were rated AAA or were issued by the GSEs. The recourse rule implies that for every $100 investment into mortgage-based securities a $2 capital requirement was required, compared to $5 for the same amount in mortgage loans and $10 for the same amount in commercial loans [20](Friedman, Kraus 2010). The rule was designed to guide the banks funds into allegedly less risky assets, such as AAA MBSs issued by Fannie or Freddie. "The fact that 93 percent of the banks' mortgage-backed securities were either AAA rated, or they were issued by a GSE, shows that this is exactly what the rule accomplished"[21]. (Friedman, 2009). It filled the banks' assets with what later proved to be toxic and high-risk assets. It would be wrong to accuse the banks of taking too much risk or being too greedy. They were simply exploiting the given profit opportunity. Their investments were guided into the wrong assets by the policies set by the regulators in order to avoid risk taking.

Increased demand for MBSs saw banks issuing more and more mortgages in order for the GSEs to repackage them into MBSs and sell them back to banks to fill out their capital requirement. This artificially created demand for MBSs led to an artificially created demand for housing and led the banks to lower lending standards in order to issue more and more mortgage loans. It was a cycle of artificial demand spurred by a regulatory desire to make banks safer.

[20] Meaning that by investing into mortgage-based securities they could use more money for further credit and deposit creation.

[21] Jeffrey M. Friedman, "A Crisis of Politics, Not Economics: Complexity, Ignorance, and Policy Failure", *Critical Review* 21(2-3) (2009), pp. 127-183.

By acknowledging a regulatory decision such as the recourse rule, greed is demystified as the main culprit since banks and investors were investing into low risk, low yield, AAA securities that turned out to be poorly rated. The regulators always have the best intentions, but in having a desire to plan and create a stable system they paradoxically do exactly the opposite and become the drivers of instability and increasing systemic risk. An obvious conclusion from Siegel's[22] article arises - risk averting leads to creating even more risk in the end.

Monetary policy of the Fed

During the beginning of the decade the American Federal Reserve Board was leading a highly expansionary monetary policy in order to alleviate the shocks that had hit the US economy at the beginning of the decade and the series of corporate scandals throughout (2002). By increasing the money supply and lowering the Federal Open Market Committee (FOMC) interest rate to historically low levels, the Fed prevented the possible recession threatening the economy at the time. However, the easy money policy had a contra effect as it created a favorable environment for further mortgage expansion. The regulatory system only strengthened the pro-cyclical tendencies of the financial system. The reason behind a sharp decrease in the FOMC's rate (from 6.5 to 1% in 2 years) was on one hand a slow recovery, with rising unemployment and a slow growth rate of the GDP, and on the other hand there was a fear of deflation.[23] (Bernanke, 2010).

[22] Laurence B. Siegel, "A Riskless is "Unattainable and Infinitely Expensive"", in L.B. Siegel (ed.), *Insights into the Global Financial Crisis* (The Research Foundation of CFA Institute, 2009), pp. 1-19.
[23] Benjamin S. Bernanke, **"**Monetary Policy and the Housing Bubble" [online]. Presented at the *Annual Meeting of the American Economic Association*. Atlanta, Georgia (2010) Available at: [www.federalreserve.gov/newsevents/speech/bernanke20100103a.htm]. (?)

Between the first quarter of 2002 and the first quarter of 2006 the Fed implemented a restrictive monetary policy and the interest rate was too low in comparison with the real economic conditions at the time[24] (Taylor, 2008). The market was sending signals of increasing economic activity at a time in which the Fed should have replied by increasing its interest rate. The Fed disregarded the market signals and continued with an expansionary monetary policy giving an additional boost to the growth of the housing bubble.

The reminiscence of the Great Depression and a quest to future recovery

After the initial effects on the real economy in 2008, public opinion began to imply that the current crash is starting to resemble the Great Depression and that soon enough the world will be experiencing it once again. However such troublesome scenarios didn't prove to be correct. Unlike the Great Depression, when the stock market crashed by almost 90% in a period of two years, where the growth rate dropped by 26%, and unemployment surged up to 25%[25], (Eichengreen. 2008), the current "Great Recession" proved to be less harmful to the economy. Although unemployment did rise, ending at 10%, and the stock market experienced a significant 54% downturn, the economic decline was only -3.3% in GDP growth. Such a decline in

[24] John B. Taylor, "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong"[online], Bank of Canada (2008). Available at: www.stanford.edu/~johntayl/FCPR.pdf].

[25] Barry Eichengreen**,** *Globalizing Capital. A History of the International Monetary System* (Princeton, New Jersey: Princeton University Press, 2008).

economic activity proves that this was in fact a crisis, but the argument that a new depression was on the way was faulty, at least at this time. However, there is a lesson to be learned by examining the Great Depression and the regulatory response to it. The response of the government authorities to the Great Depression was to increase taxes and spending so as to restore the confidence of the people [26] (Shlaes, 2010). The tax burden set on businesses by the Roosevelt administration, as well as the numerous anti-business regulations, prompted businesses to stop spending their cash as dividends or wages. "Horrified by what they perceived as an existential threat, businesses stopped buying equipment and postponed expansion. They hired lawyers to find ways around the undistributed-profits tax". (Shlaes, 2010). Such policies were aimed at constraining private businesses and relying on the government and the public sector to foster growth that would lead the economy out of Depression. In 1935 the economy started to recover. America was off the gold standard and the money supply was again growing[27]. However, unemployment was still high and through the decade it remained that way, not falling below

[26] Amity Shlaes, **"**Obama threatens to follow in FDR's economic missteps", *Washington Post* (2010).

[27] The decreasing money supply and the gold standard were detected as the central causes of the Great Depression. In 1928 the Fed made a decision to tighten the monetary policy, after a decade of easy money policies, which continued until the stock market crash. The Fed was worried about financial speculation and inflated stock prices and therefore began raising interest rates. As a result of this reluctance of the Fed to cease with a restrictive monetary policy, the money supply fell by a third by the end of 1933. Also, by the beginning of the crash in 1929 most of the world was on the gold standard. The gold standard implied that when US demand slows down, its imports fell, its current account moves into surplus and gold should flow into the country, expanding the money supply and boosting the economy. The Fed, however, was still worried about the effect of easier credit that would increase speculation, so it deliberately put a stop to this gold standard mechanism. The inflow was sterilized by the sale of government debt and money grew even tighter. This in turn led the foreign governments to try and reduce imports through tariffs what wasn't greeted well back in the US. Such efforts proved to be unsuccessful as they failed to ease the monetary pressures. Combined with a collapse of trade this only led to a further downfall (Einchengreen, 2008).

double digits. The New Deal remedies didn't prove to be much help in the end as the economy once again found itself in a recession in 1938 setting the unemployment level at 17%. It was the war that followed shortly thereafter, not the conventional wisdom of New Deal policies, which restored full employment in America and pulled the US out of the depression.

There is a pattern with the policies enforced then and the regulatory overhaul being proposed and legislated now. The ineffectiveness of the policies then can prove to have the same impact if they were to be enforced now – the threat of a double-dip recession. The current regulatory response does not offer any incentives to stop the rising unemployment, as businesses are still constrained with various employment regulation. An increasing budget deficit as a necessary outcome of high stimuli packages can result in an even higher, possibly unsustainable, public debt - exactly the lethal combination that can lead the economy into an even greater recession and put it on a brink of sovereign default. Quantitative easing polices won't do any good either as the problem isn't lack of liquidity in banks, it's the lack of confidence among consumers and investors. Only an increase in confidence and reducing uncertainty will work towards releasing the vastly created money into the system. Once banks and high profile investors feel safe enough to start investing again, and supporting more and more projects, the money will start flowing back to the businesses. This will incentivize businesses to invest into new production which will finally increase their earnings and eventually the businesses will start hiring again. Decreasing unemployment rates will work towards increasing consumer confidence, and as more jobs are created more people will be bringing home higher incomes. At first the consumers, still careful, will start paying off their mortgage and other debts piled up during the crisis. After a while they will feel confident again to start buying consumer goods. The recovery, like everything in

economics (except panics), is a slow process and one needs to be patient in order to see its full effects. The US should stop being dependent on fiscal stimuli to pull itself out of recessions. It is time to put the Keynesian practice behind us and set a new policy goal – a policy goal that doesn't include a rising budget deficit, or an increasing spending package. The US needs a policy that is going to boost growth; it needs a policy that can restore the people's confidence, not by increasing spending, but by decreasing taxes.

The Keynesian theory implies that a fiscal stimulus will be effective because of a government spending multiplier, as it would always be bigger than the tax multiplier. However, the thorough research done by Cristina and David Romer (2009) yields a somewhat different result. The Romers measured the effect of taxation on the GDP growth and indicated that the tax multiplier was around 3. This means that for every dollar spent less on taxes generates a 3 dollar increase of the GDP (Romer C., Romer D, 2009). If we were to stick to the theoretical viewpoint that a government spending multiplier is always higher, this would imply a multiplier of 4 or more. However, such conclusions weren't backed by any research so far. The Obama administration calculated a 1.57 government multiplier, while research done by Valerie Ramey calculated a 1.4 multiplier (Mankiw, 2010). There was also a study conducted by Alesina, Ardagana, Perotti and Schiantarelli of the National Bureau of Economic Research that focused on fiscal stimulus policies in various OECD countries. They've separated successful (those which resulted in growth) from unsuccessful stimulus policies and concluded that the successful stimulus policies were those that decreased business and income taxes while the unsuccessful ones proved to be those that raised government spending along with transfer payments. (Alesina et al, 1999)

So if this is the case, what is the motivation of governments to raise spending? A tax decrease (corporate or income) provides an incentive for both businesses and the people to spend more. But a tax decrease will only be effective if it is deemed credible and people anticipate it will remain low in the long run. If public spending, and consequently the deficit, are high then consumers and businesses will anticipate tax increases in the future and will refrain from hiring, investing or buying consumer goods. Small and medium sized businesses would profit mostly from credible tax cuts, as they are the ones that find the least use for large government stimuli. The stimulus package is given to large, over-sized, too-big-to-fail private enterprises, while a spending increase to fund social security or infrastructural programs benefits either the public sector or the large companies who lobby their way into getting the job for a certain government funded project. The small and medium businesses are left with nothing. They prove to be the biggest losers in recessions, being left out of highly biased government stimulus. The result of a bailout or any kind of government favoritism towards certain private companies (that is always a result of that company's high lobbing activity and/or political campaign financing) is shattered competition. If one company gets money from the government while its competition doesn't, this company has a clear advantage over the others. Why should the government or any bureaucrat for that matter get to decide which companies are good enough to sustain and which ones are to be left to bail themselves out?

James Grant (2009) emphasizes an important point considering stimulus plans. He focuses on real wealth creation that comes out of the private sector comparing this to the public sector. Through a stimulus plan "a large portion of the allocated funds will go to state governments, local governments and non-profit organizations: entities that have no market-driven test of

whether they are creating or destroying value via the rationalization of invested capital." A stimulus, the same as bailouts for the fallen financial companies, doesn't generate wealth creation and therefore isn't likely to have a positive impact on fostering economic growth.

This is especially unfair considering the small businesses. Small and medium-sized businesses have always been recognized as the drivers of growth. Even when the data indicates that there are a lot of small businesses that go bust every year, an even bigger amount of businesses sustain and grow on a yearly basis. Entrepreneurs will continue to invest into various business projects until they find a project that will result in success. This process of constant dynamics in entrepreneurship eventually yields the best possible solution for the entrepreneurs themselves, as well as for the economy as a whole. This process is known as *creative destruction*. Siegel (2009) concludes on a point that creative destruction is the force that "drives uncompetitive firms out of business and removes capacity from the system, so that there is room for new firms". Wallison (2009) also points to the dangers of repeating the competition crushing New Deal policies. "The benefit of competition comes from the fact that it is ruinous to the less-effective competitors, forcing resources to flow to the more effective ones." Shattering this process with by favoring certain companies isn't a way out of a crisis. When the amount of failing businesses overcomes the amount of successful businesses per year, then the problem is only to get bigger. Unemployment is rising precisely because of the fact that a large amount of small businesses were collapsing.

The Great Regulatory Reform

The response of the politicians to the crisis via bailouts and stimulus acts was immediate. One piece of legislation has aroused particular interest among economists – the 'Great Reform', or the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010). The Act will provide the government regulators with much more power, as they will now be able to force failing financial companies who threaten the system into defaults by selling their assets and imposing losses on shareholders and creditors instead of taxpayers. This would mean there will no longer be space for a too-big-to-fail remedy. An over-encompassing systemic risk council will be formed and led by the Treasury whose goal is to detect potential threats to the system. It is however not known how this council is supposed to detect systemic risk; even less how is it suppose to measure it. One source of the systemic risk creation is the government itself so maybe the Council can start there, although this scenario isn't likely to happen. All of the main regulatory agencies will be given even bigger jobs and responsibilities; the Fed is supposed to control all other financial institutions besides banks, while the SEC is supposed to gain oversight over hedge funds and rating agencies and in addition be responsible for a new consumer financial protection bureau. Even the former chairman of the SEC, Harvey Pitt (2010) calls this "The Lawyers' and Lobbyists' Full Employment Act", clearly pointing to the fact that the Act provides a complex set of rules and rests too much responsibility on the shoulders of the regulators which would, in the end, create even more uncertainty in the system than before. There will also be new rules for derivatives trading and a restriction of the ability of banks to invest into hedge and private equity funds. Two possible consequences can come as a result of such an Act; one is that the lobbyists convince the regulators to interpret the Act in a way least harmful for them and their companies

(leaving the situation the same as it is now) and the other is that the regulators enforce the Act too 'hard' and this way constrain further competition, innovation and economic growth.

Even from its very name it is clear that the governing politicians and the Congress are unwilling to blame themselves and their poor decisions in the past for the current crisis and have instead blamed Wall Street. Banks did take risks that were excessive from an overall social standpoint, but businesses will always take the risks that government permits them to take, especially if the brunt of any harm falls on others. They couldn't have done so without the help of politics. Through strong lobbying activities and through financing political campaigns they could get anything they wanted from politicians. However by enforcing a Law of over 2300 pages filled with complexity the lobbyists got exactly what they wanted. The more complex these bills are, the more likely it is for the lobbyists to outsmart their legislators.

The regulators and the government are trying to change the fundamentals of the corporate world hoping that by regulatory contractions they could constrain the profit maximizing 'lust' of the big banks and financial institutions. But aren't profits the drivers of growth? How are we supposed to get rid of the rising budget deficit if we are on one hand spending extensively and levying taxes and on the other hand constraining growth? The threat of a double-dip recession is getting more and more serious. With no future growth the increasing budget deficit would lead to an even higher public debt leading the country into another recession. And still there is a desire to constrain banks behavior and make them control how much profits they can acquire.

The reaction in the markets to this kind of legislation came even before it took place as the markets tend to react to a change in the political regime. James Grant (2009) offers intriguing

empirical evidence on how the stock markets reacted to the notion that Barrack Obama would become president while supported by a Democratic-led Congress. There were several market declines in 2008 that revolved around the fact that Obama would win the 2008 election. But why would markets react negatively to Obama, who promoted change and hope for the people, leading some of the political analysts to compare his influence to the ones of Franklin D. Roosevelt and John F. Kennedy? Maybe the reason is precisely because of the comparison with FDR whose economic rationale was described earlier. There was fear in the market that new policies that Obama would push for would not lead the economy out of a recession, but would bring it into an even worse one. "Massive increases in federal spending, resulting in concomitantly large budget deficits, expanded governmental regulation, and oversight of business and markets" are examples of what the market was expecting. Obama was seen as "unfriendly to Corporate America, and overly friendly to labor unions and special interest groups". Grant further points out that the "stock market serves as a prism to distinguish between wealth-creating and wealth-destroying companies". The prices of these stocks represent this distinction. Falling prices would indicate a company that destroys shareholder value while an increasing price would indicate a company that creates economic value (Grant, 2009). This is important for the current situation in which the politicians directly interfere in the management of the private banks. The same situation was seen with Fannie Mae and Freddie Mac. The members of Congress fail to realize the impact of Fannie and Freddie's interference in the subprime mortgage market. They probably believe it was a good thing to have regulatory oversight of Fannie and Freddie, and want to extend this even further to seek control over the rest of the banking system. However, what they don't realize was well put by Grant; "the reality of private sector management with

quasi-governmental-run banks – managed directly or indirectly by politicians – seems hardly a recipe for creating shareholder value."

The huge financial overhaul Act can in the end prove to be all but stabilizing for the economy. The Act fails to reform one of the main sources of the problem – Fannie and Freddie. They are free to continue in doing what they did before – follow what the government orders them to do. Perhaps the legislators realized this and will work on reforming the government instead of the entities it was using to create the bubble. However, other parts of the Act say the opposite. Another interesting part of this regulatory overhaul Act is the fact that it was legislated and signed into a law before the Financial Crisis Inquiry Commission finished its work. The Commission was created for the pure purpose of figuring out the real causes of the crisis so as to be able to prevent a future crisis similar to this one. However, an incomplete Act was passed through by Congress, making it hard to believe that this was due to any other reason than political. As senator Tom Coburn (2010) put it "instead of passing a bill that could have created stability in the financial sector for a generation, Congress has passed a bill for an election." The stock market already reacted negatively, anticipating that sort of a competition-shattering, free-market-abusing, government-interventionist bill. We can only wait and see how the economy will react. The politicians in power have certainly proven that they hope only for the short run satisfaction of various interest groups rather than obtaining a long run effective economic policy.

Conclusion

The very existence of a recession does not justify the enormous subsidies to various financial institutions, nor does it justify the increasing spread of government intervention throughout the

financial markets. Although some of the biggest financial institutions were on the verge of bankruptcy, the broader data at the time wasn't pointing to a general crisis but rather to a process of creative destruction – the driving force of capitalism. These financial giants, who failed mostly thanks to their own fault, don't leave a black hole in the credit market; rather they are being quickly replaced by other, smaller and healthier companies who offer a more conservative form of financing. What is the justification for hundreds of billions of dollars given away by American and European governments to certain financial institutions for the purpose of easing the current and preventing the future crisis?

The current crisis doesn't represent a failure of capitalism because the success of capitalism wasn't based on non-regulated markets but on free ones. Economic growth and welfare are highly correlated with market freedom. This crisis wasn't a consequence of the failure of capitalism and free markets. Rather this crisis was a consequence of overregulated markets, and markets regulated by the interests of small groups with highly concentrated political power. Propagating of the notion that the free market was to blame for the current crisis will result in diminishing economic growth and jeopardize both personal and economic freedoms.

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Chapter 4

Relearning the Importance and Flaws of Economic Policy in the United States

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Abstract

This paper provides a general overview of the re-adoption and consequences of Keynesian economic policy standards in the United States during the subprime crisis. The results indicate that business cycles still exist – differently from thoughts of neoclassical economists – and are most of the time unable to be smoothed out with straight demand side policy – as it is suggested by the Keynesian school. Uncertainty and shifts of confidence play the major role in the recovery. That being said, the question of whether these changes into the economic policy targets and goals of the American government and the FED are effective remains opened, specifically after the subprime crisis of 2007-2009.

Introduction

This paper provides a general overview of why and how the Keynesian demand policy standards reappeared in the American economy during the second great recession. The first part focuses on the analysis of how expectations, market deviations from fundamentals, and shifts in confidence completely changed the way economic and government authorities acted during the subprime crisis. The second and third parts are brief evaluations of the economic policy that has been

implemented during the period. The second part deals with monetary policy and the third part with fiscal policy, government expenditures and debt.

The Return of Uncertainty to the Mainstream

There is nothing more classical than a real estate crisis. What really made the second great recession so special is the fact that it originated in the middle of modern financial bundles and aggressive lending strategies. The question is: can we really forecast a crisis? The answer is: no, we cannot! It is true that turmoil which has happened in the past usually does not repeat itself for the same reasons in the future. Economic authorities have already fixed all crises that happened in the past and learned from them, but they usually fail when a new crisis arise.

The main example of this is the International Monetary Fund. They have a very simple and straight forward methodology to forecast crises. Basically, the IMF builds tables with advanced indicators of a crisis. In this table, they observe the signals – *ex ante* factors - in a one year horizon and check if they actually happened in reality - *ex post* factors - in a binary way. Roughly, their matrices would look like Exhibit 1 below:

Exhibit 1: The IMF approach on how to forecast a crisis

		Did the Forecast Signal a Crisis?	
		Yes	No
Did the Crisis Occur in	Yes	-	α
	No	β	-

Source: Made by the author

		Signal	
		Yes	No
Reality	Yes	-	α
	No	β	-

Source: Made by the author

For the case α, the signal would have failed to forecast the crisis, but the crisis actually existed. In statistics, this is a first type error. At the same time, β shows that the signal reflects a recession in the future, but nothing really happened. This is a second type error. The optimal indicator would be the one that minimizes the sum of the errors of first and second type because both errors are forecasting failures. There is no concordance between the signals and reality in both cases. There are two advanced indicators – "signals" – of a crisis for the IMF: appreciation in the real exchange rate, which could lead to a speculative attack against the national currency, and the

health of the banking system, which could lead to a financial crisis. Obviously these indicators failed in 2007. It is impossible that there could be a speculation against the dollar. Moreover, the banking system was making record profits until the crisis started (or at least seemed to do so). Although the type one error was minimized by the IMF, the risk existed and the crisis took place.

Long ago, Keynes (1936, p.127, 128) stated there are two types of factors that impact the internal rate of return on investments:

"The considerations upon which expectations of prospective yields are based are partly existing facts which we can assume to be known more or less for certain, and partly future events which can only be forecasted with more or less confidence. Amongst the first may be mentioned the existing stock of various types of capital-assets and of capital assets in general and the strength of the existing consumers' demand for goods which require for their efficient production a relatively larger assistance from capital. Amongst the latter are future changes in the type and quantity of the stock of capital assets and in the tastes of the consumer, the strength of effective demand from time to time during the life of the investment under consideration, and the changes in the wage-unit in terms of money which may occur during its life. We may sum up the state of psychological expectation which covers the latter as being the *state of long-term expectation*; — as distinguished from the short-term expectation upon the basis of which a producer estimates what he will get for a product when it is finished if he decides to begin producing it to-day with the existing plant […] *The state of confidence*, as they term it, is a matter to which practical men always pay the closest and most anxious attention. But economists have not analyzed it carefully and have been content, as a rule, to discuss it in general terms. In particular it has not been made

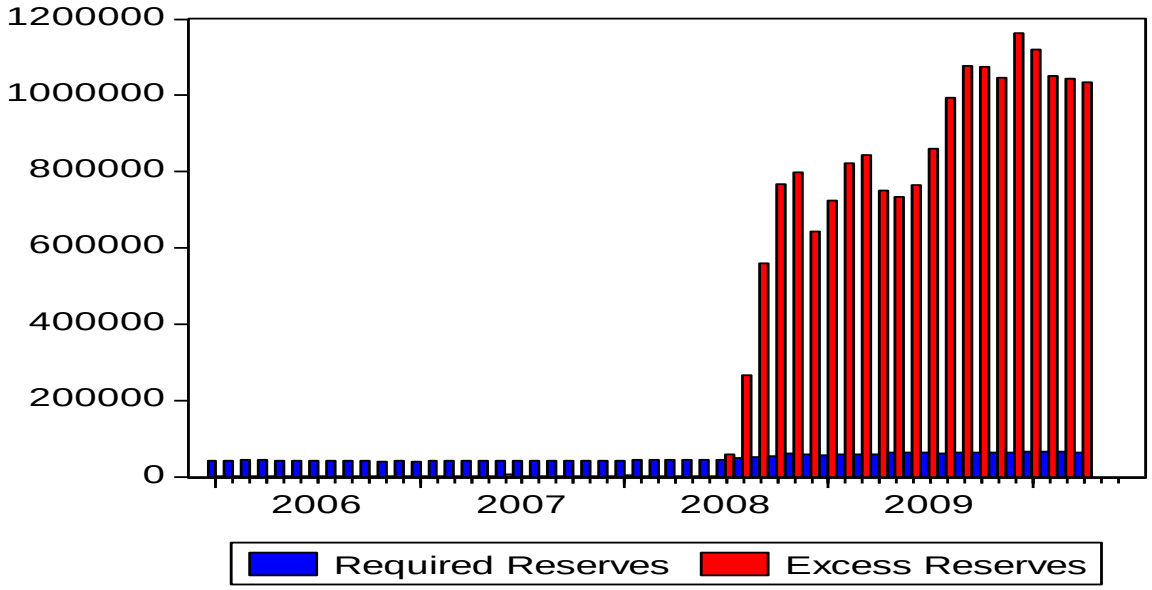
clear that its relevance to economic problems comes in through its important influence on the schedule of the marginal efficiency of capital. There are not two separate factors affecting the rate of investment, namely, the schedule of the marginal efficiency of capital and the state of confidence. The state of confidence is relevant because it is one of the major factors determining the former, which is the same thing as the investment demand-schedule."

After any great moderation, agents become uncertain about the future and confidence plays a role on the computation of the net present value of future cash flows. Recessions reduce optimism, and there are shifts in confidence which consequently impacts the IRR on investments. "This time is different", Reinhart and Rogoff would say. Expectations play a key role on economic fundamentals. The successful funds manager, currency trader and billionaire philanthropist George Soros mentioned that "markets are self-destabilizing; occasionally they tend toward disequilibrium, not equilibrium" (2009, P.7). Indeed, they don't always tend to equilibrium. The psychology of the market has a natural propensity to deviate from fundamentals because of optimism. Bubbles exist because people simply believe that prices are going to go up. At the same time, when they change their mind; the bubble bursts. There is a deviation from fundamentals, but not from the state of expectations. The state of confidence is the factor that truly impacts other economic variables, regardless if they are nominal, financial, or real. This is exactly the reason why economic authorities, such as the IMF, cannot always forecast the future. Instead of matrices, we would need crystal balls, or tarot cards to prevent every single new downturn from existing. Uncertainty and the current misbelieve on market self-correction brought Keynesian theory back to the night stand of many economists. Demand-side economic policy is back à la mode!

The Money Market Turmoil and Limitations of Monetary Policy

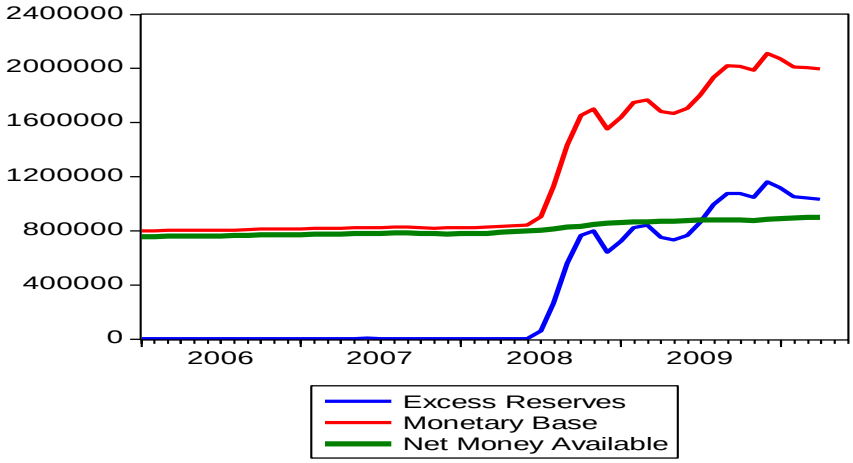
People tend to overlook interest rates whenever they talk about monetary policy because they believe that the opportunity cost of carrying money is highly related with investments, unemployment, and inflation. At the same time, almost everyone ignores the money supply. Conventional wisdom believes that interest rates decreased because of the massive expansionary monetary policy conducted by the FED. Most macroeconomic models predict that expansionary monetary policy leads to inflation. Why is this not so? Basically there is one answer to that. The money supply never really increased. The monetary base almost doubled since September 2008, however the level of excess reserves achieved record levels and approached almost 50% of the monetary base. The average value of excess reserves from 2005 to early 2007 was 2%. [Exhibit 2 below] shows the net increase in the monetary base. In other words, if we discount excess and required reserves that are kept in vault cash or deposited in the Federal Reserve, we may observe that the monetary based remained constant since 2006. It simply offset the decline in the velocity of money.

Exhibit 2. Required and Excess Reserves in the U.S. – Millions USD



Source: Federal Reserve

The US Monetary Base Minus Excess Reserves – Millions USD



Source: Federal Reserve

The issue with the subprime crisis is that it was not a liquidity crisis, but counterparty risk crisis. Taylor (2010, p.167) showed that monetary policy was too loose in the beginning of the decade. Interest rates were much lower than recommended by the Taylor rule. Banks, as any other firm, maximize profit. Therefore, securitization became an alternative to increase credit supply in order to compensate lower interest payments. If we go back to the old-fashioned microeconomic theory, monopolist markets can only fix prices or quantities produced to maximize profit, but never both. This is exactly the case for the highly concentrated financial industry in the U.S. Banks started lending money to people in lower layers of credit rating and protecting themselves by securitizing their assets and issuing credit default swaps. As long as house prices were increasing, there was virtually no risk in the business. As long as mortgages are cheaper than the underlying value of real state, creditors did not have to bare risk.

All the conditions were set for "this time is different" thinking: "everything is fine because of globalization, the technology boom, our superior financial system, our better understanding of monetary policy, and the phenomenon of securitized debt and risk sharing" (Reinhart & Rogoff, 2009, p.20). Well, positive NPV projects become rarer and investment declines when confidence shifts. The money market became chaotic after the fall of Lehman Brothers. Liquidity was there, but there was no lending in the interbank market. Why is this? Banks were simply scared of lending to other banks and people were scared of lending to banks. The opportunity cost of

lending was too low and risk perception was too high[28]. All the money was drained in the form of excess reserves.

The following regression [Exhibit 3] shows that 99% of the variance of excess reserves is explained by the variance of money supply from January 2006 until June 2010. The Granger causality test indicates that the relationship between excess reserves and the monetary base is not spurious from one to ten month lags, and that this relationship has double direction causality during the same period of the regression. In other words, expansionary monetary policy does not work for counterparty risk with the same efficiency that it does for liquidity risk[29]. Depositary institutions simply deposited back in the FED the money that the FED had just put out in the market.

[28] Although conceptually different, the symptoms counterparty risk and liquidity risk are almost undistinguishable in practice.

[29] See Exhibit 4 for the test results.

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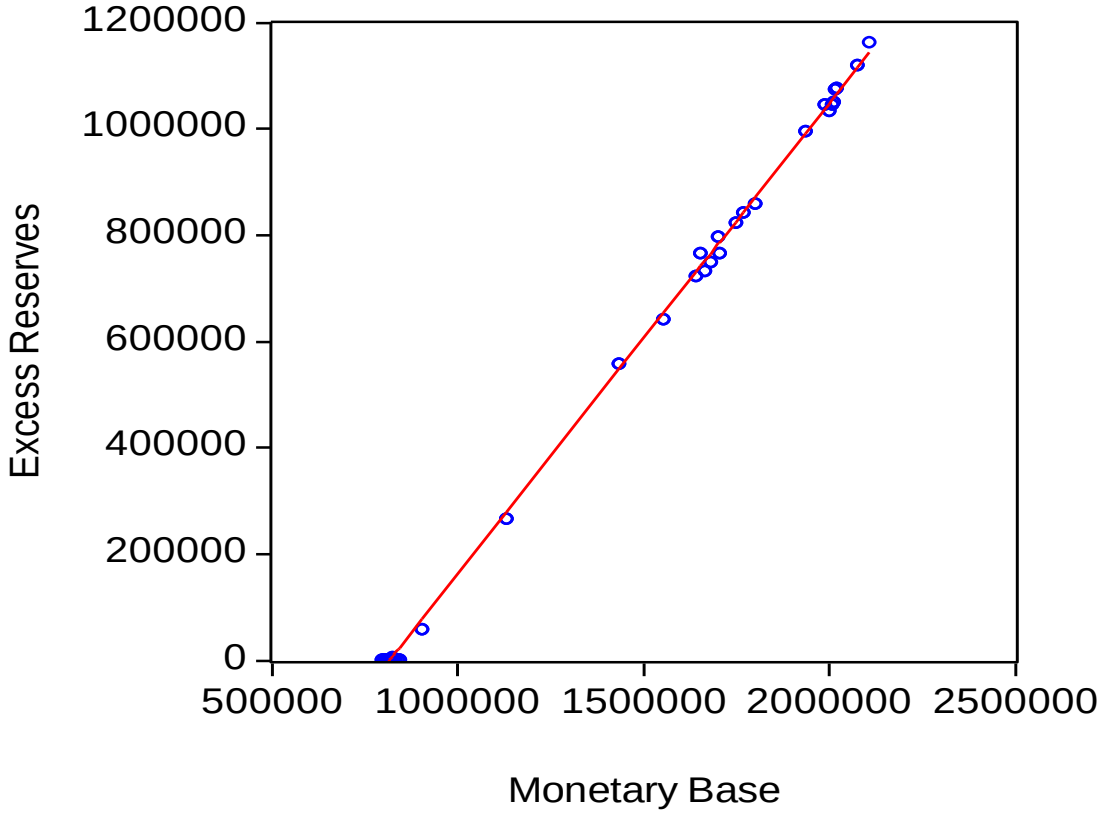
Exhibit 3. Regression analysis: Excess Reserves as a Function of the Monetary Base – Millions USD (Jan 2006-Jun2010)



Notes: (i) Excess Reserves = 0.88*Monetary Base – 722915.8, (ii) R2 = 0.99

Source: Made by the Author Using Data from the Federal Reserve

Government Expenditures as a Value Destroyer

The government also took an enormous place in the U.S during the second great recession. The budget deficit increased from about 6% in the early days of the recession to 10% nowadays. Many people are concerned with the amount of debt the American government took on during the crisis, however they have never questioned where the huge rescue packages went. Is the government really investing in projects that create value for the economy or simply acting as it did during the New-Deal and making one group of people dig holes while another covers them with sand?

The Miller-Modigliani model should also apply for the government as well. According to this model, the level of debt does not matter for a company that invests in projects which have positive NPV. Miller (1990, p.295) emphasizes that a leverage buyout is only worrisome for a corporations if it pushes the firm to "the point of bankruptcy". Even if they do go bankrupt, the costs would be fully private. The case of the United States government is even more relaxed in terms of debt. Despite losing some ground to the euro during the last decade, the dollar is still the most widely accepted currency in the world. Differently from corporate debt, the payment of sovereign debt depends much more on the government's willingness to honor its obligation than its actual capacity to pay investors (Reinhart & Rogoff, 2009, p. 60). Therefore, we may conclude that, as long as the American government is willing to pay its debt, investors and pension funds from all over the world will still be willing to maintain their wealth in this currency.

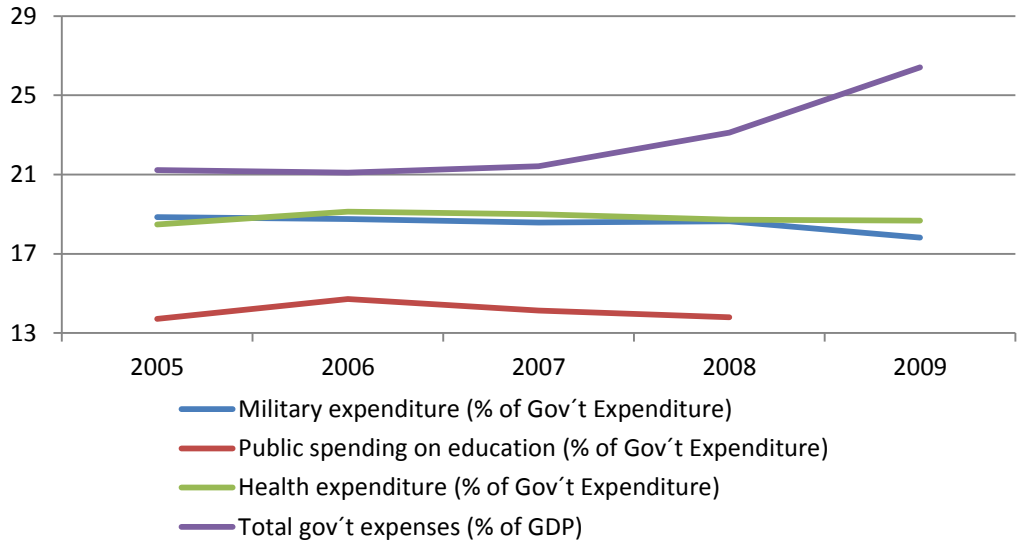
Although a bit old, [the graph below] shows where the public money is being spent. According to the World Bank, the three main expenses of the American government are health care, military

and education. The only expense that increased relative to total expenses over the last two decades was the military expense due to the Afghanistan and the Iraq wars. Until the early eighties, the budget deficit was steady at 2% level. Education and health care expenses were very constant over the years and do not tend to change in economic downturns.

Moreover, military expenditures stopped growing in 2004 and remained constant since then at 18-19% level of total government expenditures. The world average in the same year is 5%.

Education and health care certainly have a positive long run NPV. They satisfy fundamental needs of society! There is no discussion as to whether or not the government should "invest" in these activities. *Ceteris paribus*, military expenditures increased the budget deficit from 4% of GDP in 1989 to more than 6% during the two wars in Iraq. Since 2003, it remained constant at 6% until the subprime crisis started. How can we evaluate the benefits that war brings to a country? This is too wide a discussion for this paper, and requires deep interdisciplinary thoughts for a complete analysis. However, from an economic perspective wars are deadweight costs for public finance. Money that could be spent on projects that generate true NPV are being wasted in activities that only bring benefits to a selected caste of the American population: the weapons producers!

Exhibit 4. The Dynamics of Expenditures Made by the U.S. Government



Source: World Bank (World Development Indicators Database)

The graph above [Exhibit 4] shows that the government spends more money on weapons than books and the same amount of money on weapons as it does on health care. In addition to the excessive military expenditures, the U.S government has also engaged in other value destroying projects, such as the purchase of General Motors, during the subprime crisis. This company already had positive growth in invested capital, and at the same time, had destroyed shareholder value in 2000 (Exhibit 5, Abate, Grant, Stewart, 2004). Diligent investors would never invest in a

value destroyer. The government did! Taylor (2010, p. 169) provides clear evidence that the fiscal "stimulus has not had any impact in raising consumption. While disposable income increased dramatically as a result of the rebates, personal consumption expenditures did not increase. This is what economic theory—the permanent income theory or life cycle theory of consumption— would tell you".

Sovereign projects must be selected carefully. If we derive the basic effects that come from traditional macroeconomic models, we may observe that most of the effects of fiscal policy generate negative effects on the economy. These models show that fiscal policy roughly generates an increase in GDP that is originated by an increase in government expenditures, a decline in investments caused by the crowding out effect, a deterioration of the trade balance generated by an appreciation of the exchange rate, and, of course, inflation.

It is important to emphasize that there are cases where government-run projects are value creators. One good example was the creation of Petrobras by the Brazilian government in the early 1950s by the president Getulio Vargas. Many private investors never considered investing in such a project because of the high costs of oil extraction in Brazil. The government embraced the project and attracted investors from all over the world to join the project over the subsequent decades. Nowadays, this company is not only a huge value creator, but also the 8th largest company of the world with a significant stake of the volume traded in the Brazilian Stock Market. Instead of the usual crowding-out effect, there was a "crowding-in" of the private sector.

Concluding remarks

It really doesn't matter that economists have a huge theoretical disagreement concerning the efficiency of demand-side and/or supply-side economic policy, or the fact that they cannot always forecast crises. However, it is crucial that the authorities are always prepared to face a recessionary period and use the right tools intelligently.

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Chapter 5

The Global Financial Crisis: A Failure to Capture Risks

Jia Sheng Zeger Sun

Abstract

This paper aims to discuss my overall view of the 2007-2009 Global Financial Crisis (GFC). The following discussion opens with my initial perspective of the GFC as the consequence of the concoction of subprime loans and exotic derivatives such as CDO and CDS. The rise of subprime loans due to economic and social factors will be explored in conjunction with their exacerbation by the upsurge in the prominence of quantitative methods. An extended view of the GFC will be made reflecting my study of the GFC incorporating the roles of shadow banking, behavioral and regulatory aspects, as well as Hyman Minsky's view on capitalism.

Initial View of the Global Financial Crisis

As a prospective actuary with a significant quantitative background, the global financial crisis (GFC) in my view had always seemed like a consequence of an improper risk measure. This improper risk measure stemmed from statistical models that, while theoretically plausible at the time of design and, mathematically 'beautiful', lacked rigor in practical applications. The failure to capture risks, especially credit risks, lead to detrimental effects that were contagious throughout the global economy.

A flawed statistical model that failed to appropriately capture risks would be the Gaussian Copula which was designed by David Li in the late 1990s. In a financial context, the Gaussian Copula was aimed at exploring the relationship between the default probabilities of two securities and how one default could trigger the default of the other. A major assumption used in this model was the idea of the copula correlation, which measured and dictated how much the securities affect one another. While the correct correlation that should have been used is the default correlation, that is, how the default of one security would affect the other, it was too difficult to find. The main reason for this was because the key use of the Gaussian Copula was to price complex derivatives such as credit default swaps (CDS) and collateralized debt obligations (CDO). As these derivatives were relatively new, the default history on both was scarce and rare. Thus if this data were to be used to estimate the default correlation, the result would not be too accurate. As a result, practitioners gave up on measuring the default correlations and instead looked at the asset correlations, or the degree at which the values of two assets moved in relations to each other in respect of changes to some common attribute. With some optimism, they hoped that the asset correlations would be able to serve as adequate estimates of the required default correlations. Asset correlations were explored as a default event if both assets moved to very extreme prices

within a given time horizon. Furthermore the assumption of "normality" underlying the Gaussian Copula, which predicted that markets have equal chances of going up or down with extreme large movements being very unlikely, underestimated the reality. This has thus lead to the classification of the GFC as a black swan event [1].

However such a model cannot be the culprit of a massive failure without the contribution of poorly priced derivatives, based on subprime mortgage loans. The unintentional use of the Gaussian Copula in pricing derivatives, composed of subprime debts, was what I considered to be the most significant catalyst of the GFC. Therefore it is worthwhile to analyze the cause of the GFC from the root of the surging creation of subprime mortgage debts. There were many factors which contributed to the subprime crisis. First, there is the notion of the American Dream, and the idea that all Americans should be able to enjoy the benefit of home ownership as opposed to renting. In the years leading up to the financial crisis, the surging demand for houses was insatiable and this demand was only exacerbated by the American Dream Down Payment Act of 2002. The American Dream Down Payment Act created a subsidy to assist low income earners with down payment and closing costs when they purchased a home. This act helped fuel subprime mortgage lending.

Another factor that contributed to the subprime mortgage crisis was the Federal Reserve's intentional reduction of interest rates to revive the economy after the Dot Com crisis in the early 2000s. A popular belief also postulated that house prices would continue to rise such that the subprime mortgage borrower would have an increasingly valuable asset as collateral. As a result,

down payments needn't be too high because the house could be sold at a high price if the buyer defaulted.

Another concern was the high level of media attention given to the boom of the real estate market, where lending institutions such as Freddie Mac, Fannie Mae and Bank of America started to report record profits. In 2005, the National Association of Realtors (NAR) chief economist David Lereah published a book [2] with a title that tempted investors with huge opportunities in the real estate market. From this title *"Are You Missing the Real Estate Boom?"*, the mentality and behavior of people in the market during that time could be deduced as hungry for a share of the real estate boom leading some to 'speculative fever'. That term was used to describe the action of buying and selling houses with no intentions of actually living in them. Therefore I would argue that the surging real estate prices in the years prior to the GFC were caused by both speculative forces and an increase in demand due to incentives given by the government to people who normally could not qualify for a mortgage.

The banks which issued subprime loans exhibited a large degree of moral hazard because these subprime loans were not held on their own balance sheets but rather they were bought by Freddie Mac and Fannie Mae, which then subsequently packaged these loans into mortgaged backed securities (MBS) and sold them to other institutions and investors. The idea was, if any mortgage borrower, whose loan was in a MBS, defaults on their payment, then the issuer of the MBS will make a payment to the MBS holder. This meant that the primary lenders could continue their pursuance of commissions and fees without having to worry much about default risks because the two government-sponsored banks would back them up. This further accelerated their willingness

to offer subprime loans. As the prominence of these subprime loans increased on one side, the popularity of collateralized debt obligations (CDO) also began to surge.

A CDO is a security which contains a variety of debt securities including for example, credit card loans, student loans and mortgage loans. Prior to the introduction of sleek quantitative methods for measuring risk, such as the Gaussian Copula, credit rating agencies such as Moody's insisted that CDOs meet a diversity score, and contain a variety of different type of loans. However the introduction of the Gaussian Copula gave the practitioners a perception that correlated default risks could be better understood and handled. After Moody's used the Gaussian Copula approach as a standard method other credit agencies followed the trend. The significance of the Gaussian Copula was nicely described in a comment by Darrell Duffie, a Stanford University finance professor, who served on Moody's Academic Advisory Research Committee. Mr. Duffie stated that "The corporate CDO world relied almost exclusively on this copula based correlation model". As such, the composition of subprime loans within CDOs began to surge to an extent where some CDOs were made entirely of subprime loans. There are certainly psychological aspects associated with such belief, perception and behavior, but it will be discussed later.

While contaminated CDOs surged, the popularity of writing credit default swaps (CDS) within the financial world also set its pace. These securities were complex themselves but the interconnectedness and intertwined nature of these securities was what contributed most to the problem. CDS were written on CDOs and CDOs inherently contained CDS, and the correlation risk which was difficult to track at first became even more difficult to track. There was simply no logical and simple method of calculating the inherent risk and hence assigning a feasible price

that would reflect its risk structure. Using the simple Gaussian Copula approach would merely capture any important details of its underlying risks. However even though the ‘correct’ correlation could not be easily captured, it was no doubt much higher than that predicted with mathematical models.

In 2005, the surge of CDS became so great that the total value of CDS outstanding in the market was even higher than the value of its underlying assets, as depicted in Exhibit 1. This, along with the fact that these complex securities were traded throughout financial institutions and by investors throughout the world, meant that the ever dangerous correlation risk was expanding and all it would take to bring down the entire system was a small number of events. To clarify, I am not proclaiming that the exceedingly high correlation of these complex securities is the sole cause of the GFC, but I do believe that it had enough potential and impact to initiate the GFC. In further consolidating this point, a derivatives expert Janet Tavakoli, commented in 2006 "Correlation trading has spread through the psyche of the financial markets like a highly infectious thought virus".

Exhibit 1. Credit Defaults Swaps

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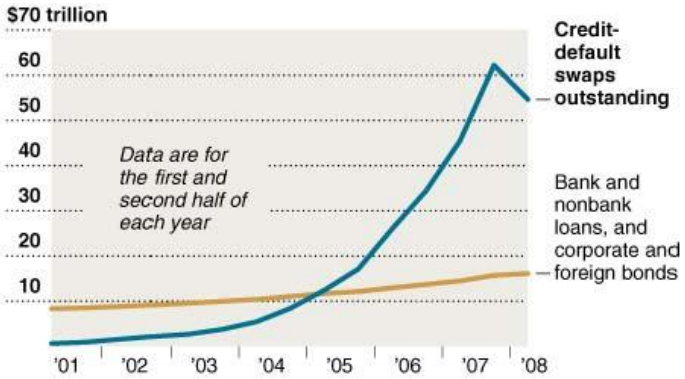
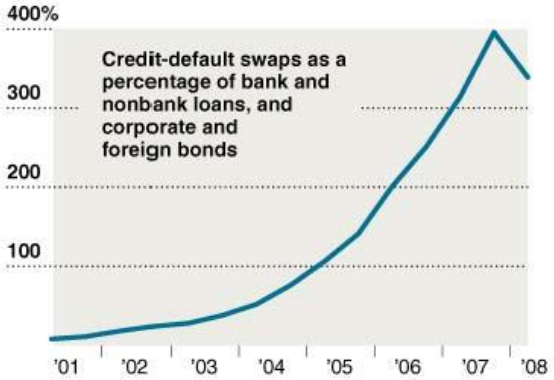
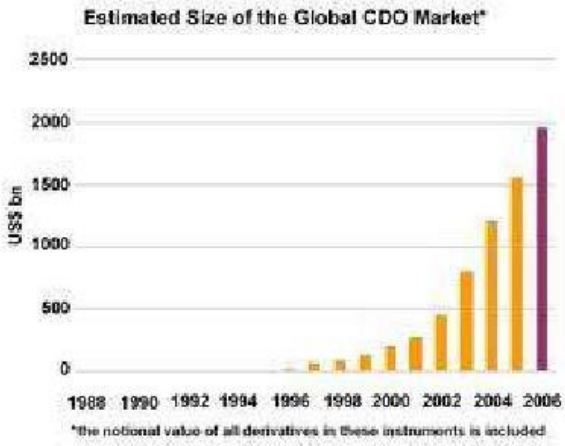




Sources: International Swaps and Derivatives Association (swaps), Federal Reserve via Haver Analytics (debt outstanding)



The effect of a possible massive default of subprime loans is inarguably detrimental but I believed it was the contagion effect that arose from the 'innovative' structured financial securities that has ultimately turned the subprime crisis into a global financial crisis. As subprime loans began their default rendition in a highly correlated fashion due to rising interest rates, deceleration and eventual decline in house prices tore apart the belief that banks could rely on the

value of the underlying assets (houses) as collateral, and the validity of the Gaussian Copula. The consequence was a massive pandemic across the globe where complex derivatives such as CDOs and CDS became worthless pieces of papers as the core underlying subprime loans went down the drain. The problem was that financial institutions all around the globe held these complex securities and the resulting contagion effects lead to the failure of some of these institutions, including Lehmann Brothers in September 2008.

Exacerbation of GFC by massive deleveraging – The Quants

From Scott Patterson's book titled "The Quants", an analysis of the collapse is illustrated with vigor, and is related to the massive leveraging of financial institutions in purchasing the complex derivatives. It describes how massive deleveraging stomped more painfully into the already miserable financial world. Many financial institutions and hedge funds were greatly leveraged in the period leading to, and during the GFC, and CDOs were a considerable part of their collateral for the leverage. As the price of CDOs plummeted due to subprime loans defaulting, margin calls were made and deleveraging had to be done to meet the obligations of these margin calls. One of the greatest problems in deleveraging as explained by the author was the fact that 'everybody was doing the same thing'. From my understanding in statistics, the variance of a group of random variables will increase if the random variables are inherently the same. Similar in basic investment principles, if there are a higher number of identical investments in a portfolio, the risk of the entire portfolio will increase. This case was closely transcribed into the story of financial institutions deleveraging. During that period most funds were leveraged with Japanese Yen, as borrowing in Japan was relatively cheap due to low interest rates. As most funds were leveraged

and subsequently deleveraged in the same way, the price of the Japanese Yen began to surge and funds had to 'compete' in the deleveraging by selling its assets. The global rush to return debts and close off positions taken in derivatives partly contributed to what was known as "The August Factor" where "a complete reversal of quant strategies, the Bizarre World in which up was down and down was up, ignited by a mass deleveraging of funds with overlapping strategies."

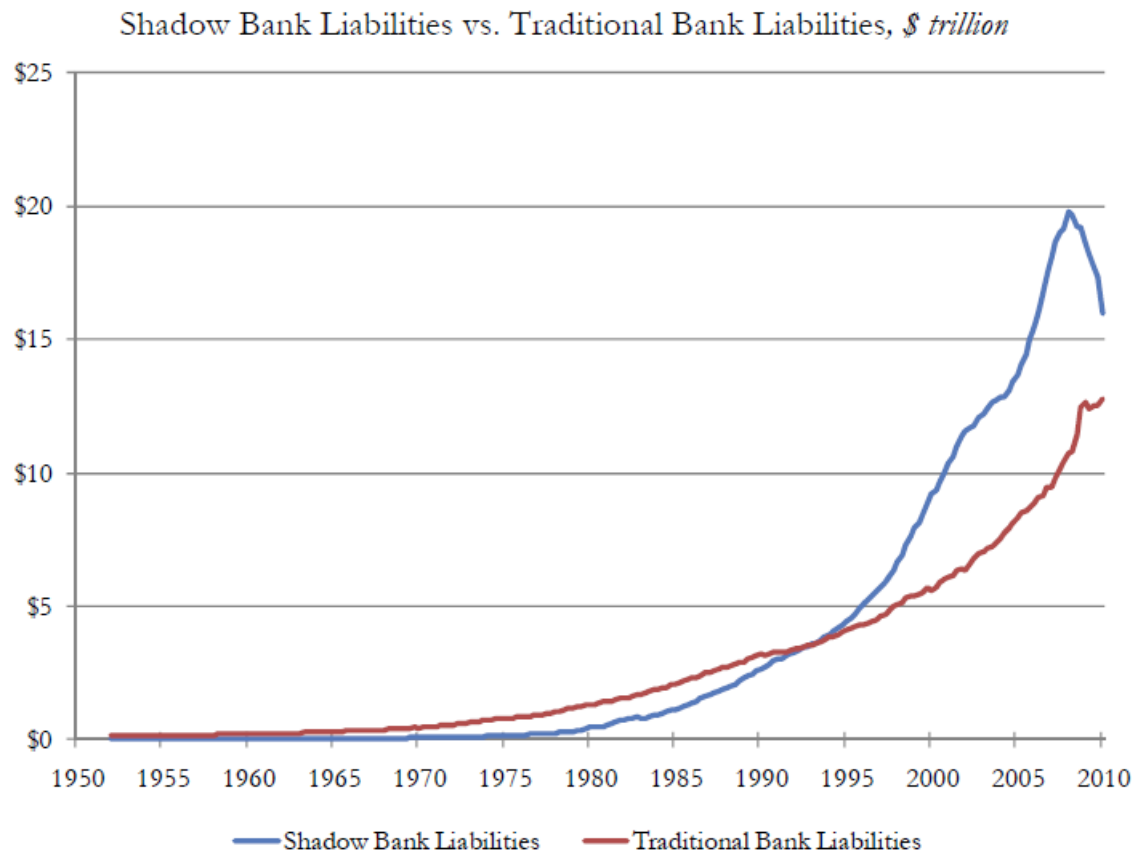
Behind the massive deleveraging was the quant's' immense faith in financial models. According to the Fama-French model, value stocks (stocks that have performed poorly in the past) will outperform growth stocks (stocks that have performed well in the past) due to market mispricing. However, due to the deleveraging, funds had to unwind their short-selling position meaning that they now have to close their position by buying the growth stocks, thus putting upward pressures on its already high price. With credit to the notion that 'everybody was doing the same thing', other funds were also in a similar situation and being in a short selling position in something that is increasing in value is not a wise idea, they also had to unwind their short-selling position. Thus this continues to push the price higher and it soon became a global phenomenon. Then to meet margin calls, the value stocks which the funds had long positions on had to be sold, driving their already low price further down. This again was exacerbated due to the notion that similar stocks were held by different funds. Patterson further comments in his book "during the great Unwind in 2007, value investors were burned repeatedly as they swept up beaten down stocks only to see them beaten down even more". The August Factor proposed many questions for quants during that period, such as whether their ingenious mathematical finance models were correct or whether they were just unlucky, or perhaps it was luck that drove them success in the first place.

GFC and Role of Shadow Banking

According to a report by the FDIC, "shadow banking refers to bank-like financial activities that are conducted outside the traditional commercial banking system, many of which are unregulated or lightly regulated. Many of the activities performed within the shadow banking system take funds from savers and investors and ultimately provide them to borrowers". Some examples of 'shadow banks' could include investment banks and hedge funds. Shadow banks were often blamed as the culprit of initiating the mass leverages which was ubiquitous in the events leading up to the GFC as it was responsible for around 60% of the loans in the economy, while conventional banks were responsible for the remaining 40%. Since these shadow banks are not conventional banks, their actions are not bound by traditional banking regulations and thus the leverage became even more rampant. As it can be observed from Exhibit 2 depicting the liabilities allocation on the left, the shadow banking system is extremely vulnerable to financial stress, since it is responsible for a majority of the world's debts. As panic infiltrated investors in 2007 and 2008, they knew that these shadow banks would not have formal government backing like conventional banks and are thus very susceptible to massive runs. The conventional banks in the US and Europe were encouraged to lend to these shadow banks in hopes of preventing market disruptions, but as investors demanded their money back from shadow banks, the conventional banks stopped lending and kept some money for themselves in case their customers lost confidence in them. Consequently, the support from conventional banks faded and the government had to step in and finance several shadow banks by purchasing their instruments. This gave rise to the Troubled Asset Relief Program (TARP) in October 2008 where TARP

allowed the United States Department of the Treasury to purchase or insure up to $700bn of 'troubled assets', most commonly subprime mortgage loans.

Exhibit 2.



Source: Flow of Funds Accounts of the United States as of 2010:Q1 (FRB) and FRBNY

Role of Regulation in the Global Financial Crisis

Judge Richard Posner argued in his book 'A failure of capitalism' that the reason why banks became willing to make subprime mortgage loans was due to intense competition from the shadow banks. As regulations mandated that banks pay attractive interest on demand deposits, they were considered to be relatively safe, but as deregulations arose allowing other financial institutions to provide services that mimicked services provided by conventional banks, another option was opened for customers. These financial institutions, unlike conventional banks, paid attractive interest and returns thus accelerating the competition between the conventional banks and the shadow banks. However, Peter J. Wallison argued that the crisis could not be blamed on deregulation of the financial sector**,** but rather on inadequate regulators who never had regulatory authority. Wallison argues with the example of the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), a tough regulatory law which demanded prompt corrective action if any banks' capital position began to erode. The FDICIA was so strict that regulators could threaten to control a bank's activities and close the bank entirely if they believed it would become insolvent in the future. However, the then chair of the Federal Reserve, Alan Greenspan argued that it was too tough. It is thus arguable from his perspective that even when regulations were made, the financial industry could still find ways around it, thus depicting the lack of authority inherent within the regulators.

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Hyman Minsky and the Behaviorists' View of the GFC

Having a wide spectrum to view the GFC from various perspectives is important. Hyman Minsky was a famous economist well known for his theorems regarding the financial instability hypothesis where the economy can be depicted into three different stages of income-debt relations. The first stage is known as hedge finance where the income flows are expected to meet financial obligations in every period. The second stage is known as speculative finance where firms must roll over their debt because income flows are expected to only cover interest costs. The third stage is known as Ponzi finance where income flows would not cover interest cost and so the firm must either borrow on or sell its assets to finance its debt. Interestingly, what happened to the shadow banking system, housing market, and the broader economy, could be explained by Minsky's financial instability hypothesis. This hypothesis is based on the behaviorists' concept of extrapolation, where patterns are extrapolated from theoretically random events. In this scenario, financial stability was extrapolated from a stable economy and thus stability was believed to continue indefinitely into the future. The problem inherent within this extrapolation heuristics is the idea of an inflationary economy having a considerable portion of speculative finance units. When monetary policies are enforced to control inflation, some of these speculative units will become Ponzi units (since the increase in interest rate may burden the ability to pay interest) and the net worth of previous Ponzi units will quickly evaporate. Therefore assets would be forced to be sold depicting a similar situation in The Quants.

Now we shall take an example of how Minsky's perspective could be applied to the trend of the housing market amidst the crisis. Assume that the economy starts with old fashion loans such that

loans on houses were made on a conservative basis and repayments were made. The hedge unit in this case represents the adequacy of the borrower's cash flow being able to sufficiently fully service and repay the principal. However, when people are overconfident in progressively rising house prices, loans would start to be made where the borrower's cash flow is still sufficiently able to fully service the interest but not fully repay the principal. This is an example that can be represented by interest only loans, where the bank allows the entire principal to be paid at the end of the loan period. Through this, behavioral instincts are observed as borrowers are optimistic about future interest rates not rising and more importantly the belief that the value of their house would not decline. A great contributor to this belief is the media, creating a social mood such that investors and mortgage borrowers are constantly reminded of the idea that the price of property will increase. As this social mood is created, further positive news regarding house prices appreciating would lead to confirmation bias which in effect makes people even more confident that house prices will continue to appreciate. Minsky argues that the transition from hedge finance to speculative finance poses no fear as long as demand for the underlying assets that are being levered sustains and drive its price up. Therefore, for speculative finance to work, it requires an infinite amount of home buyers to sustain the demand and drive up the price. However, in reality home buyers cannot be infinite.

Thus we are led to the third stage where speculative finance transitions into Ponzi finance. The transition itself can be characterized as irrational, as humans are characterized not as value investors but as momentum investors, such that we exhibit a herd mentality and we will continue to invest in 'things' which have increasing prices. This is analogous to an explanation of the huge demand for the complex securities mentioned earlier. In the Ponzi finance stage, the mortgage

borrowers would have insufficient cash flows to pay the full interest on their loans, but the loan issuer would still allow such loans to be made as they also believed that as long as the property prices go up, it is acceptable that the borrowers defer the interest payments at the end with the principal. This seemingly alluded to the surge of subprime loans and the failed assumption of representativeness that house prices will continue to go up. At a minimum, the application of Minsky's financial instability hypothesis is interesting in light of the ongoing debate regarding the causes and consequences of the global financial crisis.

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Chapter 6

Short Termism, Bank Profits, and the American Economic Meltdown.

Hugo Fonseca

Abstract

In 2007 a recession started in the United States. This recession, which would hit its bottom in 2008 and would only start to get better after massive bailouts to "too big to fail" banks[1] in 2009, would shake capitalism worldwide. Although there were many causes for this recession, one of the most obvious was the recklessness of banks taking too much risk in low quality securities and then passing all risk on to their unwary customers through complex securities methods[2]. One of the most "remarkable" cases was Merrill Lynch and their failure to disclose potentially misleading information about clients' investments. "… Merrill Lynch was found to have been publicly promoting investments that they had privately damned. It is suspected that these false statements were made to secure investment banking deals with the very companies whose stock was being advocated."[3]. Merrill Lynch is only one of the many banks that tried to increase its own profit at the expense of its own customers. The list of banks which also tried to profit off its clients, unwarily baring their bank's risks goes on with financial institutions such as Goldman Sachs, Lehman Brothers, UBS, and many others.

Customers Always Come Second

Many so called "big banks" prided themselves on having gone out of the "old" storage model (lending money to small and medium size business), to a newer and supposedly more profitable "moving" model[4] (packaging complex securities and selling them to unwary customers).

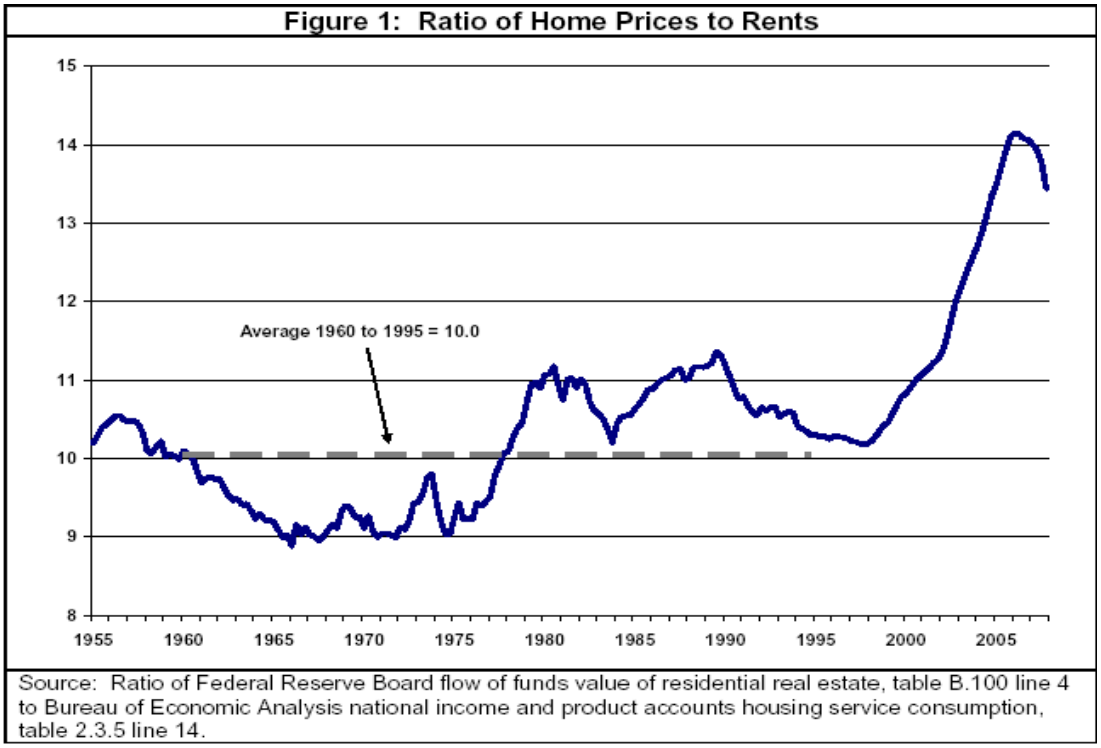
The consequences of this action affected customers in two different ways. First, since these banks were not lending as much money, many small and medium sized companies had problems getting loans to sustain operations, and therefore they either went out of business or found themselves forced to let go some of their employees. This particular action was harmful to the U.S. economy because the severance of employees contributed to unemployment, which then impacted on government's welfare expenditure, and forced all these people to stop spending, which is the backbone for America's economic growth. Second, financial institutions focused on making a profit through fees charged on wealth management accounts[5], and through selling complex securities to unwary customers who believed that their financial institutions were working for their benefit. In reality, many of these banks were just passing on their risks, especially through the sale of "junk" bonds and subprime mortgage risks, marketed as a secure investment.

It could be argued that from the late 1990s until the mid-2000s the amount of loans given by banks actually increased, which means that banks were actually lending more than previously. However, it is not about how much banks were lending. Banks were increasing their lending by focusing on lending to people who obviously could not prove that they could repay their loans. These people were either not employed, did not have any collateral, or were not able to make a down payment. In other words, banks were willing to take risks by lending to anyone who would

fit their interest (normally real estate buyers), and not someone who was trying to open a new business.

The reason why banks were so interested in real estate buyers was because of the notion that people would continuously make a "profit" from the houses that they purchased. In fact, many believed it was more advantageous to mortgage their house, take this money and obtain another mortgage, a car, and whatever they could, or could not, afford. It is widely known that the real estate bubble ultimately led to the 2007-2009 Great Recession[6]. What is less widely known, although somewhat expected, is the fact that banks were more than aware of this flaw in the market. In fact, many economists predicted a bubble in the real estate market in early 2007. Stiglitz was one of those that identified a bubble in the real estate market before it burst[7.] More evidence of the real estate bubble comes from Cecchetti, when he shows the ratio of the total value of residential real estate to a measure of the rental value at an annual rate, which is equivalent to price-earnings ratio per equity[8]. Exhibit 1 below shows how the ratio of ten has been the average for many years, and after 1995 the ratio skyrocketed to an astonishing 14.5 in 2006. According to Cecchetti, this difference is evidence of a bubble because rent prices are too low when compared to home prices. Cecchetti explains that "home prices are far higher than justified by fundamental values"[9].

Exhibit 1. Ratio of Home Prices to Rents



In my view, banks were already aware of the bubble in the housing market, yet they needed the bubble to keep growing so they could lend more money to the overall middle class and "normally undesired customers" (customers with little collateral or ones that use their own mortgage as collateral), who would most likely apply for a sub-prime mortgage. This sub-prime mortgage, normally extremely risky, would go into a pool of mortgages that would then be securitized and sold to unwary customers as a secure investment[10]. This kind of transaction would then be extremely profitable to the bank since they would hold barely any risk, letting their customers bear it instead.

Everybody Scams

Sub-prime mortgage securities were widely sold by banks to their clients as a very profitable investment. Although sub-prime mortgages were normally classified as a highly risky investment, as said before, banks sold them as AAA level investments. These investments consisted of complex pools of sub-prime mortgages, credit card debt, and student loans[11]. To make matters worse, in 2007 on the edge of the mortgage driven crisis, banks such as Goldman Sachs already had the knowledge that the mortgage securities were about to crumble. Therefore, Goldman started betting against them using complex securities methods. However, Goldman still advised their investors to buy sub-prime based securities[12]. This clear conflict of interest was obviously a way for Goldman to keep profiting even though it meant putting its own customers at risk.

It is important to keep in mind the importance of rating agencies, such as S&P, during the crisis. Triple A is a grade given by rating agencies, to companies which are supposed to be "economic tanks", or in other words, extremely secure investments. However, these grades are not as reliable as people think. Arguably, these agencies are not nearly as accurate as expected, and, although important, their grades are just part of the process to see how safe an investment is. For instance, the United States, for now, holds a AA+ rating. Ironically, Lehman Brothers had AAA rating the day before they went bankrupt.

On the forefront of this turbulence was Fabrice Tourre who, on January 23, 2007, wrote an email to an anonymous friend saying how there was "More and more leverage in the system. The whole building is about to collapse anytime now ... Only potential survivor, the fabulous Fab[rice Tourre] ... standing in the middle of all these complex, highly leveraged, exotic trades he created

without necessarily understanding all of the implication of those monstrosities [sic]!!!"[13]. Yet a month later Fabrice Tourre wrote a document that contained details of a $1bn investment fund, designed to be given to potential investors. The fund was no ordinary fund, however, but a synthetic collateralized debt obligation (CDO) – a parcel of sub-prime mortgages - to be called Abacus 2007-AC1[14].

It is now clear how Fabrice Tourre tried to profit twice at the expense of Goldman's investors: once from structuring the Abacus fund, for which he earned $15m, in conjunction with Paulson & Co, the New York based hedge fund run by John Paulson, whose profits are not known[15,] and once from using complex securities methods for betting against themselves.

In July 2010, Goldman Sachs agreed to pay a US$550 million settlement to its "cheated" investors. Although this amount sounds astronomical, it doesn't seem as much if one keeps in mind that Goldman reported a US$13.39 billion profit in 2009[16]. In my opinion, this fine will most likely not make Goldman, or any other financial institution for that matter, rethink their strategy, and make sure all necessary information is disclosed to their clients in the future. In my opinion, this agreement actually helped Goldman increase its profits. I believe this because Goldman was not found guilty (after they agreed to pay the fine the case was closed). Investors now see Goldman not only as "too big to fail", but also as a "too big to face consequences". Just looking at Goldman Sachs' stock price since the release of the settlement agreement supports this argument: see Exhibit 2.

Exhibit 2. Goldman Sachs stock price since the release of the settle agreement

Source: Google Finance

The red arrow is the date Goldman released a statement about settling with the United States government. About two weeks later, Goldman's stock value increased far more than the settlement amount the company had to pay. Goldman Sachs, Merrill Lynch, and other financial institutions are only some of many, Wall Street enterprises that have been cheating either their investors and/or the government.

What I Have Concluded

What Goldman has done to its customers is beyond excuses, fines and settlements. In my view, Goldman shakes American investors' trust in a deeper way; trust that would have taken years to recover if it was not for the willingness of those same investors to accept profits that came from the same obscure acts. I believe that it is important to make profit, but profiting off of an illness in the system will only make the system more fragile. In other words, banks' eagerness to profit quickly by inflating the real estate bubble just allowed a few institutions and investors to profit off the losses of the majority. Also, if one takes in consideration the government's acts to punish

Goldman Sachs, it is hard to believe that a relatively small fine will stop other institutions from doing the same in the future.

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Chapter 7

Financial Crisis of 2007

Mariusz Zielinski

Financial bubbles are not new or unknown phenomena, especially to students of economic history. They occur every so often for the same reasons and with similar consequences. The primary reason for any bubble is an escalating concentration of capital in one industry. The 2007 bubble was a product of the real estate industry with its satellite mortgage financing overheating. It resulted from the irresponsible behavior of four culprits: government, individual savers, unseasoned institutional investors and individual real estate investors.

One could make an argument that the government's regulation of the financial industry, and more specifically enforcement of its governing laws, were on a slippery slope ever since the banking deregulations of the 1970s. Lack of enforcement caused multiple mini bubbles over the last 30 years. However, one crucial congressional hearing in September of 2003 could be linked to a loosening of credit requirements for new mortgages and the resulting subprime meltdown. The hearing resulted from the accounting scandals at Government Sponsored Enterprises (GSEs) -- Fannie Mae and Freddie Mac. At the hearing, Treasury Secretary John W. Snow proposed measures to strengthen the oversight of GSEs through the creation of a separate entity within Treasury Department. The plan was not received well, especially by the democratic

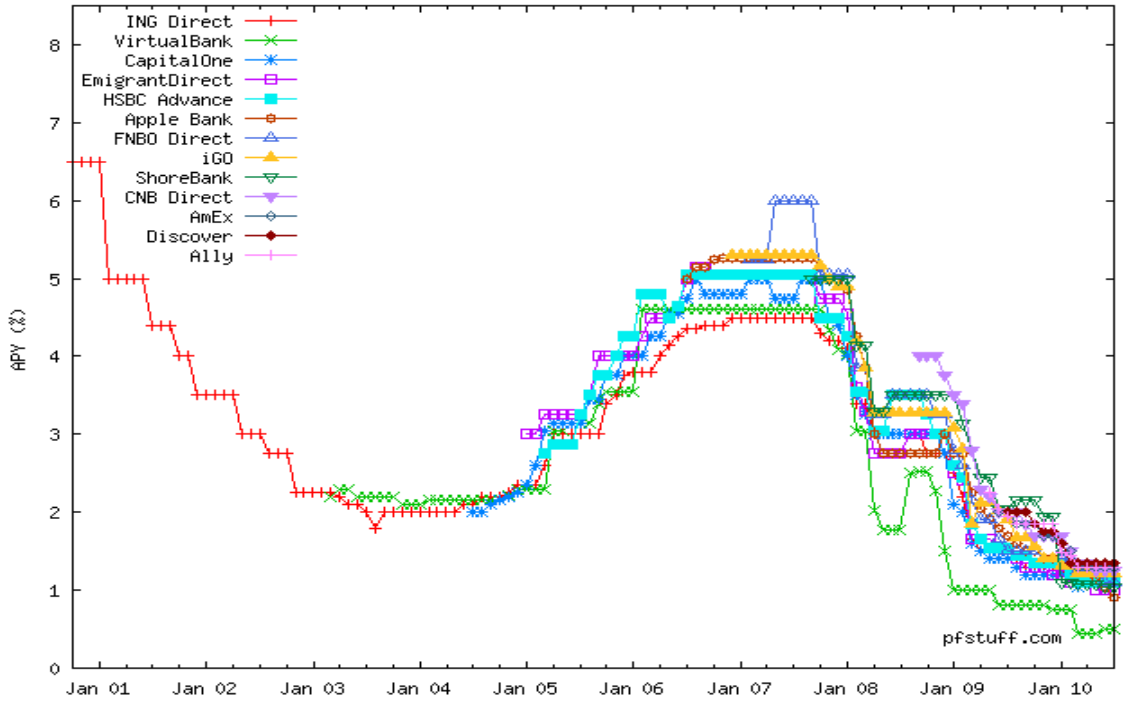
Congressional delegation. Barney Frank, a ranking minority member of the Financial Services Committee, criticized the proposal stating that there was no need for increasing scrutiny over GSEs and any attempt to implement such additional regulations would only result in limiting access to financing for affordable housing projects(1). This action of a well known political figure shows how political aspirations and goals can have devastating effect on the economy by ignoring facts and failing to address the wrongdoings of companies holding monopolistic positions in an industry. One can only speculate that if Secretary Snow's proposals had been implemented, it may have prevented the spectacular rise and fall in real estate prices. It was a crucial mistake made by the political elite -- Congress opened the gates for a Trojan horse to enter.

While Congress didn't allow the Treasury Secretary to implement his reforms, and thus planted the seeds of the subprime lending crisis, there were other factors that lead to the creation of the mortgage bubble. In order to finance any enterprise, one needs to obtain financing. In the case of real estate investment, the source of the money is not a mortgage company, but rather individual and institutional investors placing their funds with such financial institutions. Hence, the next culprits of the real estate bubble are individual savers. Through their saving accounts, pension funds, and retirement plans, individual savers hunted for higher yields on their investments. When financial institutions, inclusive of small community banks and credit unions, exhausted all standard means of obtaining sufficient yields to satisfy their customer's needs, they turned to the subprime market (i.e. undocumented loans at above average interest rates) and other exotic instruments created by financial engineering (i.e. Credit Default Swaps - CDS). Thus all financial institutions, from small community banks to investment banks, began to place money, entrusted

to them by individual savers, into those new instruments and subprime mortgages. Are financial institutions to be blamed for such actions, or should savers who pushed the institutions for higher returns be held responsible? The populist view is to blame Wall Street, as it is an easy target to define. Placing responsibility on the individual savers would be extremely unpopular, especially in a society not able to recognize its faults and shortcomings.

Exhibit 1 below illustrates the increase in both the number of financial institutions and the yields required by savers during the development of the bubble.

Exhibit 1. Historical Rates



http://www.pfstuff.com/savings/

As the graph above illustrates, there was a significant increase in the number of institutions offering individual savers investment opportunities in the last decade. This leads me to address yet another group of culprits - unseasoned investment professionals. Over the last 40 years employment in the financial industry has doubled, as illustrated by Exhibit 2 below, with more and more college graduates assuming responsibilities for investing money. There were more so-called "professionals" seeking alpha, above average returns, than ever before. A crowding out effects occurred as more and more money was placed into instruments not fully understood by investment professionals. Again, a herding effect played a role in ignoring and/or misunderstanding the risks involved in the investments made in these complex new financial structures. The inexperience also affected ranks of the government oversight professionals who were unable to pin point the dangers of such investments. This lack of comprehension was only matched by the lack of enforcement in spite of existence of relevant regulations. This begs the question -- how could one expect gullible, young investment managers to identify the risks misunderstood and unnoticed by enforcement officials? Consequently, only a few seasoned investment professionals were able to avoid the losses which stemmed from the crisis.

Exhibit 2: Employment in the Financial Services Industry

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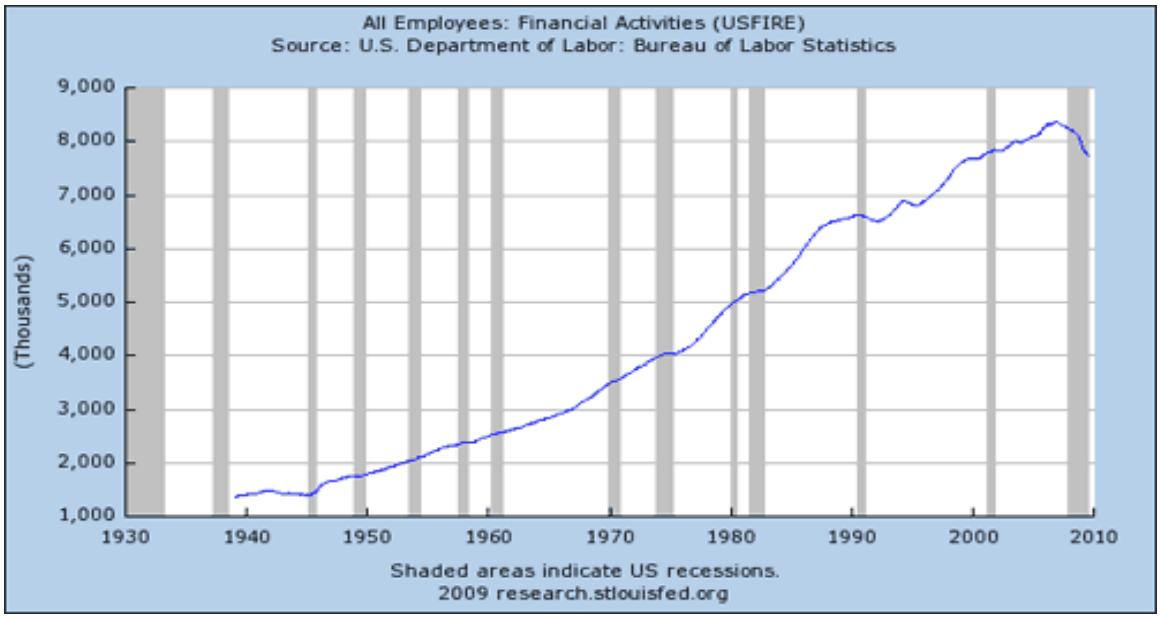


Source: St. Louis Federal Reserve Bank

Finally, one cannot ignore the role that individual real estate investors/speculators played in the creation of the mortgage bubble. Groups of individuals who saw an opportunity in buying houses early on at low prices and selling them shortly after the value increased became celebrities,

followed by millions on HGTV (2) shows. Throughout the country, individuals with thriving entrepreneurial fortitude pushed kinder spirits to abandon their so-called "9 to 5" jobs in order to take advantage of the easy money. With so many participants in the industry, entire complexes were built and never occupied just to satisfy the demands of individual investors who never even saw the units they purchased. This classic example of oversupply couldn't continue indefinitely. Only a few experienced investors recognized the signals of a bubble and exited the market realizing the fruits of their work, and cashing in on the profits.

In the aftermath of the crisis, both politicians and commentators steered the public's attention towards new exotic financial instruments, such as CDS, and identified them as the root cause of the current financial crisis. This allowed the political elite to direct the focus away from their mistakes and to generate further wasteful new regulations. But financial engineering was only a tool, and not the underlying reason for the bubble's creation. Individual greed, combined with the unwillingness of governmental agencies and policy makers to enforce existing laws, along with the inexperience of so called investment professionals, were the actual causes of the bubble.

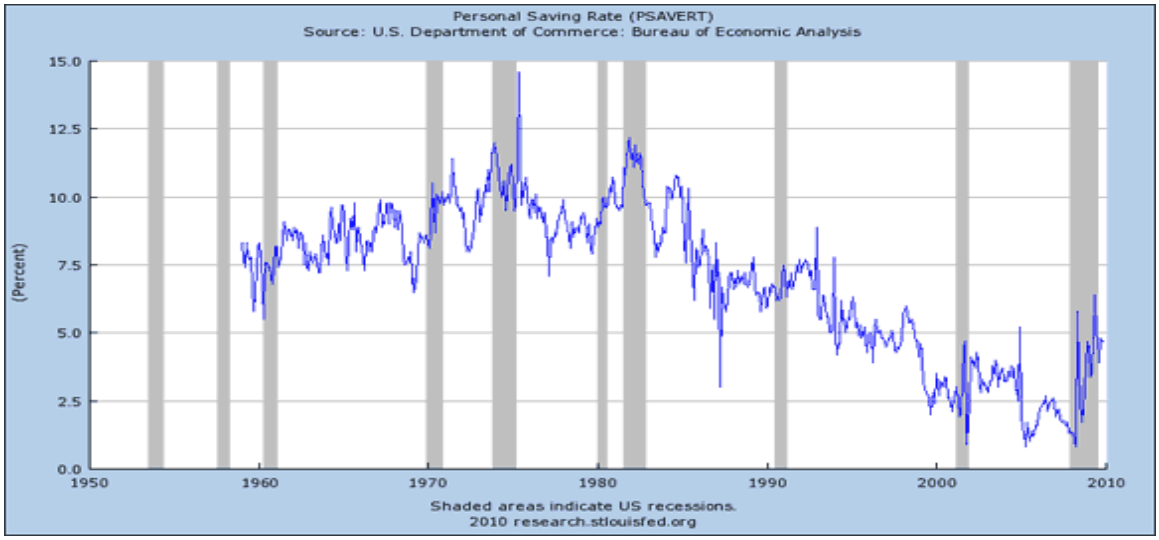
Robert Bruner, in "The Dynamics of a Financial Dislocation" (3) points out that the abundance of funds coming from abroad, which he calls a "savings glut", was another reason for the Fed's inability to control interest rates better. This led to the availability of low-cost credit. It is the well-documented behavior of investors worldwide to invest in booming markets. This was the case during the Tulip mania in the 17th century, the Mississippi Company in the 18th century, or the Banking crisis of 1907. Whenever investors see the opportunity to earn returns beyond those that prevail in their local markets, they take risks and shift money to blooming markets or

industries. This has become increasingly easier due to the interconnectivity of financial markets and the availability of leverage. Bruner also points out that the primary difference between the crisis of 1907 and the crisis of 2007 was the government's role. In previous busts, government simply got out of the way of private industry's rescue plan. In 1907, John Pierpont Morgan, an American financier, banker and art collector, came up with the solution, and was able to convince president Theodore Roosevelt to allow him to implement it without government meddling. In the current crisis, it was the government that took a lead role in the creation of a rescue plan. Making things worse, the plan was inconsistent in its approach to rescuing various entities. After devising the merger of Bear Sterns with JPMorgan Inc., the US government experimented with the fallout of Lehman Brothers (LB). Perhaps the aggressive tactics of LB's CEO Dick Fuld over the last decade, which saw LB's stock appreciate from USD 7 in Sept 1998 to USD 82 in Jan 2007, was a reason for the experiment. No other investment bank saw such spectacular appreciation in stock price and an increase in its market share. Inconsistency in the government's intervention resulted in confusion among investors and market participants. It caused a temporary shutdown of market liquidity and escalated market panic. I agree with Bruner's conclusions that the government's intervention leads to the creation of a moral hazard, as well as with his statement concerning financial crises in general: "There is no silver bullet, single explanation, for financial crises. Financial crises are self-reinforcing vicious cycles" (3).

Laurence Siegel, in his article entitled "Riskless Society is Unattainable and Infinitely Expensive" (4) states that there are two ways of paying off debt. The first method is through increased taxation, which is always an unpopular proposition to the electorate. The second way to reduced public debt is through inflation. As inflation is an expected evil in any economy, it

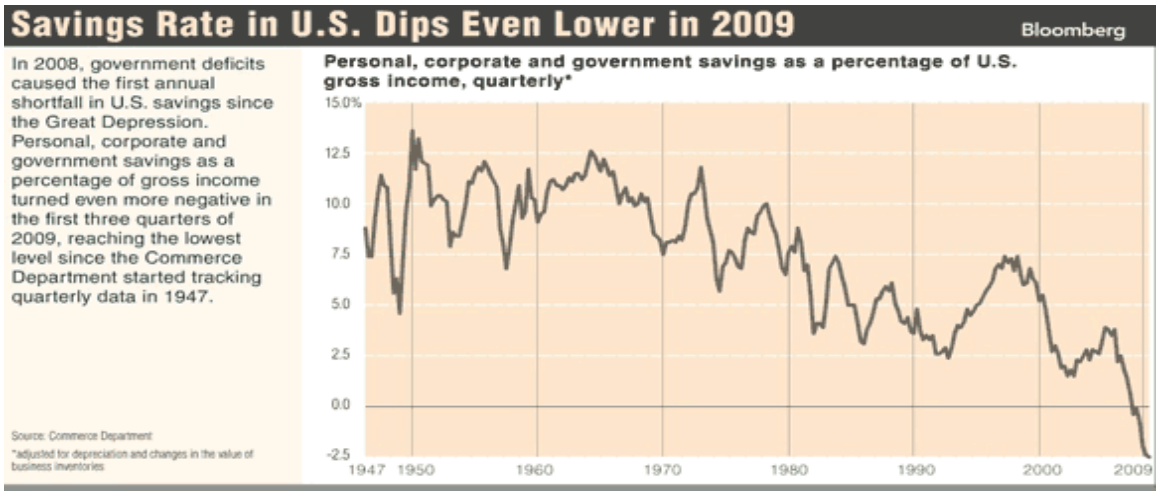
presents itself as a rather appealing scenario to politicians. Siegel stated "...we cannot all live at each others' expense. We are, each of us, responsible for our own well being" (4). Unfortunately, the US government does not subscribe to the same view. Instead, governmental policies are geared towards the creation of a "riskless society", and its entitlement programs increase moral hazard with each new piece of legislation (e.g. health care reform). It has been known for years that the continuation of such programs is not sustainable, yet any attempts to reform them (i.e. former president Bush's social security privatization plan) cannot pass through Congress. While inflation would undoubtedly hurt both savers and investors, it would mostly affect the lender of last resort (China) and small group of voters who still save.

Exhibit 3. Total U.S. Savings Rate



Source: St. Louis Federal Reserve Bank

Exhibit 4.



Source: Commerce Department

Exhibits 3 and 4 compare the personal savings rate in the US with the gross savings rate of the nation, inclusive of personal, corporate, and governmental savings. It is clear that personal savings are very close to an all-time low. Again, fighting debt with inflation would make for a very easy argument for politicians. It is a rather scary proposition, but one that needs serious consideration by investors and savers alike. One of the most convincing substantiation of such possibility was a statement made by Mr. William H. Gross, the CEO and co-founder of PIMCO (Pacific Investment Management Company, LLC), a fixed income investment company. He was quoted as saying that the fixed income investment giant believes there is significant interest rates-inflation risk in the near future, which has caused the company to diversify into other financial assets. (6)

In contrast, George Soros in "The crash of 2008 and what it means" (7) surprisingly advocates further regulations of the financial markets. He also supports taxpayer financed modifications to existing defaulting mortgages in order for homeowners to retain their residencies and he supports

the use of taxpayer's money to bailout corporate entities. Soros is known for his investment acumen, but his behavior and ethics have been called into question at times. Hence one cannot help but wonder what agenda Mr. Soros has in advocating such actions. In regards to further regulations of financial markets, he states that new conventions are needed to rein in irresponsible behavior, not at the expense however, of investor's willingness to take risks and champion innovations. Unfortunately this approach to regulation proposed by Mr. Soros would have only resulted in schizophrenic rules with limited enforcement capabilities at best.

At the time Mr. Soros wrote his book, mortgage assistance programs were propagated by politicians and were very popular. Over time, we have learned that most of the restructured mortgages defaulted for the very same reason that they defaulted for in the first place — the real estate was not affordable. Instead of allowing the market to dictate the rules by allowing such mortgages to default, politicians used the advice of individuals like George Soros to ultimately waste public funds.

The third proposal – increasing use of taxpayer's money for bailouts of various companies is most surprising. George Soros benefited throughout the years from exploiting incorrect valuations of various enterprises and currencies. It would appear that he would be on the forefront of allowing market forces to weed out bankrupt companies. Overall it appears that Mr. Soros used this book, and his aura of personal success, to express his political views rather than propose innovative solutions to the problems facing the nation.

Shortsighted solutions in dealing with the real estate bubble of 2007 resulted in a ballooning deficit and the creation of multiple government owned companies. All such companies continue

to depend on further taxpayer-funded bailouts for survival. Again, politicians didn't allow for the market correction that would have been harsh but short lived. For one reason or another, politicians believe that they have better answers and solutions than the rest of the population. Yet evidence shows time and time again that it is not the actions of politicians, but the ingenuity of the public that results in the prosperity of the country. Companies like General Motors should have either been sold to the highest bidder or been allowed to perish. Companies of that magnitude, held on life support by taxpayers, will not turn themselves around. Congress sponsored stimulus programs inevitably lead to waste as Sen. Tom Coburn, a US Senator from Oklahoma and Sen. John McCain, a US Senator from Arizona detail in their book "Summertime Blues". (8).

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Chapter 8

How the Contagion in Subprime Loans Spread to the Government

Pauline Tseng

The Global Financial Crisis ("the Crisis") seemed to arise out-of-the-blue one September weekend in 2008 when the media and financial press went into a frantic frenzy about the collapse of a venerable Wall Street investment bank, Lehman Brothers. Then, a few days later came word that the United States Government ("the Government") had put up hundreds of billions of dollars to rescue a large insurance company, American International Group ("AIG"). I kept an eye on the news reports in the financial press and in the mainstream media over the past two years (at the time), and an emerging consensus seemed to develop about the cause of the crisis. The villains of the crisis were the investment banks and large international banks on Wall Street that took on risky bets, overleveraged themselves and, in the process, made themselves indispensable because they were too big to fail. If they were left to fail, they would bring down the entire global financial system with them. Consequently, the government had to bail them out with corporate welfare totaling almost $800 billion. This bail out, known as TARP, was meant to prevent a massive bank run that would cause the collapse of these institutions. While the fat cats sitting in Wall Street banks, investment banks, and hedge funds caused the problem, they would not feel the real-life consequences. Those would be borne by the hard-working poor souls on Main Street who, duped into accepting mortgage contracts filled with complex legalese no one read nor understands, would soon be losing their homes through foreclosure. The remedy devised by President Obama's economic team was to enact new government programs to keep people in their homes. This was to be achieved by modifying mortgages, providing tax incentives to entice

buyers to purchase houses, and by pushing through a giant stimulus package of approximately $800 billion to fire up demand in the real economy to prevent job losses and high unemployment.

That was then. Now we can see that the causes, consequences, and remedy are not so black and white. Now I have a different perspective regarding what caused the crisis. We need to understand the cause in order to understand why the government bailed out Wall Street. Yes, Wall Street must accept its fair share of the blame for its risky financial engineering that transferred and hid risk. However, blaming Wall Street greed or malfeasance as the sole cause of the crisis is too simplistic, and too easy. It lets the rest of us off the hook with a feeling of moral superiority that is perhaps undeserved. After all, Wall Street was merely responding to incentives devised by Government policies that intervened in the mortgage market to encourage home ownership for all Americans. The Government wanted all voters to have a stake in their society, especially those from minority and poor backgrounds. While the Government's policies were morally well-intentioned, in the real world they presented perverse incentives – perverse because they encouraged lenders to focus on the fees to be earned from mortgage origination, rather than the credit-worthiness of the borrowers. The government sponsored entities – Fannie Mae and Freddie Mac – purchased mortgages, enabling the mortgage originators to sell the mortgage loans in the secondary market to obtain capital with which to make new loans. In effect, Fannie Mae and Freddie Mac became the *de facto* insurer of last resort. It is true that Wall Street devised the originate-and-distribute model to securitize mortgages by separating the origination and distribution functions that in the good old days used to happen at the local bank in the community. However, the moral hazard was provided by the Government's backstop as implicit guarantor. This is why the Government had to bail out AIG's counterparties in full, without

making the lenders take any haircut, because had AIG failed, the lenders would have been knocking on the doors of Fannie Mae and Freddie Mac to make good on subprime loans.

Dean Robert F. Bruner explains that the cause of the crisis lies in the distorted incentives that resulted from the securitization of mortgages, which separated the origination and distribution of mortgage loans. Government intervention in the housing market created a destabilizing role in the economy by creating a moral hazard. The mortgage originators moved the loans/assets they originated off their books and into the hands of investors. Since they were not holding the loans/assets, the mortgage originators did not have any interest in scrutinizing the credit-worthiness of the borrowers. In fact, their incentive was to originate as many loans as possible to maximize their fees. The subprime borrower also got a free ride because they typically put down little to no down payment to purchase a house. In essence, they were encouraged to treat house purchases as put options. The borrower stays in the house as long as its price rises. If it were to rise significantly, the borrower may even extract equity from the house, thus the common parlance of using the house like an ATM. However, if the house drops in value, then the borrower cannot make the mortgage payments and will need to modify the mortgage or default. In the case of default, the borrower's losses are limited because she/he obtained the mortgage with little or no down payment, and many of the mortgage loans are non-recourse. Moreover, even if the lender had recourse on the borrower's other assets, it would generally not be in the economic interest of a lender to go after the subprime borrower who typically has limited assets. In Dean Bruner's view, the reason the subprime contagion spread worldwide was because international investors purchased securities backed by pools of individual mortgage loans and then sliced them up into tranches to be purchased by other investors. Once house prices started to

fall in 2006, it became impossible to tell which securities held the "fatal cards" of toxic subprime mortgages. The economic system was fragile due to over-leverage, and could not absorb the shock from the defaults in the subprime mortgage market. It was unable to countenance any losses because of low equity, and high leverage. For example, if a firm has a debt-to-equity ratio of 10%, it can absorb a 10% loss before its equity is wiped out. When Lehman Brothers collapsed, it was capitalized at over 30 to 1, which meant that a 3% fall in prices could effectively wipe out its equity. By contrast, JP Morgan Chase, which took over Bear Stearns, was leveraged at 13:1. Thus, Mr. Bruner describes a drop in housing prices, leading to a rise in defaults on subprime mortgage loans, which then set off a domino-like effect among financial institutions and investors.

In "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis,"[30] Bruce I. Jacobs attributes the Crisis to the lack of due diligence on the part of mortgage originators, lenders, and investors, and the lack of supervision by banks, credit-rating agencies, and regulators. He contends that structured financial products disguised the real risks of subprime mortgage loans, and characterized them as low-risk, high-return investments. In his view, before the crisis the financial industry treated residential mortgage backed securities ("RMBS") as risk-sharing instruments. The pooling of mortgages was attractive because it diversified risk by spreading it out over larger geographical areas, which was thought to decrease the likelihood of default. Jacobs argues that, in reality, RMBS did not hedge or share risk. Instead, they shifted the risk of the underlying mortgages from the lenders to the investors, or buyers of the tranches that the

[30] Bruce I. Jacobs. 2009. "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis." The Research Foundation of CFA Institute.

RMBS were sliced into. However, Jacobs explains that shifting risk does not eliminate or reduce it. The same level of default risk is merely transferred from borrower to lender, from lender to investor, from one tranche of RMBS investor to another, and finally from investor to the guarantor.

In Jacobs' view, the misperception of risk in these structured financial products arose because of bad financial modeling that masked the reality of the shaky foundation supporting the whole structure: loans to high-risk borrowers. In reality, not only did the risks remain, but they were magnified due to the amount of leverage in the financial system. He concludes that: "although hidden, the risk remains, and it eventually brought down the entire financial edifice."[31]

The question is why the subprime problem could not have been contained within the subprime segment of the housing market, and instead spread the contagion of toxic debt throughout the entire global financial system. In "The Shadow Banking System and Hyman Minsky's Economic Journey,"[32] Paul McCulley attempts to provide an answer using Professor Minsky's "financial instability hypothesis". This hypothesis holds that capitalists, when operating in conditions of stability, tend to extrapolate the expectation of stability into the indefinite future, and put in place ever-more risky debt structures in search of profit. In doing so, they undermine stability and create instability. This explains the boom-bust cycles endemic in capitalism. Capitalism is constantly evolving in search of profit, which is an inherently destabilizing process. McCulley

[31] Ibid., at p. 57.
[32] Paul McCulley. 2009. "The Shadow Banking System and Hyman Minsky's Economic Journey." The Research Foundation of CFA Institute.

explains how mortgage financing in the United States followed Minsky's three-step path toward financial instability. The first type of debt, "the hedge unit" in Minsky's terminology, is stable because the mortgage borrower's cash flow is sufficient to pay back principal and interest. Once lending to these prime borrowers has been exhausted, mortgage lenders move on in search of more elusive profit, and resort to "speculative" lending. These borrowers have less cash flow than prime ones, and are able to afford to cover only the interest payments, and cannot afford to pay back any of the principal amount of the loan. When the mortgage loan matures, they need to refinance the debt which remains at the same level of the original loan amount. Thus, the bet these speculative borrowers make is that the house will not decline in value over time. Of course, they hope that the house has increased in value by then, providing them with a cushion of equity, but they can manage to get by if the house does not decline in value. The final step in the Minsky hypothesis is the "Ponzi unit" of credit, defined as a borrower who has insufficient cash flow to even pay the full interest on the loan. Consequently, Ponzi loans are characterized by negative amortization such that the interest payments that the borrower cannot afford to make are added on to the mortgage principal. Thus, at maturity, the borrower will owe more than the original loan. What is readily apparent is that the Ponzi borrower cannot tolerate even price stability, because even if the price stays the same, the negative amortization will render the loan bigger at maturity than the original loan. The bet such a borrower makes is that the price will go up in value over time.

What matters in Minsky's scheme is the supply side of speculative and Ponzi credit – not the demand side. The speculative and Ponzi borrowers are making bets, and have little to lose because they have little to no equity in the game. Any losses from defaults or falling house

prices will largely be borne by the lenders. The securitization of subprime mortgages occurred in the unregulated "shadow banking system" where the supply of credit through leverage was not regulated by debt-to-capital ratios. Eventually, the credit bubble becomes unsustainable because the underlying assets have become too bubbly, and the day of reckoning – the giant margin call – arrives. The banking system is forced to deleverage as the Ponzi and speculative debts default in increasing numbers, causing house prices to fall, causing more deleverage, causing even greater price falls, etc. McCulley argues that the deleveraging cycle stops when the Government uses its balance sheet to take up the other side of the trade by spending and risk taking to help mitigate a "paradox of deleveraging."

In Laurence B. Siegel's article "A Riskless Society Is 'Unattainable and Infinitely Expensive'," [33] we see that the government is following the Keynesian prescription articulated by Paul McCulley. Mr. Siegel explains that the government's policy response to remedy the crisis has been to try to re-invigorate lending in the economy, or re-flation, through massive government intervention. This intervention included the Federal Reserve's purchase of unsellable or toxic assets, resulting in an unprecedented increase in the Federal Reserve's balance sheet; and a massive stimulus package of approximately $800 billion. Both of these policies are being financed through deficit spending because they exceed current tax revenue. Thus, the government's action to respond to the crisis has resulted in a massive expansion of government. Siegel argues that while it may look like the government is being proactive in managing economic risk to protect the citizenry from the negative fall-out of the crisis, in reality the

[33] Laurence B. Siegel. 2009. "A Riskless Society Is 'Unattainable and Infinitely Expensive'." The Research Foundation of CFA Institute.

government is increasing risk in the system through more deficit spending. These large deficits will have to be paid for someday through three possible options: (1) higher taxation; (2) issuance of new debt by the Government; and/or (3) inflation to reduce the real size of the greatly enlarged debt. Thus, the systemic risk keeps building up in the real economy because American voters keep expecting the government to solve the problems produced in each economic crisis by spending other people's money to help them through economic difficulties. Siegel argues that, at some point, the risk will explode because the government will be unable to finance any further deficit spending. The amounts spent by the government to deal with this crisis are so large it is hard to contemplate. Robert F. Bruner states in "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis,"[34] that the financial commitments made by the government to deal with the crisis stood at the staggering sum of $8.2 trillion, of which $3.9 trillion has already been disbursed. Greece is a prime example of what happens when a government overspends. Things look normal, and the deficit spending plods along, until suddenly there is a break applied by the bond market. Siegel argues that repeated government intervention to moderate the normal economic ups-and-downs inherent in capitalism has infantilized voters to rely on the government to take care of them by spending other people's money. The government's attempt at economic moderation creates moral hazard by discouraging individual responsibility and encouraging intolerance of normal economic cycles.

Mr. Siegel's warning of unrealistic expectations caused by government intervention in the economy is one way to look at policies encouraging home ownership. Those policies encouraged

[34] Robert F. Bruner. 2009. "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis." The Research Foundation of CFA Institute.

people who could not afford to purchase homes to become home owners. Wall Street facilitated these subprime no-income-no-job mortgage loans through securitization. Since the loans were not being kept on the banks' books, as in plain vanilla loans, but being sold off to investors, many of whom were foreign banks and foreign central banks, the mortgage originators did not concern themselves with affordability or credit-worthiness. These foreigner investors falsely believed that these RMBS held little risk because they were highly rated by the credit-rating agencies. Moreover, they held the implicit guarantee of the government through the government-sponsored entities, Fannie Mae and Freddie Mac. In effect, investors were betting that the RMBS were low risk, high yield investments because the guarantee provided by Fannie Mae and Freddie Mac meant that the government itself stood behind the underlying mortgage debt. Their bet paid off in September 2008 when, according to Dean Robert F. Bruner,[35] the government put Fannie Mae and Freddie Mac into conservatorship, thereby nationalizing approximately $5 trillion in mortgage loans.

In the past, I had accepted the view conveyed by the mainstream media and financial press that the government had to bail out Wall Street because the banks, which got themselves involved in subprime mortgages, were too big to fail. The solution seemed within reach: prosecute the fraudsters, claw back the unmerited multi-billion dollar bonuses from the fat cat financiers, tighten up the regulatory regimes, and break up the financial institutions so that they will not be too big to fail when the next crisis comes around. Now however, I understand why the contagion of subprime mortgages could not be contained to the lowest tier of the housing market. The

[35] Ibid., at p. 36.

Government needed to use its own balance sheet to buy up the toxic mortgage debt ostensibly created by Wall Street because it had become the insurer of last resort on the underlying inflated toxic assets. The Wall Street bailouts of the financial institutions, AIG, and the conservatorship of Fannie Mae and Freddie Mac merely acknowledged to the world that the government was prepared to honor its guarantee, and was willing to put its own balance sheet on the line to make good on its promise. The former Treasury Secretary Henry Paulson perhaps put it more colorfully by saying that when one takes out the bazooka, hopefully one will not have to resort to using it. Similarly, the government stood ready to do whatever it would take to stand by its guarantee, even to the extent of bailing out rich financial institutions and AIG to make the affected lenders whole. The government hoped that the forcefulness of its actions would convince counterparties that it would act as guarantor on all $5 trillion of mortgage debt being held by Fannie Mae and Freddie Mac, without needing to force wholesale liquidation to make good its guarantee. To date, the government has managed to prevent wholesale simultaneous defaults. However, its strategy of pretending and extending toxic loans as they mature has come at great cost. The government has leveraged its balance sheet to buy toxic assets, and has been spending the stimulus funds in a great reflation experiment to stop the decline of prices in general, and housing prices in particular. As we are not out of the crisis two years on (at time of this writing), we do not know how this reflation experiment will turn out. But the law of unintended consequences tells us that it is unlikely that the government can solve a debt/over-leverage crisis that started in the private sector by socializing that debt/over-leverage onto the Government's books when the same Government is already over-indebted. In the terminology of a well-known contrarian, Nassim Nicholas Taleb, the black swan event is that more Government debt will solve

the debt crisis caused by overleveraging in the financial system. The white swan event, or more probable outcome, is that the Government has socialized the massive debt to be paid back by many generations of taxpayers. To those who ask where all that money went, we should ask the Wall Street financiers who took big bonuses, and the mortgage borrowers who took out equity from inflated house prices when the music was still playing. The music has now stopped. And we find that the toxic debt has been piled on to the government. The question for the voters is who should pay for that massive debt? This is a political question that economics cannot answer.

Chapter 9

Regulatory Policy and Behavior Elements of the Global Financial Crisis

Yei Fei Lu

Introduction

The Global Financial Crisis (GFC) is widely recognized as the period starting in October 2007 and ending in 2009, in which trillions of dollars evaporated around the world. My initial understanding of the causes of the crisis is that a housing bubble burst in the US, and that the unexpected, high default rates in subprime loans had caused the subprime mortgage backed securities (e.g. CDOs) to decline in value. The decline in value of these securities had led to huge losses in financial institutions' portfolios and jeopardized their financial position, since most of the investments in subprime mortgage backed securities were highly leveraged. Other factors that had contributed to the Global Financial Crisis include the growth of securitization, the relaxation of lending standards and regulatory controls, and the availability of cheap credit due to the trade imbalance between the US economy and the Chinese economy.

Things turned calamitous in September 2008 when it came to light that Lehman Brothers had filed for bankruptcy after being denied support by the Federal Reserve Bank. Later the same day, Bank of America announced that it would purchase Merrill Lynch. Two days later, American International Group (AIG), which suffered due to its credit rating being reduced, was helped by the Federal Reserve with the creation of an $85 billion credit facility to stop it from collapsing. The whole world then went into panic, the stock market plummeted, and the credit market dried up. Numerous rescue plans were put forward and governments were guaranteeing banks and financial institutions in order to provide liquidity and to avoid runs on banks.

My first thoughts on the adverse impacts of the crisis were that the crisis had led to credit contraction, wealth destruction, loss of confidence around the world, and the initiation of the worst recession since the Great Depression. Further, I thought that the areas for future remedies of the crisis would be: more prudent lending attitudes and standards, tighter assessment for credit risk, market risk and liquidity risk, and a change in financial regulations in order to 'mend the holes'.

August Factor

The book 'THE QUANTS' written by Scott Patterson, provided me with some new and interesting perceptions of the Global Financial Crisis. Most people, including myself would have thought that the world financial system was near collapse when Lehman Brothers filed for bankruptcy in September 2008, and many other financial institutions such as AIG were teetering on the verge of collapse. However, Mr. Patterson details a near collapse of the financial system a year earlier, which few are aware of. According to Mr. Patterson's book, a group called the

‘Quants’ developed complex systems to trade securities such as mortgage derivatives, which were at the heart of the crisis. As the US housing market unraveled, it was followed by the collapse in the subprime market and a decline in value of all subprime CDOs. Ratings agencies were also downgrading large swaths of CDOs, pushing their value down even further and prompting more forced selling from hedge funds as margin calls on funds with significant subprime holdings were rolling across Wall Street in early August 2007. One or more of those hedge funds needed to raise cash quickly to make up for the losses, and needed to sell assets quickly to do so. And the easiest-to-sell assets of all were stocks.

The result was a catastrophic domino effect where every quant fund was selling in a panicked rush for exists. The rapid selling scrambled the models that Quants used to buy and sell stocks, nearly every single quantitative strategy that was thought to be the most sophisticated investing idea in the world, was shredded to pieces, leading to billions in losses. Oddly, the bizarre world of quant trading largely masked the losses to the outside world at first. Since the stocks they'd shorted were rising rapidly, leading to the appearance of gains on the broader market, that balanced out the diving stocks the Quants had expected to rise (they were trying to deleverage by dumping the stocks). This whole bizarre effect was called the ‘August Factor’ and it was an entirely new factor with strong statistical properties unlike anything that had ever been seen in the past and hopefully, will ever be seen again.

The meltdown also revealed dangerous links in the financial system that few had previously realized. We have subsequently discovered that losses in the U.S. housing market could trigger losses in huge stock portfolios that had nothing to do with housing. It was utter chaos driven by

pure fear. Mr. Patterson's book has stimulated my thinking and I am now able to look at the Global Financial Crisis from 'The Quants' point of view.

Causes: Shadow Banking System and the Irrational Behaviors of Institutions

There had been a lot of factors that were considered to be the causes of the recent Global Financial Crisis and I would like to briefly discuss two aspects that I have been recently exploring in great detail: the shadow banking system and the irrational behaviors of people. Financing became very creative through the rise of a "shadow banking system". What looks obvious in hindsight was not at all obvious for investors and regulators prior to the global financial crisis. The paper 'The Shadow Banking System and Hyman Minsky's Economic Journey' written by Paul McCulley suggests that the allure of shadow banking over the last decade is unambiguous. There is no better way for bankers to maximally leverage the inherent banking model (of borrowing cheap and lending rich) than by becoming nonbank bankers, or shadow bankers, and they did this in droves, running leveraged lending and investment institutions. They did so by raising funds through the non-deposit market, notably unsecured debt and secured borrowing. Usually, such shadow banks maintained reliance on conventional banks by securing lines of credit with these latter banks.

The shadow banks do not have to operate under meaningful regulatory constraints, notably regarding the amount of leverage they can use, the size of their liquidity buffers, and the types of lending and investing they can do. Hence, when a 'Black Swan event'[36] such as the collapse in

[36] Black Swan event refers to an extremely rare and unpredictable event that was thought to have minimal or no chance of occurrence.

subprime market occurs, it has a direct impact on the shadow banking system due to its high leverage, low capital back up, and poor risk management. Then the abundant and cheap credit dries up as the shadow banking system collapses. This contagiously spills over to the conventional banking system, as most of the shadow banks are subsidiaries of conventional banks or financial institutions.

The bottom line is that the shadow banking system created explosive growth in leverage and liquidity risk outside the purview of the Federal Reserve System. The rise of this system drove one of the biggest lending booms in history, and its collapse resulted in one of the most crushing financial crises we have ever seen.

In addition to the above, further analysis done by Hersh Shefrin in his paper 'How Psychological Pitfalls Generated the Global Financial Crisis' points out that we need to understand the key decisions that precipitated the crisis in the context of behavioral corporate finance, because it offers guidelines about what to do differently in the future. Behavioral corporate finance highlights the psychological errors and biases associated with major corporate tasks, e.g. capital structure, valuation, mergers and acquisitions, risk management etc.

Mr. Shefrin argues that the institutional behaviors demonstrated during the Global Financial Crisis included irrational risk taking, rather than responding to riskier environment by cutting back on risk. During the Global Financial Crisis, there were some main psychological pitfalls that were prominent among financial institutions and their managers:

Reference point-induced risk seeking, is the tendency of people to behave in a risk-seeking fashion to avoid an outcome that lies below the reference point. For example, as risk premiums declined from 2004 onwards, investors used leverage in a determined effort 'to squeeze out additional returns'. Investors had fixed aspirations and became more tolerant of risk as risk premiums declined.

Excessive optimism together with overconfidence of the institutions led people to be too sure of their opinions about future prospects (such as the fact that asset prices would keep rising) and hence they had a tendency to under estimate risks (particularly the default risks of the subprime mortgages).

Conservatism is the tendency to overweigh base-rate information relative to new information. The presence of a wide spread conservatism bias can be seen during the years that led up to the crisis, regarding the assumption that historical (low) mortgage default rates would continue to apply.

Extrapolation bias leads people to make forecasts based on the idea that recent changes will continue into the future. A pertinent example of extrapolation bias is the belief that housing prices will continue to grow at the same above-average rates that have prevailed in the recent past.

Opaque framing suggests that there is a low level of clarity in describing tasks or making decisions and there is little understanding on its associated consequences. For example, institutions are taking risk beyond what they can understand and process, despite the opaqueness

of securitized asset pools, CDOs and CDS, institutions still purchased huge amount of those as part of their portfolio.

Therefore, the psychologies of these institutions during the 'good times', I would say, had significant contributions to the emergence of the Global Financial Crisis.

IMPACT- Wealth Destruction (Social Impacts), Economical Growth, Financial Instability

Many people were devastated by the realization that their house value had dropped below the value of their mortgage. The cheap credit that was readily available drove up the asset prices to an unreasonable level, and the expectations of stably rising home prices ultimately ran into the reality of affordability, when the bubble burst it caused severe wealth destruction. As suggested in the article 'The Seven Lean Years', by R. Jeremy Grantham, the single biggest drag on the economy over the next several years probably will be a massive write-down in perceived wealth. In the US, the total market value of housing, commercial real estate, and stocks was about $50 trillion at the peak and fell below $30 trillion at the low. This loss of $20 trillion to $23 trillion of perceived wealth in the US alone is enough to deliver a life-changing shock to hundreds of millions of people and has shattered many dreams.

Nevertheless, I initially thought that the world economy would recover fairly well as the stimulus packages across the globe were implemented. They seemed to come just in time to save the financial system from collapse, and comforted investors so that they would not run on banks. But after reading the article 'The Seven Lean Years', my thinking has changed and I perceive that a

double dip in the global economy might happen later when the generous government stimulus packages are removed and the current momentum of economies may dampen again.

We are used to the idea of a preferred *V*-recovery and the dreaded *L*-shaped recovery that we associate with Japan. We are also familiar with a *U*-shaped recovery, and even a double-dip like the 1980 and 1982 *W*-recovery. But the author proposes that this time it could be a *VL*-recovery, in which the stimulus causes a fairly quickly but superficial recovery, followed by a second decline, followed in turn by a long, drawn-out period of subnormal growth as the basic underlying economic and financial problems are corrected.

In addition, it was my first time that I learned about the existence of 'The Financial Instability Hypothesis' by reading the paper 'The Shadow Banking System and Hyman Minsky's Economic Journey' by Paul McCulley. It offers more intriguing analysis. I was particularly interested in his coverage of "The Financial Instability Hypothesis". This hypothesis was articulated by Hyman Minsky back in 1986, in which he described in almost lurid detail what has recently happened in the shadow banking system, the housing market, and the broader economy that brought us to the depth of financial crisis. The essence of the hypothesis is that stability is destabilizing because capitalists, observing stability in the present, have a herding tendency to extrapolate the expectation of stability out into the indefinite future, putting in place ever-more risky debt structures, up to and including Ponzi units that cause stability to be undermined.

The longer people make money by taking risk, the more imprudent they become in risk taking. While they are doing this, the expectation of a reward to risk taking is self-fulfilling on the way up. If everybody is simultaneously becoming more risk seeking, risk premiums shrink, the value

of collateral goes up, the ability to lever increases, and the game keeps going. Human nature is inherently pro-cyclical and that is essentially what Minsky's thesis is all about. Minsky declared that stability is ultimately destabilizing because of the asset prices and credit excesses that stability begets. It is amazing for me to learn that such a theory has existed since 1986 and no one had paid enough attention to it until the recent painful global experience. I personally hope that our society does not have to learn things the hard way every time in the future.

Future Remedies- Regulatory Policy and Incorporation of Behavioral Elements

I strongly agree on McCulley's suggestions in his paper 'The Shadow Banking System and Hyman Minsky's Economic Journey', that regulatory policy should be counter cyclical rather than pro-cyclical. As he quoted what Minisky had written more than 20 years ago in 1986:*"in a world of businessmen and financial intermediaries, who aggressively seek profit, innovators will always outpace regulators; the authorities cannot prevent changes in the structure of portfolios from occurring. What they can do is keep the asset- equity ratio of banks within bounds by setting equity-absorption ratios for various types of assets. If the authorities constrain banks and are aware of the activities of fringe banks and other financial institutions, they are in a better position to attenuate the disruptive expansionary tendencies of our economy."*

Last, but not least, I believe that incorporating behavioral elements into economic and other models is necessary for the future. The application of behavioral finance and behavioral asset-pricing theory is not yet widespread. Moreover, little evidence indicates that organizations have developed systematic procedures along these lines. The most useful behavioral lessons we can

learn from the crisis are how to restructure processes to incorporate the explicit elements of behavioral corporate finance.

Shefrin has suggested in his paper that systematic procedures within organizations should focus on the four key organizational processes: planning, standards, information sharing, and incentives. He recognizes that the removal of psychological biases is not easy. Psychological pitfalls are likely to persist and to continue to affect decision making. Thus, managers, analysts, investors, and regulators would be well advised to keep three main points in mind. First, sentiment can affect asset pricing, particularly pricing of the securities of companies followed by analysts. Second, corporate managers are vulnerable to psychological biases (as we all are). Therefore, these pitfalls are germane to companies' operational risks. Third, analysts themselves are vulnerable to psychological pitfalls and need to be mindful of how these pitfalls affect their own processes and decisions.

Chapter 10

The Global Financial Crisis: And need for IMF Supervision

Shiel Patel

The Global Financial Crisis (GFC) started in America and spread through to Europe and the rest of the world. It was building up for a while and triggered a global crisis in 2007, primarily caused by a liquidity shortfall in the US banking system due to overvaluation of assets. Stock markets crashed all over the world, large financial institutions collapsed, and banks had to be bailed out by governments in even the most developed of countries. The crisis was considered one of the

worst since the Great Depression in the 1930s. The financial crisis was firmly rooted in the real estate market bubble which was fuelled by massive increases in housing prices, a massive influx of cheap foreign capital resulting from record trade balance and current account deficits, and an increasingly relaxed regulatory policy that helped propel the dynamic between these factors.

Initially, the whole crisis began with the bursting of the housing bubble in the US and the subprime crisis, which led to economic decline within the country. So what happen in the housing bubble? First, there was a period of sustained high inflation rates which pushed housing prices up. Alan Greenspan also reduced interest rates to 1 percent. Investors who normally spent their money buying treasury bonds, which are seen as safe investments, decided to stop buying them because their returns were so low. On the other hand, banks were all too happy as they could now borrow at a 1 percent interest rate which made it very cheap to loan money and created a lot of credit. There was also a large influx of foreign capital as emerging markets attempted to insure themselves against future crises. This was especially true after the Asian financial crisis, as Middle Eastern countries looked for ways to use their oil earnings, and countries with underdeveloped financial systems such as China wanted to diversify into safer assets. This led to a huge pool of net savings in search of a safe place, which people thought would be in the US. The US was obviously all too happy to take this cheap source of funding.

This led to a lot of leveraging. This is when people have some money, borrow on it, then buy large quantities of something with it, sell it for a higher price, and then repay their loans. Wall Street did this a lot, and made big money. This caught the eye of other investors, who were then connected to homeowners by Wall Street bankers through mortgages. Families saved for down

payments and contacted their mortgage broker who connected them with a lender who gave them a mortgage. Families were happy to get a house as prices were rising and lenders and brokers made money, and so everyone was happy. This process began to go wrong when investment bankers started contacting mortgage lenders to buy the mortgages off them. They started borrowing millions and buying thousands of mortgages. Lenders were all too happy to sell the mortgages for profit. So the homeowners started owing their monthly payments to the bankers.

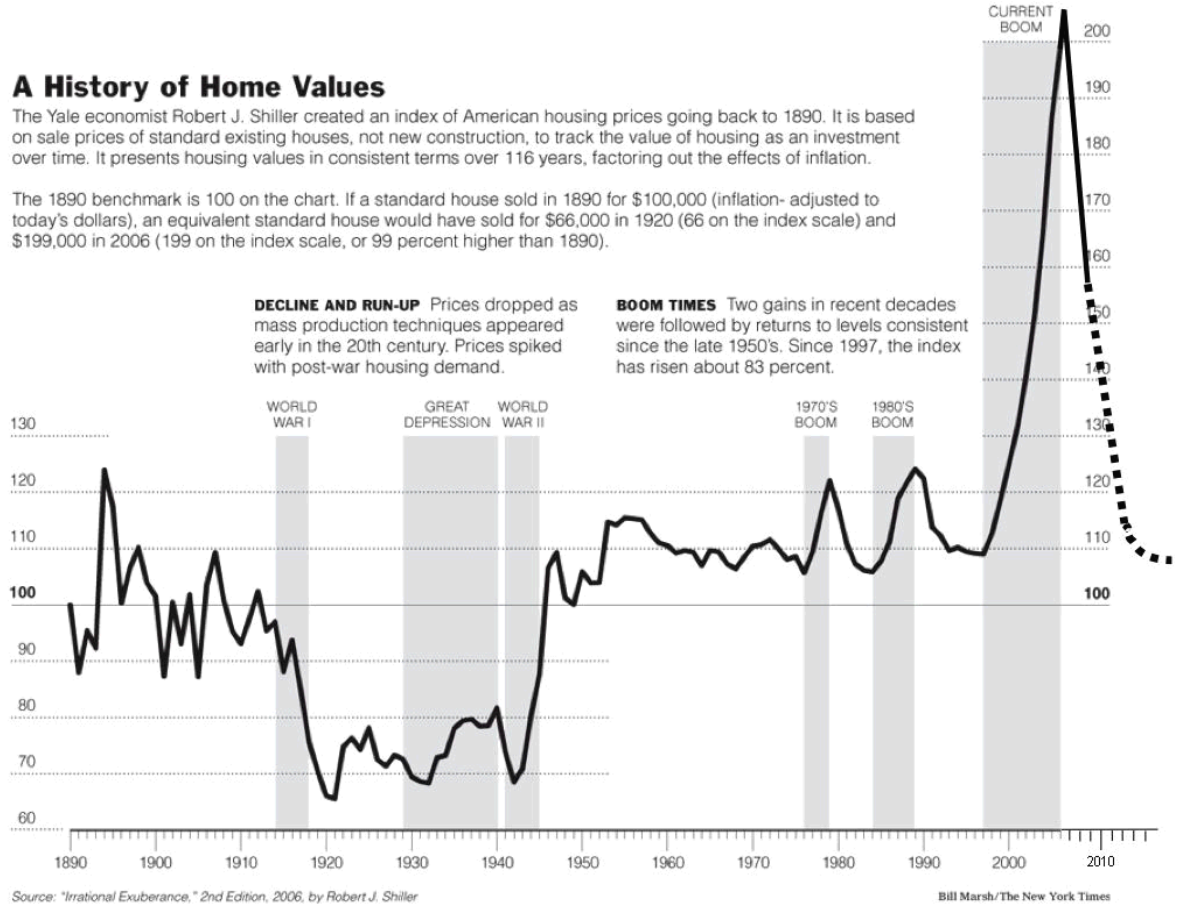
Bankers then divided these mortgages up according to how they assessed the risk of repayment and called them Collateralized Debt Obligations (CDOs), in a process known as securitization. Fannie Mae and Freddie Mac (F&F), who were originally government agencies whose job it was to securitize mortgages and then sell them off to the private sector, became a part of this process. Bankers paid banks to insure these CDOs and gave them AAA ratings as they believed they were low risk investments. All the types of mortgages were then sold on to investors. The bankers got rich and paid off their loans and investors were happy. However, then investors started wanting more CDOs. This led to investment bankers wanting to buy more off mortgage lenders. A lack of mortgage customers led lenders to come up with a new idea to make money. They started lending money to people without proof of income or without down payments. *"The whole procedure for checking the quality of the borrowers, and the mortgages underlying the securitizations broke down."* (F. Allen & E. Carletti , 2009) This opened up a whole new market called subprime mortgages. The lenders bore little risk when issuing these mortgages as they sold them on to bankers. The bankers bought them because they saw housing prices rising, and thought that if people default, they would get possession of the property and could then just sell the house to recover their money. The cycle of selling the mortgages on, repackaging them as CDOs and

selling them on to investors continued. These mortgages were just like time bombs waiting to go off. The total value of mortgages in the US at the start of 2008 was approximately 90% of GDP. It didn't get there overnight. Surely policy makers should have decided many years prior to the crisis that they should take some steam out of the system?

People soon started defaulting on their mortgages. Initially it was only a few borrowers, but over time the default rate increased dramatically. Bankers and investors were left with a lot of houses in their possession. The number of houses on the market increased rapidly, which led to a steep fall in the value of these houses. Even some people who could afford their mortgages found their houses to be valued at less than the value of their mortgages, and chose to default, which in turn created many more defaults. Bankers could not repay the enormous loans they took out to buy the mortgages. Lenders, bankers and investors were all left bankrupt in the end. The Wall Street financial institutes such as F&F, Lehman Brothers, Bear Stearns, Goldman Sachs and many more were heavily affected.

There was a massive decline in credit availability, investors' confidence was damaged, and banks were questioned. This affected the stock market severely, as investors started pulling out and did not want to risk their money. International trade also slowed during this period.

Exhibit 1.



Source: Irrational Exuberance, Shiller, Robert J.

Exhibit 1 shows the Case-Shiller index for the past couple of centuries. The Case-Shiller index is an index that measures the change in prices of homes in 20 major metropolitan areas in the US, which gives potential buyers and sellers an indication as to whether home values are rising or falling. As you can see, the index for housing prices shot up dramatically forming a bubble. There was a 92 percent increase from 1996-2006 in the cumulative real price of housing! It is argued by many economists that this "bubble" should have been foreseen and its effects predicted. People who could not buy houses previously, could now buy a home, investors and

bankers were making money, and so no-one really questioned it. Yuliya Demyanyk and Otto Van Hemert agree in their article, Understanding the Subprime Mortgage Crisis, which the housing bubble could have been predicted, "Problems could have been detected long before the crisis, but they were masked by high house price appreciation between 2003 and 2005." They use a Rogoff and Reinhart type approach to analyzing trends in housing prices and comparing them to previous trends where crashes occurred in the past, with empirical evidence and analysis of factors that should have been noticed before the crash.

The effect of banks capital levels being depleted was that some of them failed and were unable to provide loans. Franklin Allen and Elena Carletti say in their article: An Overview of the Crisis: Causes, Consequences and Solutions that,

"Although the financial system and in particular banks came under tremendous pressure during this time, the real economy was not much affected. All that changed in September 2008 when Lehman's demise forced markets to re-assess risk. While Lehman's bankruptcy induced substantial losses to several counterparties, its more disruptive consequence was the signal it sent to the international markets that credit risk in the banking sector and financial industry was a serious concern. Reassessing risks previously overlooked, investors withdrew from the markets and liquidity dried up."

Confidence was destroyed and interest rates for loans were drastically increased, which meant a liquidity crunch for businesses. Business investments fell, unemployment rose as firms could not afford to pay their staff, and stock market declines led to a fall in household wealth. People's houses were now also worth less and so consumer spending declined as well. The whole

economy entered a downward spiral. This is where the Central Banks stepped in. The Central Banks tried to lower interest rates and encourage lending. In 2008, a fiscal stimulus package was passed by the United States government. Banks were given bailouts and almost $700 billion was pumped into the economy to try to revive it.

"*The stimulus program will have a positive effect on all countries, and in some cases, this will be enough to kick GDP growth back into positive territory quite soon for the most fortunate, in which group I include the United States. It is ironic, by the way, that the United States would be less hurt than most given that Pied Piper Greenspan led all of us global rats into the river. And, yes, in this case the maestro (well named) had an orchestra pit filled with U.S. Treasury and Fed officials (especially the New York Fed) and such a large supporting cast of dancing CEOs of financial firms and their reckless board chums that even Cecil B. DeMille would have found them sufficient," R. Jeremy Grantham, The Seven Lean Years.*

Over $75 billion of this was also allocated to helping struggling homeowners in what they called a Homeowner Affordability and Stability Plan.

So was the US the main culprit in causing the global scale crisis? Other countries had nontrivial exposure to the US subprime market that simply led to a contagion, spreading the crisis across international borders. Along with this, Rogoff and Reinhart note in their book, "This Time Is Different," that many other countries also experienced economic difficulties and the features that characterized the run-up to the subprime crisis in the US were also present in other advanced economies. Noticeably, many countries in Europe and elsewhere such as Iceland and New Zealand had their own real estate bubbles. Secondly, many countries also had large current

account deficits and were importing capital from abroad, helping them fuel a credit and asset price boom. All in all the book argues that these trends had left many countries vulnerable to the consequences of asset market crashes and capital flow reversals irrespective of what may have been happening in the US.

People thought that this time *was* different from previous crises due to a few reasons which Rogoff and Reinhart also highlight. People had the mentality that:

- The US, with the most reliable and innovative financial system, a strong political system, and the world's largest and most liquid capital markets, was special. It could withstand huge capital inflows without a problem.
- Emerging economies needed a secure place to invest their funds.
- Increased global financial integration was deepening global capital markets and allowing countries to go deeper into debt.
- All this was just a further deepening of financial globalization thanks to innovation and should not be a great source of worry.

The government bailed out a lot of companies. However, we should ask whether these companies really needed a bailout. The issue of companies being "too big to fail" comes into play. Financial institutions may be counterparties in a large number of transactions which would leave a big mess in the event of them failing. Also, by failing, these institutions could trigger further events and lead to a larger chain of failures. However this just gives banks less incentives to reduce risk as they know that they will be bailed out by the government or Federal Reserve Bank. An example of this would be Fannie Mae and Freddie Mac (F&F) who provided so much insurance,

that their default would have increased risk connected with lots of mortgage backed securities held by other investors. Paul Krugman said in his article, Financial Reform 101,

"The U.S. government provided cash and guarantees to financial institutions whose failure, it feared, might bring down the whole system. And the rescue operation was mainly focused on a handful of big players... This rescue was necessary, but it put taxpayers on the hook for potentially large losses... big financial institutions, we now know, will be bailed out in times of crisis. And this, it's argued, will encourage even riskier behavior in the future, since executives at big banks will know that its heads they win, tails taxpayers lose." Franklin Allen and Elena Carletti suggest a way to remedy this situation. They contend that, ""*Too big to fail" does not mean "Too big to liquidate." Financial institutions should definitely be prevented from failing in a chaotic way. The government should step in and take them over in order to prevent contagion. But rather than allowing them to continue, these institutions should be liquidated in an orderly manner, even if this may take several years. That would allow the other institutions that didn't fail and that were well-run to expand and take over the failed institution's business. Propping up the weak ones that did badly is not a good idea in the long term. It rewards risk taking and, perhaps more importantly, it prevents prudence from being rewarded. Well-run banks that survive should be allowed to benefit."* R. Jeremy Grantham also agrees with this view conclusively in his article, "The Seven Lean Years."

These companies however, were under-regulated. Where were all the regulators? Investment banks are not really under any particular regulations. These financial institutions were over-leveraging and operating with capital ratios of around 3 percent. They came to be called shadow

banks as they did not operate like normal banks and did not take deposits. Bear Stearns and Lehman Brothers are prime examples of this. Even if regulators had been aware of this, they do not have enough power over these firms to have done anything about it. Alan Greenspan and the Securities and Exchange Commission (SEC) admitted failure in allowing the self-regulation of these financial institutions.

So what can be done to prevent future crashes and what are the long term responses? The crisis has led many people to call for changes in the regulatory system. Barack Obama, the US President, introduced a series of regulatory proposals in 2009 which were given in the treasury report: "Financial Regulatory Report - A New Foundation: rebuilding financial supervision and regulation." It suggested reforms meet five main objectives:

1. Require that *all* financial firms that pose a significant risk to the financial system at large are subjected to strong consolidated supervision and regulation.
2. Increase market discipline and transparency to make our markets strong enough to withstand system-wide stress and the potential failure of one or more large financial institutions.
3. Rebuild trust in our markets by creating the Consumer Financial Protection Agency to focus exclusively on protecting consumers in credit, savings, and payment markets.
4. Provide the government with the tools needed to manage financial crises so it is not forced to choose between bailouts and financial collapse.
5. Raise international regulatory standards and improve international coordination.

The problem with trying to regulate the investment banks is that although this may prevent a crisis, it may prevent the financial system from doing its task of allocating resources. In turn that slows down growth, innovation and ultimately damages efficiency. Nonetheless, shadow banks need to be regulated and, "there have to be prudential limits on shadow banks, above all limits on their leverage." (Krugman, 2010)

Rogoff and Reinhart said that the best indicator or warning for banking crises is real housing prices, followed by current account balance and real stock prices. In monitoring these on a monthly basis, they think that there is clear value added to help us anticipate potential banking crisis scenarios. For currency crashes, they conclude that the real exchange rate should be monitored monthly, as well as the performance of the current accounts and exports annually. International institutions should help reduce risk by promoting transparency in reporting data and enforcing regulations related to leverage. Rogoff and Reinhart say that the IMF in particular could provide a "public good" by having an extremely rigorous standard for government debt accounting that included implicit guarantees and off-balance sheet items.

The IMF needs to do more before the next crisis occurs as opposed to just stepping in once the governments get themselves into trouble. Perhaps there is an important role for an international financial regulatory institution which should be used to regulate oversized international financial institutions and also to provide some degree of political insulation from legislators, who relentlessly lobby domestic regulators to ease up on regulatory rules and enforcement.

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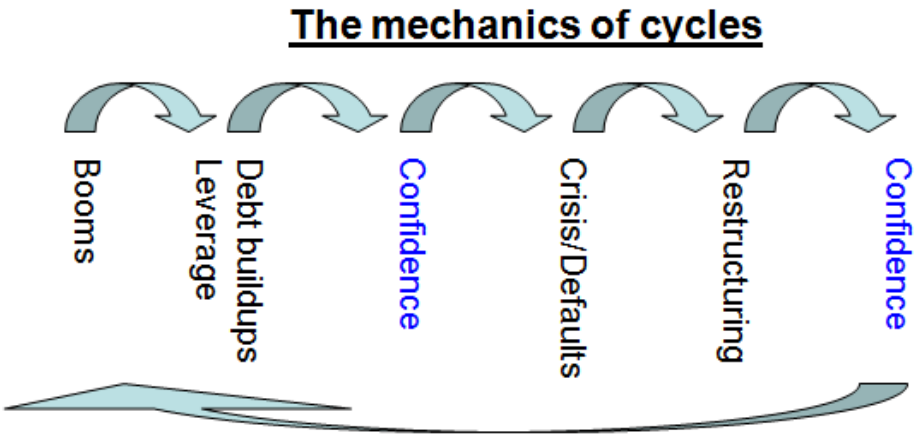
Chapter 11

Contagion, Presidential Election and GFC Similarities

Zachary Fjeldheim

There are many theories that try to explain the recent Global Financial Crisis (GFC). Reinhart and Rogoff use a historical, quantitative approach; "we have been here before. No matter how different the latest financial frenzy or crisis always appears, there are usually remarkable similarities with past experience from other countries and from history" (2009). Everyone has their own theory as to why one financial crisis is different than the other, but they often have gaps. As shown in Exhibit 1, the economy follows a cyclical process that starts with a boom, goes into debt buildup, which is then followed by a lack of confidence, which turns into a crisis. The economy is then restructured before confidence is regained. It's hard to predict when the next crisis will come, but they all have a lot of similarities.

Exhibit 1. The Mechanics of cycles



Source: Reinhart and Rogoff, 2009

My understanding of economics was heavily influenced by friends and experiences. Most of my friends with economics or finance backgrounds gambled, took risks, and were thrill-seekers. These are the kind of people who I thought ran Wall Street. I now know that this is not the case and I am happy to admit that my opinion has changed drastically. In the paper that follows, I will describe my views on economics, from bubble psychology to political-shifted economies, to my current opinion of the global financial crisis.

The majority of my friends had dreams of walking into Goldman Sachs, Lehman Brothers, or Bank of America as Investment Banking Analysts. When you looked in their eyes you could tell they had a burning desire to be rich one day. At the time, I was not sure what I wanted to be, or even how much I cared about money. After a few years of supporting myself financially, I quickly came to the realization that I wanted to make copious amounts of money. After graduation I frantically started applying to companies such as Accenture, Deloitte, GE, any company that was looking for an Electrical Engineer in the winter of 2007 and offered a generous salary.

I landed a Technical Specialist position at an intellectual property law firm in Washington, D.C. I was completely new to the industry and completely new to the professional world. Shortly after I started working, my aforementioned friends started to have concerns about job security and the economy. Co-workers started to get laid off and I soon had concerns about my own job security. I was laid off on the 1st of April. This was the first day I became interested in the Global Financial Crisis.

The next thing I did would be considered nothing but typical, when in my situation. I started subscribing to the Wall Street Journal and watching CNBC whenever I could find the time. After making seventy five thousand dollars a year, I was relegated to unemployment. After diligently working, I found myself unemployed and living under my parent's roof. I was shocked and perplexed by my situation. Personal reflection ensued, but soon I discovered the power and unpredictability of the economy.

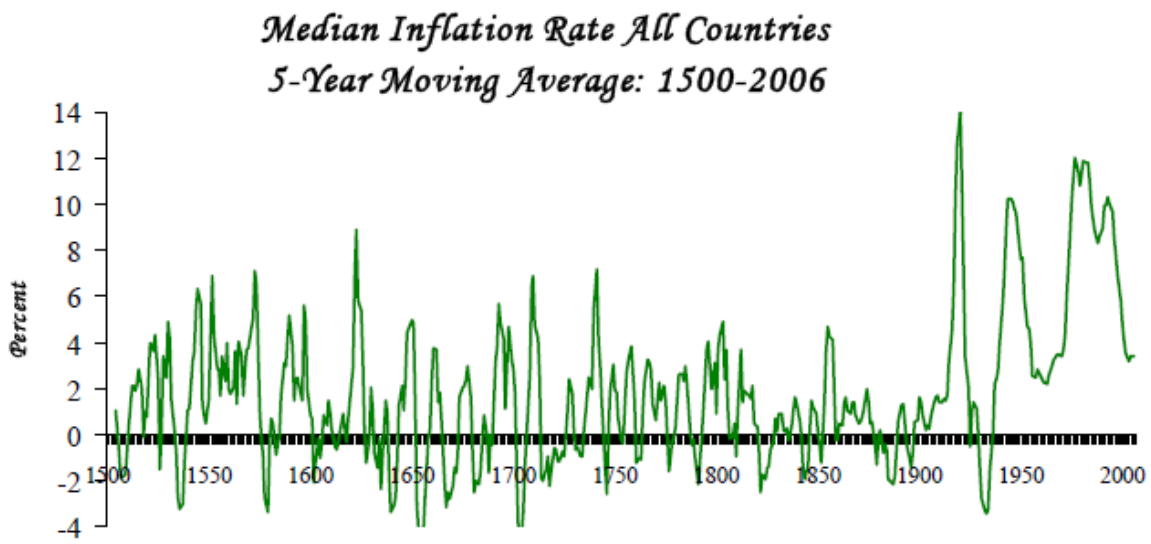
Varieties of Global Financial Crises

Global Financial Crises come in many different varieties. There can be an inflation crisis, a currency crash, currency debasement, the bursting of an asset bubble, a banking crisis, an external debt crisis, domestic debt crisis, or serial default. I will provide an overview of each of these types of crises.

Inflation Crisis

Inflation is characterized by a rise in prices and a decrease in purchasing power. For example, if a Coke goes for $1.00 in 2001 and $1.25 in 2003, the price of Coke was inflated by 0.25 cents in two years. One convenient thing about an Inflation crisis is that it can be easily identified. The downside is it usually lasts many years. They either dissipate or plateau at an intermediate level before exploding. When an inflation crisis dissipates, the high inflation rate drops at a constant, steady rate. Another result of an inflation crisis is when the inflation rate plateaus, followed by a sharp, immediate drop in the inflation rate. As shown in Exhibit 2, inflation goes back as far as 1500 and is quite variable.

Exhibit 2. Median Inflation Rate All Countries

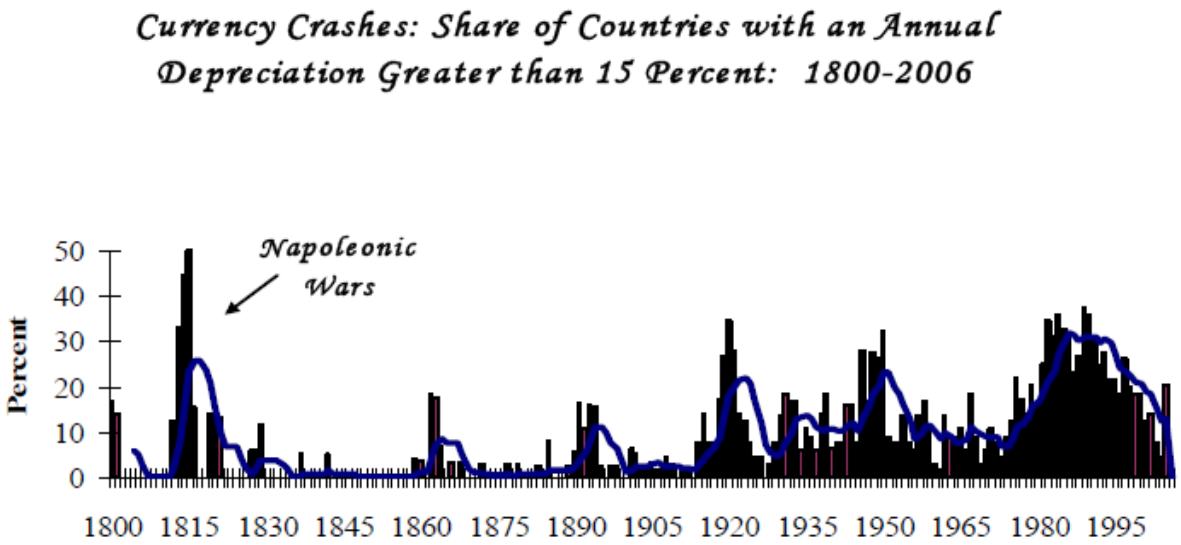


Source: Reinhart and Rogoff, 2009

Currency Crash

A currency crash is when the value of a currency changes quickly, ultimately limiting its ability to serve as a medium of exchange. In other words, the value of a countries' currency decreases in value, relative to other country's currencies. A currency crash can also be recognized as large exchange rate depreciation. Jeffrey Frankel and Andrew Rose set their basic threshold at 25 percent a year to identify a currency crash. Currency crashes and inflation crises are similar in timing and order of magnitude. As shown in Exhibit 3, currency crashes almost mirror inflation crises.

Exhibit 3: Currency Crashes



Source: Reinhart and Rogoff, 2009

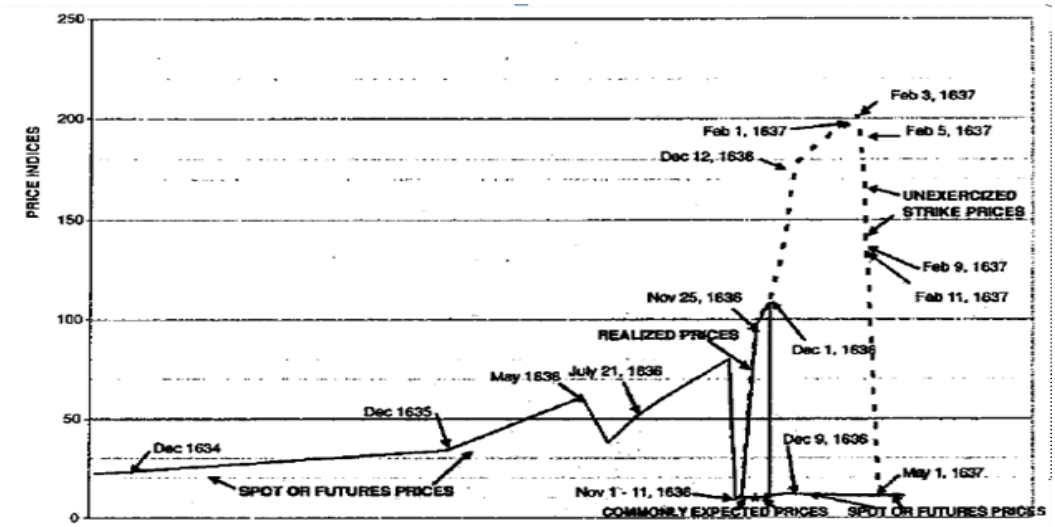
Currency Debasement

Currency debasement involves lowering the value of currency, usually by reducing the amount of gold, silver, copper, or nickel. It should not be confused with inflation, which measures a coins purchasing power. Debasement can be used in a growing economy; a government could slowly debase its coins without lowering their purchasing power. The public will demand more coins as the cost of transactions grows.

Bursting of an Asset Bubble

An asset bubble is when there is trading in products or assets with inflated values. There have been numerous asset bubbles throughout history. Asset bubbles date as far back as Holland's tulip bubble of 1638. Asset bubbles typically involve a state of mania where consumers become infatuated with a particular product. As shown in Exhibit 4, the tulip bubble brought an extreme rise in tulip prices which collapsed around May 1, 1637.

Exhibit 4. Tulip Mania in Holland



Source: Thompson, 2006

Banking Crisis

As defined by Reinhart and Rogoff, a banking crisis is marked "by two types of events: (1) bank runs that lead to the closure, merging, or takeover by the public sector of one or more financial institutions… and (2) if there are no runs, the closure, merging, takeover, or large-scale government assistance of an important financial institution that marks the start of a string of similar outcomes for other financial institutions" (2009). A good example of the second type is the most recent Global Financial Crisis, during which many of America's leading banks were bailed out by the government.

External Debt Crisis

An external debt crisis is when a country defaults on a loan that was issued under another country's jurisdiction. Reinhart and Rogoff break up an external debt crisis using two different qualitative variables. The first variable records only the year of default as a crisis and the second variable creates a seven year window centered on the default date.

Domestic Debt Crisis

A domestic debt crisis is when a country defaults on a loan issued under its own legal jurisdiction. Reinhart and Rogoff argue that during most countries' history, domestic debt has been denominated in the local currency and held mainly by residents. Like a banking crisis, it is difficult to determine the endpoint of the domestic debt crisis. Another point Reinhart and Rogoff stress is the important role domestic debt plays, and the effect it has on the economy. As shown in Exhibit 5, domestic debt ranges from between 40 and 80 percent of the total debt of the US economy, and averages almost two-thirds of total public debt.

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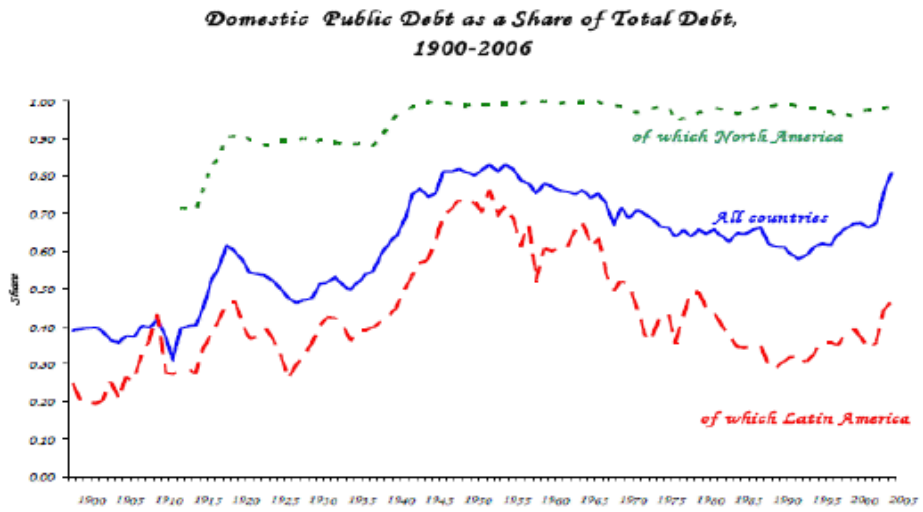
Exhibit 5. Domestic public debt



Sources: The League of Nations, the United Nations, and others sources listed in Appendix II.

Source: Reinhart and Rogoff, 2009

As defined by Reinhart and Rogoff, "serial default refers to multiple sovereign defaults on external or domestic public debt, or both. These defaults may occur five or fifty years apart, and they can range from wholesale default to partial default through rescheduling" (Reinhart and Rogoff, 2009).

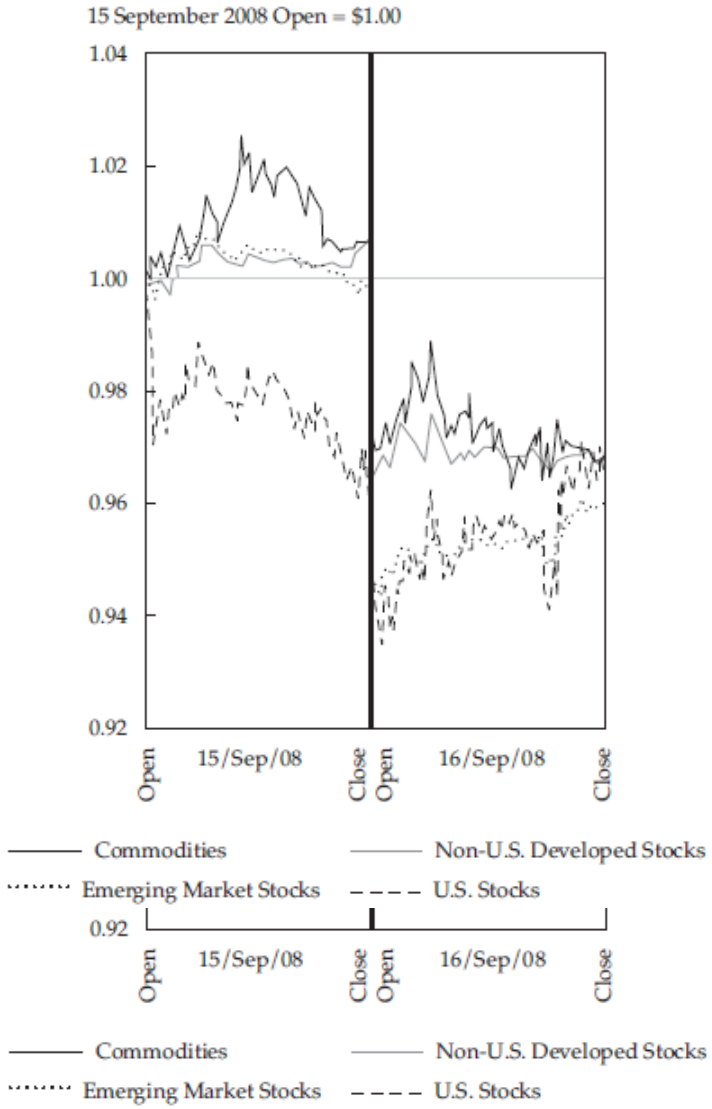
Reinhart and Rogoff take a completely quantitative approach. Their basic message is "we have been here before. No matter how different the latest financial frenzy or crisis always appears, there are usually remarkable similarities with past experience from other countries and from history" (2009). The one common theme Reinhart and Rogoff identified throughout the various crises is excessive debt accumulation. No matter what kind of crisis, the government, banks, corporations or consumers have large amounts of debt that cause the crisis.

One of the most difficult jobs in the world is balancing the risk and opportunities of debt, not only on the global level but on a consumer level. Managing personal debt is hard. It becomes even more difficult on a larger scale when managing multiple people's debts. Humans are unpredictable by nature and can act foolishly, which makes things even more difficult. However, contagion, a theory which argues that everything is connected, can be used as one approach when predicting the next global financial crisis.

Contagion was prevalent in the recent Global Financial Crisis. As defined by the World Bank, contagion is "an amalgamation of several distinct properties: financial links whereby two entities are connected through the international financial system, real links such as competitive trade, political links in which exchange rates are closely tied, and the propensity of a herd mentality to develop among investors" (World Bank). In the panic of 1907, it has been suggested that contagion across country borders did exist. However, the global contagion was not fully documented (Bruner, 2009). As shown in Exhibit 6, contagion was rampant during the recent Global Financial Crisis. Within minutes of the announcement of Lehman Brothers failure, four separate international markets crashed almost simultaneously (Kaplan et. al., 2009).

Exhibit 6. Intraday Movement in Various Markets

Figure 1. Intraday Movement in Various Markets, 15 September–16 September 2008



Source: Kaplan et. al., 2009

Another powerful concept is the notion that presidential elections can have an effect on the economy. Professor James Grant of the University of Massachusetts Boston suggests that the economy was heavily influenced by President Barack Obama's election. In his article, *A perspective on US regime change and the global financial crisis*, Professor Grant points out that the S&P 500 dropped sharply on the day after President Obama was elected to office, among other election-related dates; all possibly due to an 'Obama wealth effect,' as shown in Exhibit 7. The 'Obama wealth effect' is defined as the market's response to "massive increases in federal spending, resulting in concomitantly large budget deficits, expanded governmental regulation and oversight of business and markets, pursuing labor-friendly policies and a reversal of Bush-era tax cuts for upper-income earners which may have been priced into equity markets by institutional and high-net-worth investors" (Grant, 2009).

Exhibit 7. US Regime Change and Stock Prices

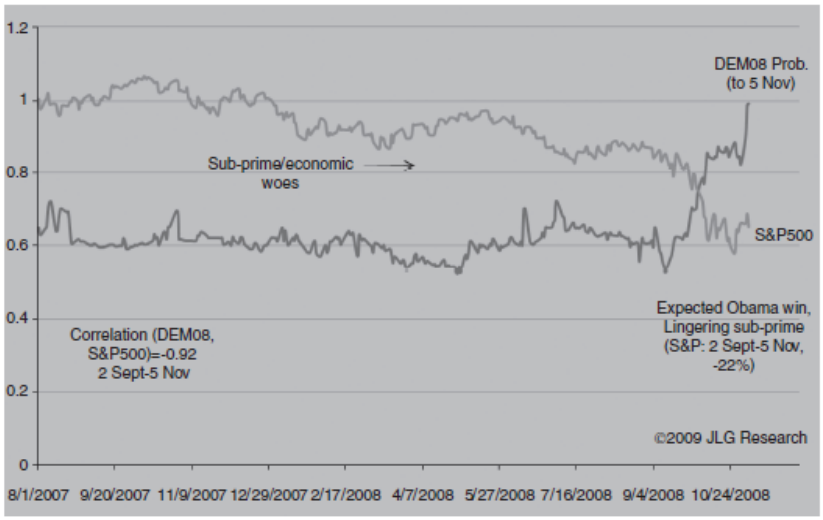


Figure 1: US Regime change and stock prices: A prospective view S&P500 versus DEM2008 probability IOWA electronic market.

Source: Grant, 2009

As such, there are many theories that try to explain the most recent Global Financial Crisis. It's hard to predict when the next crisis will come but they all have a lot of similarities. A few things seem to remain continuous throughout crises, and they are the cyclical process of the economy as previously shown in Exhibit 1 and excessive debt accumulation. If we can anticipate the next US Regime change, keep up with international crises, and remember this time is *not* different, the next Global Financial Crisis will be more manageable.

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Chapter 12

An Integrative Personal Perspective of the Global Financial Crisis

Ali Sheikh

In 2008, a series of massive bank, financial services firms, and insurance company failures triggered a financial crisis of epic proportions, unseen since the Great Depression of the 1930s. The Global Financial Crisis (GFC) effectively halted global credit markets and required unprecedented governmental intervention. Around the world stock markets fell, large financial institutions started collapsing, or were acquired at depressed prices, and governments in much of the developed world had to abandon free market principles and come up with rescue packages to bail out their financial systems. Financial giants such as Bear Stearns, Lehman Brothers, Merrill Lynch, AIG, Fannie Mae, Freddie Mac, Countrywide Financial, Washington Mutual and Citigroup, once iconic symbols of American capitalistic free enterprise have either disappeared, or been rescued through large government bailouts. Investment banks, such as Goldman Sachs and Morgan Stanley, converted to bank holding companies in late September of 2008, marking the end of an era for investment banking in the United States. The Global Financial Crisis of 2007-2010 is commonly believed to have begun in the summer of 2007 with the credit crunch, when a loss of investor confidence in the value of subprime mortgage-backed securities caused a liquidity crisis. By September of 2008, the crisis had worsened as stock markets around the globe crashed and became highly volatile. Consumer confidence was at an all-time low, unemployment was rising, and the world economy started to contract.

So what was the root cause of the Global Financial Crisis? What are the consequences and implications that have resulted? Most importantly, what are some of the remedies that can be undertaken, and are there any lessons to be learned?

I will make an earnest attempt to address these points in this paper, first by providing my initial view of the crisis – causes, consequences, implications, and remedies, and, thereafter, by providing a more complete overall integrative view of the crisis. Furthermore, in an effort to demonstrate a deeper conceptual and theoretical understanding of the crisis, why it happened, whether or not it could have been avoided, I will attempt to explore and draw upon the various perspectives of classical, neoclassical, Keynesian, post-Keynesian, Monetarist and modern economic theorists. These theorists include John Maynard Keynes, Milton Friedman, Frank Knight, Eugene Fama, Paul Krugman, Harry Markowitz, George Soros, Joseph Stiglitz, and Hyman Minsky. My overall integrated perspective will be drawn from two books, one working paper, and several articles.

Review of Global Financial Crisis

The global financial crisis of 2007-2010 was triggered by a liquidity shortfall in the U.S. banking system that was caused by the overvaluation of assets. The crisis had its roots in the real estate and subprime lending crisis. Commercial and residential properties saw their values increase dramatically beginning in the 1990s, after the S&L crisis, and they increased uninterrupted for nearly a decade. Increases in housing prices coincided with a period of governmental deregulation. Accordingly, in 1999, the Gramm-Leach-Bliley Act repealed the Glass-Steagall Act of 1933, which had previously enforced the separation of investment banking and commercial

banking activities. Former FED Chairman Alan Greenspan, former Secretary of Treasury Lawrence Summers, as well as others spearheaded this legislation. With the repeal of the Glass-Steagall Act, banks could work with mortgage loan origination companies to write loans to people without proper collateral or adequate credit and then sell the loans further down to investors within the capital markets. The loans were pooled together in tranches to create mortgage-backed securities and collateralized debt obligations (CDO's). These CDO's and other types of similar complex financial instruments were then packaged, insured, and sold off by shadow banking.

At the start of the crisis, when U.S. home values started to come down, U.S. homeowners failed to keep up with their monthly payments and banks were forced to acknowledge huge write-downs on these mortgage-backed securities based on subprime loans. Overtime, these repeated losses put many of the most prominent financial institutions on the brink of insolvency, with many being forced to raise capital or go bankrupt. The panic, which started because of the shadow banking industry, also spilled over to the commercial banking industry as well. The crisis that began on Wall Street then migrated over to Main Street, and a credit crunch ensued thereafter. After incurring enormous losses, banks would not lend to other banks, and business and consumers alike couldn't obtain credit as they had before. As the lack of credit in the financial system constrained business, employment was also affected. "By April 2009, the unemployment rate had risen to 8.9%, up from its low of 4.4% before the recession."By 2010, the unemployment rate had reached 10%. Many other causes have been suggested, with varying weight and importance assigned by different experts. Both market-based and regulatory solutions have been implemented, or are currently under consideration, while significant risks still remain

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for the U.S. and world economy over the near and long term.

Some of the major events that unfolded during the peak of the crisis include the large investment bank Bear Stearns being acquired by JPMorgan Chase at a depressed $2/per share price in order for Bear Stearns to avoid bankruptcy. Fannie Mae and Freddie Mac, both government sponsored entities (GSE's) were taken over by the federal government. Lehman Brothers declared bankruptcy on September 14th after failing to find a buyer. Bank of America agreed to purchase Merrill Lynch, as well as Countrywide Financial. American International Group (AIG) was saved by an $85 billion capital injection by the federal government, and then more capital injections thereafter to stay afloat. Shortly afterwards, on September 25th, JPMorgan Chase agreed to purchase the assets of Washington Mutual in what ultimately became the biggest bank failure in U.S. history. By September 17, 2008, more public corporations had filed for bankruptcy in the U.S. than in all of 2007. These corporate failures caused a crisis of confidence, causing reluctance in banks and financial services firms to lend money or extend credit. The crisis that initially began on Wall Street soon spilled over onto Main Street. The crisis raised fears that the financial system might experience a complete and utter collapse. For the first time since the 1930s, the world economy experienced a systemic financial crisis, which many of today's leading economists have compared to be functionally similar to that of the Great Depression.

Some of the remedies that I would prescribe, based upon my initial view of the crisis, are more regulation, especially for the shadow banking industry, which has escaped regulation for much of its existence. There also needs to be increased scrutiny for all banks, shadow banks, insurance companies, and credit rating agencies alike to provide more transparency to investors. I think the

legislation which is currently under review (at that time) is a good place to start. I believe that the ideas being suggested by Paul Volker, and the Keynesian approach of having the government and the public sector play a greater role is the way forward out of this recession. The implications of the 2008 financial system meltdown stem from a decade of deregulation, lax monetary, fiscal, and regulatory policies; unscrupulous, reckless and predatory lending practices, easy credit, and an overtly laissez-faire approach to economic policy.

Some Economic Perspectives

I would like to now explore some different economic perspectives ranging from classical, neoclassical, Keynesian, post-Keynesian, Monetarist and modern economic thought.

Adam Smith, author of *The Wealth of Nations* and considered by many to be the father of modern economics, argued against regulation or government intervention of any kind, since he believed it would interfere with the natural forces of the market.

Keynesian economics, credited to John Maynard Keynes, and contrary to Adam Smith's view, advocates a mixed economy. According to Keynes, the ideal economy would have a robust private sector, but governments and the public sector would have important roles as well. Keynes argues that private sector decisions sometimes lead to inefficient macroeconomic outcomes and, therefore, he advocated active policy responses by the public sector. These policy actions include monetary policy actions by the central bank and fiscal policy actions by the government to stabilize output over the business cycle. Keynesians argue that during the Great Depression of the 1930s, the solution and the way forward was to stimulate the economy with an "inducement to

invest" through some combination of two approaches: a reduction in interest rates and a government investment in infrastructure.

The Keynesian perspective is that government investment injects income, which then results in more spending in the general economy, which in turn stimulates more production and investment involving still more income and spending. The initial stimulation starts a cascade of events, whose total increase in economic activity is a multiple of the original investment. Keynesian economics prevailed during the latter part of the Great Depression, World War II, and the post-war economic expansion (1945–1973). It lost some of its influence and appeal following the stagflation of the 1970s, and during the Reagan Administration of the 1980s. The advent of the Global Financial Crisis of 2007-2010, however, has caused a resurgence in Keynesian economic thought among policy makers in the world's industrialized economies. The President of the United States Barack Obama, former British Prime Minister Gordon Brown, as well as many other world leaders have used Keynesian economics to justify government stimulus programs in their own economies.

Milton Friedman, 1976 Nobel Laureate in Economics, was a monetarist, and perhaps one of the most vocal opponents of Keynesianism. Friedman, like Adam Smith, was a strong advocate of the virtues of a free market economic system with little governmental intervention. According to Friedman, market economies are inherently stable if left to themselves. Friedman believed that a laissez-faire policy approach is more desirable, and depressions resulted only from government intervention. His views were that governments should aim for a neutral monetary policy oriented toward long-run economic growth by gradual expansion of the money supply. He advocated the

quantity theory of money, that general prices are determined by money, and therefore, active governmental monetary, or fiscal policy can have unintended negative effects. Friedman argued that the Great Depression was a result of a contraction of the money supply, which was controlled by the Federal Reserve, and not by the lack of investment as Keynes had argued.

Frank Knight, who was an important neoclassical economist at the University of Chicago, believed that while the free market system was likely inefficient, government programs were even less efficient. In his famous literary work - The Ethics of Competition, published in 1923, as well as in his other works on ethics during his tenure, Knight argued that there was a tendency in market systems towards monopoly, and that the "efficiency" of markets was misleading. However, he still favored and preferred a laissez-faire policy above anything else because he believed it best for allowing the markets to work out economic problems. He argued that, "The economy is a very complex and unstable thing. Programs of government intervention are too simplistic and do not take into account the complexities of a market economy – thus making interventionism even more dangerous. Laissez-faire is recommended, he argued, not because it "works" (for it patently does not) but rather because it holds individual freedom as an absolute good and the alternative may be much worse. Nobel laureates Milton Friedman, George J. Stigler, and James M. Buchanan were among Knight's many students at the University of Chicago.

Economist Hyman Minsky was sometimes described as a post-Keynesian economist because, in the Keynesian tradition, he supported some government intervention in the financial markets and opposed many of the popular deregulation policies that were prevalent in the 1980s during the

Reagan era. He also argued against the accumulation of debt.

Joseph Stiglitz, the 2001 Nobel Laureate in Economics and Columbia University Professor, argues that a major lesson from the current financial crisis is that the state has a crucial role to play in economic development, both in preventing crises and implementing adequate measures to avoid an amplifier effect. "One of the Main Lessons from the Financial Crisis is that the state must play a key role in sustaining economic development." Stiglitz further contends that the theories advocating deregulation and open markets that were prevalent in the years leading up to the current crisis have shown their ineffectiveness. He advocates regulation and strong structural changes to the financial system as a whole, in order to avoid another crisis. "The current crisis promises to be longer than expected; without fundamental changes in the international financial architecture, another crisis is looming."

Eugene Fama, economist at the University of Chicago, and the creator of the efficient market hypothesis, is probably one of the most pro-market economists today. He claims that the current recession was not caused by the financial crisis, but rather that it predates it. According to Fama, having banks that are "too big to fail," is not capitalism. He states that capitalism says – "you perform poorly, you fail." Fama's views are that "complicated regulation may be a nice idea in principle, but in practice it never works." He believes that regulators get captured by the people they are supposed to be regulating (as now illustrated in the oil and gas industry); this is "not unusual; it happens all the time." Therefore, having banks that are "too big to fail," according to Fama, is "perverting activities and incentives" in financial markets – giving big financial firms, "a license to increase risk; where the taxpayers will bear the downside and firms will bear the

upside." Fama still believes that letting the financial system fail is not a viable, nor a sustainable option, and cannot work in our political realities. Governments will step in and make bail for banks when there is serious trouble. He references Senator Ted Kaufman in his exchange with Senator Mitch McConnell, "allowing the collapse of huge banks is a recipe for turning crisis into catastrophe." Fama argues, "The only solution is to raise capital requirements of these firms dramatically, maybe up to 40-50 percent."

Harry Markowitz, Nobel laureate, founder of the modern portfolio theory, and often times referred to as the "father of modern finance", says that valuation and transparency are the crucial steps needed during the current financial crisis. "The valuation process will take as long as it takes, but it is the primary step toward effectively utilizing the very controversial bailout and avoiding the structural problem of a stagnant economy." Dr. Markowitz reckons it could take years before we have the transparency we need. "The current financial crisis is certainly a danger to the economy generally. An important component of the financial crisis is the obscurity of billions of dollars of financial instruments. The U.S. crisis could last as long as Japan's if we don't solve the structural problems posed by this lack of transparency."

Paul Krugman, professor of economics and international affairs at Princeton University, op-ed columnist for The New York Times, and 2008 Nobel laureate in Economics says that today's global financial crisis was a long time coming. In his book titled *The Return of Depression Economics and the Crisis of 2008*, Krugman argues that "if the proximate cause for the crisis was the bursting of the U.S. housing bubble, the first signs of which appeared in spring of 2006, the ultimate causes were more complex and more deeply rooted, stretching back almost 30 years."

Krugman, a self-professed Keynesian, tells us that you can have a recession even when an economy seems basically sound, when it is left unregulated. Krugman shows how the failure of regulation to keep pace with an increasingly out-of-control financial system set up the U.S., and the whole world for that matter, for the greatest financial crisis since the Great Depression of the 1930s. Krugman directs much of the blame for this on the U.S. Government's laissez-faire macroeconomic policies focusing on supply-side economics and deregulation, which were prevalent during the stagflation of the late 1970s, as well as during the Reagan era of the 1980s. Krugman pins much of the blame for these lax governmental policies on Alan Greenspan, the Chairman of the U.S. Federal Reserve from 1987 to 2006. As a result, Krugman contends, "we rejected the time-tested "Keynesian compact" whereby the U.S. government had committed itself to use monetary and especially fiscal policy to ensure that resources were fully deployed and aggregate demand kept strong." He continues by stating that, "we increasingly abdicated responsibility for regulating various sectors of the American economy, with banking and finance in particular." citation Krugman offers many of his economic policy prescriptions based on the Keynesian Compact, an agreement that an economy can achieve and sustain "more or less free markets" when the national government is allowed to follow monetary and fiscal policies aimed at achieving and sustaining low levels of unemployment. Krugman argues that relatively stable free markets require the presence of active governmental policies that are aimed at achieving low levels of unemployment.

Krugman examines major financial crises that occurred throughout the world including the Panic of 1907, the Great Depression, the savings and loan crisis (S&L) of the 1980s, the Latin American Crisis of the mid 1990s, the Asian Flu of the mid to late 1990s, and Japan's Lost

Decade. Striking similarities emerge within each of these crises, including the recent crisis. Each crisis involved bringing in new capital to fund rapid economic expansion, loose credit, asset bubbles, a loss of confidence, investor biases, currency complications, and alas, the eventual unraveling of the entire financial system respectively. Krugman's explanation of a crisis of confidence is as follows: "in order to fuel economic booms, participants in the economy have a great deal of confidence, so much so that during economic expansion, large risky bets are placed on the prospects of continued success. However, a financial crisis begins with a seemingly small change that chip away at confidence, eventually turning into a panic." In each crisis, Krugman explains, there was a spark that moved confidence to very great heights, only to have it all come crashing down. According to Krugman, confidence, once lost, can be very difficult to regain. Krugman goes through each crisis and discusses what led up to the crisis, what governments tried to do to manage the crisis, discusses why their actions did or didn't work, and finally attempts to demonstrate the warning signs and linkages that those crises have to the recent one. Krugman is clear about what he believes was central to the recent financial crisis – the shadow banking system. "In fact, it was in large part the rise in the 1990s of "shadow" banking institutions (bank-like entities that operated with virtually no regulation) and the embrace by the principals associated therewith of very risky financial stratagems built on debt that underpinned both our housing bubble and other bubbles and crises throughout our global economy." He cites the "Tequila Crisis" in Mexico and the economic crises in Latin America during the mid-1990s as situations that should have served as a warning to the U.S., but which were overlooked. Ultimately, the US was able to bail out Mexico, leading to the incorrect assumption that an influx of money was an easy and reliable way to rescue an economy. He argues that, although these

countries indicated the return of depression era economics, we were unwilling to believe that there would ever be another depression, especially at home. He goes on to describe Japan's lost decade, referring to the financial crisis in Japan and the big crash in Asia, each time systematically illustrating what we could have learned, but did not. Krugman argues that all these crises essentially happened for the same reason time and time again, because the banking system exposes itself to too much risk. When this happens, Krugman explains, people then lose confidence, and panic starts, which doesn't even have to be based on anything real. Government responses from such crises are usually too little, too slow, and almost all of the time, too late. This is precisely what is emanating from the global financial crisis of today, Krugman explains.

Krugman's main argument seems to be that everyone thought breaking the rules was acceptable because the capitalist system was basically infallible. Accordingly, the underlying theme of his book was that economists and policy makers alike had the hubris to believe that they had finally conquered the capitalist beast. He explains how the recent worldwide financial crisis was hatched in a $4 trillion unregulated market, which eventually collapsed under a downward spiral of confidence. Krugman believes that the recent crisis is "functionally similar" to that of the Great Depression of the 1930s, and accordingly, provides several striking similarities between the two. However, he doesn't think that the recent crisis was as severe, and notes, "we now have the financial tools and institutions - and the hindsight - to make for a softer landing. Nevertheless, this crisis has no end in sight yet."

In order to solve today's problems (*stated at that time*), particularly the credit crunch, Krugman believes that we'll need to at the very least: 1.) Inject huge amounts of capital into financial

markets, much more than anyone is currently talking about, 2.) Support weakened aggregate demand through robust government spending, and finally 3.) Regulate the business entities and economic sectors that got us into trouble in the first place. Krugman further states, “and because the American financial contagion has spread beyond our shores, we’ll have to coordinate our response with our partners abroad.” In many ways, these are the same types of policy prescriptions that were used during the 1930s to get out us out of the Great Depression. Krugman states, “the one big thing that everyone seems to know now is that one does not increase taxes and implement budget cuts during a crisis, as Herbert Hoover did, and which FDR did several years into the Depression.” Consequently, Krugman argues that “the flow of credit and fiscal stimulus are good starting points, but much more will be needed. Finally, to prevent another crisis of this magnitude, regulation will play an important role, but it would be foolish to believe that this will be the last.”

There are five basic proposals to move forward from this recent crisis, all based on the Keynesian Compact, which Krugman presents: 1.) Put more capital into the banking system to help unfreeze capital markets, 2.) Create a lending program for the government to lend to the nonfinancial sector, 3.) Engage in a global rescue program for developing countries, 4.) Appoint fiscal stimulus focusing on spending to build infrastructure, and finally 5.) Reform and regulate the financial system, especially the non-bank areas.

George Soros, author of the book, *The New Paradigm for Financial Markets: The Credit Crisis of 2008 and What It Means*, published in May 2008, says that a "super-bubble" had built up over the past 25 years and was ready to collapse. He states that “we are in the midst of a financial

crisis, the likes of which has not been seen since the Great Depression of the 1930s, where the international financial system has come this close to a genuine meltdown." When describing his view of the global financial crisis as it unfolded in 2008, Soros states that the world financial system had effectively disintegrated, adding that "there was no prospect of a near-term resolution to the crisis……We witnessed the collapse of the financial system... It was placed on life support, and it's still on life support. There's no sign that we are anywhere near a bottom."

In his book, Soros warns that the credit crunch, caused by the crisis, marks the end of an era of credit expansion based on the dollar. "If we are not careful, the dollar will lose its standing as the reserve currency of choice. The task of regulating credit will now become even more precarious since the credit market is already tightening." He goes on to say that "this crisis is not confined to a particular firm, or a particular segment of the financial system; it has brought the entire system to the brink of a breakdown, and it is being contained only with the greatest difficulty. This will have far-reaching consequences. It is not business as usual, but the end of an era."

Soros believes that Milton Friedman-type monetarist doctrine is inadequate for today's credit crisis. Controlling the money supply is only half of the picture, he explains. He blames much of what we are experiencing today as a direct consequence and result of unregulated credit markets. Soros points out that bubbles such as the Internet bubble, housing bubble, and the commodities bubble, were all created through the use of excessive leverage. "The amount of debt currently outstanding is unprecedented. If more isn't done, the crisis could get much worse," Soros warns. He prescribes that any new financial regulations will need to address the use of credit, if we are to avoid any future bubbles. However, Soros also believes that credit is the lifeblood of capitalism,

and therefore, any excessive regulation or overregulation for that matter, will in turn damage the economy as well.

Soros rejects the classical economic theory, which advocates that supply is a function of demand and vice-versa. Instead, he makes a very different argument, saying that the supply and demand curves do not determine market prices at all, because if they did, we would have generally witnessed greater price fluctuations. In his book, Soros argues that a new paradigm is urgently needed as a way forward from the current crisis. He claims that the existing economic paradigm, used until now by most economists, was based on false premises, which he calls "free-market fundamentalism." The central claim in his book is that the traditional economic theory is wrong. He claims that since the days of Adam Smith, economists have taught that markets sort out issues of supply and demand by settling at a point of equilibrium. Prices may temporarily deviate from that balanced state, but eventually, they return to it. Soros argues against this view. He believes that competitive markets are not self-correcting, and that they don't naturally tend towards equilibrium. He states, "the belief that markets tend toward equilibrium is no better than Marxist dogma. Both ideologies cloak themselves in scientific guise in order to make themselves more acceptable, but the theories they invoke do not stand up to the test of reality." Soros explains by saying that in the past, it has always been government intervention which has repeatedly saved the market. "The notion that the market deviates from an orderly path is the rule rather than the exception."

The new paradigm that Soros prescribes is one that incorporates the theory of "Reflexivity," which examines the relationship between thinking and reality. Reflexivity asserts that prices do in

fact influence the fundamentals and that these newly influenced set of fundamentals then proceeds to change expectations, thus influencing prices; the process continues in a self-reinforcing pattern. Because the pattern is self-reinforcing, markets tend towards disequilibrium. Sooner or later they reach a point where the sentiment is reversed and negative expectations become self-reinforcing in the downward direction, thereby explaining the familiar pattern of boom and bust cycles. This mechanism, described by Soros, as an "old-fashioned market psychology dressed up in theory," is one that allows the market to go up as self-reinforcing, but which is ultimately self-defeating; it is what needs to be addressed. Soros connects today's financial turmoil with what he says are fatally flawed conventional assumptions about how markets behave. "If banks, investors and regulators had embraced reflexivity years ago, there never would have been a financial crisis," Soros insists.

Integrative Personal View

My overall integrated view of the global financial crisis, based upon everything that I have learned from research, readings, and presentations is that the recent financial crisis was actually a perfect storm waiting to happen, and had been brewing for some time before it finally reached its breaking point, as seen during the unraveling of the financial markets in 2008. Both Paul Krugman and George Soros are also of this opinion, as evidenced by their work. The causes of the crisis are many, whilst the consequences and implications caused by it are substantial. A few prescribed remedies have also been offered as a way forward, but time will have to tell whether or not they are effective.

The collapse of the U.S. housing bubble, which peaked in 2006, caused the values of high-risk

mortgage-backed securities to plummet. As U.S. housing prices declined, many large and well-established investment and commercial banks in the U.S. and Europe suffered tremendous losses and faced bankruptcy. The crisis exposed other risky loans and the over-inflated asset prices of many of the largest financial institutions of the world. With loan losses mounting and the fall of Lehman Brothers on September 15, 2008, soon thereafter, a major panic took hold of the market, damaging financial institutions everywhere. The panic heightened insecurity amongst investors regarding banks' solvency, and exposure to risk. This, coupled with a steep decline in credit availability, as well as damaged investor confidence, had an impact on the financial markets around the world. The financial crisis has been linked to a host of causes, including loose, reckless and predatory lending practices by financial institutions; easy credit, deregulation and lax government monetary, fiscal and regulatory policies over the previous decade; the rise of the shadow banking system; the growing trend of securitization; CDO's, SIV's, OTC derivatives, and other types of complex lightly regulated financial instruments in the market, as well as the increased leverage and risk taking/risk offsetting by the banking, shadow banking, financial services and insurance companies over the years leading up to the crisis. In the aftermath of the savings and loans crisis of the 1990s, US mortgage-backed securities, which had risks that were hard to assess, and whose underlying assets were over inflated, were packaged up and sold to investors in the capital markets. These securities provided shadow banking firms with a more profitable strategy of lending, one that differed from traditional banking where the bank held mortgages that it originated until maturity. Shadow banking institutions, packaged and securitized these risky loans into special purpose investment vehicles and then sold them off to other banks and investors, as well as institutional investors, like pension funds, endowments, and

governments, in order to offset the long-term risk exposure to themselves. In addition, companies such as AIG, which also suffered substantial losses during the peak of the financial crisis in 2008, then insured these risky securities. These mortgage-backed securities, and other similar types of financial products had proliferated within the market to the degree that it had become very difficult, if not impossible, to calculate their market value and assess the risk of exposure to the institutions that held them as assets.

Meanwhile, during the peak of the crisis, hedge funds heightened the volatility of the market, causing steep shocks to investors. At the same time, many traditional commercial banks also suddenly had to obtain additional equity capital in order to meet regulatory requirements, as well as to maintain the confidence of their depositors. As a result of these unfolding developments, liquidity disappeared from the financial system. Economies worldwide slowed during this period as credit facilities tightened and international economic activity declined. Central banks around the world reacted dramatically with attempts to cut interest rates and increase financial liquidity by bailing out their financial systems. The credit crunch, a direct consequence of the financial crisis, was caused by many factors, and chief among them was a dramatic change in the ability to create new lines of credit. After suffering enormous losses brought on by the heightened exposure to risk, banks were reluctant to lend. This dried up the flow of money and hence, also slowed down economic growth and activity. The biggest factor that determines a healthy economy is consumer spending, and consumers weren't spending. During the credit crunch, businesses and consumers alike could not get any type of financing from the banks. The crisis also exposed severe flaws in the credit rating agencies' valuation process. Investor confidence has suffered as a direct consequence of these rating practices, which were primarily based on flawed mathematical

models, which were based heavily on assumptions derived from historical data and the diversification of risk. “The credit rating agencies had downgraded $1.9 trillion in mortgage backed securities, as of July 2008 in order to account for the lower repayment rates on these high risk securities.” Another area of concern that has been brought up in the wake of the crisis is the conflict of interest in the incentive program for these ratings agencies. These agencies primarily earn their revenues from the amount of securities that they can rate, and not necessarily on the quality of their ratings.

Remedies

Some of the remedies that I would prescribe, based upon my overall integrated view of the crisis is that there needs to be more regulation in the right places, or rather “effective regulation,” as opposed to just more regulation. The banking sector has always been heavily regulated, and in fact, it was the primary reason behind the Shadow Banking industry’s growth. The traditional regulated banking sector constitutes roughly $6 trillion in assets, whereas the unregulated or lightly regulated shadow banking industry constitutes approximately $4 trillion in assets in the overall banking and financial services industry which is valued at $10 trillion. I find it very alarming that the shadow banking industry, which comprises almost half of the total assets of the entire banking and financial services industry isn’t regulated, and has been able to escape regulation for so long. I am of the opinion of Paul Krugman, who says “if it acts like a bank, walks like a bank, talks like a bank, it is a bank, and should be regulated as such.” I think the banking, financial services, and insurance firms need to be increasingly scrutinized and more

effectively regulated in terms of the risk exposure they take on and the capital requirements they should to have to commensurate with those levels of risk.

In addition, they should also be severely penalized on any unscrupulous, reckless and predatory lending practices that they engage in. I prescribe that the way forward is to adopt a Keynesian policy approach, where a mixed economy with an increased government and public sector role within the markets is needed. I prescribe active governmental monetary, fiscal, and regulatory policies to be implemented, as opposed to the laissez-faire approach taken during the 1980s and 1990s. I think the rules (at that time) being suggested by Paul Volker and the Obama administration are a step in the right direction. However I agree with Paul Krugman when he says that more is needed, much more than what anyone is currently talking about, and it's needed quickly. As Krugman identifies, we need to inject more capital into financial markets, support weakened aggregate demand through robust government spending in infrastructure projects, and effectively regulate the financial sector and its entities to avoid another financial meltdown in the future. Every policy action that we take needs to be coordinated with our allies overseas collectively, as evidenced in the G20 summit because we live in a globalized economy. I agree with George Soros and Joseph Stiglitz that a major structural change or new type of economic paradigm is needed because we now live in a highly complex and completely different economic environment, one that is global. I prescribe increased transparency as Harry Markowitz suggests on all of the complex financial instruments, such as securities, CDO's, and OTC derivatives, to be communicated to investors. The credit rating agencies should also be scrutinized in how they rate different investment firms and financial products. I believe that there should be a separation between investment banking activities and commercial banking activities, as there once was with

the Glass-Steagall Act of 1933, before it was repealed.

UMASS COHORT: Spring 2012

Chapter 13

Our Century's First Definitive Black Swan

Ben Zavadoski

Abstract

Prior to the market opening on September 29, 2008, I sent the following email to my immediate family: "Economically speaking, the current conditions could very well be our century's definitive black swan for Wall Street. Even though productivity hasn't been immeasurably hit yet, one can only hope government intervention will assuage what appears to be almost certain gridlock for credit lines between banks and corporations. However, government intervention that doesn't even account for further displays of moral hazard is bizarre to say the least." That day the

Dow Jones industrial average dropped 778 points and $1.2 trillion vanished from the United States stock market.[37] Two days later, I posted similar sentiments on a Washington Post discussion board.[38] Having studied finance during my undergraduate degree, I knew enough about capital markets to realize that the fall of Lehman Brothers signified an historic trigger event. Unfortunately, I also knew economics and finance did not provide a panacea for the current crisis and that the path forward would be filled with disturbing levels of uncertainty.

Introduction

Economic literature is filled with literary devices such as lurid and hyperbolic phrases describing boom-to-bust cycles whereby each exuberant boom is followed by a lifeless bust leaving despondent investors incredulous in the wake. The ever ubiquitous investor plagued with short-term amnesia fails once again to heed Mark Twain's insight that history doesn't necessarily repeat itself but it rhymes. This insight is significant when viewing crises from hindsight. From a financial perspective, it begs the question as to how many people truly believed that markets could only move so convincingly in one direction without an adverse reaction. And more importantly, does the language we employ to describe the financial and economic events obfuscate the gravity of market movements through pedantry and sophistry? Economists euphemistically describe speculative behavior as "irrational exuberance;" yet, would anyone except for an economist describe a gambler sitting at a black jack table betting his family's life

[37] Vikas Bajaj and Michael M. Grynbaum, "For Stocks, Worst Single-Day Drop in Two Decades," *New York Times*, September 29, 2008, accessed April 1, 2012, http://www.nytimes.com/2008/09/30/business/30markets.html?pagewanted=all.
[38] Benjamin Zavadoski, October 1, 2008 (2:45 p.m.), comment on Washington Post Voices "Has the Credit Crunch Affected You Yet? "Washington Post Voices, April 1, 2012, http://voices.washingtonpost.com/livecoverage/2008/10/has_the_credit_crunch_affected.html.

savings as "irrationally exuberant?" Similarly, economists have historically associated economic downturns with seemingly innocuous descriptions such as liquidity gluts and savings gluts. But are we doing ourselves a disservice by expressing one of the seven deadly sins only in its abbreviated form? Conversely, greed is openly embraced in a free market economy. If the disciplines of finance and economics continue to use an argot that is seemingly biased and contradictory, how can we expect financial instruments to be any different? For example, are phrases such as paradox of aggregation, paradox of thrift, paradox of delivering and paradox of inflation helpful? Greenspan embraced this tendentious parlance during public announcements and many news outlets translated Greenspan-Speak into layman's terms for the public.[39] Maybe the calm before a recessionary storm can be called an exuberant calm denoting the false sense of safety investors feel during a market contraction preceding a financial collapse. Are the markets currently residing in an exuberant calm?

Physics Envy

Soon after the collapse of Lehman Brothers in 2008, Andrew Haldane of the Bank of England calculated that the net present value of the cumulative loss of global output resulting from the crisis could be anywhere in money terms between $60tn and $200tn.[40] On April 6, 2012, the Bureau of Labor Statistics reported a 120,000 increase in March nonfarm jobs and the "confidence interval" for the change in total nonfarm employment from the establishment survey

[39] Michelle Norris, "Translating Alan Greenspan-Speak," *NPR*, September 27, 2006, accessed April 1, 2012, http://www.npr.org/templates/story/story.php?storyId=5175329.
[40] John Plender, "Battle is Joined on Bonuses – At Long Last," *Financial Times*, April 20, 2011, http://www.ft.com/intl/cms/s/0/83822ec4-8a0d-11e1-a0c8-00144feab49a.html#axzz1sbP8xNON.

was on the order of plus or minus 100,000.[41] The market was expecting a 220,000 increase and, as a result, market volatility ensued. The first scenario exemplifies extraordinary range variations using discounted cash flows and the second simply represents statistical noise. Such discrepancies in the world of finance and economics are not only common but they are unavoidable based on the instruments used. Although financial models employ the mathematics and style of physics, they are fundamentally different from the models that science produces.[42] Even though advanced calculus lies at the heart of economics and hard sciences like physics, their modeling outcomes are much different. Physical models can provide an accurate description of reality whereas financial models, despite their mathematical sophistication, can at best provide a vast oversimplification of reality. In short, human behavior does not lend itself to rationality where all individuals are maximizing decisions based on opportunity costs. Ian Stewart of The Guardian went so far as to place culpability for the banking failure on the Black-Scholes model during the global financial crisis.[43] If only finding blame for the global crisis was that simple. Human behavior is mercurial, temperamental and ephemeral. Financial models are only ordinary instruments with limited forecasting utility that try to capture rational behavior based on a human element that is if anything rational. Contrast Black-Scholes with either Newton's Second Law in Thermodynamics or Einstein's field equation in general relativity. In physics, the future is quantifiable until proven otherwise; in finance and economics, future

[41] Caroline Baum, "Beithner Takes Lead in 'Much Ado About Nothing," *Bloomberg*, April 18, 2011, http://www.bloomberg.com/news/2012-04-18/take-a-deep-breath-and-ignore-the-monthly-jobs-report.html.
[42] Burton G. Malkiel, "Physics Envy," *Wall Street Journal*, December 14, 2011, accessed April 1, 2012, http://online.wsj.com/article/SB10001424052970203430404577094760894401548.html.
[43] Ian Stewart, "The mathematical equation that caused the banks to crash," *The Guardian*, February 11, 2012, http://www.guardian.co.uk/science/2012/feb/12/black-scholes-equation-credit-crunch.

uncertainty is erroneously assumed to be quantifiable with consistent accuracy. Irrational rationality would be a more appropriate phrase to describe such modeling.

Nassim Nicholas Taleb, the author of "The Black Swan: The Impact of the Highly Improbable," would like to quixotically eliminate anything that relies on a computation that involves the probability of Black Swan events since a defective model, in his view, is less ideal than no model at all. For example, "if you are a passenger on a plane and the pilot tells you he has a faulty map, you get off the plane; you don't stay and say "well, there is nothing better." But in economics, particularly finance, defective models are used on grounds that "there is nothing better," causing harmful risk-taking.[44] Yet defective models do not decrease equity trading. The problem with contemporary economics is that everyone believed all risks could be quantified with mathematical models and that these quantifications could help us *correctly* price just about everything. This notion would lead to the costliest market corrections in eighty years. Financial and economic models should include the warning, caveat utilitor – let the user beware.

Pre-Crisis Events & Policy Actions

Conventional wisdom that markets always know best should be filed away as an anachronistic slogan of another time similar to "Workers and Oppressed People of the World, Unite." Free market fundamentalism and unfettered capitalism are no longer beyond reproach. But what role did government play leading up to the Great Recession? Alan Greenspan, perhaps the single

[44] Nassim Nicholas Taleb, "Throw Out the Probability Models," *NYTimes*, April 2, 2012, http://www.nytimes.com/roomfordebate/2012/04/01/how-to-teach-economics-after-the-financial-crisis/throw-out-the-old-economic-models.

most prominent financial figure for the last two decades, lauded the use of derivatives and objected to their scrutiny by Congress and Wall Street. Greenspan reacted to the stock market decline of 2002 by lowering interest rates 12 times from 6.5% to 1.0% (550 basis points) and then kept the rates low allowing an easy money policy that helped foster the unsustainable credit and housing boom. In his defense, Siegel states that if investors do not like the consequences and they are unwilling to pay the "risk price" then the fault lies not in Alan Greenspan but in ourselves.[45] Yet, Greenspan admitted in testimony to Congress that he was "partially" wrong, giving too

much credence to an ideology based on the self-correcting nature of markets and not anticipating the extraordinary risks embedded in the mortgage lending boom.[46]

On a government level, the opprobrium is not for Greenspan to share alone – both the Clinton and Bush administrations along with the Democrat and Republican parties deserve their share of the blame. In 1994, the government passed the Home Ownership and Equity Protection Act in order to crack down on predatory lending and it gave the Federal Reserve (Fed) the ability to regulate subprime lending. Greenspan refused to enforce this act. In 1999, Congress repealed the remnants of the Glass-Steagall Act through the Financial Services and Modernization Act, paving the way for additional mergers between investment banks, commercial banks and insurers. For the first time since the Great Depression, this law allowed banks, insurance companies and investment banks to offer each others' products. During this bills debate, the

[45] Laurence B. Seigel, "A Riskless Society Is "Unattainable and Infinitely Expensive," 1–19.
[46] Rober F. Bruner, "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis," 20–51.

concept of "Too Big to Fail" became known. In 2000, Senator Phil Gramm attached the Commodity Futures Modernization Act to the omnibus Budget bill which effectively declared huge swaths of derivative markets off-limits to regulation. Warren Buffet presciently raised alarms about derivatives describing them as potential time bombs and financial weapons of mass destruction. Then in 2004, investment banks successfully lobbied the SEC to loosen the rules regarding leverage resulting in ratios of in excess of 20 to 30 or more.

On top of this, the government advocated policies favoring home ownership. The National Homeownership Strategy began in 1994 when Clinton directed Secretary Henry Cisneros to come up with creative measures to promote homeownership. It promoted paper-thin down payments and pushed for ways to get lenders to give mortgage loans to first-time buyers with shaky financing and incomes. President Bush continued the practices because they coincided with his Ownership Society goals, and of course Congress was strongly behind the push.[47] In brief, the government acted in a concerted effort to deregulate, resulting in an unproductive expansion of the housing and financial services industry.

The competitive wave of deregulation that started in the late 1970s and continued until the housing bubble burst was hugely beneficial to the financial industry and the economy at large from a short term perspective. Additionally, the de facto appearance of a conquered monetary stability enabled by Greenspan's putative economic acumen led to a period of relative calm. Yet, the deregulation was not offset by a decrease in moral hazard – especially in regards to

[47] Peter Coy, "Bill Clinton's drive to increase homeownership went way too far," *Bloomberg Businessweek*, February 27, 2008, http://www.businessweek.com/the_thread/hotproperty/archives/2008/02/clintons_drive.html.

compensation. If anything, moral hazard had an inverse relationship with deregulation exemplified by incorporating the "Greenspan Put" into security pricing. Investors sought the best of both worlds – maximum deregulation backed by an inherent government backstop without redesigning the compensation structures to match the new regulations.

Shadow Banking System

Once the traditional barriers on leverage and speculation were removed through legislation, the financial sector grew exponentially. The combined assets of conventional banks and the so-called shadow banking system (including investment banks and finance companies) grew from a mere $500 billion in 1970 to $30 trillion by September 2008. But these trillion-dollar companies residing alongside regulated financial institutions only appeared to resemble their conventional counterparts. The shadow banking system presented a mirage of free market enterprises that extracted billions from the economy by speculating in stocks, bonds, commodities and derivatives while appearing to operate under the guise of fiduciary responsibility and government regulation. They could never have survived, much less thrived, if their deposits had not been government-guaranteed, and if they hadn't been able to obtain virtually free money from the Fed's discount window to cover their bad bets.[48] Shadow banks were able to obtain the illusion of regulatory status simply by borrowing and investing as if they were regulated banks. Appearance meant everything. And to compound problems even more, these institutions grew to rival the conventional banking system in lending capacity.

[48] David Stockman, "Four Deformations of the Apocalypse," *NYTimes*, July 31, 2010, http://www.nytimes.com/2010/08/01/opinion/01stockman.html?pagewanted=all.

Furthermore, the Great Recession had the makings of a classic bank run similar to the Great Depression, except the banks this time weren't only commercial banks. The shadow banking system included nonbank mortgage lenders, conduits, structured investment vehicles (SIVs), monocline insurers, money market funds, hedge funds, investment banks, etc. They had one thing in common – a profound asset liability mismatch. They borrowed from depositors who lent on a short term basis and placed this money into illiquid, risky, long-term securities such as mortgage backed securities (MBSs) and collateralized debt obligations (CDOs). When overnight repurchase (repo) financing dried up, these banks started to fall – Bear Stearns was first followed by Lehman Brothers. The run on the shadow banking system continued with a run on the $4 trillion money-market fund industry. Then the Federal Reserve stepped in and did what it didn't do during the Great Depression – it became the lender of last resort but to a whole new generation of banks.[49]

Housing Bubble

After the 1982 recession, the U.S. and world economies entered into a long period where the fluctuations in variables such as gross domestic product, industrial production, and employment were significantly lower than they had been since World War II. Economists called this period the "Great Moderation" and attributed the increased stability to better monetary policy, a larger service sector and better inventory control, among other factors. The economic response to the Great Moderation was a decrease in risk premiums and an increase in the amount of leverage

[49] Nouriel Roubini & Stephen Mihm, *Crisis Economics: A Crash Course in The Future of Finance,* New York: The Penguin Press.

individuals and firms took on. Housing prices were boosted by historically low nominal and real interest rates and the development of the securitized subprime lending market.[50] According to data collected by Professor Robert Shiller of Yale University, in the 61 years from 1945 through 2006 the maximum cumulative decline in the average price of homes was 2.84% in 1991. If this low volatility of home prices persisted into the future, a mortgage security composed of a nationally diversified portfolio of loans comprising the first 80% of a home's value would have never come close to defaulting. This false sense of security would prove to be ruinous.

In 2005, The Economist calculated that the total value of the residential properties in the world's developed economies had effectively doubled from 2000 to 2005 ($40 Trillion). "It looks like the biggest bubble in history," the magazine wrote.[51] It is important to note that the housing bubble did not reside exclusively in America; housing prices were also at record levels in relation to incomes for Britain, Australia, New Zealand, France, Spain, the Netherlands, Ireland and Belgium as well. Many banks in Europe engaged in their own securitization frenzy similar to their banking counterparts in the United States.

A familiar and worn-out account of the Great Recession places sole blame on the people who took out mortgages which they could not afford and that they eventually had to default on. This sounds reassuring but it is inaccurate. The collapse revealed a frightening truth: the homes of subprime borrowers were not the only structures standing on the precipice of default; subprime

[50] Jeremy J. Siegel, "Efficient Market Theory and the Crisis," *Wall Street Journal*, October 27, 2009, http://online.wsj.com/article/SB10001424052748703573604574491261905165886.html.
[51] Anonymous, "In Come the Waves," *The Economists*, June 16, 2005, http://www.economist.com/node/4079027.

loans were an additional tranche sitting atop an immeasurable entity constructed of too much debt and leverage. Yet, Greenspan surprisingly defended the rise of subprime lending, claiming in 2005 that "lenders are now able to quite efficiently judge the risk posed by individual applicants and to price that risk appropriately." While the housing bubble rested in part on subprime mortgages, the problems were more pervasive and destructive.

Debt & Leverage

Financial innovation, failures of corporate governance, easy monetary policy, failures of government, and the shadow banking system all contributed to the onset of the crisis. But these items together do not explain the severity of the Great Recession that is only second to the Great Depression. The missing link is that almost everyone in the financial system increasingly relied on debt and leverage. U.S. indebtedness reached record levels: All debt (the sum of household, business, and government debt) as a percentage of GDP reached 350 percent by 2006, having doubled since 1984.[52]

For decades prior to the global financial crisis, jobs were lost to technology and foreign competition and the government promoted easy credit to inflate growth resulting in an increase in household borrowing. Growth contingent upon heavy borrowing proved to be unsustainable. Following the dot-com bust in 2001, the Federal Reserve cut interest rates to unprecedented lows that did little to stimulate the economy. In fact, the artificially low interest rates acted as a tremendous subsidy to parts of the economy that relied on debt, such as housing and finance.

[52] Rober F. Bruner, "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis," 40.

This led to an artificial expansion in housing construction, real estate brokerage and mortgage lending.[53] In addition, fiscal deficits led to a commensurate fiscal retrenchment in the private sector after the housing bubble collapse. For example, the financial balance of the private sector shifted from minus 2.1 percent of GDP in the fourth quarter of 2007 to plus 6.7 percent in the third quarter of 2009, a swing of 8.8 percent of GDP. And this occurred despite the Fed's efforts to sustain lending and spending.[54]

This expansion of debt was by no means isolated to the United States. Many countries in the Europe such as Spain and France had accumulated debts of more than ten times their annual revenues. Historically, such levels of government indebtedness had led to government default. In particular, Greece has been hovering on the metaphorical default line ever since Europe provided numerous rescue packages over the last two years. According to the World Economic Forum, Greece ranks as the 90th most competitive country in the world (the U.S. currently is 5th) and even though it only has 11 million inhabitants, the country has illustrated the euro area's fundamental flaws both in terms of political and economic unity and the long term outlook for the euro zone is still unknown.

Minsky Moment

[53] Raghuram G. Rajan, "The True Lessons of the Recession," *Foreign Affairs*, May/June 2012, http://www.foreignaffairs.com/articles/134863/raghuram-g-rajan/the-true-lessons-of-the-recession.
[54] Martin Wolf, "How to walk the fiscal tightrope that lies before us," *Financial Times.com*, February 16, 2010, http://www.ft.com/intl/cms/s/0/7467f85e-1b30-11df-953f-00144feab49a.html#axzz1uZiwLnEg.

By definition, an [economic] shock must be surprising, material, costly and unambiguous.[55] On September 15, 2008, Lehman Brothers filed for bankruptcy and its failure was less a cause of the crisis than a symptom of its severity (many market watchers are convinced that its failure is responsible for turning the American crisis into a worldwide conflagration). The failure of Lehman and the government's determination not to rescue the firm sharply raised investor fears. In response, the stock market plummeted, reaching levels of volatility not seen since the 1930s, with the exception of the single day 19 October 1987. Shortly after Lehman's collapse, Goldman Sachs and Morgan Stanley both applied to become bank holding companies. This conversion marked a pivotal moment in the nation's financial history: in the space of seven months Wall Street had been utterly transformed, with all five independent banks destroyed, absorbed, or temporarily muzzled. Unlike the Great Depression, the central bank became the lender of first, last and only resort.

In 2005, Raghuram Rajan stood before a room of prominent economic policymakers celebrating Alan Greenspan's legacy and presented a paper about how the world was headed for financial disaster.[56] In September of 2006, Nouriel Roubini warned a skeptical IMF that the United States would likely face an once-in-a-lifetime housing bust, an oil shock, sharply declining consumer confidence, and, ultimately, a deep recession.[57] Both individuals were ignored. Although very

[55] Rober F. Bruner, "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis," 20–51.
[56] Barbara Kiviat, "Economic Seer Says U.S. Not Addressing Cause of Crisis," *Time.com*, May 21, 2010, http://www.time.com/time/business/article/0,8599,1989916,00.html.
[57] Paul Krugman, "Scientists and Thinkers," *Time.com*, April 30, 2009, http://www.time.com/time/specials/packages/article/0,28804,1894410_1893209,00.html.

few economists predicted the global financial crisis, one economist actually predicted the event decades ago – Hyman Minsky.

Hyman Minsky's "financial-instability hypothesis" included five stages: displacement, boom, euphoria, profit taking, and panic. Thirty years ago when most economists were extolling the virtues of financial deregulation and innovation, Minsky maintained a more negative view of Wall Street; in fact, he stated that bankers and traders periodically played the role of arsonists, setting the entire economy ablaze.[58] The prime cause of economic slumps, according to Minsky, is the credit cycle, the expansion and contraction of loans for business and consumers: Easy credit amplifies the boom, and tight credit amplifies the contraction. In this View, Minsky followed John Maynard Keynes. Minsky argued for government intervention to reduce the amplitude of the cycle – more aggressive lending by the government during contractions and tighter regulation of bank lending standards during the booms.[59] Minsky's advice that "apt intervention and institutional structures are necessary for market economies to be successful" still remains largely unheeded.

Conclusion

Responding to a reporter in 2009, Bernanke stated "I was not going to be the Federal Reserve chairman who presided over the second Great Depression." In short, the Fed's response has been unprecedented but there has not been a commensurate fiscal response to match the central bank's

[58] John Cassidy, "The Minsky Moment," *The New Yorker*, February 4, 2008, http://www.newyorker.com/talk/comment/2008/02/04/080204taco_talk_cassidy.
[59] Rober F. Bruner, "The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis," 20–51.

actions. And the Fed cannot save the economy on its own. In theory, markets operate best with the least amount of government intervention and history confirms its importance in issues of major economic policies; yet, faith in free markets is not irrefutable per se. An echo in our own time was the 1999 repeal of the Glass-Steagall Act, legislated in 1933 to separate investment banking and commercial banks. Its repeal was a key contributor to the calamities now gripping the banking system.[60]

Currently, the United States is politically and economically polarized as to which direction the country should take moving forward. One side advocates austerity and less government intervention while the other side advocates stimulus and more government regulation. Both sides provide valid points and the answer probably lies in combining elements of both party's prescription policies. Unfortunately, the dogma of politics bleeds into economics. Just as it is important for our political system to seek compromise, the same goes for economists. Unfortunately, the followers of Keynes will not talk to the followers of Schumpeter and the political and economic gridlock will only lead to further paralysis. In retrospection, the financial crisis of 2008 was suspended only because investors believed that governments could borrow whatever they needed to rescue their banks. What happens when the governments themselves cease to be credible?[61] Considering Europe is more or less in a recession, growth in India and China are faltering, and growth in the United States is stagnant, the near-term economic outlook

[60] Peter L. Bernstein, "What's Free About Free Enterprise," *NYTimes*, September 27, 2008, http://www.nytimes.com/2008/09/28/business/28view.html?pagewanted=all.
[61] John Lanchester, "How We Were All Misled," *NYBooks*, November 10, 2011, http://www.nybooks.com/articles/archives/2011/dec/08/how-we-were-all-misled/?pagination=false.

is ominous. One can only hope we are not in the midst of an exuberant calm whereby increased uncertainty and high volatility wait surreptitiously on the horizon.

Chapter 14

The Government's stake in hatching the black swan

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The global financial system has been recovering from a devastating downturn which many have titled the Global Financial Crisis (GFC). Although a couple of years have passed since the burst of the housing bubble and the big financial turmoil, many people still question "What happened?", wondering what people did wrong or whether they knew what they were getting into. The truth is that finding a specific company, entity or CEO to blame for the entire meltdown has been almost impossible. However, the Government, which was one of the parties involved in the GFC, is also considered to have had a big stake in contributing to the materialization of the last black swan[62]. Thus, knowing how this entity proceeded during the "housing era" can explain, to some extent, why and how the whole system collapsed.

Therefore, based on personal knowledge, current literature and news from the media, this paper intends to analyze the Government's actions in order to confirm its contributions to the GFC and sustain that, if it had acted differently and taken the necessary measures beforehand, the chaos could have been contained or at least mitigated.

Introduction

[62] According to Nassim Nicholas Taleb in "The Black Swan: The Impact of the Highly Improbable" from *The New York Times* on April 22, 2007, a Black Swan is a rare event that is unexpected, has a big impact and after happening, people believe it is explainable and could have been predicted.

We are currently in 2012 and people are still trying to appoint one organization to blame for the 2007-2009 GFC. Some argue that all the parties involved in the housing market contributed to the GFC[63]. Furthermore, considering that the financial institutions were all interconnected, the systemic risk was also extremely high. This means that the failure of one institution or market could spread to the whole financial system[64].

Nonetheless, the Government, representing the highest entity present in the market, had to deal with the expectations people had of it. The question posed is whether the government's actions were efficient in maintaining the financial system's order. What we do know is that it left much to be desired when it came to creating and imposing regulations, and avoiding riskless decisions taken by companies and also moral hazard.

Led by its homeownership strategy, the Government backed up financial institutions that were involved in the housing market, incentivizing predatory lending. This also stimulated the increase of companies willing to enter into the mortgage market due to the large profits these entities were making[65]. On the other hand, while the number of these institutions increased, regulations got poorer and poorer. This knowledge emphasizes the lack of supervision and control of the loans being issued. Additionally, companies started taking aggressive risks, loosening up loan requirements and issuing mortgages to people without the means to pay them back. At some

[63] Bethany McLean and Joe Nocera, *All the devils are here: The hidden history of the financial crisis* (New York: Penguin, 2011), 365.
[64] Robert E. Litan, "Regulating Systemic Risk," in *Insights into the Global Financial Crisis*, ed. Laurence B. Siegel (The Research Foundation of CFA Institute, 2009), 171.
[65] Zachary A. Goldfarb and Brady Dennis, "Government report blames regulators and financial institutions for economic crisis," *The Washington Post*, January 27, 2011, accessed April 22, 2012, http://www.washingtonpost.com/wp-dyn/content/article/2011/01/27/AR2011012702940.html?sid=ST2011020504887.

point, this became the norm in the market. Institutions basically chose to become unaware of the risks these mortgages implied because they knew that they had the Government's support and, in one way or another, they were working towards the same goal (essentially in theory, given that financial institutions were in the business mostly to make profits, and a lot of them). This is where the Government should have acted, controlling these procedures, enforcing compliance with regulations and in the absence of these, they should have been created. As we all know, it did not happen since the Governmental enterprises were involved in the housing market, competing aside financial institutions. Hence, moral hazard[66] was present more than ever; enhancing companies' bad decisions. They knew that, if something went wrong, the Government would find a way to pull them out of the pit.

In this sense, I set the case for considering the Government as the major responsible party for the GFC, discuss the strategy that led it to eventually support the subprime mortgage market, describe its wrong doings and consider whether it really contributed to the GFC. I conclude by discussing the mysteries of the Black Swan, whether anyone knew the last crisis was to happen and what warning signals we should look out for to prevent another shocking scenario from unfolding.

The Government's unfortunate strategy

One could say that everything started a long time ago with Bill Clinton's National Homeownership Strategy which intended to put, in houses, people who lacked cash to buy a

[66] Moral hazard refers to the tendency companies have in taking risks beyond what they would otherwise, believing that the Government will save them in case something goes wrong.

home or to give the down payments. This in turn, was exactly what the subprime lenders desired[67]. If, according to the Government, every family was supposed to own a home, then, subprime lenders would definitely not be the entities to decline mortgage loans to borrowers. The industry decided to "cooperate" with the Government[68], both working to achieve the same target. Nonetheless, we all know that these two institutions did not have the same intentions when supporting the American dream[69].

The business was quite attractive due to the high interest rates lenders could set as a result of higher default risks. Furthermore, although the risk of non-payment was higher, subprime lenders could off-load these risky loans to others in the market through the securitization process[70]. It involved banks combining several loans with other financial assets and selling these packages which contained different layers, representing different types of risk. As stated by Shah, many considered this instrument the "greatest financial innovation in the 20th century" and the most popular example, in the context of the global financial crisis, are the mortgage-backed securities (MBS). They are based on mortgages combined into a large pool and divided into smaller pieces that will subsequently be sold to investors, depending on each mortgage's intrinsic default risk. They also had to be rated by the rating agencies in order to transmit confidence to investors. However, the rating agencies naively misunderstood the inherent risks these packages held as a mix of various risky assets, and started rating all of them Triple-A, considered the highest and best rate for a secure investment. They deliberately believed that the risk was reduced by putting

[67] Bethany McLean and Joe Nocera, *All the devils are here*, 32.
[68] Cooperation happened according to the institutions' own interests; to make profits.
[69] The "American Dream" refers to the American's people will in, some day, obtaining an own house.
[70] Anup Shah, "Global Financial Crisis," *Global Issues*, December 11, 2010, accessed March 25, 2012, http://www.globalissues.org/article/768/global-financial-crisis.

these assets into a larger pool. Thus, because everyone in the business saw profits soaring, other institutions quickly decided to follow.

The problem though, laid in the fact that, because the risks of these MBS were actually shifted to others, and not shared[71], the subprime lenders decided to "pass up the risk buck"[72]. This meant giving loans without strictly following the lending requirements. If the borrower defaulted, it would eventually be someone else's problem anyway. In the meantime, house prices were skyrocketing and if the borrower defaulted, with the loan still on the bank's balance sheet, it could repossess the house, which cost a fortune at the time. The ecstasy, however, ended when house prices started to fall and people actually owed more than what their houses were worth. Consequently, all of these factors further contributed to the housing bubble. So, the question that remains is "Can everyone really own a house?". Today, after the entire market has experienced the fear of a total system collapse, the answer is probably no.

Deregulation – Government's (lack of) polices

As identified by conclusions of a federal inquiry, the GFC was "an 'avoidable' disaster caused by widespread failures in government regulation, corporate mismanagement and heedless risk-taking by Wall Street"[73]. Considerable blame is put on the Federal Reserve (Fed) for being the one entity empowered to stop banks in engaging in risky lending, preventing the "flow of toxic

[71] Bruce I. Jacobs, "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis," in *Insights into the Global Financial Crisis*, ed. Laurence B. Siegel (The Research Foundation of CFA Institute, 2009), 54.
[72] Term used in 2012, in a Global Financial Crisis course, at UMASS Boston, by Prof. James L. Grant, PhD.
[73] Sewell Chan, "Financial Crisis Was Avoidable, Inquiry Finds," *The New York Times*, January 25, 2011, accessed April 21, 2012, http://www.nytimes.com/2011/01/26/business/economy/26inquiry.html.

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mortgages" and failing to do so[74]. None of these factors are to be blamed alone as the main contributor of the financial crisis. However, the report is increasingly harsh on regulators since it identified institutions such as the Securities and Exchange Commission (SEC), the Fed, the Office of the Comptroller of the Currency and the Office of Thrift Supervision that failed to do their job[75]. Robert Kuttner goes further and affirms that the problem was not a "regulatory failure … but a regulatory corruption"[76]. Therefore, I believe that deregulation happened as a result of three factors.

First of all, lack of regulation may be justified in part by the Government's interest in giving continuity to its homeownership strategy, predominantly "among low-income and minority groups"[77]. Hence, it decided to loosen up enforcement as a way of favoring its intentions as well. In fact, the Government was the first to securitize modern mortgages, and not Wall Street[78] as many people believe. The strategy was mostly executed by Fannie Mae and Freddie Mac, government-sponsored enterprises (GSEs), which represented an important piece of the puzzle given that, initially, investors only bought the mortgages they guaranteed[79]. Exhibit 1 shows the Government's outstanding share of the MBS market over the 1996-2007 period. Since the practice of securitizing mortgages was quite new at the time, investors preferred those assured by the Government because it meant that these two institutions were assuming the default risks.

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[74] Zachary A. Goldfarb and Brady Dennis, "Government report blames regulators and financial institutions for economic crisis,"
[75] Sewell Chan, "Financial Crisis Was Avoidable, Inquiry Finds."
[76] Catherine Rampell, "First, Blame the Regulators," *The New York Times*, May 5, 2009, accessed April 20, 2012, http://economix.blogs.nytimes.com/2009/05/05/first-blame-the-regulators/.
[77] Zachary A. Goldfarb and Brady Dennis, "Government report blames regulators and financial institutions for economic crisis,"
[78] Bethany McLean and Joe Nocera, *All the devils are here*, 7.
[79] Bethany McLean and Joe Nocera, *All the devils are here*, 12.

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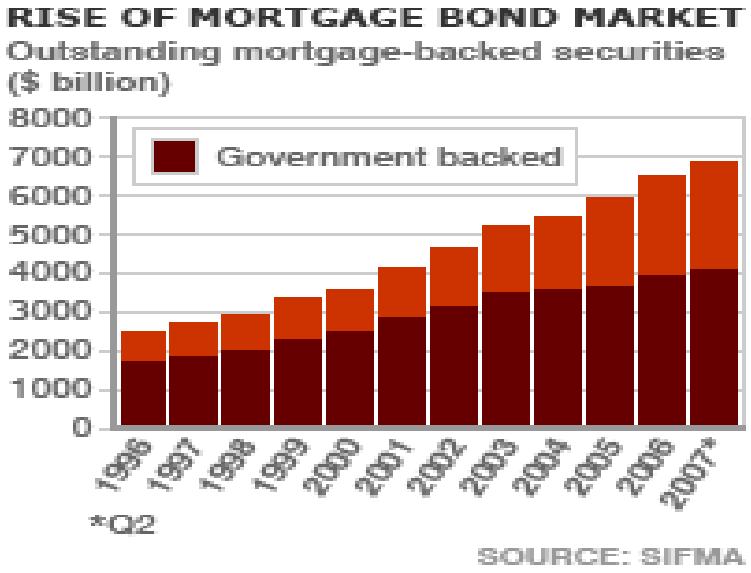
Thus, while Fannie Mae and Freddie Mac had quasi-governmental status, and the advantage that all procedures had to follow their standards, they were benefiting from higher profits than Wall Street

Exhibit 1 – The Government's outstanding share of MBS (1996-2007)



Source: BBC, "The downturn in facts and figures," *BBC News*, 2007.

Additionally, during the housing era, "financial innovation and experimentation" were encouraged since companies were making millions[80]. In this sense, new institutions decided to enter the mortgage business willing to earn their share of the cake--see Exhibit 2--although the risks these different financial products involved were not completely understood in the market. These new entrants did not have supervision at all since they were not real commercial banks;

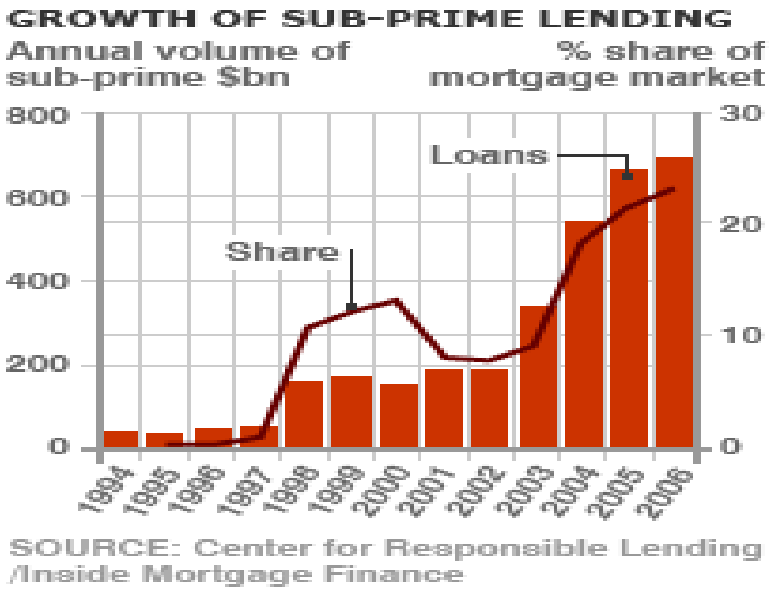
[80] Nouriel Roubini and Stephen Mihm, *Crisis Economics: A Crash Course in the Future of Finance* (New York: Penguin Books, 2010), 14.

they had several businesses. Thus, because existing and new financial institutions became slightly regulated by the Fed, things started to get out of control.

Moreover, when important bills, created to monitor or control these institutions, were sent to Congress, they would simply deny their necessity, stating that "the market will discipline itself". According to Wien, market discipline was assumed without taking into account the extent to which excessive risk was being spread throughout the financial system[81]. Alan Greenspan, which was the Fed chairman at the time, was a skeptic of regulation and also a believer of the self-discipline argument[82], however, in a later interview with CNBC, he stated that even if the Fed had tried to suppress the extension of the subprime mortgage market, it would have not gone far with the Congress since the country was experiencing "a major increase in homeownership which is an unquestioned value to this society"[83]. As a result, this assumption ended up costing the financial system a lot of money as it is known.

[81] Byron Wien, "Can Washington rouse a good morning for America?," *Business Spectator*, March 16, 2012, accessed April 21, 2012, http://www.businessspectator.com.au/bs.nsf/Article/world-economy-pd20120315-SDV8Q?opendocument.
[82] Bethany McLean and Joe Nocera, *All the devils are here*, 64.
[83] David Faber, "The Federal Reserve / House of Cards," *CNBC*, February 10, 2009, accessed April 20, 2012, http://video.cnbc.com/gallery/?video=1029053619&play=1.

Exhibit 2 – Fast increase in subprime lending (1994-2006)



Source: BBC, "The downturn in facts and figures," *BBC News*, 2007.

Another underlying assumption in place was that the real estate market and house prices were stable. Market participants underestimated the possibility that house prices could actually decline[84] and pose a threat for the financial system. The underlying reason was that house prices had not declined on a nationwide scale since the 1930s[85] (Exhibit 3). In this sense, derived from the fact that every company was in a race to become more competitive and the Fed ended up

[84] Kenneth R. French at al., *Squam Lake Report: Fixing the Financial System* (Princeton and Oxford: Princeton University Press, 2010), 16.
[85] Bruce I. Jacobs, "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis," 67.

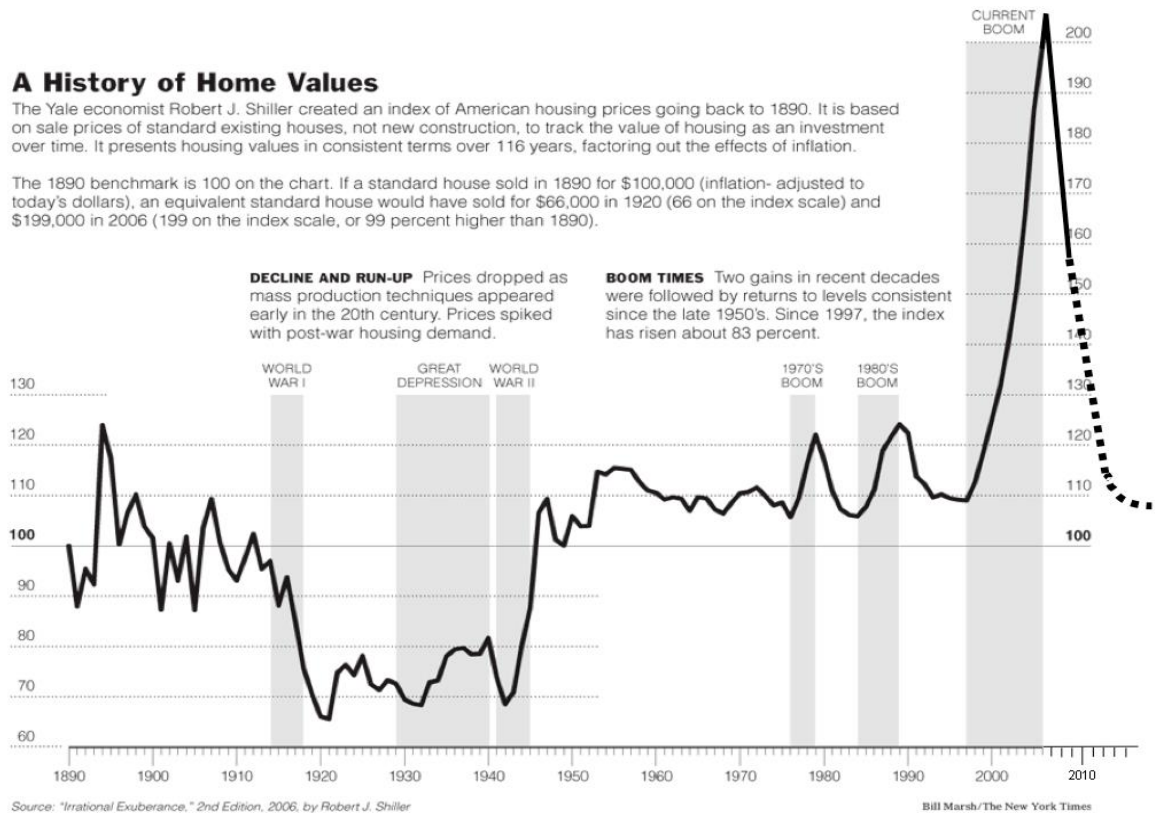
raising interest rates, the subprime mortgage market became more popular than the prime market. In mid-2003, subprime mortgages had increased more than ever, due to subprime originators which entered the market to profit from the higher interest rates. This in turn created a bubble which burst when borrowers started defaulting on their mortgage payments. Hence, investment banks started to shut down credit lines to independent mortgage lenders, constraining the subprime business. This combination of frozen lending and borrowers defaulting eventually led to a decline in housing prices, and it was also followed by the decline of subprime originators when delinquencies and foreclosures rose in 2008[86].

Moral Hazard and Riskless decisions

According to Kaplan et al., the primary ingredient that led the U.S. economy, and eventually the world's entire financial system, into a recession was human nature[87]. Greed and misalignment of incentives were present along with the use of innovative financial products, which were created to reduce risk but actually ended up increasing those risks.

[86] Bruce I. Jacobs, "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis," 63.
[87] Paul D. Kaplan et al., "The History and Economics of Stock Market Crashes," in *Insights into the Global Financial Crisis*, ed. Laurence B. Siegel (The Research Foundation of CFA Institute, 2009), 134.

Exhibit 3 – U.S. Home prices in the past century



Source: Bill Marsh, "A History of Home Values," *The New York Times*, 2006.

Due to securitization, companies strongly believed that packaging and tranching MBS would make them risk free investments. Additionally, given the fact that if the risk of default existed, it could be transferred to others up the "food chain", we witnessed companies ignoring the essential requirements that should have been followed when issuing a loan for a mortgage. There was no incentive at all to do due diligence since the risk of borrowers not paying could be transferred to others. This knowledge, in a way, contributed to riskless decisions taken by financial institutions which abandoned the practice of following reliable standards. The question which remains though is "Why did institutions simply decide to become irresponsible and dive into the subprime mortgage business?".

One plausible answer is that institutions simply underestimated the possibility of credit default, relying of the assumption that house prices would continue to increase, which led the economy into a vicious cycle and destroyed the financial system. Another option brings up the moral hazard concept which some argue to be the root of the GFC[88]. The perception that these institutions had, that the Government would intervene in case something went wrong, as it has always done (during the Great Depression, the Great Inflation and so on)[89], transmitted too much confidence to the subprime lending entities and contributed to magnify the bad decisions. Risk seeking and excessive optimism were also present[90]. Nevertheless, the big problem, as identified by Siegel, was that Governments around the world, in particular the U.S. Government, were trying to create a riskless society and this made institutions believe that "their Governments could

[88] Hersh Shefrin, "How Psychological Pitfalls Generated the Global Financial Crisis," in *Insights into the Global Financial Crisis*, ed. Laurence B. Siegel (The Research Foundation of CFA Institute, 2009), 252.
[89] Laurence B. Siegel, "A Riskless Society Is 'Unattainable and Infinitely Expensive'," in *Insights into the Global Financial Crisis*, ed. Laurence B. Siegel (The Research Foundation of CFA Institute, 2009), 10.
[90] Hersh Shefrin, "How Psychological Pitfalls Generated the Global Financial Crisis," 224.

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protect them from all macroeconomic risk"[91]. We verified this protectionism once again when a number of financial institutions were accounted for as "too big to fail" and were essentially bailed out by the Government, with the exception of Lehman Brothers', which was left to fail in a way to prevent moral hazard and the transfer of toxic-assets to others institutions as well[92]. However, this event literally pulled the financial system deeper into the crisis! In the end, all other institutions which were in disastrous situations (Bear Stearns, Goldman Sachs, AIG, Merrill Lynch, among others) were bailed out with the justification that their failure also meant the failure of the whole financial system.

An interesting aspect to highlight though is that the financial institutions which bailed out others which were termed "too big to fail": Bank of America, JP Morgan Chase, Wells Fargo and Citigroup, basically became even bigger[93]. Hence, the question that must be posed is "If one of these institutions got in trouble, how could they be bailed out?". The decision to bailout large institutions does not seem a sustainable solution since it does not fix the causes; it addresses the consequences and the problem will certainly reach a point where it will be impossible for authorities to handle. Thus, a more sustainable method should be explored. A report made by the International Monetary Fund (IMF) actually concluded that, by bailing out these large institutions and not making important changes to convince them that it will not happen again, the Government's response to the crisis just increased the threat of moral hazard[94]. Therefore, I

[91] Laurence B. Siegel, "A Riskless Society Is 'Unattainable and Infinitely Expensive'," 2-3.
[92] Paul D. Kaplan et al., "The History and Economics of Stock Market Crashes," 138.
[93] Bernie Sanders, "Too Big To Fail – Too Big To Exist," *The Huffington Post*, November 6, 2009, accessed April 21, 2012, http://www.huffingtonpost.com/rep-bernie-sanders/too-big-to-fail---too-big_b_348251.html.
[94] Howard Schneider, "IMF says response to global economic crisis may have deepened some problems," *The Washington Post*, March 9, 2011, accessed April 22, 2012, http://www.washingtonpost.com/wp-dyn/content/article/2011/03/09/AR2011030905108.html.

believe companies should be held responsible for their decisions and deal with the consequences of their actions. Authorities should encourage taking risk to produce for the better of mankind, but discourage moral hazard in the sense that ups and downs are part of normal life[95]; we just need to be more aware and careful for our own sake.

The mysteries of the Black Swan

As a final point, we could assert that all of the factors discussed were contributors to the last black swan. Not one aspect alone, but their combination essentially magnified the negative outcomes of the GFC. Thereby, a question to be addressed is whether anyone saw it coming. In fact, this is the mystery of the black swan: "Is it indeed predictable?".

Shefrin stresses that in late 2007, four analysts "forecasted that the financial sector would experience difficulties"[96]. They largely targeted Citigroup, recommending a sell in its stock and claiming the company's need to raise money by cutting dividends or selling assets. They also alerted to the risks posed by the subprime mortgage market. Roubini and Mihm also presented a vital and timeless book that proves that calamities can be predicted, prevented and, with the right efforts, cured[97]. Nonetheless, Shefrin also illustrates the point that those involved in the financial

[95] Laurence B. Siegel, "A Riskless Society Is 'Unattainable and Infinitely Expensive'," 17.
[96] Hersh Shefrin, "How Psychological Pitfalls Generated the Global Financial Crisis," 224.
[97] Amazon, "Book Description," May 11, 2010, accessed April 22, 2012, http://www.amazon.com/Crisis-Economics-Course-Future-Finance/dp/1594202508.

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crisis were actually fooled by psychological pitfalls which affected judgments and decisions along procedures mostly pertaining to mortgages[98]. As a result, it is important to track and monitor warning signals that could recognize the possibility of a black swan return.

Conclusion

Many have argued about the causes of the GFC but one aspect should be primarily pointed: weak regulatory structure. This led to lax lending practices which boosted the housing market, increased the flow of subprime mortgages and later resulted in a downturn in the financial system[99]. When the Fed realized what was happening, it was already too late and the mechanisms put in place were insufficient to stop the housing bubble from growing[100]. Thus, existing regulations need to be enforced[101]. Not just enforced, but new laws should be proposed since, as Krugman described, it was a small financial engineering that "led to a gigantic financial bubble"[102].

In late June 2009, the Obama administration compiled a whole new set of proposals to prevent a next crisis from unfolding[103]. It included aspects such as the enforcement of financial regulation, constant supervision, more simplicity and transparency, more-comprehensive regulatory

[98] Hersh Shefrin, "How Psychological Pitfalls Generated the Global Financial Crisis," 225.
[99] Kathleen Madigan, "Housing Help Will Run Up Against Lending Standards," *The Wall Street Journal*, January 26, 2012, accessed April 22, 2012, http://blogs.wsj.com/economics/2012/01/26/housing-help-will-run-up-against-lending-standards/?KEYWORDS=subprime+crisis.
[100] Catherine Rampell, "Lax Oversight Caused Crisis, Bernanke Says," *The New York Times*, January 3, 2010, accessed April 22, 2012, http://www.nytimes.com/2010/01/04/business/economy/04fed.html#.
[101] Laurence B. Siegel, "A Riskless Society Is 'Unattainable and Infinitely Expensive'," 17.
[102] Paul Krugman, "Mystery of the mortgage mess," *The New York Times*, November 17, 2007, accessed April 22, 2012, http://krugman.blogs.nytimes.com/2007/11/17/mystery-of-the-mortgage-mess/.
[103] Bruce I. Jacobs, "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis," 70-71.

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oversight and disclosure of rating agencies' methodologies. I must agree with Kaplan et al. when they affirm that new regulation "should not be limited to banks but should also apply to insurance companies, investment banks, other non-depository financial institutions, and their holding companies"[104] given that these were the actual institutions that had less supervision. It also identified the need for a national mortgage market, and a national and uniform regulatory authority as well[105]. I also find it necessary to emphasize the prevention of moral hazard by the Government. If institutions engage in the market knowing that they will be held accountable for the outcomes their decisions, it will help prevent risky decisions from taking place.

The global financial system is highly interconnected, which means that problems in one market can easily spread to others, triggering a total collapse. We have observed an improvement in financial conditions, but long-term economic challenges still remain[106]. In this sense, because it is difficult to oversee "a world of increasingly large and integrated financial markets", instruments and a regulatory system that are consistent across markets are needed[107] to prevent another black swan from appearing.

[104] Paul D. Kaplan et al., "The History and Economics of Stock Market Crashes," 159.
[105] Martin Neil Baily, Robert E. Litan and Matthew S. Johnson, "The Origins of the Financial Crisis," in *Fixing Finance Series – Paper 3*, (The Brookings Institution, 2008), 41.
[106] Laurence B. Siegel, "A Riskless Society Is 'Unattainable and Infinitely Expensive'," 2.
[107] Bruce I. Jacobs, "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis," 72.

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Chapter 15

Contributing Factors to the Global Financial Crisis

Hanumanth Lankupalli Ramarao

Introduction

The U.S. financial crisis which started in 2007 slowly spread across the world, through the interconnectedness of the global economy. The economic loss to each country depended on its dependence on global trade and investments in the markets. Never before has there been a global slowdown, where a major consumer market like the U.S. cast a web of uncertainty on the world markets. The financial sectors acted as the medium for the spread. It seemed that there was no contingency plan prepared for what started in 2007. I believe that expanding consumer demand after the 2001 slowdown, led to an unwarranted expansionary demand for houses, and the recession.

Coming out of the 2000 Crash

In the early 2000's most countries went through a slowdown due to the bursting of the Dot-Com bubble. The countries most affected were the U.S. and the European Union, Russia, which was coming out of a slowdown, and Japan which had its own problems. The resulting recession of 2001 was due to "irrational exuberance" in high tech. Companies started investing to overcome the Y2K problem, more individuals were employed in the high tech sector. Investments started pouring in during this period. Speculations gave rise to high stock prices of high-tech companies.

After the Y2K problem was solved, many companies had no reason for further investments. So investments started declining and the demand for labor was decreasing. At the market peak in October 2007 (Exhibit 1), the stock prices of many companies did not justify their financials or operations. Once stock prices started declining companies went into bankruptcy.

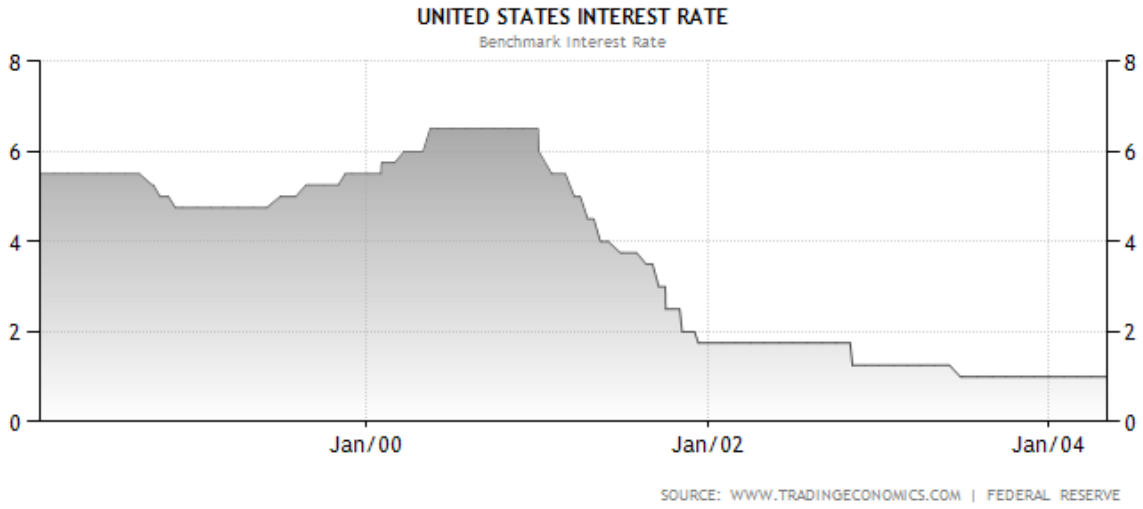
Exhibit 1: Stock Prices

Source: Google Finance.

As the U.S. was coming out of the 2000 slowdown, it had an unfortunate event on September 11, 2001. The Twin tower crash led to a market crash. The September 11 attacks caused the global stock markets to crash. In spite of the stock market decline of 2000, the FED kept increasing interest rates. Interest rates hit a high of 6.25% in May 2000 and after that, the FED started decreasing interest rates to tackle the economic slowdown (Exhibit 2). The reason why interest rates weren't decreased before 2000 was because of the high speculations and market

investments. The interest rate decreases during and after the 2000 slowdown (Exhibit 2) helped fuel an expansionary path of growth which ended with the recent crash of the stock market and the worldwide recession in 2008.

Exhibit 2: Interest Rates



Source: TradingEconomics.com

Factors Contributing to the Global Financial Crisis:

Based on the turn of events over the last four years, I believe that the Global Financial crisis was the result of various factors which together put the global economy and market at risk. Greed coupled with factors such as those listed below led to people looking at their competitors and not at the larger picture.

- Interest rates

- Deregulation
- Government
- Housing
- Financial instruments
- Credit Rating agencies

Interest Rates:

The FED started decreasing interest rates from 2001 until 2005, to help the economy come out of the 2001 slowdown. Even at its peak before the recession, the interest rate was at 5.25%. The FED kept the interest rate low for long periods of time; this gave way to free circulation of money through the system. There was built up consumer demand from the early 2000's slowdown, and with low interest rates people were encouraged to spend. This consumerism led the way to investment in real estate. Real estate has usually been considered a safe investment, even during an economic slowdown. So people started investing in houses. Low interest rates led to cheap loans and the liquidity to fuel the growth in real estate.

Deregulation:

In 2004, the U.S. Securities and Exchange Commission relaxed the net capital rule, which enabled investment banks to substantially increase the level of debt they were taking on. This fueled the growth in mortgage-backed securities (MBS) supporting subprime mortgages. The

SEC has conceded that self-regulation of investment banks contributed to the crisis.[108][109] In turn, deregulation:

- Raised the allowable ceiling on direct investments by savings institutions in nonresidential real estate from 20% to 40% of assets.
- Allowed banks such as Citibank to move significant amount of assets and liabilities off their balance sheet and place them into complex legal entities, such as Structured Investment Vehicles.
- Resulted in repeal of the Glass-Steagall Act of 1933. The Act called for separation of banks according to the business that they conducted. After the repeal, investment banks, which dealt in high risks, were considered in the same category as commercial banks[110]. In turn, investment banks were given the incentive to take greater risks, while reducing the amount of equity they were required to hold against any given dollar of assets.

Alan Greenspan was at the center of many of the deregulatory moves. He fought to keep the derivatives market unregulated. The U.S. Congress and president allowed for the self-regulation of the over the counter (OTC) derivatives market when they enacted the Commodity Futures

[108]Stephen Labaton, "SEC Concedes oversight Flaws", *The New York Times*. September 27, 2008, http://www.nytimes.com/2008/09/27/business/27sec.html?_r=1&em

[109] Stephen Labaton, "The Reckoning", *The New York Times*. October 3, 2008, http://www.nytimes.com/2008/10/03/business/03sec.html?em

[110] Shaw Gilani, "How Deregulation fueled the Financial Crisis", The Market Oracle, January 13, 2009, http://www.marketoracle.co.uk/Article8210.html

Modernization Act of 2000. This law unleashed the derivatives market and paved the way for banks to become more aggressive about investing in mortgages. Derivatives such as credit default swaps (CDS) were used to hedge or speculate against particular kinds of credit risks related to credit debt obligations (CDOs).

Housing Bubble:

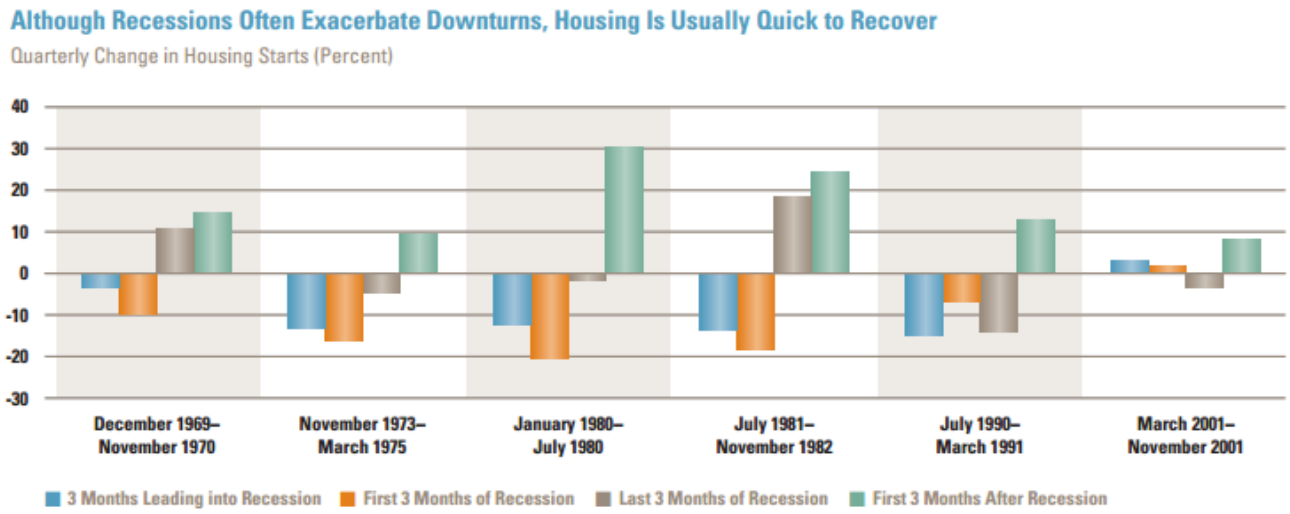
Irrational exuberance in the housing market led many people to buy houses that they couldn't afford. The government was doing its part to promote the importance of housing. Banks and lending agencies started lending to people who weren't eligible for loans and did not have the resources to pay them back. The belief that housing prices would continually go up, helped to fuel growth in the housing sector and the mortgage market. As foreclosures started rising in 2006-07, housing prices started decreasing, people couldn't pay their mortgages, and this led to the sub-prime crisis.

The percentage of subprime mortgages rose from 8% in 2003 to 20% in 2006.[111] The ratio of debt-to-disposable personal income rose from 77% in 1990 to 127% at the end of 2007.[112] During previous economic slowdowns the real estate sector had escaped with minimal damage and had often bounced back within a short span of time. (Exhibit 3) The strong track record of real estate during previous economic slowdowns led to an unwarranted confidence of risky investment flows into the housing market during the latest crisis. An estimated $3.2 trillion in loans were

111 Michael Simkovic, "Competition and Crisis in mortgage Securitization", Social Science Research Network, September 10, 2011, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1924831.
112 "The End of the Affair". Economist. October 30, 2008.

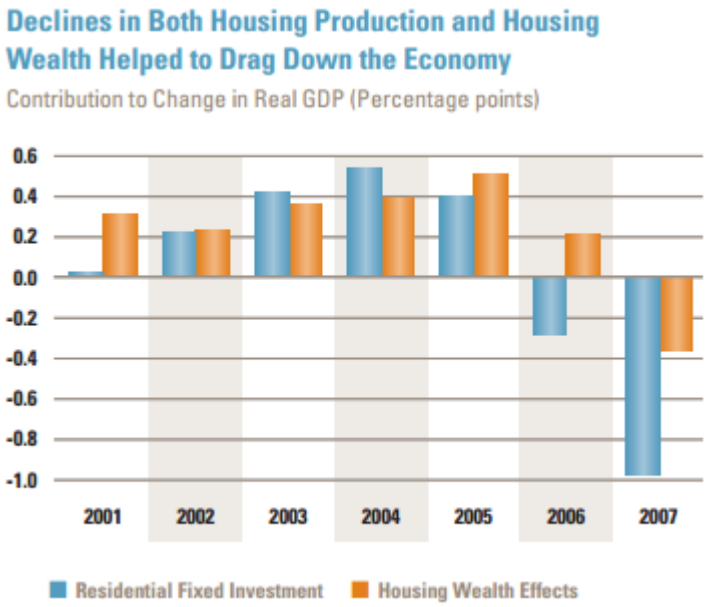
made to homeowners with bad credit and undocumented incomes (subprime mortgages) between 2002 and 2007. Also, the latest real estate crisis had substantial wealth effects as measured by the impact of falling home prices on the marginal prosperity of consumers to spend from their aggregate household wealth. (Exhibit 4)

Exhibit 3: Housing Recoveries



Notes: Data shown mark the beginning and end of each recession. Quarterly data are derived from sums of monthly data, seasonally adjusted by Moody's.

Exhibit 4: Real Estate Wealth Effects



Sources: Moody's Economy.com; Bureau of Economic Analysis: US Census Bureau, New Residential Construction.

Credit Rating Agencies:

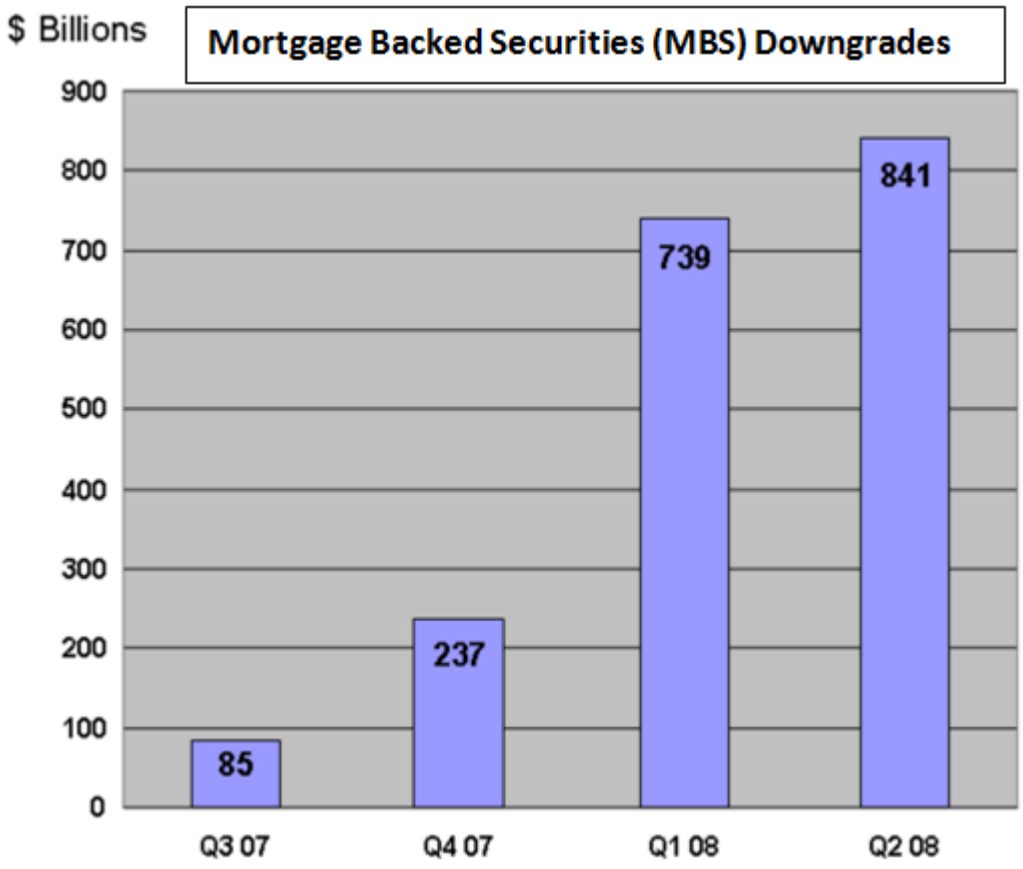
Financial firms such as banks and insurance companies were coming up with instruments that a majority of investors couldn't understand. Although these instruments were largely based on junk mortgages, the credit rating agencies (CRAs) gave them high ratings. AAA rating meant it was a safe investment. Investors started buying these instruments based on their overall credit rating.

The primary goal of financial firms was to get AAA rating for their instruments. The ratings were trusted on their face value. The credit rating agencies in the U.S. gave AAA ratings per their customers request out of fear of losing business. They were each in competition with other credit rating agencies. The rating of the instruments by the CRAs was a big reason why these instruments weren't questioned. Without the AAA ratings, demand for these securities would have been considerably less. Bank write-down and losses on these investments totaled $523 billion as of September 2008. [113] In terms of credit downgrades, as of July 2008, Standard & Poor's (S&P) had downgraded 902 tranches of U.S. RMBS and CDO's of Asset-backed securities that had originally been given Triple-A rating out of a total of 4,083 tranches originally rated as such. S&P had downgraded a total of 16,831 tranches of U.S. RMBS, and CDOs of ABS from all rating categories out of 31,935 tranches originally rated. [114]. Exhibit 5 shows MBS downgrades over third quarter 2007 to second quarter 2008.

[113] Elliot Blair Smith, "Bringing down Wall Street as Ratings Let Loose Subprime Scourge". *Bloomberg*., September 24, 2008, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ah839IWTLP9s

[114] Standard & Poor's Financial Services LLC, 2008. "Structured Finance Rating Transitions", http://www.standardandpoors.com/home/en/us.

Exhibit 5: MBS Downgrades



Notes: Rating agencies have downgraded the credit ratings on nearly $1.9 trillion in MBS. This places pressure on financial institutions holding these securities to write down their value, potentially requiring banks to acquire additional capital.

Source: Fortune Magazine, 8/4/08

Conclusion:

During the events leading up to the financial crisis, individuals—particularly those in the financial sector--were motivated to achieve profits on paper, bypassing professional ethics in their usual conduct of business. Governments lacked proper regulatory measurements to keep a check on the market. Deregulation helped financial institutions to hold high debt-to-equity ratios, and investment banks could now show high risk investments on their balance sheet as seemingly low risk instruments. Liquidity from lower interest rates, coupled with easing of credit standards by the government, led to an ever expanding mortgage market. Investors couldn't understand the complexity of the financial instruments and often turned to credit rating agencies for reference; but the CRAs competed with each other, and in turn, gave inappropriate ratings to risky investments.

I believe that the Global Financial Crisis was not the result of any one factor but the accumulation of the effects of the various factors such as those outlined in this paper. It was a domino effect where one factor gave rise to another factor. Low interest rate = liquidity. Deregulation = irrational lending. Credit ratings = Investment in risky instruments.

The spread of the financial crisis was worldwide and each country's recovery will be based on its interconnectedness with the world market; especially those countries dependence on Europe and the U.S. The U.S. market was seen as a safe investment zone, China had invested more than $2

trillion in the U.S. market with investments in bonds. And Europe has been facing issues tackling the after effects of the recession, especially in Greece and Spain.

The global financial crisis has led everyone from all corners of the world to stand up and question the existing economic and financial system, and scrutinize what went wrong. This indepth questioning has resulted in better reforms, and reforms to help avoid such events in the future. The Global Financial Crisis has also served as a change agent. The developing countries, though affected by the crisis, have been able to grow their GDP at around 6-7%. China's GDP growth is more than 9%. I believe that this paints a picture where developing economies have come out as good investment destination and that developing countries have been able to come out of the crisis with minimal damage. The last four years (at the time of this writing) has resulted in business being transferred somewhat to developing economies. In the future, with the U.S. coming out of the recession and stabilizing, it will be interesting to see how the developing economies respond. However, with excessive growth, it's possible that the next big crisis or recession will originate in the developing countries.

Chapter 16

Pointing the Finger at the Top

James Andrew Vogt

The global financial meltdown during 2007-08 threw corporations and economies worldwide into complete disarray. Thriving investment banks were left bankrupt, once successful industries fought to stay afloat, stock markets tumbled, unemployment rates surged and families struggled to make ends meet. In times of crisis like these, one hopes to find a scapegoat to explain how the economy here and abroad took such a devastating hit. The truth is, exploring every element that contributed to the crisis would be an exhaustive presentation too long for these pages. Clearly, the bursting of the housing bubble and investment banks taking on too much leverage in mortgage-backed securities and other risky ventures were largely to blame. But what role did the United States government play in the collapse? Did policies enacted in the years prior to the meltdown contribute to those events? Did the government succumb to pressures by the financial industry to repeal laws that could have prevented the crisis? Or was the scope of the crisis unpreventable, regardless of government regulation or deregulation? This paper will examine many of the events within Washington that potentially had a hand in arguably the biggest economic disaster since the Great Depression.

Capital Error?

Many who have studied the global financial crisis point to an under-the-radar ruling by the Securities and Exchange Commission (SEC) in 2004 that paved the way for massive institutional failure. The ruling was viewed as so mundane at the time, that the "proceeding was sparsely attended. None of the major media outlets … carried it." [115] The SEC decision, made on April 28, 2004, relaxed what is known as the "net capital rule." According to SEC regulations, investment banks are required to have a minimum amount of capital set aside to cover their positions on securities and bonds. The rule is in place to ensure that brokers do not jeopardize their financial condition, and therefore their customers, and also allows them to complete contracts in a timely manner.[116] By switching the rule, the commission would allow the five biggest institutions at the time – Bear Stearns, Merrill Lynch, Goldman Sachs, Morgan Stanley and Lehman Brothers – to apply as "consolidated supervised entities" (CSEs). The SEC required a $5 billion floor of capital, meaning only the largest institutions in the country would be eligible.

In studies of the economic crisis, however, there has recently been confusion as to what the rule actually did. According to the meeting agenda from the SEC that day, here is what the commission planned to discuss.

> "One program would establish an alternative method to compute certain net capital charges for broker-dealers that are part of a holding company that manages risks on a

[115] Stephen Labaton, "Agency's '04 Ruling Let Banks Pile Up New Debt," *New York Times,* October 2, 2008, http://www.nytimes.com/2008/10/03/business/03sec.html?pagewanted=all.
[116] "Toxic Waste Build Up: How Regulatory Changes Let Wall Street Make Bigger Risky Bets," *Multinational Monitor*, November-December 2008, Accessed Via Academic OneFile.

> group-wide basis and whose holding company consents to group-wide Commission supervision. … Under the alternative capital computational method, the broker-dealer would be allowed to compute certain market and credit risk capital charges using internal mathematical models. The CSE … would be required to periodically provide the Commission with consolidated computations of allowable capital and risk allowances … prepared in a form that is consistent with the Basel Standards."[117]

At the time of the ruling, one of the commissioners at the SEC, stated that "if anything goes wrong, it's going to be an awfully big mess." [118] Years later, Stephen Labaton's scathing article in the New York Times attempted to connect the dots in linking the ruling to the financial meltdown, saying that leverage ratios rose sharply in the wake of the ruling, and that the regulation program was low on the list of priorities at the SEC, and any problems uncovered by examiners about the banks' increased leverage were largely ignored.[119]

Others, however, have said that the SEC has been incorrectly scapegoated in the collapse of those financial institutions. Reuters' Bethany McLean took issue with blaming the commission in a March 2012 editorial, pointing to several prominent publications that stated that leverage ratios at the top five investment banks rose from 12:1 to 33:1.

> "Look at the historical leverage of the big five investment banks — Bear Stearns, Lehman Brothers, Merrill Lynch, Goldman Sachs and Morgan Stanley. The Government

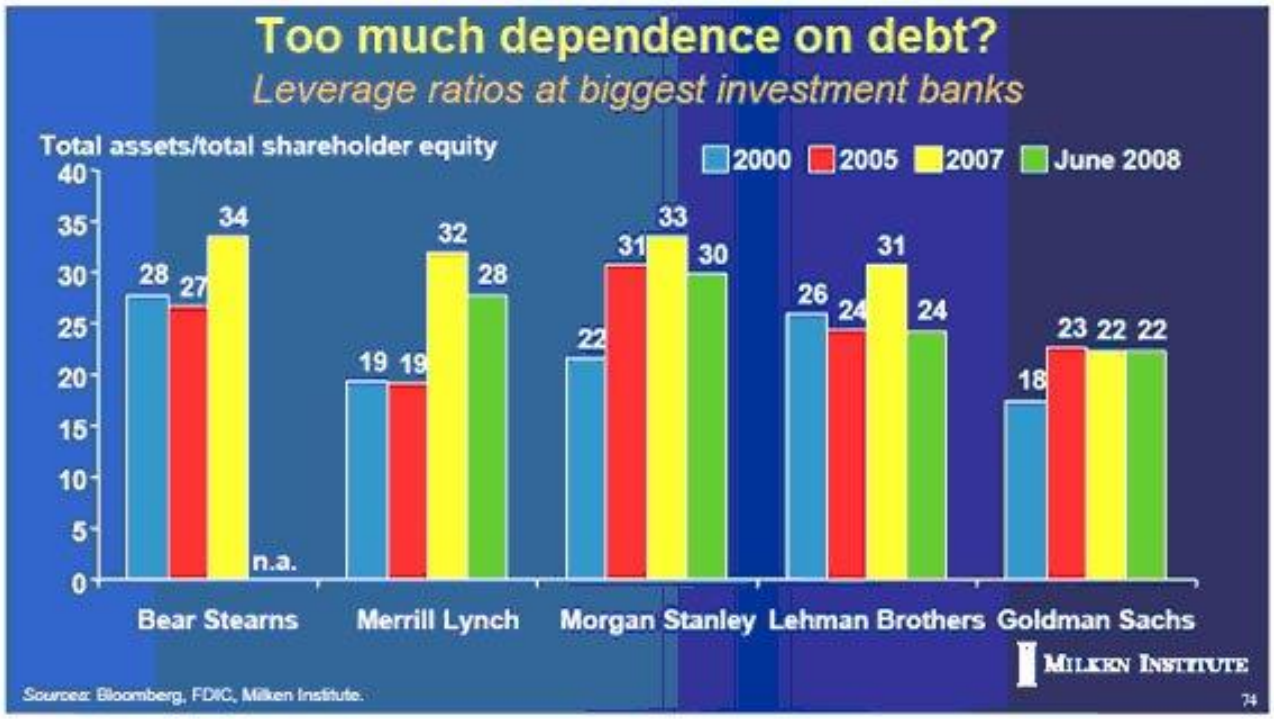
[117] "SEC Open Meeting Agenda: Wednesday, April 28, 2004, 2:30 p.m." Accessed May 1, 2012. http://www.sec.gov/news/openmeetings/agenda042804.htm
[118] Kevin Drawbaugh, "US SEC Clears New Net Capital Rule For Brokerages," Reuters, April 28, 2004.
[119] Labaton, "Agency."

> Accountability Office did just this in a July 2009 report and noted that three of the five firms had leverage ratios of 28 to 1 or greater at fiscal year-end 1998, which not only is a lot higher than 12 to 1 but also was higher than their leverage ratios at the end of 2006. So if leverage was higher before the rule change than it ever was afterward, how could the 2004 rule change have resulted in previously impermissible leverage?"[120]

A chart constructed by the independent Milken Institute, shown in Exhibit 1, also shows that leverage ratios were high for the top five banks even in 2000. Only Morgan Stanley and Goldman Sachs had higher ratios in 2005 (the year after the ruling) than in 2000. The 12:1 commonly-cited ratio wasn't a legal requirement that the SEC lifted. Were the new mathematical models used under the rule faulty? That is tough to answer definitively. But McLean's editorial also reports that "in both 2006 and 2007, Bear Stearns had seven times the amount of capital that the SEC required, or more than $3 billion in excess net capital." Certainly, highly leveraged banks were an enormous cause of the economic crisis. But scapegoating the so-called "net capital rule" has several holes, and likely was not a dominant reason.

[120] Bethany McLean, "The Meltdown Explanation That Melts Away," Reuters.com, March 19, 2012, http://blogs.reuters.com/bethany-mclean/2012/03/19/the-meltdown-explanation-that-melts-away/

Exhibit 1: Leverage Ratio at Top Investment Banks, 2000-2008



Source: "Demistfying the Mortgage Meltdown: What it Means for Main Street, Wall Street and the U.S. Financial System." Accessed May 1, 2012.

http://www.milkeninstitute.org/10022008slides.pdf

CFMA: Not *A-OK*

In a similar vein, the Commodity Futures Modernization Act, signed into law in 2000, deregulated the trading of derivatives, including what are known as credit default swaps (CDS). The legislation, signed by President Bill Clinton in Dec. 2000 – was spearheaded by Senator Phil Gramm. In his introduction of the bill to the Senate, the CFMA's purpose was four-fold:

> "First of all, this bill would repeal the so-called Shad-Johnson Accord, the 18-year old temporary prohibition on the trading of futures based on individual stocks. Second, the bill eliminates the legal uncertainty that today hangs as an ominous cloud over the $7 trillion financial swaps markets. Third, the bill addresses the need to harmonize the treatment of margins among the futures, stock, and options markets. Fourth, the bill provides important and necessary regulatory relief to the futures and securities markets."[121]

However, the bill is largely thought of as a plague on the economic system. For starters, it created loopholes that allowed Enron to be exempted "from regulation of its energy trading on electronic commodity markets," which contributed to the company's collapse.[122] The ultimate harm, however, was caused by the deregulation of CDSs. Credit default swaps are investment vehicles that provide a form of insurance on a bond or multiple bonds, and the price fluctuates depending

[121] "Statement of Senator Phil Gramm, Chairman, Senate Committee on Banking, Housing & Urban Affairs On the Introduction of the Commodity Futures Modernization Act." Accessed May 1, 2012. http://banking.senate.gov/corresp/0608cfma.htm

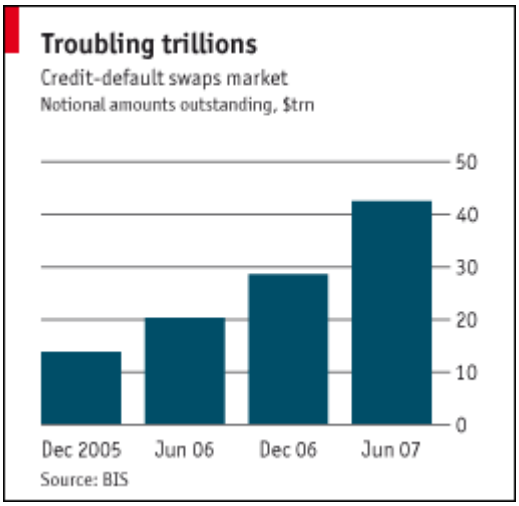
[122] Eric Lipton, "Gramm and the 'Enron Loophole,'" *The New York Times*, November 14, 2008, Accessed May 1, 2012, http://www.nytimes.com/2008/11/17/business/17grammside.html?pagewanted=all

on the riskiness of the bonds.[123] As Scott Patterson describes, "since the trades were commonly done on a case-by-case basis on the so-called over-the counter market, with no central clearinghouse to track the action, CDS trading was done in the shadow world of Wall Street, with virtually no regulatory oversight and zero transparency. And that was just the way the industry wanted it."[124]

Without proper oversight, the CDS market ballooned into a market with valuation rivaling almost any in the world, with one estimate at over $62 trillion in 2007.[125] Another estimate by *The Economist*, shown in Exhibit 2, was more conservative, but still showed that CDS trading had gone from just over $10 billion in late 2005 to $43 billion in June 2007.[126]

Exhibit 2: Market for Credit Default Swaps

[123] Scott Patterson, *The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It,* (New York: Crown, 2009), 324.
[124] Patterson, *Quants,* 94-95.
[125] Katie Benner and Nicholas Varchaver, "Will Credit Default Swaps Cause The Next Financial Crisis?" Money.cnn.com, Last updated September 30, 2008, http://money.cnn.com/2008/09/30/magazines/fortune/varchaver_derivatives_short.fortune/index.htm
[126] "Gross Exaggeration." *The Economist.* January 31, 2008. Accessed May 1, 2012, http://www.economist.com/node/10609437



Source: "Gross Exaggeration." *The Economist.* January 31, 2008. Accessed May 1, 2012, http://www.economist.com/node/10609437

And if you asked derivative traders, the market for CDSs was almost a public service. Newsweek reporter Michael Hirsh commented that companies like AIG believed they were "helping everyone manage risk better. … (they) had the notion that it could sell these to everybody without hedging itself because somehow it would never all collapse at once."[127] How wrong they were. The losses on credit default swaps taken on subprime mortgages began to multiply as defaults became rampant, and swap issuers found themselves with huge liabilities. The losses for AIG, one of the leaders in CDS trading, became so great that the company required $180 billion in government bailout money to stay afloat. [128]

[127] "2000 Commodities Act Paved Way For Problems," Interview with Michael Hirsh, NPR.org, March 20, 2009, http://www.npr.org/templates/story/story.php?storyId=102185942
[128] "Credit Default Swap: Powerful Force in Financial Crisis," Smartinmoney.com, February 24, 2012, http://www.smartinmoney.com/securities/credit-default-swap-powerful-force-in-financial-crisis

Years later, former Federal Reserve Chairman Alan Greenspan acknowledged that he was incorrect in believing that derivatives and CDSs did not need proper regulation. In testifying before the House Committee on Oversight and Government Reform, Greenspan said that he "made a mistake in presuming that the self-interest in organizations, specifically banks and others, was such that they were best capable of protecting their own shareholders and the equity."[129] This had come from a man that only three years prior to his testimony had hailed the use of these very same instruments, calling them "key factors underlying the remarkable reliance of the banking system."[130]

Lessons seemed to have been learned about the dangers of careless trading of these instruments. The Financial Accounting Standards Board implemented a rule in November 2008 that required derivative sellers to report details of their transactions in their financial statements, including "maximum payouts and reasons for entering into the contracts, as well as assets that might allow them to offset any payouts."[131]

Shattered Glass

Sen. Gramm had been up to similar tricks in the previous year, when he was instrumental in the repeal of part of the Glass-Steagall Act of 1933. This legislation, known as the Gramm-Leach-Billey Act (or the Financial Services Modernization Act), eliminated the restriction from Glass-Steagall that prohibited commercial banks from being affiliated with investment banks. Many

[129] Kim Dixon, "Greenspan Says Was Partially Wrong on CDS Regulation," Reuters, Oct. 23, 2008.
[130] Patterson, *Quants*, 265.
[131] "Credit Default Swap."

large firms approved of this legislation, as it allowed them to consolidate operations. The bill passed overwhelmingly in both houses (including 90-8 in the Senate), and was signed into law by President Clinton in November 1999.

On the surface, the bill seems relatively harmless. And in regards to the global financial crisis, current Treasury Secretary Timothy Geithner said in a speech in April 2012 that while the view is not "widely accepted," the amount of risk taken on by banks had nothing to do with Glass-Steagall. Financial policy expert Peter Wallison similarly dismisses claims of Glass-Steagall's role, saying that it is unlikely that affiliations with investment banks would cause commercial banks to behave differently than they would under the old rules, and that commercial banks made bad decisions as banks and not because of activities of securities affiliates.[132]

The distinction between underwriting securities (which companies like Bank of America were still not allowed to do) and purchasing these same securities is nevertheless murky. Richard Parsons, the former chairman of Citigroup, said that the culture of banking changed with the regulation. In an April 2012 speech, just days after departing Citigroup, Parsons said that the art of managing large financial institutions, similar to his own company, has not been mastered yet.

> "We are going to have to figure out how to manage in this new and dynamic world because there are good and sufficient business reasons for putting these things together,"

[132] Peter J. Wallison, "Not a Failure of Capitalism – A Failure of Government," in *Insights Into The Global Financial Crisis,* edited by Laurence B. Siegel (Research Foundation of CFA Institute, 2009), 193.

> Parsons said. "It's just that the ability to manage what we have built isn't up to our capacity to do it yet."[133]

Wallison's argument was that no rules changed with regards to what commercial banks were allowed to underwrite, but that it shouldn't be surprising that financial institutions jumped at the chance to create enormous conglomerates. Citigroup, which was formed one year before Gramm-Leach-Billey, due to a merger of Citicorp and Travelers Insurance, did not have to dispose of its asset-backed securities once the legislation was passed. It seems that legislation of this form inevitably will create a "too big to fail" mentality that pervaded the collapse of Lehman Brothers and others. And should it come as a shock that the United States government ultimately had to send $45 billion of bailout money to Citigroup, one of the main proponents of the repeal? So while Gramm-Leach-Billey might not have done as much damage as the CFMA, its impact should not be completely dismissed.

Fannie and Freddie: Friend or Foe?

Of course, a discussion of the global financial crisis would be incomplete without touching on the subprime mortgage crisis and the collapse of the housing bubble as a major factor. In his article

[133] Kim Chipman and Christine Harper, "Parsons Blames Glass-Steagall Repeal for Crisis," *Bloomberg*, April 19, 2012, Accessed May 1, 2012, http://www.bloomberg.com/news/2012-04-19/parsons-blames-glass-steagall-repeal-for-crisis.html.

"Not a Failure of Capitalism – A Failure of Government," Peter Wallison dismisses many of the "deregulation" scapegoats talked about above. But he does point the finger harshly at Fannie Mae and Freddie Mac, the nicknames given to government-sponsored entities (GSEs) that were initially created to (1) maintain a liquid secondary market with residential mortgages, and (2) promote affordable housing.[134]

Wallison states that due to the Housing and Urban Development's (HUD) push for affordable housing, the boom for the mortgages known as "subprime" – which are given to those with low credit scores – and "nonprime" – which have more to do with the characteristics of the loans – increased sharply in the mid-2000s.[135] In 2005, 55 percent of mortgages that Fannie Mae and Freddie Mac purchased had to be loans to low- and moderate-income (LMI) borrowers.[136] As such, the amount of subprime and nonprime mortgages increased from 20 percent of all mortgages in 2003 to 46 percent in 2006.[137] Wallison claims that since Freddie Mac and Fannie Mae were ultimately responsible for most of these high-risk mortgages, they can take the blame for the worldwide financial crisis. Not only will taxpayers feel the burden of the losses of these GSEs, says Wallison, but banks will too, as the government stimulated the growth of these risky endeavors.

This hypothesis is not without its critics. Most notably, New York Times columnist Joe Nocera, who has written extensively about the financial crisis, takes Wallison to task for fudging his

[134] Wallison, "Not a Failure," 199.
[135] Wallison, "Not a Failure," 197.
[136] Wallison, "Not a Failure," 200.
[137] Wallison, "Not a Failure," 202-03.

numbers, saying that many of the mortgages that are classified as "risky" by Wallison and fellow scholar Edward Pinto actually have extremely low default rates. Moreover, Nocera refutes Wallison's claim that charges brought by the Securities and Exchange Commission against six former executives of Fannie Mae and Freddie Mac were due to the companies' willingness to give out these subprime mortgages to meet affordable housing goals. Rather, he focuses on the SEC's complaint that the executives were only trying to make up for lost market share – that they were actually behind the times in the subprime market – and moreover, the charges against the executives were merely to "curry favor with House Republicans."[138]

There seems to be little consensus as to how Freddie Mac and Fannie Mae fit into the global financial crisis, and in many cases one's viewpoint depends on where he stands on the political spectrum. Republican presidential candidates Mitt Romney and Herman Cain blasted the two GSEs over the past year (at that time), while Democratic Congressmen Barney Frank and Henry Waxman, among others, say that Fannie Mae and Freddie Mac were following Wall Street's lead.

And each side has its own set of statistics. One USA Today editorial seems to dispute many of Wallison's facts. The newspaper claimed that while Fannie Mae and Freddie Mac had 70 percent of new mortgage sales in 2003, most of these could be classified as high quality. By the time 2006 rolled around, their market share had dropped to 40 percent, when the boom of "subprime" mortgages was in full swing. The article also cites the final report by the Financial Crisis Inquiry Commission, which states that "these two entities contributed to the crisis, but were not a primary

[138] Joe Nocera, "The Big Lie," *New York Times*, Last Updated Dec. 23, 2011. http://www.nytimes.com/2011/12/24/opinion/nocera-the-big-lie.html

cause. … They followed rather than led Wall Street and other lenders in the rush for fool's gold." [139]

Yet regardless of which percentages one wants to believe, the United States government, starting primarily in the Clinton administration, unquestionably wanted to get more low-income and minorities into houses of their own. In 1995, the HUD under Clinton allowed Fannie and Freddie to receive affordable-housing credits for these subprime securities. In retrospect, given the destructive force of these subprime mortgages, William C. Apgar Jr., an assistant HUD secretary during the Clinton administration, said that "it was a mistake. In hindsight, I would have done it differently."[140] Sen. Jack Reid, who was part of the Senate Banking Committee that oversaw some of the new HUD regulations, also expressed regrets.

> "We need to focus on putting families in homes they can truly afford, not just on getting a sale, packaging the loan into a sophisticated financial security and walking away to the next closing. Today, people are wondering, 'Why weren't the regulators and the industry probing these [loans] more deeply?'"[141]

[139] "Revisionists Point Fingers at Fannie, Freddie," *USA Today,* November 24, 2011, Accessed May 1, 2012, http://www.usatoday.com/news/opinion/editorials/story/2011-11-23/housing-bust-Fannie-Freddie/51387110/1?loc=interstitialskip.
[140] Carol D. Leonnig, "How HUD Mortgage Policy Fed The Crisis," *Washington Post*, June 10, 2008, Accessed, May 1, 2012, http://www.washingtonpost.com/wp-dyn/content/article/2008/06/09/AR2008060902626.html
[141] Leonnig, "How HUD."

Conclusion

To truly understand the scope of the government's role in the global financial crisis, one must try to put aside his/her political beliefs to come to an honest dissection. This can obviously be difficult to do at times. Democrats would love to point to Republican tendencies of Wall Street deregulation, while Republicans would like to blame government-sponsored entities that truly took off during a Democratic presidency. The truth of the matter is that like any complex financial situation, there is no defining reason as to why the world's biggest financial and economic center melted down. Aside from the debunking of the role that the "net capital rule" had in the crisis, the other governmental policies described above all played a part in contributing to the collapse. Whether it was to promote the growth of the banking industry (Gramm-Leach-Billey Act), to provide relief to the securities market (CFMA) or to push for more home ownership and the so-called "American Dream" (Fannie/Freddie/housing policies), government policy across the board should claim some of the blame.

Was it the only contributing factor? Of course not. As any study of the global financial crisis will tell you, there was a multitude of other factors. Wall Street greed, an incorrect understanding of complex financial instruments, the collapse of housing prices, and the rising cost of commodities all were important elements to the crisis. And of course, there has to be some personal responsibility taken by those in the United States. While government policy may have facilitated the ease in obtaining mortgage lending, the country's residents collectively took on payments that they could not conceivably afford. The spectrum of blame for the crisis is unquestionably long, and shared. As for each governmental policy and its share of the blame, the argument will likely

never be settled because of ideological differences. What seems increasingly possible is that when picking policies that had a role in causing the global financial crisis, a safe answer could be "all of the above."

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Chapter 17

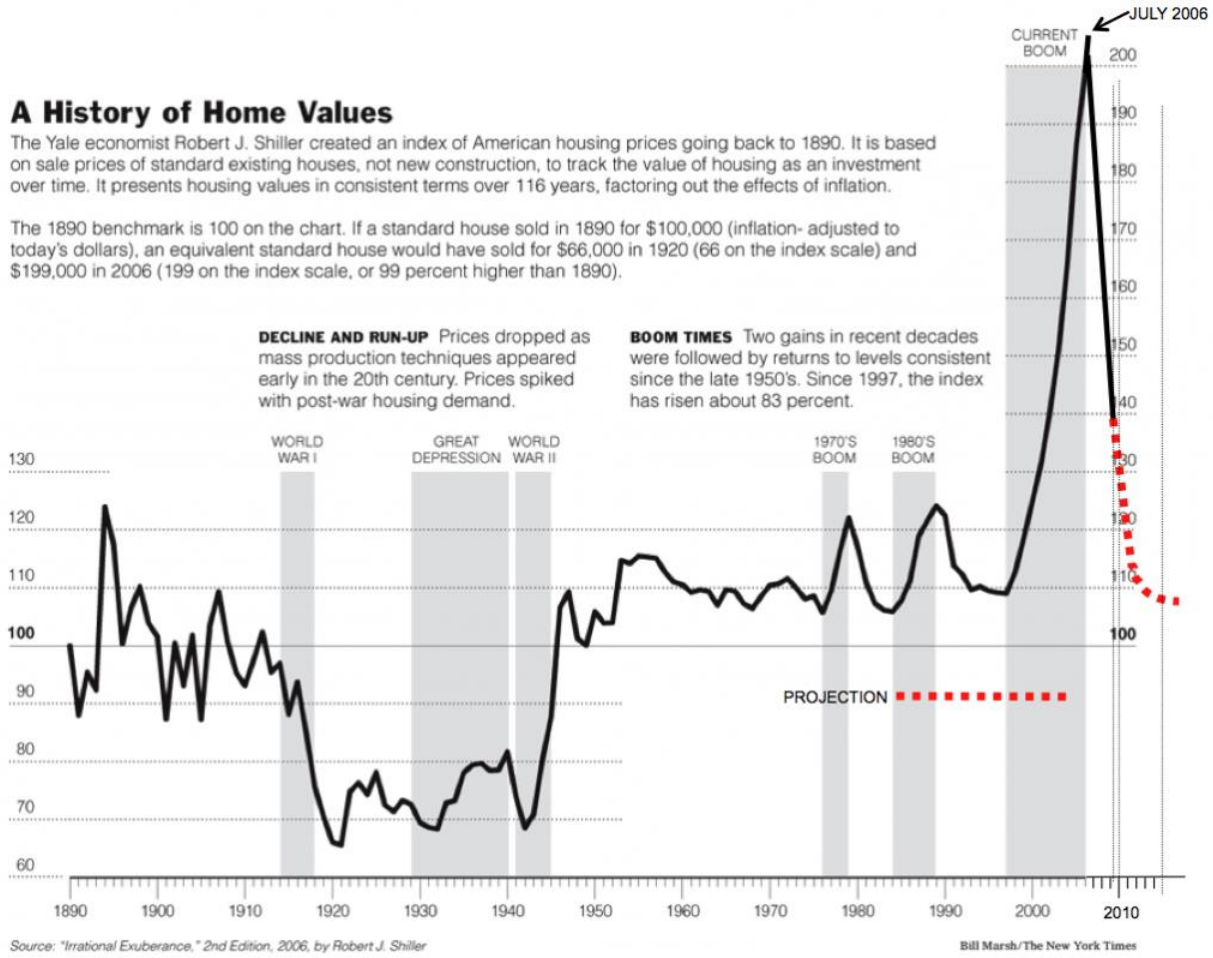
The Nuremberg Defense: Who is responsible for the Global Financial Crisis?

Mark Robertson

Introduction

Much of the fallout of the Global Financial Crisis has focused on who is to blame. As with any complex problem there is no easy solution, single person or organization responsible. Beginning in the late 1990's housing prices in the United States began an unusually strong upward trend peaking at a value of over "200" on the Case-Shiller housing price index in 2006 (Exhibit 1). This was driven by several factors, including low interest rates as the Federal Reserve attempted to hold off a recession following the terrorist attacks in 2001, lack of government regulation and oversight, shady banking practices, inadequate evaluation by ratings agencies, an under appreciation for risk on behalf of corporations or the belief that a riskless investment tool existed, and poor decision making by consumers. In short, people's behavior played a large part in creating this crisis.[6]

Exhibit 1



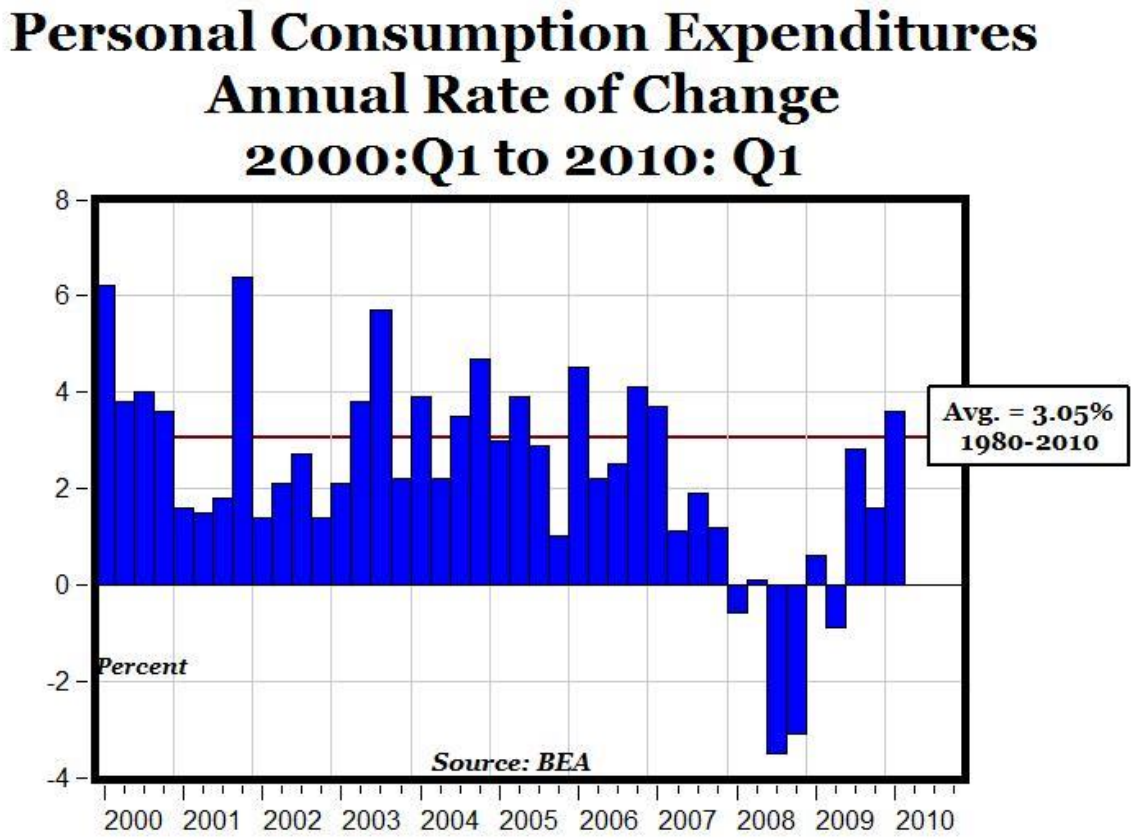
http://www.ritholtz.com/blog/2009/07/update-case-shiller-100-year-chart/

Interest rates

Following the terrorist attacks on September 11, 2001, many people avoided large groups where they perceived the 'second shoe' would be dropped. With so many people avoiding crowds and

public places consumer spending shifted to goods used in the home as opposed to in public, threatening a recession. Although consumer spending slowed in the 3rd quarter of 2001 there was a strong rebound in the 4th quarter (Exhibit 2). Analysis by the Kansas City Federal Reserve Bank concluded that the drop in spending was a result of other macroeconomic factors such as the surprising increase in unemployment in August 2001.[1] The rate rose from 4.4% in July to 4.9% in August. Although an obvious suspect in the cause of the Global Financial Crisis, the attacks did not factor into the maelstrom that was coming.

Exhibit 2:



Source: http://mjperry.blogspot.com/2010/04/consumer-spending-is-back-3-year-high.html

Government Regulation and Oversight

The depression era Glass-Steagall Act had been modified in 1999 to allow investment banks to enter the commercial and retail trades, allowing them to originate loans, issue credit cards and engage in business previously the realm of retail banks. Additionally, at the time, the administration of President George W. Bush was determined to maintain a hands-off approach to government regulation, allowing for free markets to provide the discipline and self-correction for any excesses. Therefore there was little government authority and no mandate from the administration to intervene in any of the markets involved in the crisis; housing, debt obligations or swaps.

Banking practices

Banks engaged in questionable business practices in offering loans to ever less qualified would be home owners. Banks did not require any income verification, did not check claimed income for sub-prime mortgage applications. Adjustable Rate Mortgage loans were approved for inflated home values. The new home owner may or may not have been able to make the initial payment, but once interest rates began moving up, as they someday would, the owner would be unable to make the new higher payment schedule. With little or no equity in the property there was no incentive to make any attempt to pay.

This model continued to work as long as housing prices continued to rise. Bankers and mortgage originators extrapolated that the recent upward trend in values would continue indefinitely into

the future. To assume that any asset will continue to appreciate at above the long term average for an indefinite duration is unreasonable; a sense of groupthink seems to have predominated in financial institutions. Individuals may have been hesitant to challenge prevailing assumptions for fear of ridicule or being accused of throwing cold water on the party.

Ratings agencies

Rating agencies followed lax procedures when evaluating Collateralized Debt Obligations (CDO's). Documentation was accepted as true and accurate with no verification required to confirm any details. Deals were often highly complex with multiple tranches containing a little of everything, from Triple-A rated mortgages to junk bonds. Some included consumer credit card debt, student loans, some even contained debt that had been included in other CDO's, apparently giving two entities claim to the same asset in the event of default. With such opaque information it's difficult to determine how ratings agencies assessments could be considered credible. The ratings agencies are paid by the company asking for the product to be rated, and the conflict of interest is apparent to all involved. Standard & Poor's has an intense rivalry with Moody's as each competes for market share with the other. The business model coupled with high levels of competition led to relaxing of standards and shifting standards. One analyst with Standard & Poor's famously stated that a deal "…could be structured by cows and we would rate it."[6]

Risk Management

CEOs did not pay close attention to the risk profiles of their company's. They marginalized risk assessment teams and Chief Risk Officers. They did not take the time to learn about the models

that the traders that worked for them used, and that they themselves (in theory) were ultimately responsible for. Where risk was acknowledged, management erred on the side of overconfidence. At American International Group (AIG), CEO Hank Greenberg had nearly 30 executives reporting to him as opposed to the 5-7 most CEO's would have. Each group head treated his area of responsibility as his own kingdom and Greenberg was the only person who knew all of the risks AIG was exposed to. Since almost no information was shared amongst departments, no one realized that AIG assets were prohibited from being used to pay for any losses suffered by AIG's Financial Products group (AIG-FP).[3] This is an example of narrow framing where each activity is viewed alone and without the context of the overall corporate risk profile.[6] Had executives been encouraged to exchange information more freely with each other, one could argue that the companies risk exposure would have come to light and been addressed.

Consumer Behavior

Many consumers seemed to think they had nothing to lose in signing for a mortgage they knew they couldn't afford. With little or no money down they could move into a home with little or no documented income verification, live in the house for a few months then sell when they could not make a payment. The price appreciation in just few months made this a profitable transaction. With no equity in the home they had nothing to lose, if the price of the home declined they could walk away and lose nothing, if the price continued to rise they sold and took the gain.

Sexton argues that it was those already on the margin that accepted so called sub-prime loans. Even with low interest rates they still had to buy housing far from their jobs, were there was less demand for the housing supply, to afford the mortgage. When fuel prices stressed the family

budget, it's the house that went first and early, leading to numerous foreclosures in some areas of the country.[5]

Fuel price

There was a significant run up in the price of crude oil in 2007-08. The price reached a peak of $145.08 a barrel on 11 July 2008.[2] This was reflected at the retail level with prices per gallon reaching a nationwide average of $3.29 in June 2008 (Exhibit 3). Less than five months later the national average was under a dollar a gallon, but by then the damage had been done If a new home owners loan was near the high end of their affordability range then the cost of fuel for daily living needs began to account for a larger portion of the household budget then eventually some expense had to be reduced. If there was little or no equity in the home, or if the owner owed more than the home was worth, then the owner may consider not paying the mortgage this month.

Exhibit 3

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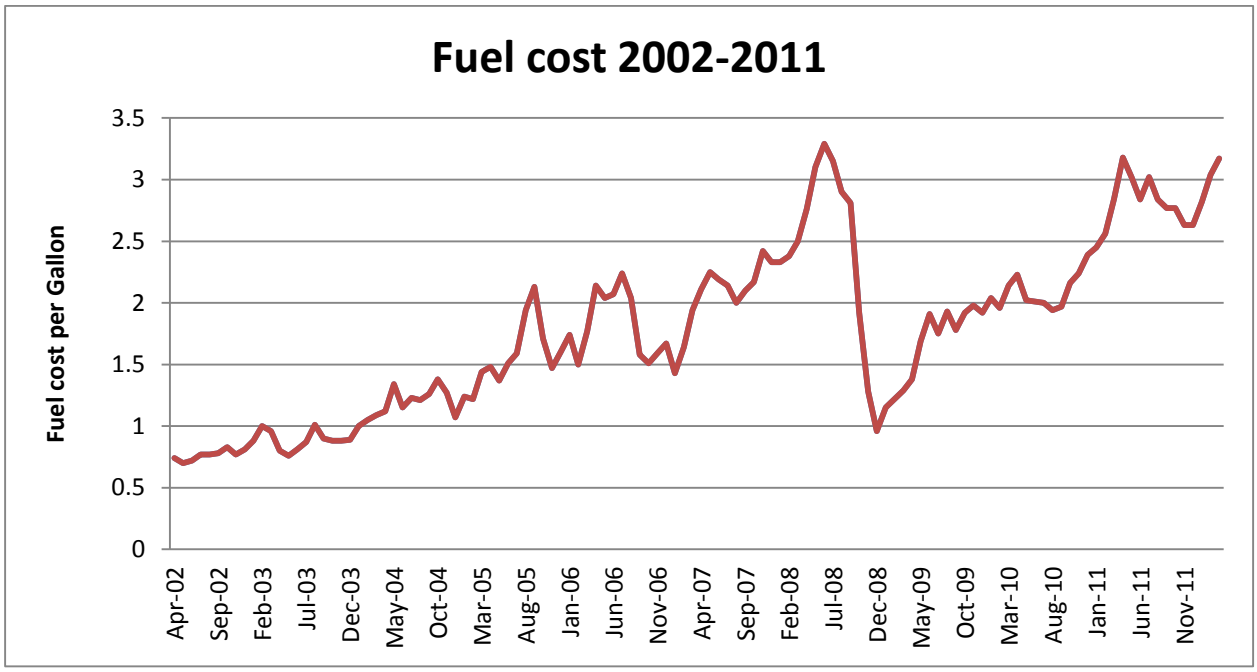

Source data: http://www.indexmundi.com/commodities/?commodity=gasoline&months=120

There is considerable disagreement regarding how large a factor (if any) fuel prices played in bringing on the Global Financial Crisis.[4,5] The peak in price per barrel occurred late in the game, just two months before Lehman Bros. declared bankruptcy, suggesting that events had already been set in motion and therefore the oil shock of 2008 is coincidental. However, just as home prices rose over several years, so did the cost of oil. As fuel costs went up there was less discretionary income for other goods and services. This is evident in Exhibit 3 in in several quarters in 2007 showing lower than average growth in consumer spending.

Analysis

In each of these descriptions the individuals and organizations are acting in their own self-interest and in accordance with the rules of the game. Some are choosing to take significant risks with their own or other people's money, but each is doing what they are allowed. One begins to sense a variation on the Nuremburg Defense. The notorious trail following World War II where German soldiers claimed they were just following the orders of their superiors and therefore where not guilty of war crimes. Meanwhile the German high command team claimed they had no idea their orders were being so misinterpreted by the line soldiers and therefore they were not guilty of any war crimes. In our case consumers borrowed money because someone was willing to loan it to them with few strings attached. CEO's had no idea that the company was so exposed to risk and needed a government bailout to save them when the house of cards finally did collapse.

As one looks back over the last ten years it is not hard to see where things went wrong with our financial system. There was too much leverage on the underlying assets. Money was cheap to borrow, groupthink led to unchallenged assumptions that were unreasonable, excessive optimism in respect to the housing bull market led to loan originations that were of poor quality. There are conflicts of interest in credit rating agencies business model that are unresolved five years after the onset of the crisis. There was a moral hazard with the taxpayers bearing the consequences of the risk, but not sharing in the profits.

It's no one's fault. It's everyone's fault. If you're unemployed and standing on main-street, it's maddening. If you're working on Wall Street, it's business as usual. Some banks were allowed to fail or to be acquired by stronger brethren. None of the 'Too Big to Fail' banks were allowed

to fail. None were broken up into smaller entities that could be allowed to fail should another systemic crisis happen in the future.

We have *not* learned our lesson.

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Chapter 18

How Genius Failed

Mihir Shah

Introduction

This paper discusses how Mathematics and Quantitative analysis gave rise to a whole new realm of Wall Street trading. It discusses the entry of the mathematicians, the "quants," in the early 1960s and their techniques to beat the experienced Wall Street "kings". Amidst the wild flow of money into their pockets, the new and young batch of quants exploited their statistics without fear of fat-tail events (This is similar to the bell-curve or normal distribution with openings of the "bell" stretched out, making them fatter. This phenomenon is observed when values stray widely from the average more frequent, giving an unexpected result. (Robb, 2008) With all the warnings falling on deaf ears, they grew more aggressive and computer dependent. In 2007, it all came crashing down and shook the very foundation of their statistics and calculations. This occurrence encouraged many to question the age-old assumptions of economics, namely, rationality of investors and market efficiency. Along with the quants, the mistakes of the banks, the subprime mortgage lenders, and the credit rating agencies (CRAs) put Wall Street in a position no one wanted to see, whereby, the "non-ideal" assumption of "irrational exuberance" took over Wall Street and brought us to the Great Recession of 2007.

Gambling on Wall Street

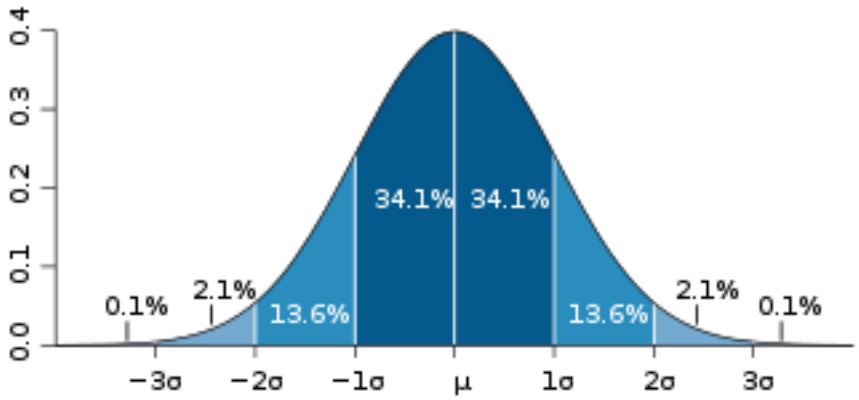
Edward Thorpe is often considered the "Godfather" of the quants. He was the one who brought the "ten's strategy," (or the Ten Count system) also known as the "Hi/Lo strategy" of blackjack into the public. Ed Thorpe, a genius--with a Ph.D. in physics from UCLA and a professor at MIT--was an expert in devising gaming strategies to beat all kinds of games, from blackjack to baccarat. His early start was in blackjack where it was generally considered that the dealer could not be beaten. But Thorpe proved that with his computer-based card-counting system that it wasn't impossible. This was in 1961, and it was only the start.

Thorpe also wondered if he could discover a mathematical system that would allow him to win at roulette. Since the croupiers take bets after the ball is set in motion, it was theoretically possible to determine the position and velocity of the ball and rotor, and to predict approximately which pocket the ball will fall into or at least which octant of the roulette wheel. Thorpe, along with Claude Shannon, a professor at MIT devised the first wearable computer to predict the odds in roulette. And they proved to be successful in their research. Though this didn't earn them riches, it still proved that by using mathematical strategies, it was possible to beat the dealer. In 1964, Thorpe was drugged at a Las Vegas casino for counting cards in blackjack. He was well aware that it was better for him to never return. It was then that he set his eyes on the bigger "**c**asino"; namely, Wall Street.

It was here where he deployed his formidable mathematical skills to earn hundreds of millions of dollars. Somewhere in 1965, Thorpe realized that stock warrants were not accurately priced. Warrants are long-term contracts, like a call option, that investors can convert into common

stock. (A call option gives an investor the right to purchase a stock at a pre-defined rate in the future, and is mathematically identical to a warrant). At the time, warrants were thinly traded and generally considered the province of gamblers and bucket shops; the shadowy realm of off-exchange trading (Patterson, 2010). Based on the theory of Brownian motion and Louis Bachelier's theory, he knew it was not possible to know where the market would move next. The prices in a stock market move in a random motion just as the Brownian motion. But it was possible to judge the odds in favor of the predicted movement. The randomness in stock prices came to be modeled in the context of the "Random Walk" theory; and with normality, a probability distribution of stock price changes under this theory can be captured by the familiar bell curve (Exhibit 1).

Exhibit 1. Bell – curve Standard Deviation Distribution



Source: Mwtoews, 2007, Wikipedia

Thorpe grasped the connection between the bell curve and the movements between the bonds and warrants. He knew that he would never figure out if he would win at every bet or know whether a particular stock would move up or down, but he could determine how likely it was that the stock would rise or fall by, say, 2, 5, or 10 percent. By applying this theory to warrants, and calculating the future movements of a stock – a variable that quants called "volatility"-- he believed that volatility moved in accordance with the random walk; and thus volatility, or in common terms "risk" is therefore quantifiable. This marked the entrance of quants into the financial world. In the meantime, he was also hedging his funds using arbitrage. Arbitrage involves buying of an asset in one market and almost simultaneously selling that asset in another market and making money out of the inefficiencies between the two markets. This later became one of the most successful and lucrative trading strategies – namely, convertible bond arbitrage. But amidst the great success, Thorpe was always cautious in his strategies. He was aware of the out-of-the-blue events that could ruin all his investments - which many years later would be taken for granted by the young, new generation of quants.

In 1973, another revolutionizing formula was paving its way into the world of money and investing. – The Black-Scholes option-pricing formula. This formula tries to estimate the present value of an option that will expire at time T. In order to value these options today, the Black-Scholes formula is used extensively. This model gave results that completely coincided with Thorpe's own formula. Hence, a theory that began with Robert Brown's Brownian motion and Bachelier's bell curve, the Black-Scholes formula was a pragmatic conclusion which Wall Street

later used to trade billions of dollars worth of stock and options. The creation and adoption of the Black-Scholes formula marked the beginning of the quant revolution on Wall Street (Patterson, 2010).

Blinded by Money

There was a major flaw in the Black-Scholes formula: the formula, by definition, ignored big jumps in the data. This assumption worked quite efficiently in the world of physics, but ignoring big price jumps and ignoring the reactions to these events from a human behavioral (market) point of view could prove to be catastrophic for the financial world. Experienced traders like Thorpe were aware of the consequences of such an occurrence, and thus made changes accordingly and invested sensibly. His paranoia about such events kept him from relying too much on these models – a wise decision that was forgotten in years to come and thus became the very reason for the series of downfalls in 1987, 1997-98, and the Great Recession of 2007-08.

But the Black-Scholes model gave results almost as accurately as the market itself. It worked perfect almost each time and soon became like a reflection of the market. Other traders started exploiting the model, conveniently forgetting the major assumption or the flaw, if you may say of this model – ignorance of big price jumps. In later years, computer software was build around the model. The Black-Scholes formula also won its pioneering creators a Nobel Prize years after its discovery.

Around 1985, Gerry Bamberger, another quant in the field had created a brilliant stock trading strategy that come to be known as statistical arbitrage – one of the most powerful trading

strategies ever devised, a nearly flawless moneymaking system that could post profits no matter what direction the market was moving (Patterson, 2010). Bamberger noticed that large block trades would often cause the price of some stocks in a block to move significantly temporarily while other stocks in the block would remain constant, thus creating a "spread" within the block. By studying historical patterns, Bamberger realized he could take advantage of these temporary changes. This was more or less similar to Thorpe's strategy of buy low, sell high but with a quant twist. Soon many started copying his strategy and earned millions.

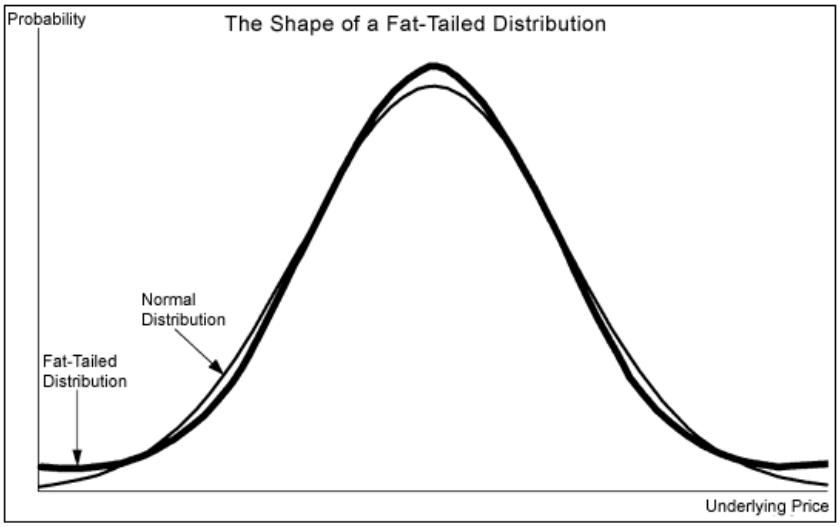
Next came the rise of portfolio insurance. It started sometime in the year 1976, when Hayne Leland realized that an option behaved like insurance. He wanted to use a put option on an entire portfolio of stocks. Using the Black-Scholes formula, he knew if he could quantify the risk of a declining portfolio and if insurance could cover that portfolio, then the risk could be controlled and managed, if not completely eliminated. This model was easy, simple and would gain enormous profits. By 1987, Leland's company, along with its copycats, totaled some $100 billion as equity backed by portfolio insurance (Patterson, 2010).

On October 19, 1987 the nightmare for these quants came into realization. The market collapsed with The Dow sliding some 500 points in a single day**.** This had never happened in the history of the market. It is roughly equivalent to a 1500-point drop in today's market. This was a huge blow to the quants. According to them, such an event had an extremely low probability of occurrence. But it still happened and everyone experienced it. This was a warning that though mathematics can do wonders, it is wise to be conservative and to invest smartly. But this warning was soon

forgotten as calmed-down markets were followed by another stock market crash in 1997 and then again in 2007.

This comes back to the flaw of the bell curve. Back in late 1950s, Benoit Mandelbrot had identified the flaw with Louis Bachelier's bell curve. According to him the large price changes occur more frequent than predicted by the bell curve or normal distribution. Taking into consideration these extreme movements, the chart looks very similar to the traditional bell curve but the curve bubbles out on both ends of the distribution, which commonly became known as "fat-tails". **(Exhibit 2)**

Exhibit 2. Fat – Tail Distribution



Source: John A. Robbs, 2008

Critics of Mandelbrot's theory argued that although there can be large fluctuations in stock prices, over the long run it has been historically observed that prices move in a Brownian motion

as accepted by Bachelier's theory. Thus Mandelbrot's theory was put aside. This was mostly because some financial engineers found his theory to be too simple while some found the method to be inconvenient and messy. But they always knew that such an event could cause tremendous losses, they even came face-to-face with such events in 1987, and 1998; but later forgot once the markets calmed down. Mandelbrot never disagreed that over long periods, markets achieve equilibrium, but one such extreme fluctuation can cause massive, potentially crippling losses to large, highly leveraged investors. But his warning fell on deaf ears and was ignored time and again.

The financial wounds of the stock market decline of 1987 had barely healed when the market came face-to-face with another Mandelbrot-type stock price movement, namely, the crash of 1998. The fall of the massive quant hedge fund known as Long-Term Capital Management (LTCM) lost billions in a week's time, thus destabilizing the global financial market. This hedge fund was based on sophisticated computer models and enormous leverage. The stock market decline of 1998 not only questioned the Black-Scholes theory but it also questioned the very foundation of the quantitative revolution of Wall Street.

Before the fall of LTCM, a lot of new quants had taken up shop on Wall Street. Most of these quants were influenced by the older quants which had been either a student or a colleague of the very people who revolutionized Wall Street. Thus, their geniuses went along similar paths. The new and ever improving theories and the rise of the computer era made things very easy and convenient for these quants. Overdependence on computer models took over. Quants started believing in computer results more than themselves. Minor human errors could cost thousands of

dollars. Hence, computer models and electronic trading ruled the day. Trades became faster and more global. Markets around the world became interlinked. A wave in markets on the other side of the world could create massive movements in other markets as well. But the inflow of money was enormous.

It seemed that the quant models were working better than ever. The probability of the 95.5% success was soon considered to be 100% success. No one remembered the chance of fat-tail events occurring. It was not that long ago that a 27-standard deviation event occurred in 1987; but as the markets calmed down, the fat-tail event was forgotten as a bad memory, and things continued to progress as if they knew the truth. The quants began to feel like "gods" of the financial world and that they knew it all. But then, the second blow, the fall of LTCM happened and put the quants into question. But again, as the markets cooled off, the quants picked up speed again and started marching to conquer Wall Street.

Other externalities

It was not only the quants that were blinded by the money inflow that ruined Wall Street, but also multiple factors coinciding with the failure of the models that led to the Great Recession of 2007. The Fed's easy money policy, irresponsible borrowing and lending by financial institutions and banks, faulty ratings by the credit rating agencies (CRAs), "risk shifting" (Risk shifting works by moving risk from one party to another), over-leveraging, irrational exuberance, and other factors, which led to the fall of the market.

It is not surprising that every one blamed each other for the consequences, but financial institutions (financial engineering) were pointed at the most. The hedge funds, the subprime mortgages, and excessive leveraging were all born and nurtured by these financial institutions. That means that the fingers were pointed to the quants and their mathematical models. The hedge funds were based on these models and the models worked very efficiently when times were good. Everyone was part of it when the models were successful and everyone believed in them. The subprime mortgage, the next invention by the banks had the biggest role in destabilizing the global financial system.

Subprime mortgages were loans given to people at very low rates and at an incredibility low down payment for buying homes. A "subprime loan" was a loan extended to a risky borrower, one who has had some payment delinquencies, a bankruptcy judgment, a high debt-to-income ratio, or a low credit score. After 2001, the volume of new subprime mortgages increased and shifted away from the simple fixed-rate structure and materially toward adjustable-rate mortgages (ARMs). Although historically ARMs were just mortgages with a variable interest rate that fluctuated with short-term Treasury yields, the type of ARM that became popular prior to the subprime crisis begins with a low initial interest rate that is adjusted, over time, toward a rate that truly reflects the high credit risk of the borrower. Sometimes called "teaser loans," these ARMs give the appearance of affordability to the borrower who does not look beyond the initial-period cash flow requirements to reflect on the actual total cost of the mortgage over time. In fact, many ARMs are bets that the value of the house will rise such that the borrower can refinance on more attractive terms than the imminent reset rate embedded in the original ARM (Bruner, 2009). This

made people think that they could achieve a dream of owning a home, which by any conventional lending standard was not possible.

In effect, the ARM is a string of refinancing, a stream of options to default or refinance, where the strike price is the value of the house. The borrower stays in the loan as long as the value of the house always rises. If the subprime borrower cannot make the higher payment required as of the reset date, he or she will be compelled to refinance or default. These embedded options are very hard to value. Complexity and opacity were amplified by the bundling of subprime mortgages into residential mortgage-backed securities (RMBS). Particularly difficult to evaluate are the RMBS that are further decomposed into securities called "collateralized mortgage obligations" (CMOs), in which various senior and junior debt "tranches," or slices, as well as an equity tranche, are created from the same underlying mortgage cash flows. Like subprime loans, RMBS and CMOs are hard to value and are very sensitive to variation in the value of house prices (Bruner, 2009). Due to the complexity, these tranches were then given a default risk of nearly zero. Hence, people became carefree, banks became carefree and so did the CRAs. The fundamental idea behind this was that housing has historically never declined and thus, never will. This allowed hedge funds, and other financial institutions to use subprime mortgages as a leverage tool.

From the CRA point of view, the tranches (clusters of the subprime mortgages) were to be rated and not the individual loans in a tranche. Hence, keeping in mind the idea that housing never declines in value, the CRAs had no historical method or instrument to rate these tranches. According to the models, the tranches were evaluated as if they were nearly risk-free, hence they

were rated AAA. The regulations on the CRAs were easy then. There was no policy for the CRAs to disclose their methods and thus, the rating methods were completely opaque to the market. Had it been transparent, people would be aware of the inconsistency of the rating of the trenches and could have mitigated the crisis.

Around the same time, Government policies also led to the Great Recession. There was too much money in the market and the Fed's easy money policy was one of the reasons for it. This meant that people had good spending power and led them to believe that this will always be the case. Thus, people began spending much more than they could afford to, be it a mortgage on a house of their dreams, or a risky investment outside their usual risk averseness (tendency to be away from risk).

The interest rates were also low which further gave wind to spending on credit. Though there are many factors that contributed to the Great Recession, the housing bubble burst was the one that played the major role. We have already discussed how subprime mortgages worked, the way they were rated by the CRAs, and how it was thought to be risk-free. It is beneficial for an economy if the investments used result in sharing the risk. Risk sharing works by combining risk exposures in such a way that they offset one another to some degree; thus, the risk of the whole is less than the sum of the risks of the individual parts (Jacobs, 2009). This occurs in a portfolio when assets are less than perfectly correlated.

But risk sharing with the packaging of subprime mortgages was just a misconception. There was no risk sharing that took place in the RMBS and CMOs, instead the risk was just passed on from one holder to another. This is known as risk shifting. Risk shifting works by moving risk from

one party to another; for example, buying a stock index put option on a stock portfolio shifts the systematic risk of a market decline from the put option buyer to the put option seller. Mortgages were also essentially risk shifting with regard to underlying housing prices. A mortgage loan provides the homebuyer with a put option that allows some of the risk of a decline in the value of the house to be shifted to the mortgage lender (Jacobs, 2009). Traditionally, the maximum loss involved in such trading by the homeowner would be the down payment made by the subprime mortgage holder; which corresponds to the lender's profit. But in the early 2000s, the down payment from a subprime customer was miniscule when compared to the value of the house. The loan-to-value (LTV) ratio was only 15% higher than the average for prime mortgages. Thus, the loss amount for subprime holders was small and people became less risk averse, shifting the risk to the lenders who had much to lose.

Furthermore, for a substantial portion of subprime loans—particularly in the hottest geographic real estate markets—borrowers took out piggyback home equity loans or second mortgages to cover down payments. Hence, these borrowers were highly leveraged and, barring price appreciation, had little or no equity in their homes. The lenders had the risk of the borrower defaulting but the lenders had an option to shift this risk as well. They could shift this risk to other investors in the form of mortgage-backed securities (MBS) or Residential Mortgage-backed Securities (RMBS). MBS are nothing but mortgages pooled, repackaged, and sold to various types of investors. This process of securitization has been used since the 1970s to reduce risk and increase the funds available for prime mortgages. Since the late 1990s, it has been increasingly used in the subprime mortgage market as well as for other types of loans, including credit card debt. The relatively high interest rates on subprime mortgages have made them particularly

appealing candidates for securitization and resale (Jacobs, 2009). And it was these types of securities that were too complex for the CRAs to rate and eventually ended up rating them as AAA or almost risk free.

Other instruments like the Structured Investment Vehicles (SIVs), and collateralized debt obligations (CDOs) played the same role of shifting risk rather than sharing risk. SIVs issue short-term commercial paper and medium-term notes for purchase by money market funds and other risk-averse investors. The receipts of the commercial paper and note sales fund the purchase of the collateral, including structured finance products. The long-term nature of the underlying mortgages and other assets is thus transmuted into supposedly less risky, shorter-term instruments. In 2007, SIVs had a hefty exposure to residential and commercial MBS, including an 8.3 percent exposure to subprime mortgages (International Monetary Fund, 2008). SIVs also hold large amounts of collateralized debt obligations (CDOs) that are heavily invested in such asset-backed securities as RMBS. These asset-backed CDOs (hereafter, CDOs), like RMBS, represent a pool of underlying assets carved into tranches of differing risk–return profiles. Hedge funds and banks, largely through SIVs, pool several hundred individual RMBS tranches to create one CDO. As with RMBS, the risk of a CDO is shifted from the upper to the lower tranches. And the sale of CDOs provides CDO issuers with funds to buy more RMBS or to underwrite more mortgages to be securitized. In turn, Credit Default Swaps (CDS) were created to help protect investors from default on CDOs.

CDS may seem to be the ultimate bearer of the risk of loss caused by defaults stemming from housing-price declines. One point that seems to have been forgotten in this long chain of

structured products and structuring mechanisms, however, is that shifting risk does not eliminate risk or even reduce it. Diversification among mortgage loans may reduce exposures to specific geographic areas, and combining mortgage loans with securitizations of other types of debt may reduce the exposure to subprime loans alone. For the most part, however, the underlying systematic risk represented by housing-price declines is merely shifted from borrower to lender, from one tranche to another, from lender to investor, from investor to guarantor. Although hidden, the risk remains, and this is what eventually brought down the entire financial edifice (Jacobs, 2009).

And last but definitely not the least, was the irrational exuberance in the market. One forgets that theory may hold good most of the time, but it is the people, and their perception that actually drives the market. The power of financial engineering, the models, the amazing complexities of the investment instruments, etc. all fall low in view of the power of the people. The very basis of these models is that the market should behave rationally. What if that were to go wrong and the market begins to react irrationally. All the models will come crashing down. And that is exactly what happened in 1987, 1998, and 2007. The market behaved in a way that it was not supposed to. This not only crashed the market but also made the crash catastrophic.

What does the Future Hold?

After the 1960s, quants paved their way into the world of finance and almost conquered Wall Street. They thought they had figured it all out and everything seemed to have worked how it was projected to work by their genius formulae and models. But as we have experienced, it all came crashing down, not once, not twice but three times. All the warnings were ignored and the models

were blindly followed. Along with the quants, other agencies like the CRAs, the financial institutions, the Government policies, etc. fell prey to the lucrative scenarios of the modern financial world.

Although we see that the new and different methods of trading, and the complex investment vehicles were the prodigy of the quants, it was never meant to be followed blindly. Every now and then there would be a critic, again another quant who would warn all of us about the disastrous consequences if we followed blindly. Everybody heard, but no one listened. Hence, to put the entire blame for what occurred in the past few years on the quants' conscience is unacceptable, but at the same time it can also not be overlooked. It was not only these agencies that are at fault, but also individuals, the common men are at fault too. If there was too much lending, that shows there was too much borrowing as well. And those borrowers are we. If borrowers hadn't gone beyond their potential to borrow and invest, if they hadn't been so greedy for fast money, this crisis could have been a lot less harmful to the economy then what we see today.

One can argue that CRAs were at a fault, and to some extent, that could be true as well. But if they rated them risk-free, it is the investors' responsibility to judge and learn for them about its volatility instead of blindly accepting CRAs' decisions. If the banks are to blame for providing subprime loans, then investors also have to take the weight and reconsider: why did they go beyond their capacity to acquire such loans and buy expensive homes? Government is always at the brunt of every complaint. For instance, if the policies had been reversed, then we would have faced inflation, which again could have been harmful to the economy, and the blame would fall

on to the Government. Eventually, it was the fast and easy money that blinded everyone, so that no one wanted to accept the riskiness of the scenario. If all of us had been a little less greedy and a little more safe and wise, we would not have leveraged ourselves beyond our potential to face the losses.

So the question remains: Are we going to continue being the same? Are we going to disregard the quants and the fundamental theories? Or will we redefine our financial world? Or just wait and see where things go? There is no one correct answer and neither of the above is correct either. The quants discovered fascinating theories and they proved quite successful too. If they failed at some point, this does not entirely justify dismissing those theories. What is necessary is to redefine our exposure to leverage, our over-dependence on computer models and our blind faith on agencies like CRAs, etc.

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Chapter 19

Bigger is better mentality

Ourania Tsekeris

The current financial crisis was brewing for at least a decade. Those of us who have lived through it were astonished at how housing prices were getting higher and higher every year and also by the fact that houses sold at astronomical prices after being on the market for only a short period. At the same time our neighbors were able to refinance their existing homes and add additions that made their little ranch or small cape cod balloon to twice its original size. The stock market was also growing at an astonishing pace. Everybody thought that things were going to be wonderful

and that they were going to have amazing wealth and retire at an early age. Fast forward a few years and our dreams crashed along with the housing market and the stock market.

How did we get here?

The Housing Bubble

In the early 2000's the Boston Globe commented on the housing phenomenon and called those burgeoning houses, "McMansions". A huge house on a small lot next to modest homes stuck out and dwarfed the other homes in the neighborhood. "Bigger is better" was the motto of the decade and everybody followed. If my neighbor can afford to buy, build or expand maybe I can too. The mortgage originator saw dollar signs when so many people were asking for loans and the banks and financial institutions responded to the demand by loosening their standards and coming up with creative loan instruments. The construction and real estate industry was booming, and everyone, including the mortgage companies, was cashing in on the expansion.

The larger homes, higher prices, ease of financing, and the bigger is better mentality were fueled by low interest rates that had been kept at extremely low levels by the Federal Reserve Bank for a long time. Even though interest rates remained close to zero for a long time, the real estate bubble burst, the stock market plummeted and we are still in a deep recession with moderate to non-existent growth.

The housing bubble was only the front of the problem. We could easily see that the houses were growing over time. According to the Boston Globe, the average size of a home rose by 750 square feet between 1973 and 2007 (Boston Globe, 2009). Most of the growth happened in the

last fifteen years, but what was behind that growth? There was a ripple effect that started with the housing market and continued with Wall Street. Most people did not understand that the housing market was closely connected to Wall Street because there was no history of such a connection.

Financial Institutions

Because the Federal Reserve Bank was giving away money at such low interest rates the lending companies were consequently able to give out loans that people would not have been able to afford otherwise. At the same time they became so bold with their lending practices that they came up with such creative ideas as no documentation loans and " the exotic mortgages (subprime; interest only; pay-option, with negative amortization, etc.) that have exploded into existence in recent years" (McCulley 2009, p. 270).

Irresponsible lending practices were a major part of the problem. Lending standards that have sustained a low default rate for decades loosened and it became easy to qualify for a mortgage that homeowners could not pay. High risk mortgages have a higher interest rate, but homeowners were teased by initial low rates that multiplied over the years, making long term payment of the mortgage impossible. They were also blinded by the continually rising home prices and agreed to the terms of the Adjustable Rate Mortgages because they believed that the perpetually rising prices would enable them to refinance when the time came for their interest rate to adjust. Bigger may be better, but there is a price to be paid.

Credit Rating Agencies

The scene was set for failure, especially since the loan originators did not look too deep into creditworthiness because they had nothing to lose. Once a loan was originated it was repackaged and sold off. Lending institutions did not care whether the homeowner would be able to make payments because they sold it and made money out of the transaction while someone else assumed the risk. That's when Wall Street stepped in. There was money to be made from those loans and they came up with their own creative "securities whose income value came from a pool of residential mortgages (that) were being amalgamated, sliced up, and reconfigured again and soon became the underpinnings of new investment products marketed as collateralized debt obligations(CDOs)." (Sorkin 2009, p. 89)

Wall Street

There is a long array of acronyms that describe the securities backed up by subprime mortgages, which most, including the Wall Street CEOs, the Federal Reserve directors, and the US Treasury Department, did not understand. The McMansions were real enough (although their prices were unsubstantiated and unrealistic), but Wall Street was growing on air.

The credit rating agencies played a crucial role in sustaining that growth. CDS and CDOs, like ARMs and RMBS, are challenging to value. Credit rating agencies, such as Moody's Investors Service, Standard & Poor's, and Fitch Ratings, used computer models that would simulate the probability of default on these instruments; on that basis, they would issue a credit rating. The models apparently were based on optimistic assumptions that produced low probabilities of default. In the words of one critic, this was a problem of "garbage in, garbage out." (Bruner 2009 p. 45) The credit rating agencies were also caught up in this "irrational exuberance". Housing

prices had their ups and downs over the years, but there was not a huge decline in prices since the 1930's so they believed that the growth would continue forever and that the default rates would stay as low as they have been in the past. "But they had been low because the degradation of underwriting standards was driving up asset prices." (McCulley 2009, p.271) There was a vicious cycle of non-qualifying buyers being able to buy expensive houses which caused prices to rise continually. This is evidenced by the fact that "in mid-2003 subprime mortgages … from about $200 billion a year to more than $500 billion by mid-2004." (Jacobs 2009, p 63)

The unreasonable expectations of continuous growth were another contributing factor to the rising real estate prices and poor lending practices. Wall Street was caught in their own hubris where they believed that they had found the secret formula to sustain a steady stream of high earnings and constant growth. Diversification and securitization of subprime mortgages (supposedly) lowered the risk and increased the profits thus becoming attractive investment instruments.

Unfortunately what goes up must come down and the real estate bubble burst in 2007 with dire consequences for the country and the global economy. As housing prices began to drop sharply, the mortgages backed by the falling asset prices became worthless and consequently the complex financial instruments that were built on those mortgages lost their value. One after another, Wall Street giants began to tumble. The real estate crisis moved to Wall Street. The bubble that was created by the securities put together to spread the risk of the subprime mortgages burst because there were not sufficient assets to support the growth. Between 2000 and 2008 the diversified subprime mortgage backed securities provided a safety net because the risk was spread among a

large array of financial instruments. When home prices dropped, the fact that those securities had no real backup caused the loss of value and consequently the systemic downfall of Wall Street firms. The financial institutions had been greedy and arrogant in their belief that they would be making money forever, and consequently exposed the US and the global economy to one of the worst recessions since the Great Depression.

Who is to blame?

The individual

A rational person knows how much they can afford to pay for their housing expenses on a monthly basis. The average person, given that they have a steady income, has a pretty good idea of what their expenses are, how much they need to spend to support their lifestyle and how much they can pay for their home. Because of the low interest rates, the dream of homeownership became real. Paying the same amount for a mortgage that you would spend on rent was a huge incentive to get out of rental housing and into your own home. How did we get from buying an affordable home to buying a home that we could never afford to pay? Rational individuals got caught in the bubble giving way to their better sense of good judgment. Popular culture, television reality shows and social websites promoted a lifestyle that the average American was unable to sustain. It is sad that so many people were star struck and caught in the illusion of wealth and unattainable lifestyles.

The loan originators were the ones feeding into the illusions of grandeur when they told the average person that they could afford more house than they could pay for. A rational individual

should still know what they can pay for a home, but if a professional tells you that you can afford to buy the home of your dreams you set aside your fears and sign at the dotted line. Irresponsible lending practices were a major factor in the creation of the bubble, but the financial institutions who were behind the lending practices and the mortgage originators did not believe they were irresponsible. They believed that they were helping people to realize their dreams of homeownership and at the same time making money.

Wall Street was a contributing factor in the creation of the bubble. Caught in the same mentality that drove the housing market and the loan originators, Wall Street firms were confident in their abilities to provide a never ending stream of money. All three contributors were feeding from each other in a vicious cycle of rising prices and leverage.

At the same time the government, through its lack of regulation, played a contributing role during the first decade of the 21st century. Through its laissez-faire mentality the government allowed the lending institutions to make their own rules and help bring the down the US economy. The same applies to "Investment banks (that) had basically been allowed to set their own leverage levels since 2004 (Securities and Exchange Commission 2004)." (Jacobs 2009, p. 76) Through 2008 and 2009, the investment banks had either gone bankrupt, been bought out or became bank holding companies that are now under the FDIC regulations. The subprime mortgage lenders are also either bankrupt or have been bought out by traditional lenders and banks. Lenders and investments banks are either gone from the financial picture or they put themselves under the protection and oversight of regulators. The subprime mortgage crisis has proven to Wall Street and the government the need of regulation for further avoidance of such crises.

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In 2009 the Obama administration sent to Congress several proposals to regulate the industry and protect the public from the threat of future systemic risk. “The proposals include creation of a new oversight council to identify emerging systemic risk; new Fed authority to supervise all firms that could pose systemic risks; stronger capital and other standards for financial firms; SEC registration of hedge funds and private equity firms; comprehensive regulation of all OTC derivatives; a requirement that issuers of securitizations retain some financial interest in the underlying loans; a new agency to protect consumers of financial products; and improved international standards and cooperation.” (Jacobs 2009, p. 76)

There were several lessons to be learned from the fall of the mighty. There is a need for government intervention in order to curb the irresponsible financial institutions. The same government that let them do whatever they wanted had to step in and save them in order to save the entire US financial system from crumbling under the pressure of the overly confident and money hungry Wall Street giants. Individuals have learned that they need to have better control of their money and think twice about borrowing more than they can afford to pay back. “Living within your means” is an old fashioned concept coming back to life after decades of irresponsible spending. Finally, banks and financial institutions have learned that they have to be more careful in their lending practices. Hopefully those lessons will remain with future generations so that we don’t have another long lasting and painful Great Recession.

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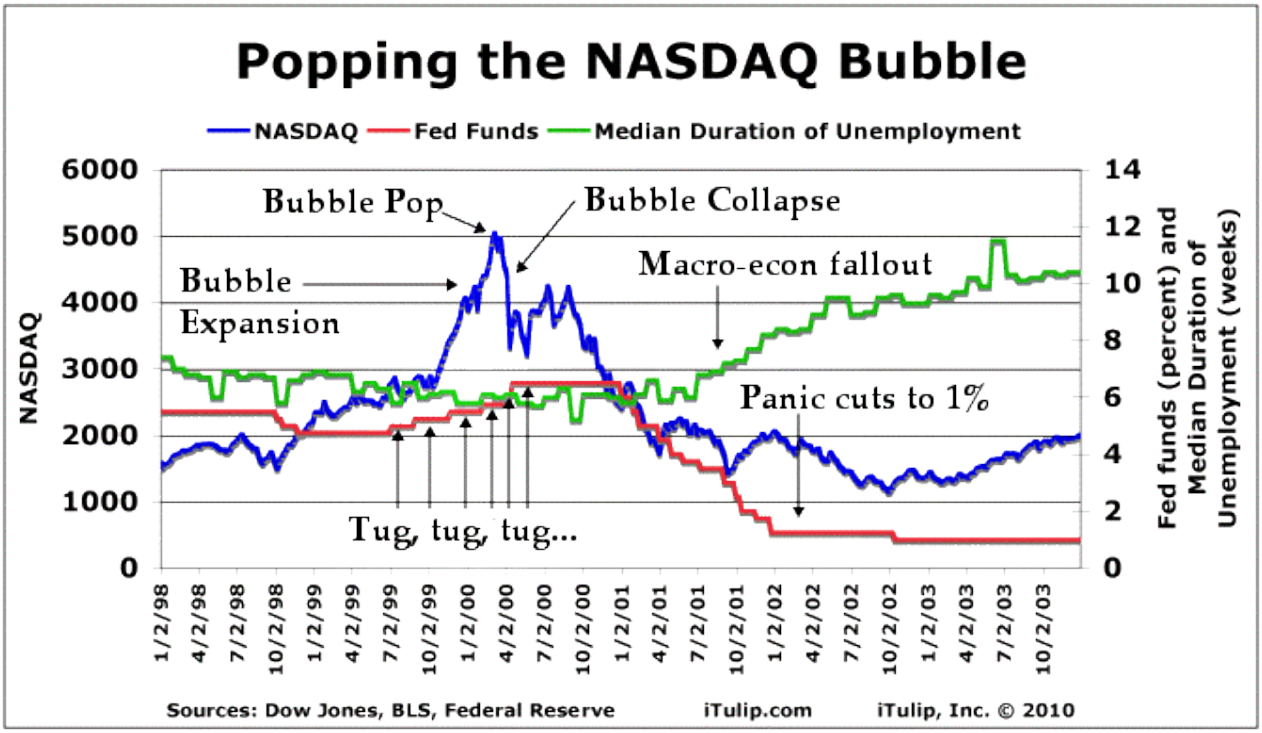
Chapter 20

Rising from the Aftermath of the Great Recession

Christopher O'Connor

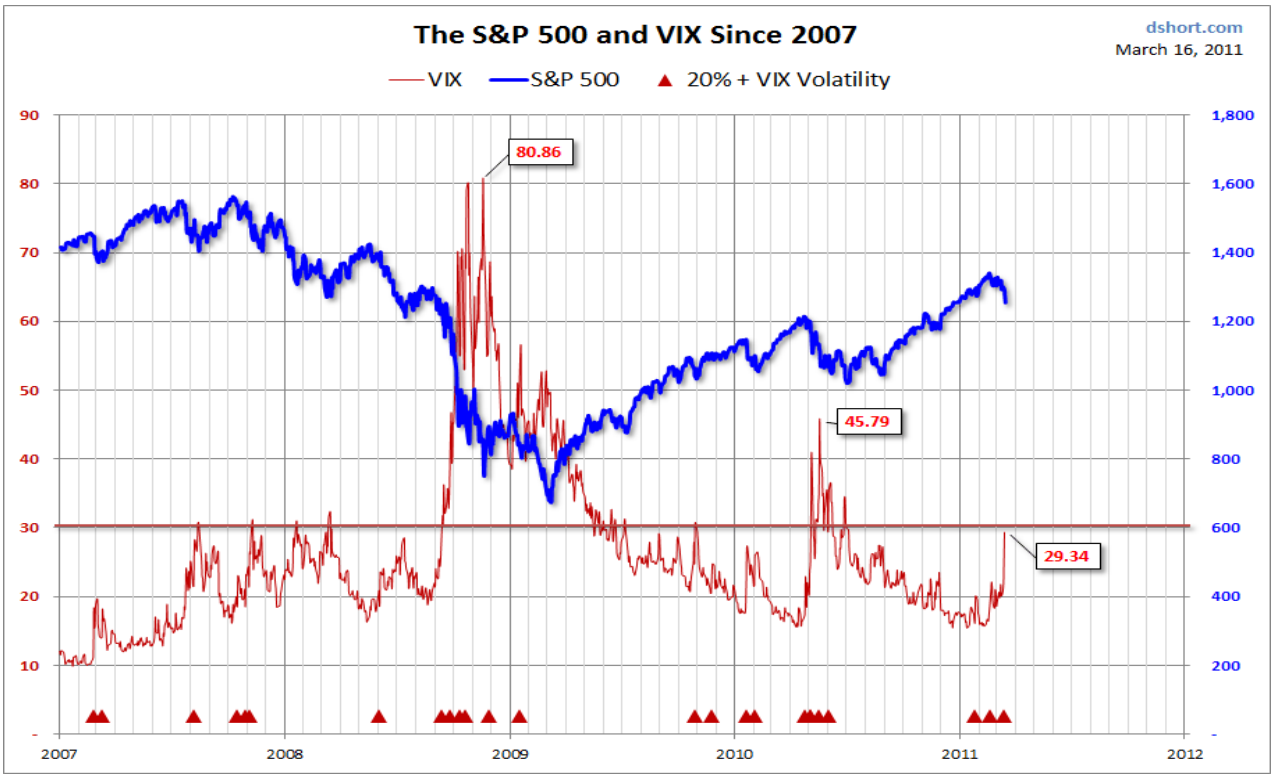
For global equity markets, the turn of the twentieth century marked the beginning of an era known as the "lost decade." During this time, the advent of the internet produced absurd valuations for

high-tech start-ups, which sent the NASDAQ to lofty levels which have not been seen since. The associated stock market crash that accompanied the dot-com bust sent the tech-heavy NASDAQ tumbling from an all-time high of approximately 5,000 in March of 2000, down sharply, to close near the 1,000 level. *"When the Internet bubble popped in the early 2000's over $8 Trillion in market value evaporated."**1***



The "irrational exuberance" in the stock market, a term coined by former Fed Chairman Alan Greenspan, lead to a speculative bubble. Like all speculative bubbles, asset prices increased enormously in a very short time, and subsequently reversed course at some point in the future. 'Black Swan' however, this was not.

The turbulence and volatility resulting from unbridled speculation in the stock market during the tech boom and subsequent bust, was soon to be rivaled by an unstoppable force. The seemingly perpetually increasing value of the U.S. housing market set the stage for the next financial crisis. The Wall St. 'subprime mortgage machine' was born.



Similar to past crises, the 2008 financial crisis was accompanied by a sharp correction in the stock market. Furthermore, as liquidity became scarce in certain markets, such as the market for mortgage-backed securities and referenced derivatives, correlations began to rise significantly amongst them all. This meant that all financial asset prices, including foreign and domestic equities, fixed income securities, as well as various types of asset-backed securities, began to move in lock step. Partially due to the widespread issuance of collateral calls, financial institutions began to sell off assets to meet financial obligations. Securities lending compounded this issue, due to the fact

that risk managers were unable to accurately assess exposure to losses, in the occurrence of a credit event, such as a default.

The concept of 'structured credit' is one in which risk is essentially transferred to a counterparty, with or without their knowledge. Due to the complex nature of these financial instruments, which include collateralized debt obligations (CDOs) and credit default swaps (CDS), many of the 'buy-side' holders of such investments were duped by their more knowledgeable 'sell-side' counterparts. The risks were essentially unidentifiable, in part, since the underlying assets were so far removed from the price of the derivatives which tracked them. Furthermore, the total lack of a transparent market as a pricing mechanism for these securities, lead to disagreement over what their actual value could be marked-to-market each day. This lead to collateral calls by large financial institutions, and the subsequent loss of faith in firms' counterparties ability to meet these demands.

Structured credit derivatives were particularly 'toxic' because the sellers of such contracts would reference the same underlying assets multiple times over, leading to billions in 'notional value,' representative of an asset [Mortgage Backed Security] whose intrinsic value is only a fraction of that amount. In fact, it was noted that *"Eventually, the credit default swaps trading in the market grew to as much as ten times the value of the underlying bonds"* ***2***

The interdependent nature of counterparty risk exposure was highlighted by the off-balance sheet reporting of unregulated credit derivatives. *"The interdependent relationships between banks and brokerages and institutional investors strike most laymen as impenetrably complex, but a simple ingredient lubricates the engine: trust."* wrote Alan "Ace" Greenberg, former Bear Stearns

chairman, *"Without reciprocal trust between the parties to any securities transaction, the money stops. Doubt fills the vacuum, and credit and liquidity are the chief casualties."**3***

The opaque nature of the over-the-counter (OTC) derivatives markets left financial firms unaware of the degree to which their counterparties had been exposed to various risks. Systematic collapse of the entire world financial system had been considered as a sobering potential reality as credit markets froze and interbank lending virtually ceased to exist. The Financial Crisis Inquiry Commission, on the nature of the 'over-the-counter' derivatives market: *"[the OTC market] is neither centralized nor regulated. Nor is it transparent, and thus price discovery is limited. No matter the measurement-trading volume, dollar volume, risk exposure-derivatives represent a very significant sector of the U.S. financial system."**4***

In addition to the inherent flaws encountered by traders in the OTC market itself, participants had been perpetuating the risk by ultimately engaging in what has been termed *'reference point-induced risk seeking behavior.' **5*** This type of behavioral analyses, attempts to define the cognitive processes occurring inside the collective minds of investors. A reference point-induced decision to increase risk would be concluded based on observations of market participants' collective risk appetite. Typically, a risk-averse investor would not engage in such behavior. However, as risk tolerance became more and more excessive, firms eager to outperform competitors began to relax internal risk limits and overlook standard risk management policies.

PIMCO's Mohamed El-Erian writes: *"In today's global context, investors need to supplement their analyses of fundamentals, historic risk premia, correlations and relative value with a clearer delineation of the expectations formation process itself.* In the aftermath of the 2008 financial crisis,

El-Erian continues: *"a significant, across the board repricing of markets, along with 'atypical' developments in market correlations and the range of risk premia"* resulted in *"changes in asset values that in an unleveraged world would not have produced large real economy effects caused substantial balance sheet damage in the highly levered financial and household sectors."* ***6***

Despite the early warning signs, including the overwhelmingly apparent deterioration in credit quality and underwriting standards of mortgage lenders, no one wanted to face facts. Subprime mortgage lenders such as New Century Financial, *"ignored early warning signs that its own loan quality was deteriorating and stripped power from two risk control departments that had noted the evidence. By December 2006, almost 17% of its loans were going into default within the first 3 months after origination."* ***7***

Perhaps it was time to say *"It's been a good run"* and hang it up. Instead, their true nature of recklessness prevailed as firms increased their risk exposure, buying their own garbage at times when no other bidders existed. Perhaps, most clearly and succinctly explained by former Merrill Lynch risk manager John Breit, *"We fell for our own scam."* ***8***

The global economy was adversely affected in ways, which at this time, are difficult to quantify. World trade was disrupted by imbalances between emerging and developed nations, as well as various forms of protectionism implemented by foreign governments during times of turmoil. Producer nations, net exporters rich in natural resources, had been somewhat insulated from the crisis until commodity price volatility eventually began to correlate with financial markets.

Foreign direct investment in emerging market economies virtually disappeared overnight. Investors began the so-called 'flight to safety' bidding up U.S. Treasury bonds, and sending yields

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correspondingly lower. *"Backed by the full faith and credit of the U.S. Treasury."* This promise, which has yet to be broken, is all we have to rely on as U.S. Treasury bond-holders.

International capital flows had quickly become 'hot money' being pulled from the riskiest corners of the earth. 'Investing in America' became a mantra, similar to the 'Buy American' slogan of past decades. Individuals however, still remain wary of investing in the stock market. The passage of time will tell whether or not the public regains faith in the capital markets. However, as individuals we tend to have short memories, which one way or another will influence market direction. Selection bias plays an integral role in what people choose to believe. If an investor had been burned by a 'hot new issue' during the height of the NASDAQ bubble, he or she may have developed a disconnected view of the broader market from that experience, and subsequently decide to forgo investing in general. On the other hand, an investor who has been riding the recovery, doubling his or her money in a few short years, may be setting themselves up for failure in the future, due to a sense of overconfidence developed by too much past success.

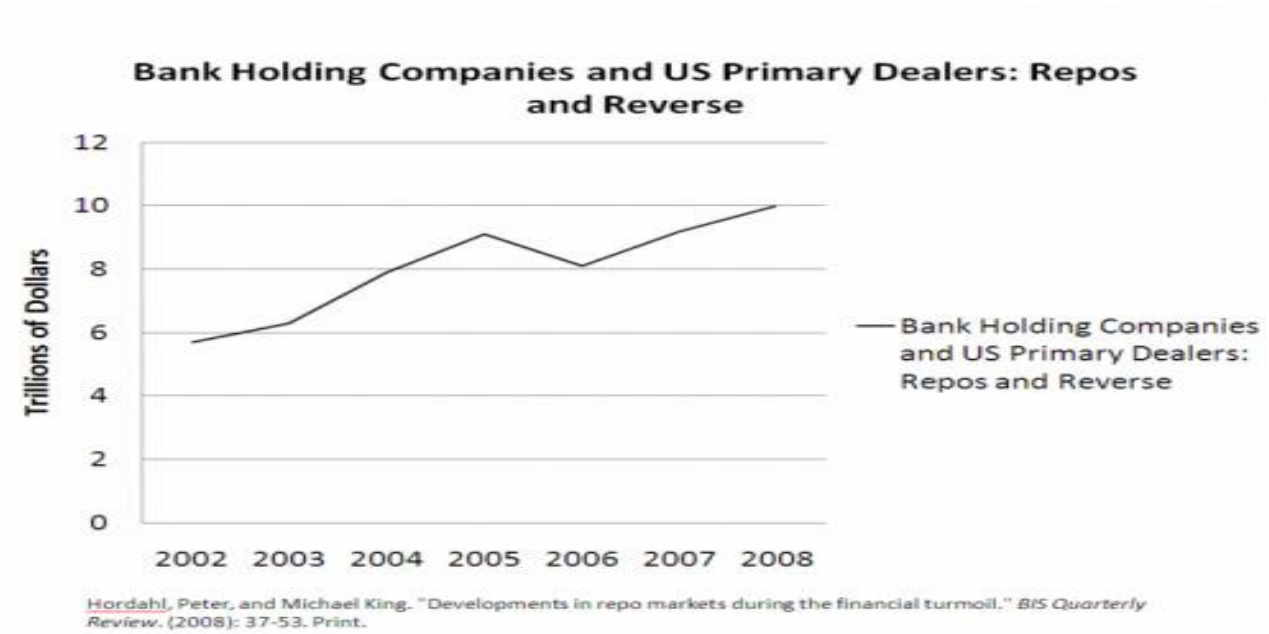
I believe the root cause of the 2008 Global Financial Crisis was the misalignment of incentives. Post-bailout, in the aftermath of the crisis**,** it may seem simple to identify what went wrong. However, the more pertinent question is: Why?

It seems that on every level, from lenders to borrowers, investment bankers to traders, that the incentives were not properly aligned to sustain the growth in the mortgage market. Buyers rushed to purchase homes they couldn't afford, so banks in the absence of financial liabilities, and therefore risk in the form of loan losses, were happy to oblige. This resulted in an enormous

increase in securitized loans, which were then floated around, creating the illusion of an active market for mortgage backed securities.

Interconnectivity, in terms of financial obligations resulting from mass issuance of derivative contracts such as credit default swaps, lead to a greater concern… "*Is there enough to cover it?*" The classic concept of insurance, 'risk pooling' was put to the ultimate test. It seemed that on a macro level, there was not enough reserve capital in the world to meet the collective total of collateral calls in the swap market. American International Group, for example, required an eleven figure bailout from the Troubled Asset Relief Program (TARP) to meet liquidity requirements.

Furthermore, this interconnectivity led to 'unlimited' counterparty risk. In addition to the difficulty firms encountered calculating value-at-risk estimates related to securities holdings, it was virtually impossible to accurately quantify risks associated with securities lending programs. Repurchase, or repo financing, is largely responsible for disruptions in the credit markets. *"The repo market serves as a banking system predicated on the fact that at any time lenders could withdraw their funds."* ***9***



Securities lending, in the form of repurchase agreements between financial institutions, has come to be known as a form of 'shadow banking.' *"What was different about this crisis was that the institutional structure was different. It wasn't banks and depositors. It was broker-dealers and repo markets."* ***10***

Chairman Bernanke addresses the nature of the shadow banking system in the statement above. Due to the lenders inherent advantage in the transaction, borrowers are left vulnerable to changes in financing terms without warning. This generates volatility in the credit markets, which leads to liquidity shock and subsequent loss of faith in the funding mechanism of commercial paper. General instability creates a panic, and a classic 'run on the bank' situation. However, what happens when 'the bank' is in fact not a bank at all?

In conclusion, the subject of the Global Financial Crisis is one which can be studied in real-time and hopefully the lessons learned will help us navigate the daunting uncertainty of the future.

Looking to the past, we can identify these events in retrospect and wonder how no one saw it coming. Looking to the future, we must not kid ourselves…*"It's only a matter of time."*

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Chapter 21

The Bright Side of the Global Financial Crisis

Elda Puka

Introduction

The world has become more and more interdependent. Therefore when shocks occur in a specific part of the world, their effects are spread and amplified globally, exposing everyone to risk. This was the case with the most recent financial crisis of 2007-2009, which was not limited to a specific location, a certain social class, or a particular sector of the economy. The crisis spread globally, and affected everybody. World history has seen several crises unfold. After the Great Depression, other minor crises have occurred over the last two decades: the US stock market crash of 1987, the Savings and Loans Crisis (late 80's), the Japanese financial crisis of 1990, the Asian financial crisis 97-98, and the dot-com crash of 2000. But none of them has had such a big impact on the world's economy.

This paper will not focus on finding whom to blame for what happened, but will rather look at the bright side of the crisis. It will try to answer the questions: "Did this crisis serve a purpose? Is there something to learn from it? Is there something to be done?" Because I believe that the best lessons in life are learnt from the bad and painful experiences, not from good ones. It was the severe panic of 1907 that brought up the need for a coordinated effort in order to end the crisis [142]; the need for a central bank. A few years later in December 1913, the Federal Reserve System was established. Emphasis will be given to the government role, as the only regulatory authority with the power of

[142] Bruner, Robert F. 2009."*The Dynamics of a Financial Dislocation: The Panic of 1907 and the Subprime Crisis"*. The Research Foundation of CFA Institute.

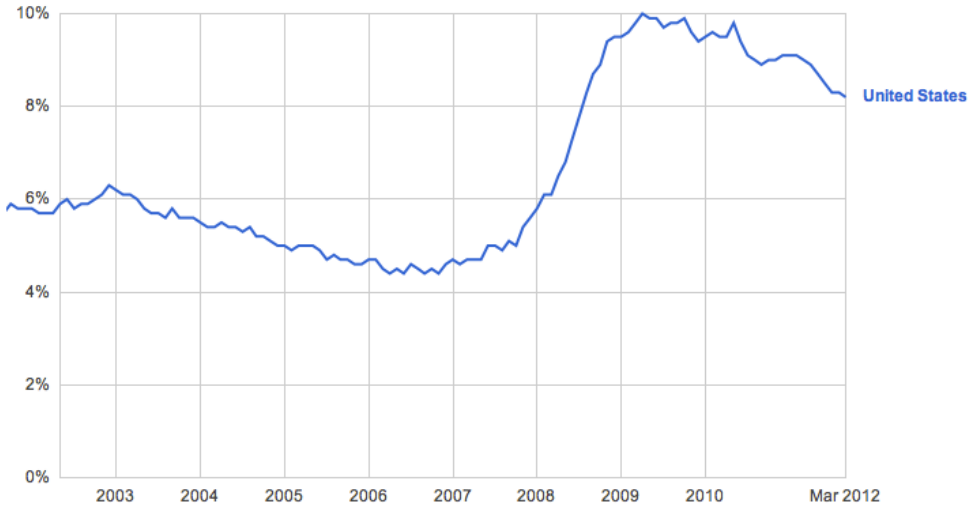
maintaining economic growth and stability. But there are lessons to draw from everyone, starting at the individual level, and I mean even the most uninformed individual. In order to do this, I will take a detailed look at what happened and confront it with the academic studies and debates.

A short overview

The main cause of this crisis was the subprime mortgage, which involves lending with low standards to risky borrowers, who understandably could not afford those mortgage obligations. The investment institutions innovated and heavily used new products, the "derivatives"[143] (such as mortgage backed securities, collateralized debt obligations, credit defaults swaps, etc.), in order to "manage" the risk related to these subprime mortgages. But that did not diminish the risk. It only transferred it through different parts of a big and complex financial system that was spread in different parts of the world. In fact, due to this global interconnection, it was countries in other parts of the world, which had in large part financed and fueled the debt boom in the US. The mortgage loan boom and increased demand for real assets lead to their overvaluation (the housing market) and created a housing bubble. At some point in 2007, the housing bubble burst. This caused some financial institutions, which were highly leveraged, to be at the brick of collapse. Many companies were left with little choice; they started to lay off employees, creating confusion and anxiety in the job market. Rising unemployment[144] (Exhibit 1), falling exports and frightened investors were the macroeconomic issues that accompanied the recession.

[143] Derivatives are those financial instruments, which derive their value from the underlying asset. They are usually used as an instrument to hedge risk.
[144] Exhibit 1

Exhibit 1: Unemployment rate in US



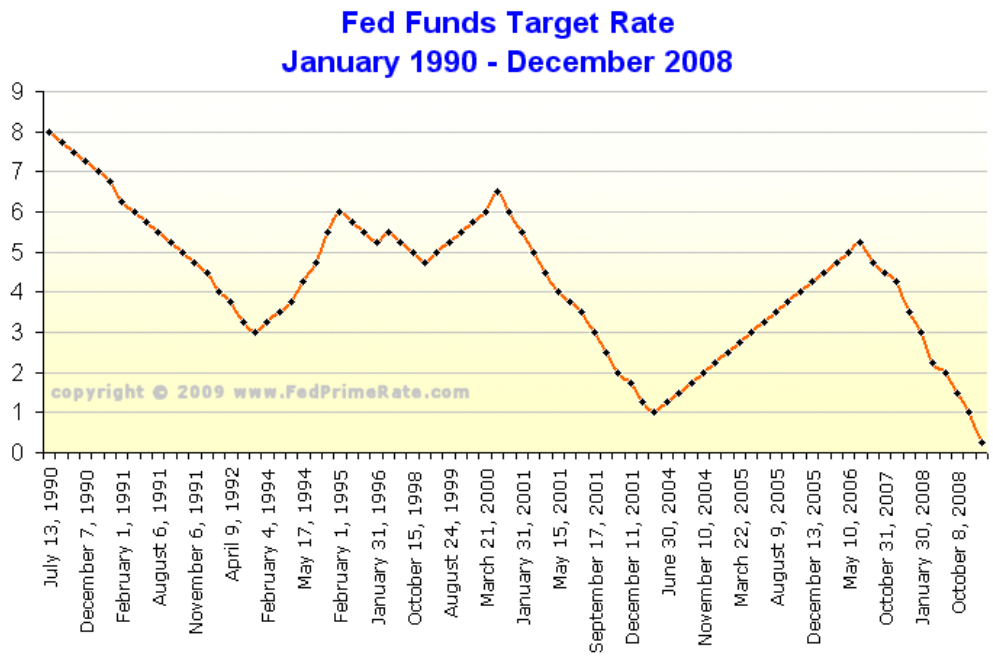
Source: Data from U.S. Bureau of Labor Statistics Updated: Apr 23, 2012

A Detailed History of the Crisis – The Causes

The subprime loans

The crisis traces its origins back to late 2000, after the burst of the dot com bubble and then the terrorist attacks of September 11th. In order to restore the people's trust in the market and stimulate the economy, the Fed lowered the federal funds rate, (which is the rates at which depository institutions lend to each other overnight) from originally 6.5% down to 1% in July 2003 (Exhibit 2).

Exhibit 2: Federal Fund rates



Source: Fed Prime Rate

Lower rates meant that money was available at a low cost and this fact gave a spin to the mortgage loan boom. Lenders continued to lend heavily until there were no more good borrowers left. Then, they turned to subprime borrowers, those with a poor credit rating. The subprime borrowers were realizing their life's dream. They could afford to buy a house with no down payment even if they had no job and no income. These loans were known as subprime mortgages. They usually cost two or three percent above those awarded to borrowers with less-risky credit ratings and had low 'teaser rates' for the first couple of years, followed by a reset to much higher rates, which could raise the borrower's monthly payment by as much as 100%. The growing demand for houses led inevitably to higher house prices. Although lending institutions were

taking on more risk by lending to those borrowers who could not afford to pay back their obligations, they were satisfied as long as the houses were appreciating in value. After all, they could still get the house in case the borrower defaulted on his debt.

Innovations

At the same time, banks and financial institutions were trying to increase their profits through another method called securitization. "Packages" of loans with mixed degrees of risk were developed and sold to worldwide investors as financial instruments. They were called collateralized debt obligations or "CDOs". In this way, high-risk subprime mortgages along with other types of debt were travelling from one financial institution to the other. CDO's were not the only innovations that emerged. Along with them came the mortgage backed securities (MBS), credit default swaps (CDS) etc.

A new group of real estate speculators added to this turmoil. They got in the business of buying houses with intention to sell them off at higher prices.

Deregulation

Deregulation added to the chaos. "In October 2004, SEC relaxed the net capital requirement for five investment banks - Goldman Sachs, Merrill Lynch, Lehman Brothers, Bear Stearns and Morgan Stanley. They could now leverage up to 30-times or even 40-times their initial investment."[145]

But deregulation in US started much earlier, in the 80's. In December of 1986, for the first time,

[145] Singh, Manoj 2009 "*The 2007-08 Financial Crisis In Review",* January 14th, 2009. Investopedia.com

the Federal Reserve reinterpreted the Glass-Steagall restrictions[146]. A bank could now derive up to 5 percent of gross revenues from investment banking business. The Federal Reserve allowed banks to handle commercial paper, municipal bonds, and mortgage-backed securities. Later, in 1996, this limit was extended from 5% to 25%. And again in 1999 the Gramm-Leach-Bliley Act was passed, removing all existing restrictions on the combination of banking, securities and insurance operations for financial institutions. A lot of companies were moving towards consolidation to become bigger and more powerful, offering a variety of financial products and services. The financial system grew bigger and more complex, especially during the boom years (2003-2006). The regulators, by relaxing lending standards, indicated that they were unable to see the risks involved in those innovative financial instruments.

Risk assessment

Similar to regulators, credit rating agencies and investors failed to accurately price the risk involved with mortgage-related financial products, simply because they didn't understand the complexity of those sophisticated financial instruments. The risks were rapidly spreading from banks, which were supposed to know them, to other institutions that were less familiar with those risks. Moreover, the Credit Rating Agencies (CRA) relied on calculations provided by the issuers of those instruments, which indicates a direct conflict of interest. [147] CRA's are under the supervision of regulators, who

[146] The Glass-Steagall Act of 1933 had established a firm separation between commerce and banking in the financial world

[147] Soros, George 2009 "The Crash of 2008 and what it means" pg.119

should have been more careful in this regard. We see how many things relate to the regulatory authorities role.

The Housing Boom and the Burst

The situation became worse when interest rates started rising. From June 30, 2004, the Fed started raising rates so much that by June 2006, the federal funds rate had reached 5.25%. It remained at this level until August 2007.

By 2006, housing prices in the US had risen dramatically. This can be illustrated by the Schiller index, which shows the history of house prices, index-adjusted for inflation in the US, starting from the year 1890. Also in the chart are depicted the trends for building costs, interest rates, and population growth. As shown in Exhibit 3, the home price boom of 2006 could not be justified by any of these other trends.

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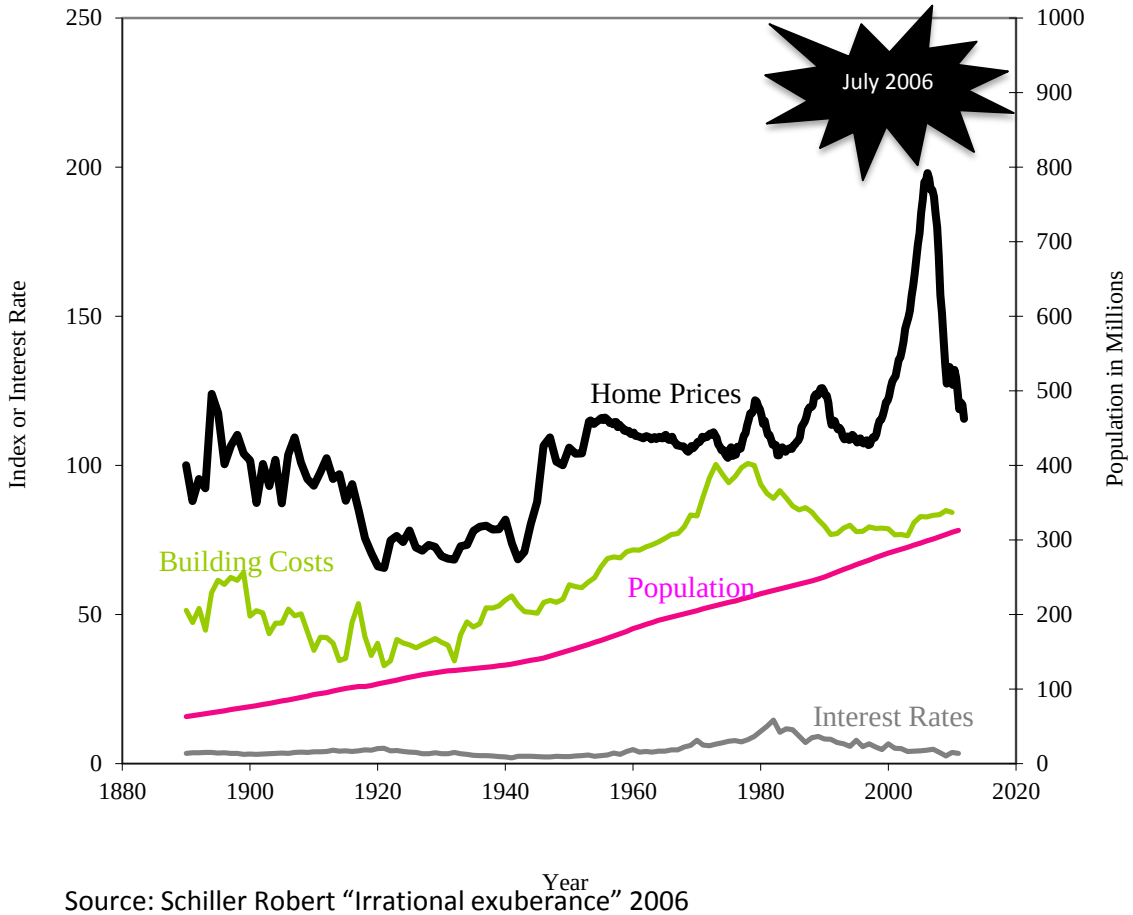
Exhibit 3: The Schiller index



Source: Schiller Robert "Irrational exuberance" 2006

As subprime mortgage interest rates began to "reset", many borrowers were unable to pay back their debts. This is when housing prices started to decline during 2006, primarily in California, Arizona, and Florida.

During February and March 2007, more than 25 subprime lenders filed for bankruptcy. In June 2007, two Bear Sterns hedge funds collapsed. According to a 2007 news reports, financial firms owned more than $1 trillion in securities backed by these now-failing subprime mortgages. Banks and investment houses turned to governments to be bailed out. Lehman Brothers collapsed, while Bear Stearns and Merrill Lynch were taken over. The notion that all banks were "too big to fail"

no longer held true, they were all at risk. As consumer confidence collapsed, so did the credit flows to the private sector.

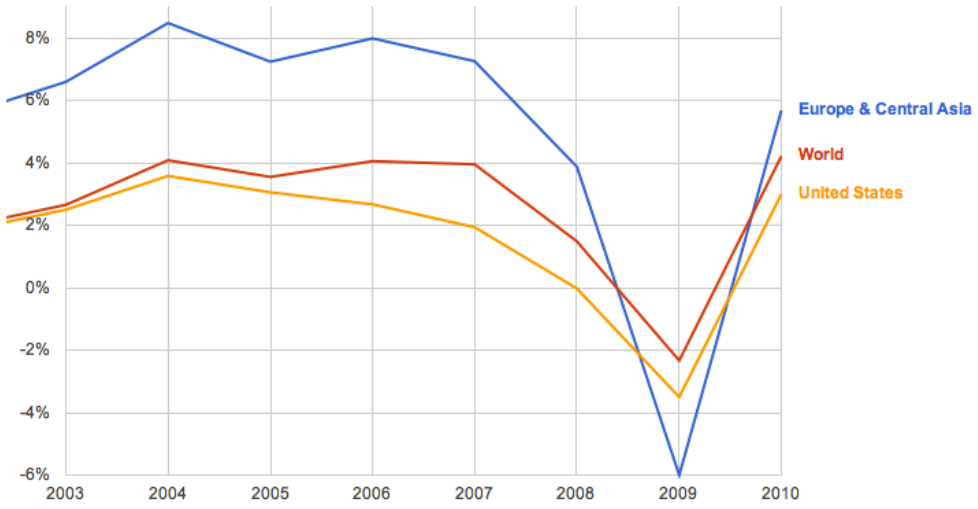
In August 2007 the subprime crisis was evident and the problems spread beyond the United State's borders.

Government Intervention – Global Response

Announcements by international organizations, such as World Bank and IMF, in beginning of 2009 forecasted negative growth for the global economy for the first time since 1945. See Exhibit 4. The situation looked better for emerging countries, which experienced positive growth rates, although significantly lower when compared to 2008. The International Labor Organization predicted the loss of 51 million jobs worldwide.[148]

[148] Varoufakis, Yanis .2011 *"The Global Minotaur"* pg.159

Exhibit 4: GDP growth Rate



Source: World Bank

In order to stabilize the economy and restore trust in the markets, monetary, fiscal and financial policies were initiated by individual nations. But, since the crisis had reached a global level, there was a strong need for a coordinated effort between countries. In the G20 summit of April 2009, many ideas were discussed, but there were differing and controversial opinions coming from the US and Europe on how to coordinate their actions. The US urged more countries to spend on fiscal policy stimulus, while European countries asked for sweeping financial regulations at a global level.

Monetary policy

One of the most popular tools that central banks used to stimulate the economy was to reduce interest rates to nearly zero percent. Nevertheless, Europe acted less aggressively than the US and

the UK, because it feared that a drastic move would contribute to a rising uncertainty among people.

Another monetary tool was to apply quantitative easing measures. Central banks started to buy bonds from private financial institutions and businesses in order to inject money into the economy. Since interest rates could not be lowered below zero, by using quantitative easing central banks could directly affect the money supply. But, with all the above-mentioned measures, policymakers realized that monetary policy was not enough to encourage consumer demand. Therefore they initiated fiscal policy measures.

Fiscal policy

The IMF advocated additional fiscal stimulus to promote growth and cushion the effects of the global recession. "Fiscal stimulus" is the proposition that by borrowing money and spending it, the government can raise the overall state of the economy, raising output and lowering unemployment. The package is typically comprised of tax cuts, increases in infrastructure spending, and greater social safety net benefits. The IMF proposed increasing each country's GDP by 2%. The US was the first to take action by approving a fiscal stimulus of $787 billion, accounting for more than 5% of GDP. China followed with 4 trillion yuan or $570 billion, representing 6% of China's GDP. [149]

Many government officials (Obama, the Australian prime minister) urged for a more coordinated effort on a global level in terms of fiscal policy in order to recover more quickly. But not many nations were in the position to expand their fiscal balances. In fact, only five nations reached the

[149] Alfaro, Laura and Kim, Renee - "The first Global Financial Crisis of the 21st Century". April ,2009.

IMF goal to increase fiscal stimulus by 2% of GDP and those were: US, China, Australia, Spain and Saudi Arabia.

The G20 leaders were called to support a $1000 billion stimulus package for the developing nations, whose situation were deteriorating, leading to political instability. These countries depended on international capital flows, which had seen a considerable decline because of the crisis. Investors had returned to US Treasury bills as an investment, which were considered risk free, since the US government had little chance of defaulting on its debt; therefore investment in developing countries fell.

Europe, on the other side, was against additional fiscal spending. It had already approved a 200 billion euro stimulus package in November 2008. Now it was time to focus on improving regulations, especially over hedge funds and private equity. A strong opponent of additional fiscal stimulus was Chancellor Angela Merkel of Germany, affirming that Germany already had a very generous welfare system and there was no need for additional government spending which would not resolve the situation.

Protectionism

In 2009, the WTO forecasted a 9% decline in exports, which was the result of lower demand from developed nations. This decline in trade was leading to another trend, namely, economic protectionism. 17 of the G20 countries had imposed trade restrictions to protect their own economies. WTO Director General urged the governments to avoid protectionist policies, which could in turn create rising unemployment.

Proposed solutions

An idea that was proposed to help the global economy recover was to secure loans from the IMF without stringent conditions in the form of Special Drawing Rights (SDR). Controversial debates on the IMF's role were raised: should it lend to provide liquidity or should the IMF serve as an interlocutor between lenders (developed countries) and borrowers (developing countries). Critics blamed the IMF for aggravating the situation for the loan recipient countries by imposing harsh loan conditions on them. After the G20 summit, the developed countries promised to work on their financial regulations, while developing nations would create a new Financial Stability Board that would include all of the G20 members.

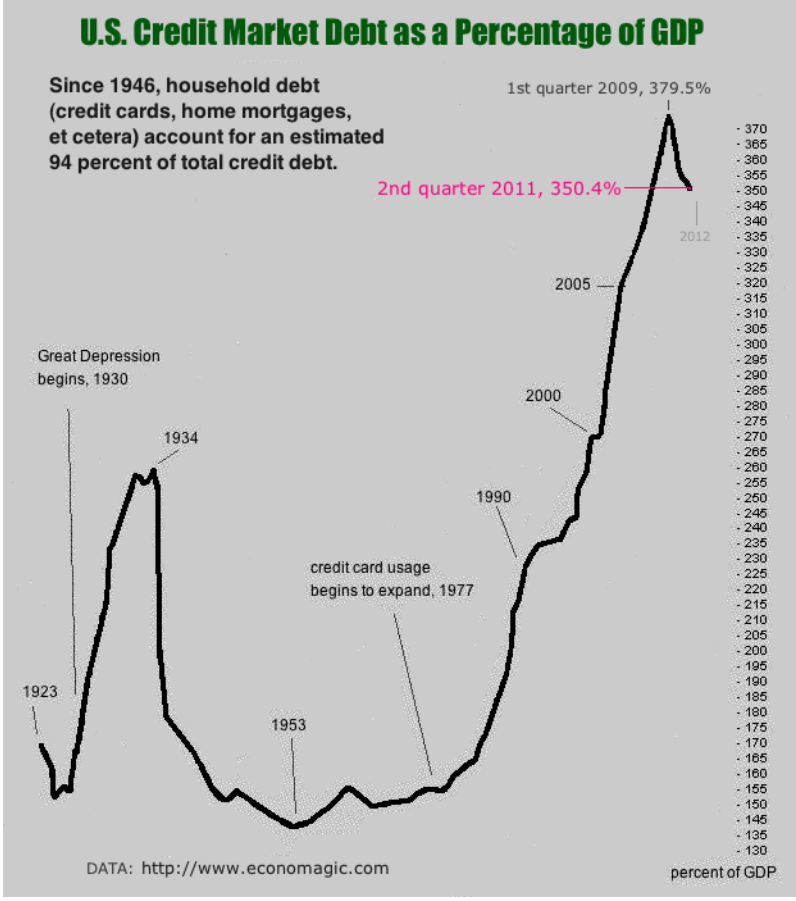
Academic Articles, Theories and Hypothesis

After gathering information about the global financial crisis and reading the literature, a natural question comes to my mind. Was the subprime mortgage debacle an external shock to the system that led to the crisis, or was it the system itself that caused the crisis? Bruner[150] believes that all crises follow a certain dynamics, which goes through different steps: 1) the financial institutions will form a complex system 2) this system will grow unstable 3) an external shock to the system will trigger the financial crisis 4) the government will intervene. All of this happened during the global financial crisis. Only the shock that triggered the crisis – the decline in house prices - was not so unexpected after all. Being able to look back at all the factors that led to the housing bubble, we should have expected it.

[150] Bruner 2009

Soros talks about a super bubble that had started much earlier[151]. The long-term trend of excessive lending practices started back in the 1930's as illustrated by Exhibit 5. The rapid growth of total credit to GDP ratio was reinforced after the 1980's.

Exhibit 5: US Credit Market Debt/GDP



Source: Macro history and World report

Excessive lending was combined with two other trends starting in the 1980's; the globalization of financial markets and the progressive removal of financial regulation together with innovations.

[151] Soros 2008 pg.95

The global financial crisis was the infection of this long-term super bubble. The subprime crisis was what triggered the unwinding of the super bubble. Soros believes that markets do not necessarily trend to equilibrium if left to their own devices, because market participants are biased in their perceptions, and therefore prices will reflect their biases. That is why the role of financial authorities in supervising and regulating the markets becomes crucial.

This is consistent with Minsky's financial instability hypothesis.[152] Minsky believes that economic stability will always lead to financial instability, because when the economy is doing well, market participants will engage in riskier activities in exchange for a higher return. As the riskier financial units (highly leveraged) dominate the economy, it will gradually transition to an unstable state. Financial deregulation has in large part fueled this transition, by relaxing lending standards. During 2003-2006, the subprime mortgages and financial innovations boomed, asset prices inflated, the economy was growing and yet becoming riskier; instability was replacing stability. This was the forward journey. After reaching its peak in August 2006, it entered the reverse journey phase, where everything was deflating and riskier financial structures were replaced with more solid ones to gradually restore stability again (2007-2009). Again the role of government becomes very important. It should follow a countercyclical policy in order to regulate markets and maintain stability.

By countercyclical, Minksy means that during boom periods, the government should strengthen the rules, should tighten lending standards and keep an eye on financial innovations, which was contrary to what happened in the US. On the other side, when the economy is in recession, the

[152]Mc Culley, Paul 2009. "The Shadow Banking System and Hyman Minsky's Economic Journey".

government should help restore confidence by exerting its monetary and fiscal policies. At the same time it should let the deflationary process unfold to find the bottom of asset prices. In fact, after the approval of the US stimulus package in 2009, unemployment started to diminish month after month. China did the same, and its economy recovered much faster, probably because the fiscal stimulus was larger per GDP share. It is true that government debt increased due to fiscal stimulus, but the money went in the right direction. Investing in infrastructure, in research, in medicine surely has a positive impact on GDP growth, and it creates jobs. Relaxing the tax burden certainly helped rebuild trust among people.

Conclusion:

To summarize all this analysis, I would say that the global financial crisis has a bright side after all. The crisis helped us to discover the big problems hidden under the highly leveraged "Too big to fail" companies and their innovative instruments. It cleaned up the system. Now they have become much more careful in their lending practices. The fall of Lehman Brothers served as an important lesson to the other big financial institutions. The government is not a capital provider of last resort, no matter how big and powerful a company is.

At the individual level, an important lesson that the crisis taught us is "to live by your means". Next time, when the banking system gets crazy and offers you loans with teaser rates and no down payments, you should think twice before accepting; you have already been through this. The crisis caused us to look back in time and discover the super bubble trends starting in the 1930s. Excessive lending practices over the years (starting in the 1930s) combined with deregulation, innovations, and globalization of financial markets (1980s) slowly created the bubble and proved to be disastrous.

The crisis also served as a hint to question market fundamentalism theories. To what extent are markets really efficient? We used to believe that price is always right since it reflects all publicly available information, and we built our models based on those assumptions. But now we have become more skeptical of the market's ability to adjust and find equilibrium if left to its own devices.

Another lesson learned is that everything follows a cycle; nothing can grow indefinitely. Therefore the government's role as a regulator becomes crucial. It is countercyclical policy that is necessary to maintain stability and lower the amplitude of economic cycles. Deregulating when the economy is growing will only lead to the creation of asset bubbles, which will later inevitably burst. And forcing overleveraged countries with harsh austerity measures is again a cyclical, not countercyclical policy. It will only destabilize them further and they will enter a vicious circle, from which it's difficult to come out. Consider that Greece's austerity, as a means to decrease its debt, has exacerbated its unemployment crisis and has triggered political instability.

Furthermore, this global crisis demands a global solution. It is a fact that when the economies of Europe and China do poorly, it is reflected in the US stock market as well, and vice versa. We are interconnected to each other. Therefore something has to be done at an international level so that we can all prevent a future crisis. I would suggest that cooperation at an international level should be exerted in terms of financial regulations. Also a greater interaction between central banks and banking supervisors should be acquired, since they play a key role in maintaining financial stability.

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Chapter 22

A Little Commonsense Goes a Long Way: Lessons Learned from Studying the Financial Crisis:

Eric Arthur Pinsoneault

Introduction:

The most recent economic recession affected almost everyone living in the United States in some way. The most dramatic news could be found in the newspaper, which reported on such sensational stories as the collapse of Leman Brothers, the bail out of insurance giant American International Group (AIG), and the dramatic decrease in the Dow in 2008. The stories which resonated with most Americans however were personal ones. In my own life I saw the effects of the financial crisis all around me. In September 2008 I had invested several thousand dollars in mutual funds to help finance my upcoming graduate business education. One month later my investments had lost 35% of their value. Shortly afterward, a close friend informed me that the home he had purchased for him and his wife only one year prior had lost so much value that, at

the time it was worth less than the outstanding mortgage he held. My roommate, who worked in construction, lost his job a month later. Two more friends were laid off in the following 3 months. That summer the father of a coworker jumped from a seventh story window in an attempt to take his own life after finding out his retirement savings had lost nearly half its value. These are just some of the personal stories that illustrate how the financial crisis shaped my life and the lives of those around me.

Given the negative impact that the recession has had on so many, it is natural to want to assign blame. It is also natural to want to understand what caused the crisis so we protect ourselves when it happens again. I have had the opportunity to learn about the financial crisis in a very unique way. In 2009 I enrolled in business school where I studied finance at a time when the value of our entire financial system was being called into question. I also worked with a professor of finance at my university, helping him edit a series of papers written by students which document their individual beliefs and perspectives regarding the financial crisis. I drew some very important lessons about the crisis from these experiences.

After analyzing the financial crisis from this unique perspective, I believe that we are all at fault in one way or another for the events that lead up to the crisis. Blame can be placed on almost every actor in the economy, from investment banks, to the United States Government, to individual investors and home owners. I also believe that a little common sense can go a long way towards preventing a crisis of this magnitude from occurring again. In this paper I will briefly discuss some of the primary factors which led to the financial crisis. I will then outline a few lessons I have learned from my personal experience, my studies while in business school, and my work reviewing the analysis of other emerging business leaders.

An overview of the financial crisis:

The first thing that any student studying finance learns is that the purpose of the U.S. financial system is to connect people who have excess money with people who need to borrow money. In essence, borrowers pay interest, lenders earn interest, and financial institutions such as banks act as intermediaries, connecting these two groups and take a cut for their services.

The next thing that any student of finance learns is that the financial system in the United States is far more complicated than that. Financial innovations dreamt up by Wall St. whiz kids have made the U.S. financial system one of the most robust in the world. The ways in which borrowers are being connected with lenders has moved past depository institutions and stocks and bonds. However, all of this has come at a price.

At the heart of the most recent financial crisis was the collapse of the housing market. Prior to the financial crisis the housing market had been demonstrating signs of a financial bubble. In short, prior to the crisis, the cost of existing houses had increased to an unsustainable degree. As the Case Shiller Home Price Index illustrates, in July of 2006 the price of existing homes reached a breaking point where the price of existing homes was higher than what buyers were willing to pay. The market subsequently collapsed.

The collapse of the housing market was notable for many reasons; the most pertinent in the case of the financial crisis was the fact that home mortgages were intricately woven into the U.S. financial system through investments called Mortgage Backed Securities (MBS). It is these securities that have been largely cited as one of the main causes of the financial crisis.

A full explanation of how MBS work is beyond the scope of this essay. However the basics are as follows; numerous mortgages are purchased by investments banks from the actual banks that issued them. These mortgages are "pooled" together. This pool of mortgages generates a stream of mortgage payments on a monthly basis. The investment bank splits this pool of mortgages into pieces and sells off ownership rights to the streams of income in the form of securities. In the lead up to the financial crisis MBS were seen as high quality, low risk investments and were purchased in large quantities by insurance companies, pension funds, and other institutional investors.

The "packaging" of mortgages into securities seems like a great idea, and in many ways it is. Neighborhood banks are able to sell off the mortgages they issue, increasing the liquidity of their balance sheet. Investment banks have, in theory, an investment product to offer their customers which are backed by actual assets, and investors have the opportunity to invest in the mortgage market which had previously been accessible only to banks. While this idea sounds good, the fact is that it became too complicated.

Without going into detail, the issue with MBS was that the originating banks issued many mortgages to "subprime" borrowers, or people with poor credit. These mortgages ended up in the "pools" of mortgages which were then packaged into MBS. When the housing market collapsed it became obvious that many of these mortgages would never be paid back, and thus the value of the MBS which contained these mortgages was called into question. Since many investment banks and insurance companies held massive amounts of MBS, many of these institutions incurred large losses which destabilized the entire financial system.

Keep it simple:

Mortgage backed securities failed because the complexity of these products made it impossible for investors to appreciate the risks they were assuming by holding these securities. The lesson that I take away from the downfall of the MBS market, which I apply to my own personal finances, goes back to a phrase which my grandfather used to say. Whenever I became overwhelmed my grandfather would always advise me to "keep it simple". His point was that unnecessary complexity is confusing and often limits our ability to understand the risks we are assuming. Since the collapse of the financial crisis I have applied this advice to my finances and investment decisions. Now, when I make investment decisions, I give preference to simple transparent investments that I understand completely.

I mentioned earlier in this essay that my first investments, made during the financial crisis, lost 35% of their value in one month. These investments were all mutual funds which I had purchased on the recommendation of a financial adviser. I made these investments prior to attending business school. At the time I didn't know how to read financial statements, and had no idea what companies these mutual funds were invested in. I blindly trusted these financial products, without making an attempt to fully understand how they worked and where the returns came from. The same can be said for many of the individuals and institutions who invested in MBS.

Since the financial crisis, the only investments I have made have been in certificates of deposit and stocks issued by audited public companies, whose business models I understand entirely. I am reasonably confident that I can assess the risks involved in these investments, and calculate their return myself. I suppose that the financial crisis has made me more cautious. It has also

taught me that we are all responsible for understanding where our money goes when we interact with the financial system and how these interactions with banks, pension funds and the like can expose us to risk.

So how do we apply the principle of simplicity to the mortgage market? I have a proposal for an alternative financial product that would provide liquidity to banks while allowing investors to keep it simple. Why not sell shares of individual mortgages to individual investors? As I mentioned before, when multiple mortgages were "pooled" by investment banks, this made it impossible for holders of MBS to fully comprehend their investment's risk. Evaluating these securities would have involved assessing the credit worthiness of thousands of mortgage holders; a process that would have been too time-consuming. So why not allow investors to buy a portion of individual mortgages. Like public companies, we could require homebuyers to submit to an annual audit to verify income and credit worthiness. Banks could then split these individual mortgages into several pieces and sell them off to individual investors. While this type of product wouldn't provide the type of scale that would interest firms on Wall St., it would allow investors to clearly understand the risk of a particular security. I won't be investing in the mortgage market anytime soon, but in the future I think most of us could benefit by following my grandfather's advice and keeping it simple.

Don't buy things you can't afford (or encourage others to do so):

Besides my grandfather, another person that I turn to for advice is my mother. One of the best pieces of advice I have received from her is that I should always try to live within my means. One of her simple, timeless adages is "don't buy things that you can't afford". This concept is another

lesson that I have learned from the financial crisis. I believe that the financial crisis was caused, in part, by our government's efforts to encourage low income citizens to purchase homes which they could not afford.

In addition to investment banks, the United States government played a key role in the financial crisis, mostly by encouraging banks to issue mortgages to people who could not afford them. The government has intervened in the mortgage market since 1932, with the passage of the Federal Home Loan Bank Act. [153] Since that time the government has, in one way or another, attempted to assist citizens with the goal of homeownership. More recently, in 1977, the Federal government passed the Community Reinvestment Act (CRA) which was aimed at insuring that banks serve the "entire community". This act requires banks insured by the government to issue a certain number of loans to low and middle income borrowers. After this act was passed banks could no longer evaluate mortgage applications on credit worthiness alone, but also had to consider the governments requirement of issuing a certain percentage of loans to low income borrowers. [154]

The United States government also attempted to increase home ownership by creating two government sponsored entities (GSE); Fannie Mae and Freddie Mac. Fannie Mae was created in the 1930s as part of then President Lyndon Johnson's New Deal. [155] Freddie Mac was created by congress in the 1970s. [156] Both of these institutions were designed to increase homeownership by

[153] Michael S. Carliner, "Development of Federal Homeownership Policy," *Housing Policy Debate* Vol. 9 (1998): 304
[154] Peter J. Wallison, "The True Origins of This Financial Crisis," *The American Spectator* February, 2009: 2
[155] James R. Hagerty "Assessing Fannie's Past and Future," *Wall St. Journal* September 3, 2012
[156] "Company Profile" Freddie Mac, accessed March 18th, 2013, http://www.freddiemac.com/corporate/company_profile/

creating a secondary market for mortgages. Essentially, the government created these two institutions to buy mortgages from banks so that banks would have the funds to issue more mortgages. Both entities explicitly state that supporting affordable homeownership is part of their mission. Since these two GSEs purchase mortgages issued by banks, they then assume the risk of default. This eliminates bank's incentive to deny home loans to risky borrowers. In the build up to the financial crisis this scenario led to very risky lending which ultimately destabilized the financial system.

The passage of the CRA and the creation of Fannie Mae and Freddie Mac have been identified as primary factors which fueled aggressive mortgage lending. By requiring banks to lend to low income customers, and then creating entities to provide the liquidity to fulfill this mandate and absorb much of the risk created by this activity, the government has encouraged the relaxation of lending standards. Ultimately this led banks to issue mortgages to people who could not afford them. Encouraging banks to serve the whole community is an altruistic goal worth supporting, but not at the expense of the stability of our entire financial system. The government should make attempts at ensuring that citizens have access to affordable housing. However government policy should not encourage citizens to stretch themselves thin financially. My mother always told me that I shouldn't buy things which I cannot afford. This is common sense wisdom that our government may want to consider.

What goes up must come down:

Sir Isaac Newton, the influential mathematician is quoted as saying "what goes up must come down". In economics and finance this principle holds true in regards to investments. One of the

most basic concepts that we learn in economics is the idea of supply and demand. One underlying assumption of this theory is that the price of a product will affect demand for that product. As the price of a product rises, demand should fall as fewer and fewer consumers are willing or able to purchase the product. Theoretically, there is a price point at which demand for a product will cease. This same logic can be applied to investments.

As I mentioned earlier, the collapse of the housing market is widely credited as one of the primary triggers which ushered in the financial crisis. The reason that the housing market collapsed was because the average price of existing homes had increased to the point where many buyers were no longer willing to participate in the market. This dramatic increase in price is mostly the result of a shift in the way that many viewed homeownership. In the run up to the financial crisis, and still today, homeownership was viewed by many as an investment, rather that the acting a satisfying a basic need.

After the dotcom bubble of the late 1990's, many investors learned the hard way that internet companies were not the golden investment many believed them to be. Many investors subsequently went searching for yet another investment that provided high returns. This time however, safety and the preservation of capital were paramount. Many investors believed that they had found this combination of high returns and safety in the housing market. The notion that investing in the housing market would produce high returns was based on observations of recent history. From 1997 to 2004 real home prices rose 52%.[157] The housing market was also seen as safe because any investment was backed by an actual asset. However, the belief in safety and

[157] Robert J. Shiller, "Irrational Exuberance," (New York: Broadway Books, 2005), 12.

high returns was also reliant on another critical assumption; that the value of existing homes would continue to increase in the future. It was this assumption that proved fatal to those investors who believed that they had finally found a perfect investment.

As I mentioned previously, the value of existing homes eventually fell as the bubble in the U.S. housing market burst. Those investors who had purchased homes in the hopes that they would continuously earn above average returns from their speculative activities were left holding assets that had lost value after all.

What would Sir Isaac Newton have thought about the collapse in the U.S. housing market? If he were alive today would he have put his excess money in housing with the hopes of earning a return, or would he have applied his observations of gravity to the financial markets? The lesson that I have taken away from all of this is simple. It is a rare, if not non-existent investment that will appreciate indefinitely. Common sense would lead us to the conclusion that all investments can be bid up to a price at which demand will cease. One could reason that this would be especially true of investments that are popular and have already experienced a dramatic run up in price. As Sir Isaac Newtown said "What goes up must come down." It seems that the laws of gravity are as relevant to the financial markets as they are to the physical world.

The take away:

There are many lessons that we can draw from living through the financial crisis and the recession that followed. The lessons that I mentioned above are just a couple of the most important lessons that I have taken away from the financial crisis and applied to my own life. After witnessing how financial complexity obscured investors understanding of risk, I will

always ensure that I chose simple investments which I can understand completely. After observing how our government's actions inadvertently led to reckless financial behavior by encouraging people to live beyond their means, I will always ensure that I don't buy things which I cannot afford. And when I make investment decisions I will not be lured by the false promises of investments that offer indefinite price appreciation with little to no risk. When making choices in the financial markets, we should apply the same logic and wisdom which we have learned from other facets of life. In finance, as in life, a little common sense goes a long way.

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Chapter 23

Moral Hazard Implication of Government Bailouts

Anders Kristiansen

Introduction

In this paper, I'll investigate how government intervention, especially bailouts, have worked in the recent Global Financial Crisis and what consequences this may have had for the economy. I'll start by looking at the essential theory behind a bailout and go back in history to look at how

governments have worked in previous crisis. My primary focus will be on the Great Depression and the New Deal implemented in United States from 1933.

There are different opinions by economists on how much the government should intervene in a crisis and try to rescue the economy. According to Laurence B. Siegel, government intervention mostly does not mitigate risk, rather it moves risk elsewhere and government intervention and bailouts creates moral hazard. Robert J. Shiller also thinks that government bailouts encourage moral hazard, but he also argues that bailouts of some sort are a necessary solution to the Global Financial Crisis. On the other hand Paul Krugman is of the opinion that government intervention is necessary to rescue the economy. I'll look at these opinions and explain how government interventions encourage moral hazard and examine the dangers of that.

After I've looked at these different opinions about government intervention, I move on to examine why the government let Lehman Brothers declare bankruptcy while the government offered aid to Bear Stearns before the bankruptcy of Lehman Brothers and also offered aid to AIG, Fannie Mae and Freddie Mac, Citigroup, and many other financial institutions. I'll investigate if this could have something to do with the problem of moral hazard.

At the end of this paper, I'll discuss the use of government bailouts and the consequences of these bailouts. First I'll look at how the government's actions had driven up debt, and second and probably most important I'm going to discuss the moral hazard implication of government bailouts.

What is a bailout?

The essence of a bailout is that a government, institution or individual offers a service to a tumbling business in order to prevent its failure. An often used explanation of a bailout refers to a parent who offers a late-night meal to a child who is complaining because he is hungry after he has refused to eat with the rest of the family at dinnertime (Shiller, 2008). A bailout can take many forms, e.g. a loan to troubled business, lowering interest rates, tax rebate etc.

A problem with a bailout is that it is quite unfair to those who act responsibly and do not get into trouble, and in the case of government or Fed bailouts it is often the taxpayers who suffer and needs to pay higher taxes to finance the bailout. Of course if the government or Fed doesn't have any losses no one will have to pay. One example of that could be if the Fed offered securitization for subprime loans and no foreclosures occurred. But the problem is that when the Fed or the government offers a bailout there often isn't a market for it, thus the Fed is taking a risk that is higher than the market will handle. Therefore it doesn't seem quite fair to expect that the Fed will not lose money on the bailout, and this means that someone will have to pay the bill, and this is typically the taxpayers. Some economists also argue that bailouts have another negative effect, namely they encourage moral hazard, but before I'll go further with that topic, I'll start by looking at a previous example of how the government in United States intervened in The Great Depression.

The Great Depression and the New Deal

There is no doubt that The Great Depression is one of the worst crises the world has ever experienced and as a response to the crisis the government and President Franklin D. Roosevelt introduced numerous programs through the New Deal, which had its background in Keynesian

policy (Siegel, 2009). I'll only go through some of the programs, and the first to mention is the Home Owner's Loan Corporation (HOLC), which was created in 1933 by the Congress with Franklin D. Roosevelt as the new president. The HOLC was lending to local home-financing institutions and took the riskiest home mortgages as collateral. The organization also created loans with a longer loan period up to fifteen years, and the loans were both fixed-rated and self-amortizing, which meant that the homeowners paid a steady monthly payment instead of a large payment at the end of the loan period. The same year the Glass-Steagall Act was created and this separated banks into two kinds: commercial banks and investment banks. Commercials banks accepted deposits and were sharply restricted in risk-taking. They had also ready access to credit from Fed, and most important, the deposit was insured by the taxpayers. Investment banks were only slightly regulated, since non-depository banks should not be subject to bank-runs. A year later the Federal Housing Administration (FHA) was created, and this organization went even further than HOLC by raising the maturity on the mortgages to twenty years. Also in 1934 the Congress introduced the Securities and Exchange Commission (SEC), a regulatory body with the primary task of making the financial sector work again. (Shiller, 2008)

As we will see later, economists disagree about whether the government should intervene when crisis arise, and this is the same case here when the New Deal is discussed. According to Laurence B. Siegel (Siegel, 2009) will we never know whether the Great Depression was relieved or prolonged by the New Deal, since government intervention in the economy is not a controlled experiment and there is a general consensus among economists including Siegel that it was World War II that ended the Great Depression and not the New Deal. In fact Siegel argues that many programs in the New Deal worsened the Great Depression instead of hastening its end.

However, not all economists agree with the explanation that it was WWII that ended the Great Depression, and Robert Shiller (Shiller, 2008) finds the policy responses to the Great Depression as inspiration for the solutions to the Global Financial Crisis; and this is clearly the opposite opinion of Siegel. According to Shiller, it was really important that not only the private sector went through major innovations, but that the public sector did as well. And it wasn't only a one man work, the entire population tried to understand the crisis and changed the infrastructure of the United States economy, and this resulted in the organizations that I've previously talked about. The New Deal is not necessarily the right solution for this crisis, but it is crucial to the solution that people are not afraid of thinking and acting on the same level of the New Deal reforms.

Thoughts about government bailouts

There are several opinions about government interventions and bailouts, and why governments should or should not intervene under economics crisis. In this section I'll discuss different views and explain how government intervention encourages moral hazard, and why this can be a problem for economic growth.

It is necessary for an economy to grow in order to be a well-functioning economy, and this can be done by private vices, but only to a certain point. However, private vices are self-controlled, as there is a chance of losing money, if you're too greedy and take on high risk. But this self-controlled behavior is going to diminish, when governments intervene and this is one of the main problems of using government bailouts because they encourage too much moral hazard. Thus, individuals may begin to act irresponsibly, since they are protected from the consequences of

taking higher risk by the government's rescue, and this is of course a big problem for the economy, since it encourages undesirable behavior. Thus, a common consequence of government interference in order to control business cycles and achieve a riskless society is that private vices no longer produce public benefits.

According to some economists (Siegel, 2009), risks are an important factor to produce economic growth. Thus, people should be willing to pay a price for risk and growth and instead learn to manage risk and not try to hide it, as a riskless society is impossible and infinitely expensive to obtain. But there is a major problem to avoid the government intervention, as people don't tolerate downturns, and since politicians are elected by the general public, many politicians are more willing to let the wishes of the public become true, than they are likely to do the right thing for the economy, and this encourage moral hazard. Thus, to avoid moral hazard it is necessary that the public becomes more tolerant of the ups and downs, especially downs, and not punish the politicians when they are making difficult but necessary decisions that sometime allow downturns to happen.

To stay at the same mindset, it can also be argued that downturns and recessions are good, as they "clean up" the markets, as the demand typically is shrinking in downturns, and then the markets regulate prices, wages etc. and only profitable firms will survive. This mindset is the basic concept of a free market and therefore the government should not intervene when downturns and recessions happen, since it is only sound for the economy to get rid of the unprofitable firms. Then the economy becomes more efficient and those that survive may come out stronger than before the downturn. This theory is often referred to "the cleansing effect of recessions". If we look at the Global Financial Crisis the most prominent firm that underwent the cleaning effect

was the investment bank Lehman Brothers, which declared bankruptcy on September 15, 2008. However, this bankruptcy created a massive panic in the financial markets, thus, the government took action, as I'll talk about later in this paper, but the intervention has only pushed the risk further away and not solved the problem.

But not all agreed with the thinking that government intervention isn't necessary, and one of the spokesmen for government intervention under the Global Financial Crisis is Paul Krugman. He is a spokesman for Keynesian economics and argued that the solution to the credit squeeze under the Global Financial Crisis was to put more capital into the financial markets and compared it to one of the solutions to the Great Depression, where the Reconstruction Finance Corporation recapitalized the banks by buying some preferred stocks. This recapitalization has to be at a certain size before it will have an effect on the economy, and may come close to a full temporary nationalization of a part of the financial sector. It is not a long-term goal, but Krugman argues that it is important to loosen credit, thus, purchasing stocks by the government could be a good instrument to help alleviate the crisis. A government intervention could also be the solution to the credit crunch. But bringing the credit markets back is not enough and according to Paul Krugman (Krugman, 2009), the economy needs some Keynesian fiscal policy to get back on track.

In the middle of the two mindsets we have some economists including Robert J. Shiller, who have concerns that government bailouts encourage moral hazard, but despite the negative consequences it may have; they find bailouts necessary as a short-term solution given the Global Financial Crisis. The politicians need to react to prevent some economic disaster that will create a long-term distrust of the economy and thereby recreate the Great Depression and the following

consequences, whereby World War II is the worst example. Here it can be argued that the governments in Europe didn't intervene enough, if you believe that World War II was a consequence of the Great Depression; since the war had its epicenter in Europe and specifically Germany. And in opposite to the missing reaction, the U.S. implemented the New Deal and this may have had a positive effect on the social consequences. Thus, economics crises have economic as well as social consequences. Hence, Shiller argues that we must act as an integrated society and protect everyone from major catastrophes and prevent existing problems from spreading further, and this should to be done despite the unfairness of bailouts to those who have acted responsibly and didn't receive them.

The missing bailout – Lehman Brothers

As I've talked about in the previous section, the government has the opportunity to let the market clean itself by the market actions or intervene by using bailouts when the economy undergoes a downturn. It is clear now that the government selected the last opportunity, namely bailouts, but in one case they remained passive, and that resulted in bankruptcy of Lehman Brothers on September 15, 2008.

I'm going to start with Lehman Brothers, and explain the story in short line. Lehman Brothers declared bankruptcy September 15, 2008, but the beginning of the end took place some days before (Financial Times, 2008a), then the stocks of Lehman Brothers fell dramatically and dropped 45% September 9, 2008, as you can see in Exhibit 1, after some reports cited that the Korean Development Bank (KDB) decided not to invest in Lehman Brothers, after rumors that KDB would take 50 percent stake in Lehman. On September 10, Lehman announced a loss of

$3,9B in the third quarter. The days after, the stock plunged further, and several banks discussed a potential takeover of Lehman, but the Fed signaled that it wouldn't use money from the taxpayers to help a takeover, despite the fact that the government and Fed helped JPMorgan Chase to fund its purchase of Bear Stearns a half year before. In the weekend before the bankruptcy, several solutions were discussed, but Barclays denied a potential takeover, as the government and Fed refused to help. However, the authorities continued to press for a private solution, but the other potential buyer, Bank of America, turned around and instead they bought Merrill Lynch for $50B. Thus, at the end, the only solution was for Lehman Brothers to declare bankruptcy.

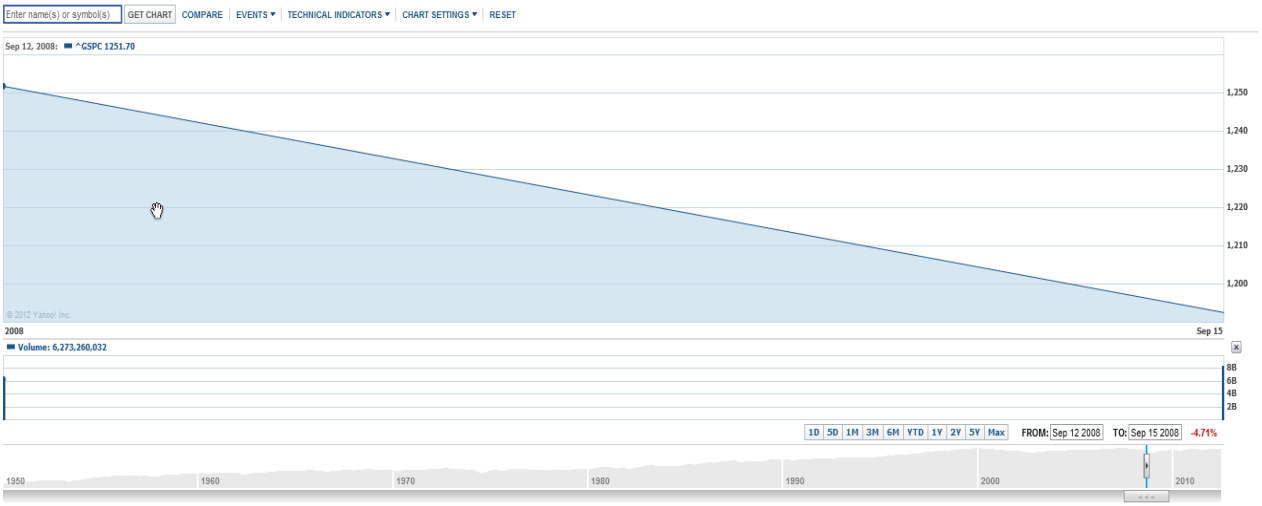
Exhibit 1 – Stock price of Lehman Brothers September 8-16

Source: finance.yahoo.com

But why didn't the government and the Fed rescue Lehman Brothers when they helped JPMorgan Chase to buy Bear Stearns and the day after the bankruptcy of Lehman, the Fed announced a

bailout for the insurance company, AIG. The explanation from Treasury Secretary Henry Paulson, Federal Reserve Chairman Ben Bernanke etc. was that Lehman Brothers had a lack of collateral, and this was the key problem, as the Fed could only make a loan if collateral supported it, and in this situation a loan would only be lending into a run (Valukas, 2010), and they wouldn't use the taxpayers money. They also believed that Bear Stearns posed a greater risk, and the markets were more ready for a failure of Lehman Brothers. However, I think that is quite difficult to say whether the markets were ready or not for a failure, but as it can be seen in Exhibit 2, the S&P 500 index plunged more than 4% the day of the declared bankruptcy by Lehman, and it is impossible to forecast how the markets would have reacted if the government let Bear Stearns declare bankruptcy, but it is certain that the bankruptcy created some form of panic.

Exhibit 2 – S&P500 index September 15



Source: finance.yahoo.com

Since it is quite difficult to measure whether the markets were ready or not, another explanation for the missing bailout arrived. It may be able to be explained by moral hazard, but that poses another question. If the reason for the missing bailout is that the government feared moral hazard, why did it save AIG only few days later? The explanation may have its background in both the explanation from the U.S. authorities and the fear of moral hazard. From the outside it looked like the U.S. authorities decided that it was necessary to have a black sheep to show the whole financial sector that the financial institutions cannot take infinitely high risks and the government cannot and will not rescue them all. Thus, U.S. authorities selected Lehman Brothers as the black sheep to teach the market a lesson about moral hazard, but why did they pick Lehman? The answer to that, may be found in the previous explanation by the U.S. authorities, namely that the cost and risk of letting Lehman Brothers declare bankruptcy was quite low compared to letting Bear Stearns or AIG declare bankruptcy, but even if this is the right answer, it seems quite odd that the government decided to rescue Bear Stearns by the same method that could have led to an agreement between Lehman Brothers and Barclays.

Bailouts during the Global Financial Crisis

Despite that the government let Lehman Brothers declare bankruptcy, they acted actively in the Global Financial Crisis and created Quantitative Easing 1 & 2, and before that the government helped JPMorgan Chase to fund its purchase of Bear Stearns. In this section I'll go through some of the most important actions from the government and discuss how these actions had an effect on the U.S. economy.

One of the first actions by the government was on March 16, 2008, when the Federal Reserve Bank issued a nonrecourse loan of $29B to JPMorgan Chase through acquiring mortgage backed securities, so that JPMorgan Chase could fund its purchase of Bear Stearns. It is notable that the market value of these MBS was $27B at November 26, 2008 (Barth, 2009).

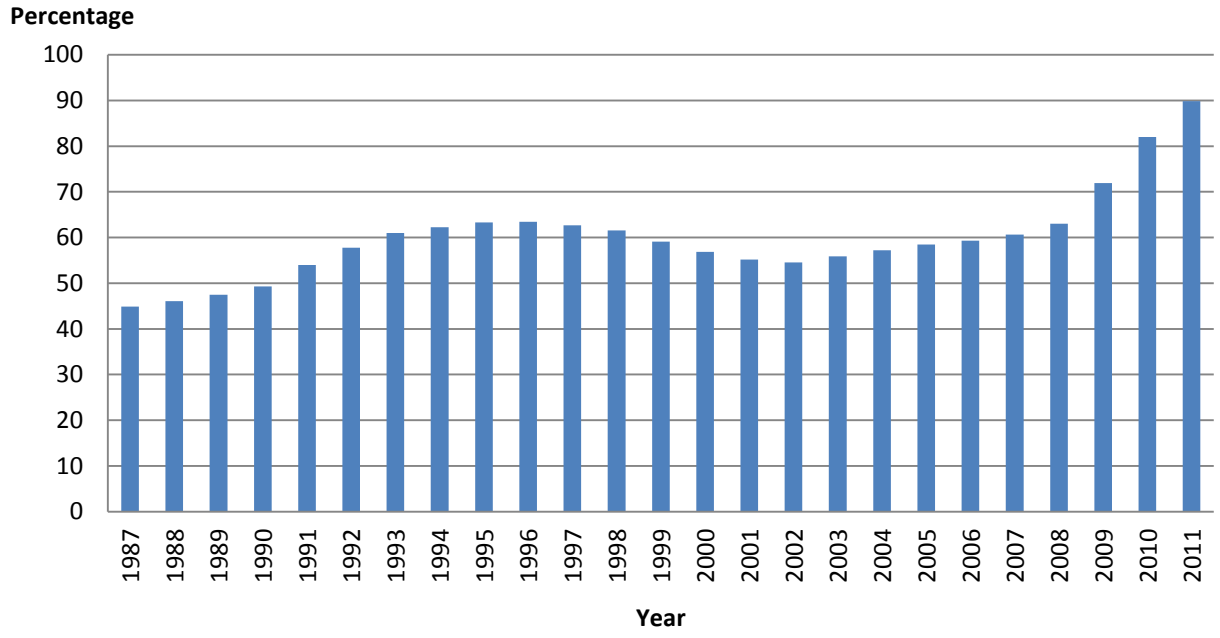
Only one day after the bankruptcy of Lehman Brothers, AIG received an $85B two-year secured loan from Fed, in exchange for warrants for a 79.9 percent equity stake in AIG. The Commercial Paper Funding Facility (CPFF) was created in October, 2008, and AIG was given a $58.7B credit line under CPFF. Also, on November 10, 2008, the Treasury purchased $40B of newly issued AIG stocks under the Troubled Assets Relief Program (TARP), which reduced the original loan to $60B. And I could continue with examples of offerings to AIG.

On November 25, 2008, the Fed announced the purchase program of obligations of the housing-related government-sponsored enterprises (GSEs) – Fannie Mae and Freddie Mac, and the Federal Home Loan Banks and MBS backed by Fannie Mae, Freddie Mac, and Ginnie Mae. This bailout was a part of the Quantitative Easing 1, and the purchase was up to $100B in debt obligations.

The last bailout I would like to mention is the Troubled Assets Relief Program (TARP), which was used to purchase the stocks from AIG and also Citigroup. This program allowed the Treasury to purchase up to $250B of preferred stocks in selected banks, and half of the amount was earmarked to nine of largest U.S. financial institutions. I could continue to remark on government bailouts during the Global Financial Crisis, but I'll move on to look at the consequences of these bailouts.

Before looking at the moral hazard implication of government bailouts, I'll start by looking at how these bailouts drive up the debt. The Global Financial Crisis have contributed to a significant increase in the federal public debt, as it can be seen in Exhibit 3, and this is partly due to the government bailouts, I've looked at before. The problem with this increasing debt is that, the bailouts were primarily used as a short-term solution to the crisis, and therefore the government has a big challenge for the future, since the recent crisis may have shown that some large and drastic changes need to be done. Of course the debt-to-GDP ratio has been increased due to the slowing growth in the U.S. economy, but the debt has also increased, and the latest QE2 has contributed to this. One may conclude that such an aggressively short-term intervention by the government has created a concern for some potential long-term solutions and decreased the liberty of action.

Exhibit 3 – Federal Public Debt-to-GDP Ratio (1987-2011)



Sources: U.S. Bureau of the Public Debt, Bureau of Economic Analysis

Was the Global Financial Crisis worsened by government bailouts?

As I've described, the government used many bailouts throughout the crisis, but this may have worsened the crisis and did not have the expected effect on the economy. And was it actually the government who created the crisis? This is a question I'll try to answer here at the end.

Using the interest rate to control the economy is a way in which the Fed and government are able to intervene, and before the crisis began the interest rate was quite low, and the low interest rate may have been a cause of the crisis, as this was a part of the creation of the housing bubble, since more and more people and institutions believed that the low interest would stay at that level, and then they took some more risk and the house mortgages became riskier and house prices increased. The Fed began to raise the interest rate, and this triggered the housing bubble to burst in 2006/07. Also the government-sponsored enterprises Fannie Mae and Freddie Mac failed, and were maybe one of reason why it ended so badly.

You also need to ask yourself whether previous bailouts had encouraged moral hazard, and this could have led to higher risks, if everybody expects to be saved if they fail. It is of course quite difficult to measure, but I think that, if you're insured you will always behave more irresponsibly than if you're not insured, and if this is right, then previous bailouts are one of the reasons why it went wrong.

Thus, the government and Fed intervention could have been one of the causes of the Global Financial Crisis, but did it also worsen the crisis? One of the responses to the crisis was the Economic Stimulus Act of 2008. This gave a tax rebate of over $100B to individuals and families, but as economic theory predicted, it didn't jumpstart consumption as was intended.

According to economic theory, consumers internalize the government budget constraint and therefore a tax rebate doesn't help, since the consumers know that they have to pay the money back in the future. This is known as the Richardian Equivalence. Milton Friedman's permanent income theory also shows that temporary tax rebates don't lead to significant increase in consumption. Another policy by the government was to decrease interest rates, but the most remarkable effect was the higher oil price and the depreciation of the dollar, and this didn't help the economy get back on track.

As we've seen, it is possible that the government and Fed were guilty in the creation of the Global Financial Crisis, at least to some extent, and the bailouts may not have helped, but what are we going to do now, since we have seen a lot of bailouts? Will this encourage moral hazard in the future, when the Global Financial Crisis is over? The government and Fed have may have tried to avoid moral hazard by letting Lehman Brothers declare bankruptcy, but I doubt that it is enough, as they have rescued many others financial institutions. One argument against the idea that moral hazard can be a problem in the future is that the crisis has hit the economy hard enough and people are afraid to take high risks. But that argument could also have been used before the Global Financial Crisis, since the world had experienced the Great Depression This problem will maybe be the same in the future, if the government intervention continues at the same level, and then people really don't care about the history.

I do not say that the government should not intervene at all, but instead the government has to implement some long-term solutions and try to prevent the crisis instead of acting as a fireman when the house is burning down. Of course it can be necessary in some instances to react

quickly, but in overall terms the politicians need to think long-term and not only be concerned about the next election. Then, hopefully we will not undergo the same crisis again.

Conclusion

I've now looked at the Global Financial Crisis, and the moral hazard implication of government bailouts. I have explained the term bailout, which is assistance from the government to a distressed company. As I explained, the problem with bailouts is that they encourage moral hazard. Bailouts were used during the Great Depression, as the New Deal was implemented, but not everyone thinks that the New Deal ended the Great Depression and instead they believe that it was World War II that ended it, while some economists argued that the New Deal could be an inspiration for the solutions to end the Global Financial Crisis.

In general, there are different opinions about government intervention and bailouts. Siegel argues that people have some self-controlled greed that creates economic growth, but when governments intervene, people begin to react irresponsibly and the government intervention encourages moral hazard. On the other hand, Krugman argues that the New Deal can be an inspiration for the solutions to the current crisis, and purchasing stocks by the government, as we actually have seen, could be a good instrument to loosen credit. In the middle we have Shiller, who thinks that bailouts are necessary now to rescue the economy, but he also sees the danger by using government intervention, since it encourages moral hazard, and we need therefore to be careful by using such instruments.

The government has been very active during the Global Financial Crisis, but in one case they remained passive, and let Lehman Brothers declare bankruptcy. The explanation from the U.S.

authorities was that Lehman Brothers had a lack of collateral, and this was the key problem, but the true explanation may have its background in moral hazard, as the U.S. authorities wished to create an example and show that they will not rescue them all.

As mentioned, several bailouts took place under the Global Financial Crisis, and one of them was the rescue of Bear Stearns, thus JPMorgan Chase could fund its purchase of Bear Stearns. This bailout was only one of many, and aid to Fannie Mae and Freddie Mac, AIG, and Citigroup are only some of the others. But previous bailouts may have caused the Global Financial Crisis, or at least to some extent, since bailouts could have encouraged moral hazard and then people were more willing to take risks. The intervention during the crisis may have also encouraged moral hazard, and I don't think that letting Lehman Brothers declare bankruptcy is enough to avoid moral hazard in the future. Therefore, the government needs to change the direction of its policy, and try to implement some more long-termed solutions instead of trying to save a burning house. Otherwise, we will probably repeat the same mistakes and undergo a new big crisis in the future.

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Chapter 24

Re-emerging of the Emerging Market Economies

Anne Brink Nandrup

Introduction

In order for a financial crisis to be named 'global' it must necessarily have an effect on the economies worldwide. This is indeed true for the current global financial crisis – or Great Recession, as many have named it. However, the impact of the crisis has varied substantially across countries. While the recession took a toll on the European and U.S. economies already in the second quarter of 2007, several of the so-called emerging market economies were not severely affected until a year later, giving brief support to the view, that emerging markets had largely decoupled from the demand of advanced economy trading partners and could now sustain growth rates (Blanchard et al. 2010). In effect, only a few of the transitional economies (e.g. China, India, and Indonesia) never experienced an actual recession in the sense of two consecutive quarters of negative growth in GDP.

With the progression of the European debt crisis and its global consequences, the world economy is currently still struggling to re-emerge from the largest shock in the post-World War II era, once again with several of the emerging market economies coming out on top – others at the very bottom. During the toughest period of the crisis (2008Q3-2009Q1) the real output of emerging market economies fell by some 4 percent, compared to the global economy declining 6 percentage points from peak to trough (Llaudes et al. 2010). However, as usual these average figures mask considerable variation across emerging market economies, as the authors'

descriptive statistics show that the worst affected quartile experienced a contraction of 11 percent, while the least affected could cash in an increase of 1 percent. Furthermore, Berglöf et al. (2009:2) notes, "*[...] the global financial crisis hit emerging Europe harder than any other region in the world*."

One might ask why the emerging market economies worldwide were affected in such different ways, and better yet: Can we take any important conclusions with us for future reference. After all, this is what the economical scrutiny of the crisis is about: understanding the underlying dynamics in order to avoid or dampen the impact of future recessions.

Emerging Market – and so what?

Today, some argue that the term Emerging Markets is outdated, but I will follow the terminology of the literature in the area and label the series of transitional (between developing and developed) economies Emerging Market Economies. Based on different criteria there are several suggested lists of emerging markets (EconomyWatch, 2010), but as many of my references use different versions, the exact definition of the term is somewhat fluent throughout this paper. However, there is a general consensus that the transitional economies can be crudely divided into five regions: Asia (besides Japan), Latin America, Africa (where South Africa is often the sole participant), the Middle East and emerging Europe. But even inside these groups there are large differences across economies, as will be discussed later. Nevertheless, emerging market economies as a whole are becoming increasingly more important in today's global economy. In order to focus the scope of this paper, I will mainly discuss economies from emerging Europe, East Asia and Latin America.

Over the past few decades the world economies have become increasingly interdependent. Capital flows throughout the advanced economies have long had a strong linkage, but this bond is now stretched to include many emerging market economies and several developing countries as well (Mohan 2009). Besides financial integration, outsourcing of divisions, or even entire production lines has spurred a new approach to trade: "*[It] became much more than a simple exchange of merchandise across borders. It developed into a constant flow of investment, of technologies and technicians, of goods for processing and business services, in what has been called the "Global Supply Chain".*" (Escaith 2009:1). This means roughly speaking that a toxic asset crisis involving mainly U.S. financial institutions and other advanced economies may affect the emerging market economies through two channels: A collapse in trade and a sharp decline in capital inflows (Blanchard et al. 2010, Krugman 2009). Correspondingly Llaudes et al. (2010) find that emerging market countries more open to trade and with greater financial linkages were more affected by the crisis and that increased pre-crisis vulnerability caused more severe output contractions and widening of sovereign spreads.

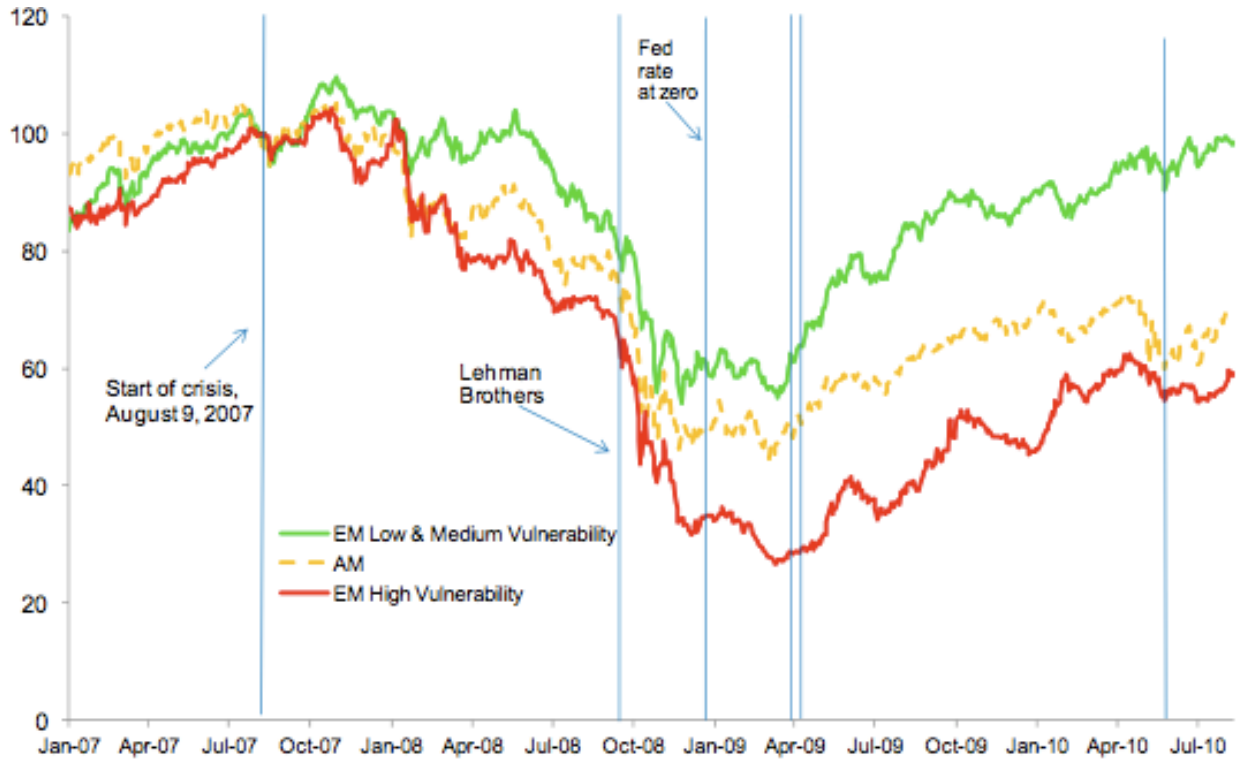
The impact of the crisis

As might be considered trivial knowledge by now, the crisis in the U.S. subprime mortgage sector unfolded in July 2007 and quickly spilled over to other parts of the financial system and the rest of the advanced economies. Following the seizing up of the credit markets I would have expected the emerging market economies that for the most part depend heavily on foreign investment, to be severely set back. This did not happen immediately, however. The development of the crisis can be divided into three phases (Llaudes et al. 2010, Berglöf et al. 2009). Taking a look at the median stock prices of the emerging markets economies (EM)--classified by

vulnerability measures--versus the advanced economies (AM) as illustrated in Figure 1 below, it is clear to see why.

Figure 1

Median stock market indices, medians (Llaudes et al. 2010).



Note, August 9, 2007 = 100.

Llaudes et al. (2010) have divided the emerging market economies into three groups based on measures of their pre-crisis (spring 2007) vulnerability[158]. Many of the European emerging

[158] Based on IMF's semi-annual vulnerability exercise for emerging market economies (VEE).

market countries lie in the group labelled high vulnerability. Following the authors, I call the three phases: Decoupling, re-coupling and re-decoupling.[159]

Decoupling (– September 2008)

From the collapse, which was apparent in July 2007 until the failure of Lehman Brothers Holdings Inc. September 15 2008, the emerging market economies largely avoided adverse effects of the crisis. As Figure 1 illustrates, the stock market indices of the low and medium pre-crisis vulnerability countries fell considerably less (about half as much) compared to the corresponding indices of the advanced economies. Also, capital inflows largely held up (Berglöf et al. 2009, Kamil et al. 2010). Thus, indications of a decoupling of several emerging market economies from the demand of their more advanced trading partner economies were present.

Re-coupling (September 2008 – April 2009)

Following the collapse of Lehman a general sense of panic spread, credit markets tightened up, and (in emerging markets, in particular) risk premiums surged, causing bank-lending flows to plummet (Berglöf et al. 2009, Kamil et al. 2010). Only in Latin America did outstanding foreign banks' claims increase slightly during this period. As illustrated in Figure 1, the difference in the stock market decline across the emerging markets of different vulnerabilities and the advanced economies disappeared. Real output and growth started to decline however, the timing and severity of this decrease depended largely on the volatility measure of the economy as illustrated later.

[159] These phases are more or less equivalent to Berglöf et al. (2009): Decoupling, The crisis hit, and Tentative stabilisation with rising costs.

Re-decoupling (April 2009 –)

Stability returned in the third phase, and from April 2009 financial indicators, along with the median stock indices shown in Figure 1, again pointed upwards. By May 2010 the low and medium vulnerability emerging market economies were almost at their outset in 2007, also the high vulnerability countries have gained ground on the advanced economies. However, the ripple effect of the crises begun to spread to the households and corporate world of emerging Europe including rising unemployment, defaults on loans and failure of businesses.[160]

In the following section I will present my view of the two elements, which in my opinion channelled the effect of the Great Recession to the emerging market economies – namely, a trade collapse and dried out credit markets, along with a discussion of the implications of these channels on the IMF volatility measure of the economies.

Capital (in)flows

Taking the view of consumption smoothing over lifetime applied at the level of countries, one would suggest that they should run current account deficits in the early stages of the country's life cycle: Because a less developed country should be relatively more labour abundant compared to capital the marginal product of capital might very well be higher than the world interest rate. Thus, the optimal strategy of these emerging market economies should be to "*[…] import capital, run current account deficits, and increase their growth rate through higher investment.*" (Prasad 2009a:30).

[160] Llaudes et al. (2010) suggest that the trend is continuing through the wake of the European debt crisis as the stock market indices of emerging market economies have declines less than the corresponding of the advanced economies – regardless of vulnerability, as indicated by the last line in Figure 1.

Obviously, China is the greatest exception to the rule with a current account surplus of USD 440 billion in 2008 (Prasad 2009a). A number of other Asian economies including Taiwan, Hong Kong, Malaysia, and Singapore also have a substantial current account surplus as a percentage of GDP, and these also seem to be among the countries with the most robust domestic demand (Prasad 2009a). China is often accused of currency manipulation because of its rising trade surplus and accumulation of foreign exchange reserves. Ironically, the manipulation of the Chinese Renminbi may have been a contributing factor to the U.S. housing bubble. Prasad (2009b) argues that it has provided American consumers with cheap goods as cheap financing hereof, as the excessive capital inflow caused an artificial low level of the U.S. interest rate, which I agree on.

Financial integration increases the vulnerability of economies in several ways. When borrowing from foreign-owned banks, there is a risk of the banks withdrawing assets to their primary countries once credit markets tighten up. Especially cross-border lending that is typically funded in international markets is highly sensitive to movements in the global banking sector. Also, loans in terms of foreign currency add another aspect of exchange rate vulnerability to the equation.

Countries such as emerging market economies should, as explained by the life cycle theory above, be very dependent on growth in foreign loans in order to sustain growth in GDP. Figure 2 shows the pre-crisis net capital inflows to emerging markets in the three regions as well as Russia: Latin America, East Asia, Central and Eastern Europe.

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Figure 2

Net capital flows to emerging markets: percentage of GDP (Berglöf et al. 2009)

Note: Latin America includes Argentina, Brazil, Chile, Columbia, Mexico, Peru and Venezuela. East Asia includes China, Indonesia, Hong Kong, Korea, Malaysia, Philippines and Thailand. CEE includes Bulgaria, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia.

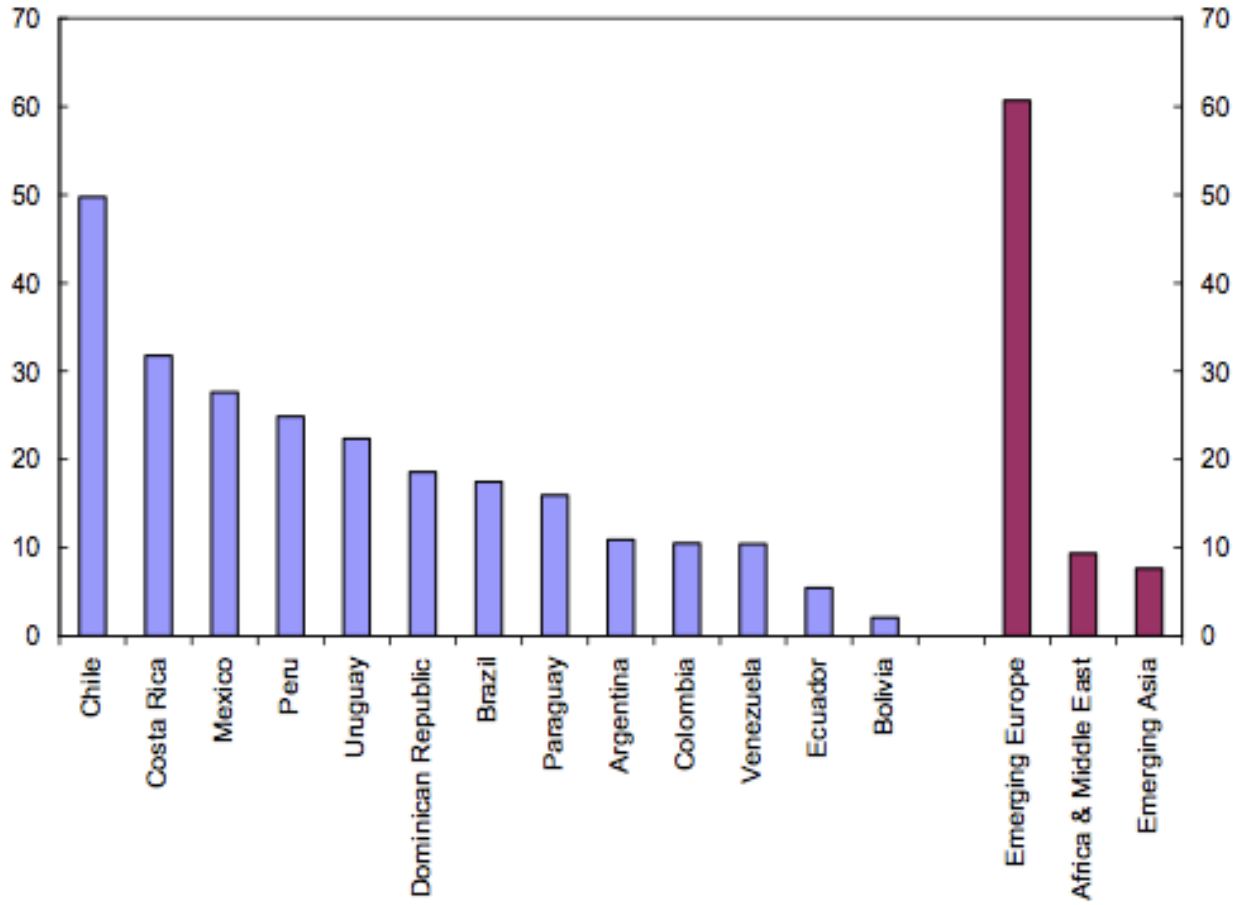
From Figure 2 it is clear that emerging Europe received large net capital inflows in the pre-crisis period compared to the rest of the emerging market economies. However, since 2005 foreign banks' lending to Latin America had increased sharply and was in 2008 representing a significant source of funding for both companies and households (Kamil et al. 2010)[161]. Foreign banks' lending as a percentage of GDP in 2008 is shown in Figure 3 below. Still the median share of

[161] Note, that indirectly extended credit from foreign banks through local affiliate branches does not in itself represent a balance of inflow and therefore this will not show in Figure 2 of net capital balance. As illustrated in Figure 4 a large part of Latin American credit is through this indirect channel.

foreign banks' lending to emerging Europe is significantly higher than the Latin American countries borrowing the most, e.g. Chile. Meanwhile, Figure 2 shows a declining net capital inflow to emerging Asia from 2004-2006, keeping a constant low level thereafter, corresponding to a very low median share of foreign banks' lending in 2008

Figure 3

Foreign banks' lending anno 2008, percentage of GDP (Kamil et al. 2010)

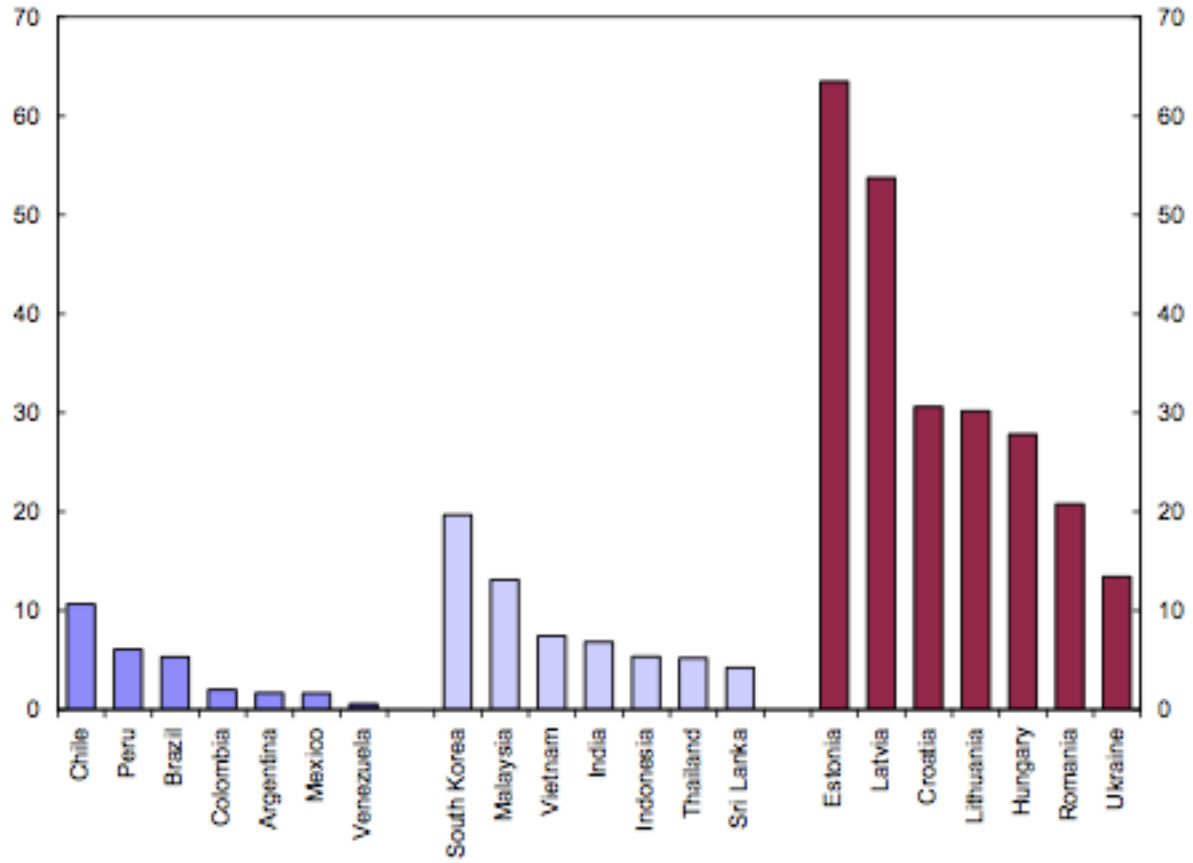


Includes cross-border lending and lending by foreign-owned local affiliates in each country/region.

Furthermore, there is a great difference in the involvement of the foreign banks across the regions. In Latin America two thirds of all foreign banks' lending took place through local affiliates compared to 50 percent in emerging Europe and 37 percent in East Asia (Kamil et al. 2010). As local affiliates mostly finance their lending through domestic deposits as opposed to emerging Europe, where the dominant part of the inflow of new credit is financed through cross-border flows from parent banks, they are not as vulnerable to a credit crunch in the parent banks' country. Emerging Asia had a slightly higher rate of cross-border capital as a share of GDP than Latin America in 2008. Figure 4 illustrates this relationship, where foreign banks' cross-border lending to the banking sectors of 21 selected countries from the three regions is shown.

Figure 4

Foreign banks' cross-border lending to domestic banking sector in emerging markets,



2008 (Kamil et al. 2010).

Includes foreign banks' overseas lending to domestic-owned banks and foreign-owned local affiliates in each country.

As argued above, dependence on foreign investment in itself raises the vulnerability of an economy. Cross-Border lending increases this measure; besides being highly sensitive to movements in the global banking market, it often takes place in foreign currency (Kamil et al. 2010). Krugman (2009) argues that these cross-border investments acted as a transmission mechanism: Prior to the failure of Lehman Brothers many saw large flows of cross-border

lending as a measure of risk diversification. Unfortunately, a large part of the financial integration came from investments in highly leveraged firms intensely (and indiscriminately!) seeking high returns.

The carry trade[162] was a specific point of vulnerability within the emerging market economies. As credit channels dried up and the funds from low-interest nations were cut off, the currency of these low-interest countries soared compared to a plunge in the emerging market currencies, as net capital here was no longer positive. The carry trade loans were largely taken out in foreign currency causing the value (in terms of domestic currency) of those to escalate and the domestic firms took great losses making the emerging markets the "*[…] second epicentre of the crisis*" (Krugman 2009: 177). These conjectures are in line with the findings of Kamil et al. (2010), who argue that Latin America's greater resilience toward the crisis was indeed caused by its relatively low share of cross-border lending. Compared to Latin American countries, European emerging market economies were more severely afflicted. Also, the foreign banks operating in Latin America and emerging Europe have different characteristics (Kamil et al. 2010). Spain and U.S. being the dominant players in the Latin American banking markets have more long-term commitment in this region while primary foreign banks in emerging Europe are European banks (e.g. from Austria, Belgium, and Italy) that only have a small share of the Latin American market. Long-term commitment combined with local affiliate lending and small cross-border lending caused the credit extended to Latin America to never decrease during the worst period of the crisis even though the growth rate decreased considerably (see Figure 5a). Latin American

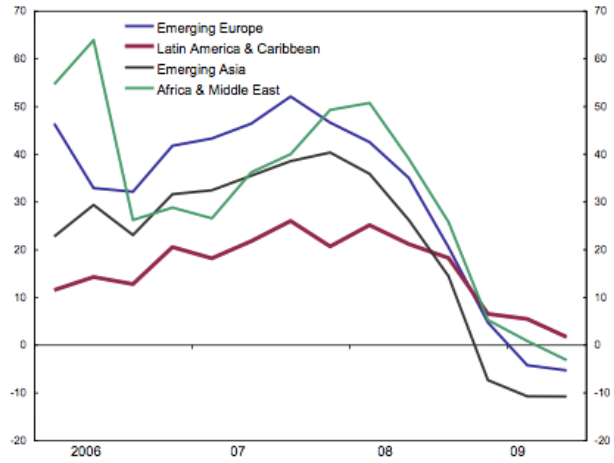
[162] Carry trade is a form of cross-border lending, which involves borrowing in countries with low interest rate (e.g. Japan) and lending to economies with higher interest rates.

cross-border lending actually decreased more than cross-border lending to emerging Europe, but because of its relatively small share of total foreign banks,' lending continued to grow more. Extended credit to emerging Asia was affected the most as illustrated by Figure 5a and 5b.

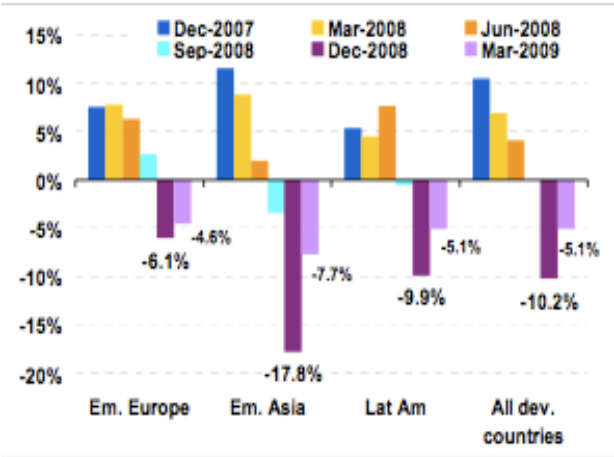
Figure 5

Capital flows and foreign banks' lending.

5a. Growth in foreign banks' lending, annual percent change (Kamil et al. 2010)



5b. Growth in cross-border bank lending, quarter on quarter (Berglöf et al. 2009)



Note: both graphs are exchange rate adjusted. Foreign banks' lending includes cross-border lending and lending by foreign-owned affiliates.

Trading with Emerging Markets

With foreign banks' lending to emerging market economies declining severely, trade finance is bound to decrease as well. The contraction in the value of trade finance during the crisis was accompanied by a sharp increase in trading prices (because of increasing risk premiums) (Menichini 2009). This hit emerging market economies threefold: In general, risk premiums rose

considerably more in emerging market countries (Berglöf et al. 2009), transitional economies relied heavier on trade finance to support imports/exports (Menichini 2009), and they had less robust domestic demand, thus export growth is crucial in order to maintain growth in GDP.

As in the case of financial integration, the greater interconnectedness among economies in terms of trade tends to increase the vulnerability of an economy. "The Global Supply Chain" introduced in the first section, along with decreasing communication and transportation costs, have certainly created growth opportunities for many transitional economies – especially those with reasonable infrastructure and an equitable political structure. However, a chain is never stronger than its weakest link, and emerging market economies have an aggravated risk of propagation of these weaknesses.

On top of the adverse effect of trading finance, Escaith (2009) argues that a structural change of trade elasticity (towards a larger elasticity), a composition effect (imports fell more than GDP causing the elasticity to rise) and inventory effects contributed to the trade collapse of the global financial crisis. The latter effect is the most important when speaking about emerging market economies. As businesses in general tries to keep their inventory as small as possible, considering sales plans and willingness towards risk, at the same time they try to persuade suppliers to maintain large stocks in order to be able to supply with short notice. Thus, globally a significant level of inventories is present and in the face of a credit crunch and/or a demand contraction each firm will try to run down inventories causing a complete stop of orders to the supplier upstream (Escaith 2009). Thus, inventories magnify the adverse effects of a demand shock or credit crunch.

Large international corporations have mainly outsourced their production lines to low cost source countries, so when production is interrupted due to a credit crunch (and further stalled by inventory effects in the primary sales markets), the emerging markets are severely affected. Adding insult to injury, exports from transitional economies may depend heavily on imports from more advanced trading partners, which had slowed down because of the lack of trade financing, causing further depression of exports and even more interruption of production (Menichini 2009). To sum up, emerging market firms face critical risks (vulnerability); because they rely greatly on trade financing and are severely affected by disruptive events, they are considered more exposed to defaults in the supply chain. Along this line Llaudes et al. (2010) estimates that emerging market economies experienced an additional decline of 1.5 percentage points of real output per percentage point fall in domestic demand in their advanced economies trading partners.

Following the collapse of trade in connection with the global financial crisis, the world has seen a rise in protectionism, which is not likely to decrease on a short-term basis due to the relatively high unemployment in the advanced economies (Escaith 2009) – and a European debt crisis. The notion of "buying domestically" has gained ground and the global supply chain is suffering. However, the collapse is not the only contributing factor to the deglobalization trend. The green anti-pollution movements, rising oil prices and general structural problems of decentralizing complex processes are challenging the global supply chain as well. These increasing objective and subjective transaction costs will, according to Escaith (2009), eventually hurt emerging markets, as future supply chains may be significantly shorter, however Llaudes et al. (2010) finds no evidence of this. Lately, some advanced economy corporations have announced that they might bring parts of their production apparatus home, but in my opinion this could easily be

nothing more than an attempt to quickly improve their image during hard times with high domestic unemployment.

Vulnerability as an explaining factor

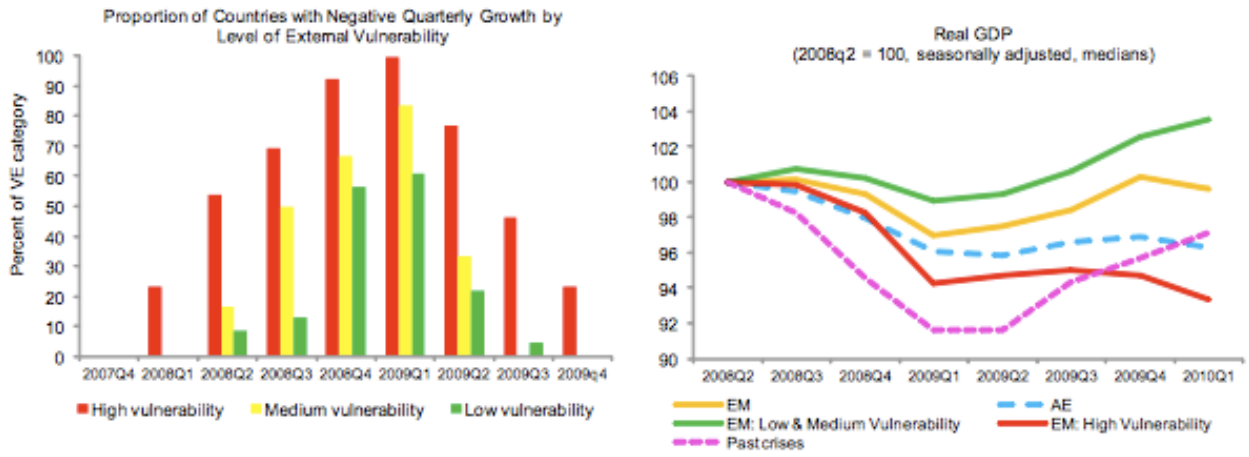
At the time of re-coupling (September 2008, where the emerging markets suddenly started to feel the severe consequences of the Great Recession) it was not clear whether transitional economies that had invested in improving fundamentals prior to the crisis would benefit from these investments. However, Llaudes et al. (2010) finds evidence that markets indeed did discriminate across emerging market economies. Herein lies an important difference in my opinion compared to previous crises affecting emerging markets. In recent years, both the Tequila-crisis of Latin America in the mid-1990s and the 1997 Asian crash started out as relatively insignificant events in a single country (Mexico and Thailand, respectively) but quickly spilled over to the neighbouring countries and eventually dragged the entire regions down. Krugman (2009) presents one explanation: nervous investors were not able to (or simply did not) distinguish between emerging market economies. The discrimination based on sound fundamentals that happened this time should in my opinion provide incentive for emerging markets to invest in their own economies instead of focusing entirely on the "great exporting race". In extension of this, initiatives promoting robust consumer driven domestic demand should be welcomed in order to secure resilience during future economic downturns.

Figure 6 illustrates the impact of the crisis on output based on the vulnerability of the emerging market countries. Here it is clearly illustrated, that countries with high vulnerability (e.g. most of emerging Europe) were affected earlier, longer, and more severely in all quarters compared to

low and medium vulnerability economies. Llaudes et al. (2010) estimates than on average the least vulnerable economies contracted 6.5 percent less than the most vulnerable – even when controlling for openness to trade and global financial integration. As discussed earlier, countries with high vulnerability were in many cases countries with large pre-crises booms fuelled by foreign capital inflows. Likewise, Figure 6 verifies the pattern suggested in Figure 1 as well, namely that low and medium vulnerability economies re-emerged faster from the crisis than the advanced economies.

Figure 6

Impact of the global financial crisis on output (Llaudes et al. 2010)



As one might expect, pre-crisis reserve holdings are suggested to cause more room for manoeuvring the adverse effects of the trade collapse and credit crunch. Llaudes et al. (2010) finds a significant negative (non-linear) relation between reserve holdings – one of the

components of the vulnerability index – and output loss. Thus, higher pre-crisis reserve holdings had a significant payoff in terms of lower output loss, however this is decreasing with the amount of reserve holdings.

Conclusion

In general, emerging market countries were affected deeply by the global financial crises and its current repercussions, which temporarily ended the spurring suggestions of a decoupling of the transitional economies from their advanced economy trading partners. However, the impact of the crisis experienced by the emerging markets differed considerably. Berglöf et al. (2009) noted that emerging Europe was among the most severely affected regions of the world, while Kamil et al. (2010) found that Latin America showed great resilience with Prasad (2009a) suggesting a similar pattern for Asia. However, I believe that emerging markets are no longer lumped together in regions in the minds of the investors like previous crises have indicated. Instead the reason why countries in the same region are affected similarly may very well be that they have approximately the same characteristics in terms of trading partners, economic fundamentals and borrowing patterns. Thus, investors are able to access this information and discriminate between the emerging markets based on their perceived vulnerability (Llaudes et al. 2010). Emerging market economies are in general subject to increased vulnerability because they are (and should be) highly dependent on foreign banks' lending and trade finance in order to sustain growth in GDP. However, evidence suggests that a smaller amount of cross-border lending is prudent in terms of resilience towards the adverse effects of the Great Recession. Also, the relatively low production costs in emerging countries have placed them in the upstream production end of the global supply chain, resulting in increased vulnerability and dependence on advanced economy

trading partners. Furthermore, a smaller external demand shock to these trading partners may very well be magnified in the transitional economies because of inventory effects.

Based on the analysis and discussion presented here, a suggested way forward for the emerging market economies in my opinion is to invest and improve fundamentals and take political actions in order to develop robust domestic demand. But in order for this to be welfare improving it must be driven by private consumption. The evidence presented indicates that economies, which already initiated these programs prior to the crisis, were far better at manoeuvring the adverse effects – even when compared to advanced economies and previous crises emerging market economies. Thus, it seems that we currently are on the right path towards rebalancing the global economy.

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Chapter 25

The Global Financial Crisis: A Political and Economic Approach

Carol Blenda Reyes Avila

Introduction

The most recent financial crisis has badly affected the global economy, including individuals, businesses, and governments. Each entity has suffered its impacts in one way or another (Burger, Coelho, Karpowicz, & Tyson 2009). Since it began, the financial crisis has posed a significant threat to world markets. Countries are trying to overcome the adverse effects of this crisis but have failed to recover their positions due to severe recession and worsening economic conditions (US Department of the Treasury 2012). As we have seen, authors, economists and financial analysts have discussed various reasons for the crisis; the huge downturn in the financial and housing mortgage sector seems to have been the biggest trigger of the crisis (Donath & Cismas 2009). The global financial crisis has hit almost all sectors of the economy, not only hampering industrial growth in countries but also creating serious challenges and issues for governments and regulatory bodies (Independent Evaluation Group 2012).

This paper provides a comprehensive review of the recent global financial crisis, which has shaken the world economy in a short period of time and reduced businesses and governments to helplessness in this recession period. The paper begins with a brief history of the financial crisis: what caused the financial crisis, where it originated, and what economists believe about it. Later sections discuss the different aspects of the global financial crisis, including its main impacts on

the different sectors of the economy, the strategies that businesses and governments have been adopting to overcome its consequences and detrimental impacts, and the potential impacts of this financial crisis in both the near future and the long run.

History of the Financial Crisis

In 2001, the Federal Reserve in the US began cutting interest rates dramatically to encourage borrowing, which spiked consumption and investment spending. Lower interest rates worked their way into the American economy, and the real estate market began to grow. The number of real estate properties sold, and their prices increased dramatically from 2002 onwards. At the time, the rate on a 30-year fixed-rate mortgage was the lowest it had been in nearly 40 years. Subprime lending and similar mortgage originations in the US increased from less than 8% of all mortgages in 2003 to over 20% in 2006 (Exhibit 1).

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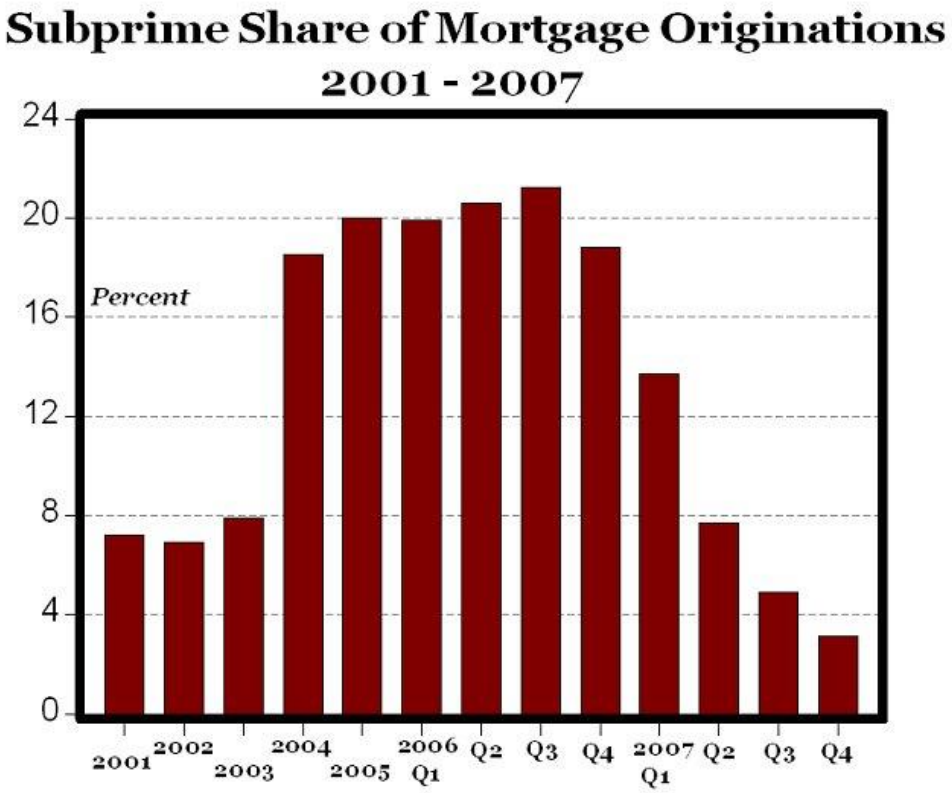
Exhibit 1



Source: Insider Mortgage Finance

The crisis was exacerbated with the bursting of the US housing bubble and high default rates on subprime and adjustable rate mortgages, beginning in approximately 2005–2006. For a number of years prior to that, declining lending standards, an increase in loan incentives, and easy initial terms for borrowers, followed by a long-term trend of rising housing prices had encouraged people to acquire risky mortgages in the belief that borrowers would be able to quickly refinance on more favorable terms.

In late 2006, the largest banks, insurance companies, and other financial institutions in the US noticed a substantial decline in their sales and profitability (Magdoff & Foster 2009). This downturn in financial performance initially was barely discernible, but it increased dramatically over time. The crisis began in the financial sector of the US before spreading to world markets in a considerably short period (Corker 2012). The global financial crisis, after brewing for a while, started to show in the middle of 2007, before accelerating in 2008. Around the world, stock markets showed large losses and financial institutions collapsed or they were bought over. Governments had to come up with emergency rescue packages to bail out their financial systems, which were failing at record speed.

Housing Finance, Mortgage, and the Subprime Mortgage Crisis

Housing prices peaked in December 2006, when the Federal Reserve was raising short-term interest rates, and then declined by 30% over the subsequent 26 months. (Shefrin, 2009). An estimated 8.8 million homeowners had zero or negative equity as of March 2008, that is, their homes were worth less than their mortgages. The situation produced a "walk away from home" effect, despite the credit rating impact. Increasing foreclosure rates and the unwillingness of many homeowners to sell their homes at reduced market prices significantly increased the supply of housing inventory.

Many economists say that the lack of regulation on financial derivatives led to the financial crisis. In the US, the crisis was mainly triggered by the collapse of financial derivatives known as mortgaged assets, which include prime (borrowers with good credit history) and subprime (borrowers with weak credit history). The Global Financial Crisis was mainly due to the overinvestment of the general public in housing finance and mortgage contracts. Before this

financial crisis hit the US market, the housing mortgage and finance market was dominated by a few large commercial banks (Donath & Cismas 2009). They were in stiff competition with local and international banks and financial institutions that offered these facilities at comparatively lower interest rates than did banking institutions (United Nations Organization 2009). In order to contend with these competitors, the local banks in the US reduced their interest rates and made their terms for housing and mortgage facilities more flexible (Burger, Coelho, Karpowicz, & Tyson 2009).

The real estate and financial crisis, caused by a significant increase in mortgage delinquencies and foreclosures, had repercussions for banks and financial markets globally, and weakened the global financial system. In the past years, an estimated 80% of US mortgages held by subprime borrowers were adjustable-rate mortgages. After house prices reached their peaked in the middle of 2006, the steep decline that followed made refinancing exceedingly difficult. Adjustable-rate mortgages began to reset at higher rates, resulting in increasing mortgage defaults. Financial firms holding securities backed with subprime mortgages were left with securities with no value. Ultimately, credit around the world was tightening as the capital in many banks and US-government-sponsored enterprises was losing its value.

The crisis can be attributed to a number of factors: the failure of homeowners to meet their mortgage payments, adjustable-rate mortgages resetting along with the extensive lending, overbuilding during the boom period, international trade imbalances, inappropriate government regulation, and speculation. In 2008, the mortgage industry played a crucial role in the recession when an estimated 1.5 million homeowners defaulted on payments and when they were driven to foreclosure by 2009.

After the subprime mortgage crisis spiraled out of control, nearly five million jobs were lost, together with a massive loss of wealth and depressed consumer confidence. Several big companies at the heart of the US financial system, such Lehman Brothers and AIG, faltered. In the past years, the rate of home foreclosures had risen dramatically due to defaults on residential mortgages, resulting in the overall meltdown of the US economy and subsequently other countries.

Bankruptcy of the Largest Banks and Insurance Institutions

As the crisis developed, credit markets froze, banks closed their lending doors to each other, and banking companies and financial institutions had to sell their short-term and long-term securities to pay for the loans, resulting in a significant decline in the volume of their deposits and long-term assets (Magdoff & Foster 2009). When they found no other means of funding those loans, they had to request bailouts from the government (Corker 2012). By September 2008, Lehman Brothers declared bankruptcy without a rescue or bailout, creating fear that the government would allow the financial sector to collapse.

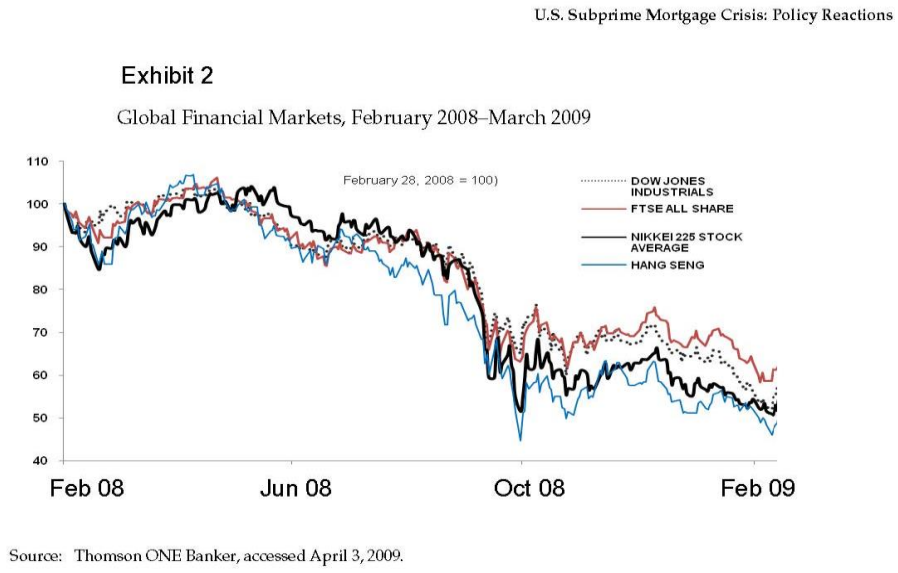
American International Group (AIG), an insurer, and Fannie Mae and Freddie Mac, two mortgage-finance agencies were at the core of the crisis. Fannie Mae and Freddie Mac had owned, guaranteed, and helped securitize about half of American mortgages. These institutions were judged as essential to a healthy housing market; however, their numbers prompted government intervention, which came as a massive bailout.

Bailout of the Financial System

The Fed decided a few days later to save AIG with an $85 billion emergency loan in exchange

for an 80% stake in the insurance company, in an attempt to stop the domino effect that was sweeping through the global financial markets (Exhibit 2). Fannie Mae and Freddie Mac, two government-sponsored enterprises (GSEs), were nationalized by the US federal government, transferring $5 trillion of mortgage debt from private to public hands.

Exhibit 2



The Treasury Department implemented a key step in October 2008, with a $700 billion financial bailout program called TARP (Troubled Asset Relief Program). This plan also included a ban on short-selling of financial stocks. Consequently, financial institutions like Citigroup, Bank of America, JP Morgan, Wells Fargo, Goldman Sachs and Morgan Stanley, among others, lined up to receive a portion of TARP (see Exhibit 3).

Exhibit 3

Exhibit 3 TARP Funding Disbursement (as of February 18, 2009)

Name	Bailout (in $ millions)
Funds Committed under Bush Administration	**$379,800**
Funds Disbursed to Financial Firms	281,000
of which:	
Citigroup	50,000
Bank of America	45,000
AIG	40,000
JPMorgan Chase	25,000
Wells Fargo	24,800
Goldman Sachs Group	10,000
Morgan Stanley	10,000
PNC Financial Services	7,579
U.S. Bancorp	6,599
SunTrust	4,850
Capital One Financial Corp.	3,555
Regions Financial Corp.	3,500
Fifth Third Bancorp	3,408
American Express	3,389
Others	43,320
Pending	54,000
Automakers[a]	23,400
Other (including some funding for TALF)	21,400
Funds Allowed under the Obama Administration	**$320,000**
TOTAL	**$699,800**

Source: Adapted by casewriter based on data from the U.S. Treasury Department.

Automakers include General Motors, Chrysler, and GMAC, General Motors' financing arm. The automakers requested additional funding in February 2009.

According to "The Economist", by 2009, the state owned about $170 billion of shares in banks. With the $160 billion of equity invested in the toxic trio, this number rose towards $300 billion. Including other kinds of help, such as loans, the total pumped into the three firms eventually reached $800 billion, or 6% of GDP. See Exhibit 4.

Exhibit 4

Black holes come in threes

State assistance, $bn

	Distributed	Maximum available
AIG		
Direct loans	20	35
Secured loans	*nil*	9
Commercial-paper lines	12	15
Loans to special-purpose vehicles	44	53
Equity stakes in two subsidiaries	25	25
Equity stake in AIG	43	70
Total	**144**	**207**
Fannie and Freddie		
Equity	98	400
Fed debt purchases	107	200
Total	**205**	**600**

Sources: Federal Reserve; Company reports; *The Economist* estimates

In the book "Too Big to Fail," Sorkin describes how The US government responded by engaging in several proposals to tackle the issue: "The government would buy the toxic assets to get them off the bank's books, which in turn would raise the value of the assets by establishing a price and make the bank healthier, which in turn would help the economy and, as Paulson repeatedly said, help main street." Eager to bring life back into the economy, the Bush administration pushed for a stimulus package and created lending programs for banks, and interest rates were dropped to

nearly zero. The Federal Reserve also expanded the types of assets it would buy from financial institutions in an effort to ease credit and restore confidence. As the economy showed few signs of recovery, the burden fell on the newly elected president Barack Obama, who faced, in his first month of presidency, the task to push for a $787 billion bailout package. Across the Atlantic, the British government launched a 500 billion pound bailout to inject capital into the financial system, nationalizing most of the financial institutions in trouble. Many European governments followed as well, to prevent recession, improve liquidity, and boost investor confidence.

Present Conditions of the Financial Crisis

The world economy began experiencing the impacts of the crisis when investors from the United Arab Emirates and other rich economies had to face the same debt issues that the financial sector of the US had seen in its housing mortgage and finance facilities. At present *(at the time of this writing*), the world economy is in a great recession, where the economic performance of financial institutions has significantly decreased, industrial growth has slowed down, and international trade has been discouraged with the poor economic conditions of a large number of countries in the world (US Senate Committee on Banking, Housing, and Urban Affairs 2012).

Two weeks ago (*at time of this writing*), interest rates on 10-year US Treasury bonds fell to 1.4%, becoming the lowest on record under present or expected inflation, which ranges from 2–3%. Thirty-year Treasury bond rates have fallen to 2.5%. Investors are piling into Treasury bonds and are driving rates downwards, as they are not buying risky stocks or using their cash to expand or create businesses. American investors are protecting themselves against the unknown. Treasury Secretary Tim Geithner reported last week that bank capital had increased 70% to $420 billion

from 2009. Home prices are starting to go up while household debt service (monthly payments of interest and principal) as a share of disposable income have dropped to the levels of the early 1990s. Nonetheless, to date, these favorable conditions have been neutralized by the general risk aversion and fearful psychology of people. After all, the Greek and European economic crisis is part of American's daily newsfeed.

European Crisis

The economy of the European Union is made up of 17 nations that use the euro and 10 other nations. The EU is a larger economic bloc than the US or China. The current European economic crisis has been three years in the making, and its outcome is still uncertain. In the case of Greece, there was high fiscal deficit and an attempt to manipulate the numbers prior to the global crisis, to hide debt, which was a result of deficit spending, economic mismanagement, government misreporting, and tax evasion. Even then, it took a long time before this was uncovered. The Greek tragedy has shown the financial world that no one can mock the critics of high fiscal deficits. Nowadays, countries like Greece, Spain, and Ireland face ongoing recessions crushed by debt, while Germany, the Netherlands, and the International Monetary Fund are pushing for austerity measures.

Government Policies

The governments of different countries are taking steps to recover the economic positions of the financial and services sectors. For this purpose, they are recapitalizing the financial sector so that it becomes stable and recovers its past performance. Moreover, this financial crisis has made a large number of governments run their economies in fiscal deficits. These governments are

unable to achieve the Balance of Trade, or to control their expenditures to match their revenues (US Department of the Treasury 2012). Similarly worse conditions are being faced by business organizations in international markets.

As a result of this financial crisis, the purchasing power parity of customers has been badly affected, which has resulted in a decrease in the number of customers for each particular product manufactured by international business organizations (Donath & Cismas 2009). This has shrunk the growth and profitability of these organizations and has forced them to keep their business operations limited to their local markets, instead of expanding into new international markets (Burger, Coelho, Karpowicz, & Tyson 2009).

Expected Outcomes of the Financial Crisis

The global financial crisis began in the housing sector in a single economy, spreading to all sectors and industries and hitting the entire world economy. A large number of economists and financial analysts have presented their views on the expected outcomes and impacts of this global financial crisis in the future. Many of these authors and the US Senate Committee on Banking, Housing, and Urban Affairs believe that this economic crisis will last much longer than previous global crises, which have hit the world economy three times during the previous century. They argue that the recent financial crisis has not finished yet and that it will continue to affect the financial sector and the other sectors in the services industry in the short run (Barth 2009).

Impacts in the Short Run

The economic downturn will first affect the manufacturing sector, and industrial growth will slow down. As a result, economies will experience a significant decrease in Gross Domestic Product

and National Income (United Nations Organization 2009). This decrease in GDP and NI will automatically hit the service sector due to poor financial performance and miserable industry conditions (Corker 2012). The repaying abilities of industrial concerns will also decrease, which will restrict them from availing of high-interest, long-term loans from the financial sector (Donath & Cismas 2009).

These negative impacts of the financial crisis will also affect the consumption patterns of individuals, businesses, and governmental agencies. As the US Department of the Treasury reported in 2012, consumers will find it harder to maintain a balance between their incomes and expenditures due to the deep recession and high inflationary pressures. They will either shorten their needs or look for substitute products to save money. Similarly, business organizations will feel hesitant to expand operations in international markets, especially in countries affected by the global financial crisis. Governmental bodies will also cut down their expenditure in view of the increasing fiscal deficits and deep recession in world economies (US Senate Committee on Banking, Housing, and Urban Affairs 2012).

Impacts in the Long Run

Individuals, businesses, and governments will face the same situation in the long run, when the recession will worsen for both the services and manufacturing sectors. Some researchers and economists believe that the global economic crisis will make it harder and more challenging for governments to revitalize their financial sectors. This is because the world has not yet seen any significant steps taken by the governments of the affected economies to recover the past performance of their financial sectors. For instance, the government of the US has failed to bring

its economy out of serious foreign debt, which is rapidly increasing (United Nations Organization 2009).

Global Economic Outlook through the IMF's Eyes

According to the International Monetary Fund's latest forecast (*at time of this writing*), the global economy will experience steady growth over the next two years. Europe's current financial crisis and a possible budget crisis in the U.S. could slow world growth even further. The IMF warned that economic conditions could worsen if the U.S. does not deal with a pending budget crisis soon. By the end of 2012, several large tax cuts are set to expire, and massive spending cuts are scheduled to kick in at the same time. If Congress does not take action, the U.S. could experience another recession and the global economy could slow sharply. This all depends on the upcoming November elections and the measures that the U.S. president may apply. The IMF's chief economist, Olivier Blanchard, said, "failure to deal with these issues could cut up to 4 percentage points off U.S. growth in 2013."

Regarding Europe, the IMF predicted that even if the 17-nation euro zone follows through with its commitments, the region's economy would shrink by 0.3% this year and grow by only 0.7% in 2013. German and French economies are expected to grow in 2012 and 2013 at a slow pace, while the economies of Italy and Spain will contract. The IMF expects slow growth in developing countries due to a decrease in exports to European countries and the U.S. (IMF report, 2012)

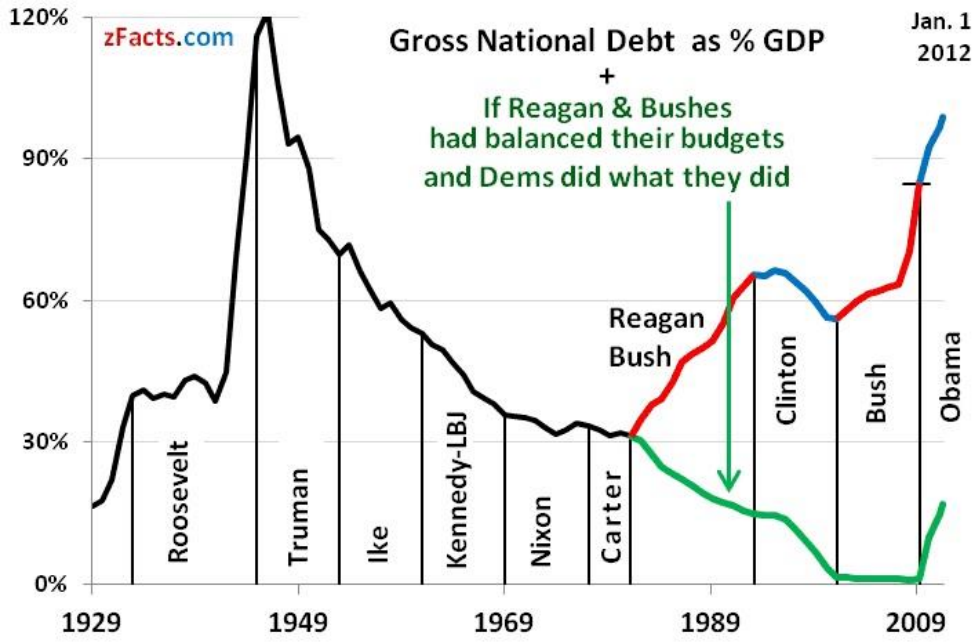
The Next Decade Deficit

After the panic and dark days of the financial crisis, it is expected that new generations may have

an inclination to save and a reluctance to incur debt or borrow money. Today, "too big to fail" private financial institutions are fewer and larger, after having qualified for unlimited taxpayer bailouts. Nonetheless, our nation is facing an enormous deficit that may generate a collapse. According to Arnold Bock from Safe Haven Preservation of Capital, "Rising interest rates are all that is necessary to trigger the Round Two collapse of the ongoing financial crisis." The U.S. is facing expanding government deficits as well as debt and unfunded liabilities. People and businesses that are paying fewer taxes due to diminished incomes are the reason for almost half of the debt in the U.S.

The U.S. deficit grew under the George Bush administration as a result of the recession. Bush approved the 2009 budget and the bank bailout (TARP). However, the recession itself is the main cause of the deficit. Bush and Reagan increased the debt in good times, while Clinton tried to pay down the debt (Exhibit 5). During the last three years of the Obama administration, national debt has increased more than it did during the eight years of the Bush administration ($4.899 vs. $4.939 trillion, as of March 2012). National debt on August 6, 2012 will reach the staggering amount of $15,993,366,918,897.39 and will keep growing. The estimated U.S. population is 313,266,356, so, each citizen's share of this debt is approximately $50,862.04 (Debt clock, 2012).

Exhibit 5



As of today (*at time of this writing*), the national debt exceeds 100% of national GDP. The latest federal budget sent to Congress by Mr. Obama shows that the debt would continue to grow, hitting $16.3 trillion in 2012, $17.5 trillion in 2013, and $25.9 trillion in 2022. If Mr. Obama wins the November elections, and these budget projections prove accurate, national debt will exceed $20 trillion in 2016, the final year of his second term. That would mean that the debt increased by 87%, or $9.34 trillion, during his two terms (Knoller, 2012). According to sources run by political campaigns, from 1789 to 2008, with 43 presidents, the total debt left was approximately $6.3 trillion dollars, and the debt added by President Obama in less than one term

is approximately $6.5 trillion dollars.

Considering these alarming numbers, our nation needs to become more fiscally responsible: people need to start taking risks, starting businesses and ventures, and we need to fuel the economy, leaving behind the fear acquired through the Global Financial Crisis. This is because the bills have to be paid, and a default is not an option if we want to maintain the good name of the US in global fiscal circles, in order to prevent another global financial crisis. Many economists believe that the debt ceiling needs to be raised, while others think that raising the debt ceiling may be a mistake that will only encourage the same poor decisions that brought us to the initial crisis. Considering that our monetary system was initially built on the gold standard and was then changed to one built on faith, if you lose this faith, then nothing matters.

Risk Analysis in the Global Financial Crisis

In order to revive the world economy from the severe financial crisis, businesses and governments have adopted different strategies in the recent past. The first is conducting risk analysis of the different factors that caused the financial crisis and badly hampered the industrial growth and economic performance of different entities (Kaufman, 2009). The risks involved in this process include further vulnerability of the financial sector, competition among businesses, and political instability in different economies of the world.

As far as political instability is concerned, the revival of programs for stable economies will not be affected because all governments have been taking initiatives to revive their financial sectors and industrial growth (US Senate Committee on Banking, Housing, and Urban Affairs 2012). The second risk factor is competition among businesses, which can affect the revival programs in

a negative or positive way. The price war between different businesses can lead to greater competitiveness, but it can also lead to more relaxed terms and conditions, as the world experienced before the recent global financial crisis (French, Baily, Campbell, & Cochrane 2010).

Impacts on the Different Sectors of the Economy

The financial sector was not the only industry affected by the global financial crisis: all industries have been affected in one way or another. This section provides an overview of the impacts on different sectors in light of some important economic measures. The overall impact of the financial crisis can be discussed by highlighting its impacts on the inflation rate, balance of trade, monetary policy measures, and economic reform programs taken by governments from time to time (Chorafas 2009). These factors are now discussed below:

Impacts on Inflationary Pressures

The financial crisis badly affected the value of currency by putting high inflationary pressures on almost every currency of the world. The US Dollar returned to its previous position when the financial crisis hit its economy. Similarly, the value of currencies in the Asian and European markets also depreciated due to low production levels, high trade deficits, and discouraged international trade (Donath & Cismas 2009). Terrorist activities had also increased during the previous three to four years, which discouraged tourism and travel around the globe (UNCTAD 2009). The inflationary pressures also increased for general consumers: it became harder for them to save money for their future needs due to the increasing prices of consumer products. Businesses also experienced high costs of production after the global financial crisis affected

their countries (Barth 2009).

Impacts on the Balance of Trade

The global financial crisis discouraged international trade by making it more expensive for businesses and individuals to import required goods and services from international markets. Exporters were unable to sell their manufactured goods to potential target markets due to decreased demand by importers. These exporters were not supported by their governments, and their trade balances suffered (US Senate Committee on Banking, Housing, and Urban Affairs 2012). These issues resulted in a decreased level of production by manufacturers, which meant they had to run their plants under capacity (International Monetary Fund 2012). This increased their cost of production and the level of unemployment in their countries. The governments had to take external funding to meet their trade deficits, which increased their interest expenditures (French, Baily, Campbell, & Cochrane 2010).

Monetary Policy and Economic Reform Programs

Although the steps taken by the governments of different countries for the revival of their economies are largely criticized by business analysts and researchers, the changes in monetary policies and the launch of economic reform programs are two appreciable steps that seem to have effectively beaten back the global financial crisis (Chorafas, 2009).

Monetary Policy

Monetary policy measures are being implemented in order to control the flow of money in the economy. Governments are controlling the level of inflation in their countries through tight monetary policies. They have set the discount rates for banking companies higher in order to discourage borrowing (Patterson 2010). Similarly, the inter-bank rate has also been set high in order to discourage lending and borrowing transactions between local banks. Economic reforms by the governments of different countries include encouragement of foreign direct investment in their countries, running industries at full capacity, and supporting micro financing in rural areas (Nanto, 2009).

Foreign Direct Investment

Attracting potential investors to come and do business in new international markets encourages foreign direct investment. Governments are attracting these investors by offering relaxed terms and conditions for setting up and operating their businesses. For example, the introduction of tax free zones, easy financing facilities, and regulatory conditions are few steps to attract these investors.

Revitalizing the Industrial Sector

Offering easy financing facilities to increase capacity and production is revitalizing industries. These steps also help to increase foreign direct investment. Donath and Cismas (2009) believe that industrial growth is the strongest weapon in beating the global financial crisis. An economy can only grow if its industries are running at their full capacity and contributing to the GDP. The revitalization process of the industrial sector will also help the economies by decreasing the level of unemployment and improving the social status of the consumers (French, Baily, Campbell, &

Cochrane 2010).

Conclusion

The global economic crisis began in the housing sector and spread to all sectors of the world economy (Magdoff & Foster 2009). Overinvestment by the general public in housing mortgages was the main reason for this crisis, which led to severe economic conditions in the entire international business and economic environment (International Monetary Fund 2012). Economists believe that the financial crisis was mainly due to the price war between banking companies, which forced them to charge very low prices for their services. The financial crisis soon entered the world markets and caused a deep recession, which is still affecting major parts of the world (French, Baily, Campbell, & Cochrane 2010).

The expected outcomes of the global economic crisis are presented by the researchers and analysts in two opposite perspectives; one camp believes that the crisis will worsen in the future, while the other argues that the maximum period for which this crisis will affect the world economy is one decade (US Department of the Treasury 2012). In either case, world markets will have to struggle to recover their previous positions. The governments of different countries have taken numerous steps to revitalize their economies (US Senate Committee on Banking, Housing, and Urban Affairs 2012). The tightening of monetary policies, encouragement of foreign direct investments, and supporting of industrial sectors are the most significant steps in this respect (Chorafas 2009).

From the above discussion, it can be concluded that every single entity in the world has been affected by the recent global financial crisis (Independent Evaluation Group 2012). The

inflationary pressures, unemployment, balance of trade, fiscal deficits, and poor financial performance of major industries are some notable negative impacts of this crisis (Burger, Coelho, Karpowicz, & Tyson 2009).

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Chapter 26

The Great Recession: What About the Little Guy?

Chris Axsentieff

The Great Recession impacted all aspects of American life in ways not seen since the Great Depression, yet three years on the important role that the average American played--and continues to play--seems to have been lost. This paper will look at not only how the average American helped to bring on the Global Financial Crisis, but also the affects that this Crisis had and continues to have on them.

Hindsight has created much debate as to where the blame for the Great Recession lies. Arguments can easily be made against the government and central banks, Wall Street and credit rating agencies, and also local lenders, all of whom helped create and facilitate a flawed borrowing system. When the market eventually did crash, the focus of the recession rarely shifted from Washington and Wall Street. Many would look to a nation's Gross Domestic Product (GDP), and hence the country's output and growth, as a guide to the state of the economy. In 2008 and 2009 the US's GDP contracted four consecutive quarters for the first time since the

Great Depression.[163] See Exhibit 1. This figure accurately represents the dire situation the US and the entire globe were in during 2008 and 2009.

Exhibit 1

Trading Economics. (2012). United States GDP Growth Rate. Retrieved August 6, 2012, from Trading Economics: http://www.tradingeconomics.com/united-states/gdp-growth

But what of the average household, whose role in kick starting the crisis cannot be denied, and who, years after the recession, continues to feel the economic squeeze? The nation's GDP relies heavily on the actions of the individual, namely Personal Consumption Expenditure (PCE). Consumption levels provide an insight into the habits of the household, and accurately detail the

163 Trading Economics. (2012). United States GDP Growth Rate. Retrieved August 6, 2012, from Trading Economics: http://www.tradingeconomics.com/united-states/gdp-growth

effect of a financial crisis on the average household. The role of consumption in times of economic unrest is particularly important, not just as a measuring device, put also as a path to recovery. During a recession consumption is not only expected to decline, but reductions will also impede recovery.

In the US, both the economy and society largely revolve around personal expenditure. Personal Consumption accounted for 70% of GDP in 2008, building on consistent growth since the1970s[164]. This figure is much higher than countries like Japan and Germany, where Personal Expenditure accounts for 60% and 57% of the GDP, respectively.[165] Years after the devastating recession, consumption provides a useful insight into just how far the US has recovered. With current consumption still below pre-recession levels, the strength and longevity of the Recession show it to be unlike anything seen since the Great Depression.[166]

While not considered consumption, the purchase of a house could be thought of as the ultimate form of spending, and along with increasing levels of personal consumption; increased housing activity was also bolstering the economy in the early 2000s. Housing played a crucial role in the Global Financial Crisis, and is another factor which impacts a nation's GDP. Residential investment, remodelling and construction of new residential properties accounts for roughly 5% of GDP, while housing services, including rent and owner's imputed rent, accounts for approximately 12% of GDP.[167]

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164 Kendall, C. (2008). Understanding Personal Consumption Expenditures (PCE). Retrieved August 4, 2012, from Understanding The Market: http://understandingthemarket.com/

165 Ibid

166 Petev, et al.(2011). Consumption and the Great Recession: An Analysis of Trends, Perceptions, and Distributional Effects. Stanford University.

167 Kendall, C. (2008). Understanding Personal Consumption Expenditures (PCE). Retrieved August 4, 2012, from Understanding The Market: http://understandingthemarket.com/

The bursting of the housing bubble in 2006, and market collapse that followed, affected all aspects of American life. The finance industry, government, credit agencies and local banks all suffered, and in some cases died. Yet, behind the 'billion dollar' bailouts, people all around America were suffering by losing their houses, their jobs and significant amounts of their savings. The Great Recession created fear and uncertainty around America, and ultimately the world, in levels not seen since the 1930s. The government, recognising the important role every American played in restoring the economy, looked to introduce stimulus to increase consumption, a strategy also followed by many of the US's peers. However, unlike some other countries, results of the package were mixed, and while America is beginning to show steady economic growth, many individuals are still reeling as they look to rebuild their lives.

HOW IT ALL BEGAN

In 2001 the US forged through an eight-month recession brought on by the bust of the Dot-com bubble, and worsened by the terrorist attack of September 11. Central Banks, so as to increase money flow, lowered their interest rates, inviting lenders to take on greater risk in the name of economic growth. By mid 2003 the federal funds rate, the overnight bank-to-bank lending rate, had been reduced to 1%, the lowest in half a century. Following 9/11, the Fed flooded the financial markets with capital, purchasing more than $150 billion in government securities and lending $45 billion to banks.[168] The American people responded with significant spending that helped lift the US from recession, and saw consumption levels rise until 2008.

168 Financial Crisis Inquiry Commission. (2011). Financial Crisis Inquiry Report. Washington: United States of America Government.

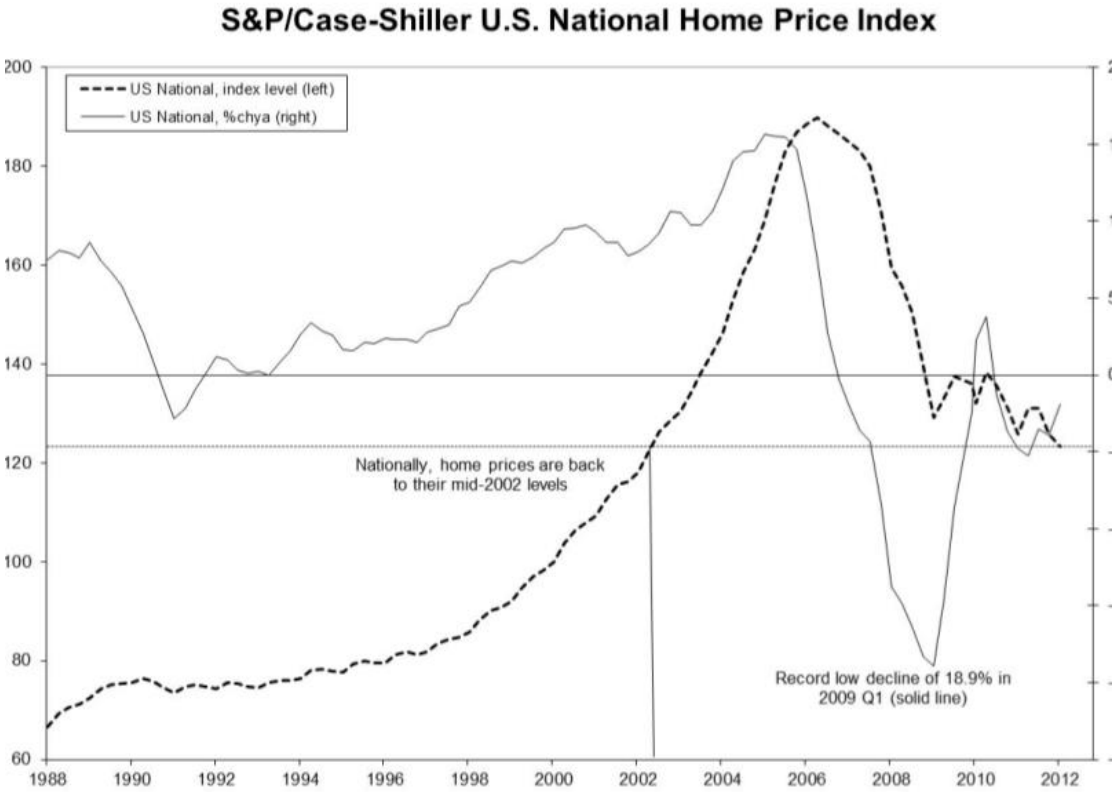
Consumers were no longer prioritizing savings, focusing instead on borrowing and spending within a society fostering and rewarding wealth, materialism and ultimately consumerism. By the mid 2000s the typical American household had more than 13 credit cards.[169] The "Keeping up with the Joneses" mentality created a vicious cycle that ultimately saw household debts increase from $705 billion at yearend 1974, 60% of disposable personal income, to $7.4 trillion at yearend 2000, and eventually $14.5 trillion in midyear 2008, 134% of disposable personal income. [170] With an increasingly healthy economy and low lending rates, consumers focused their attention on the ultimate form of spending, housing, which led to sharp price increases. Between 1997 and 2006, the price of the typical American house increased by 124%.[171] See Exhibit 2.

Exhibit 2

169 Zakaria (2008). A More Disciplined America. Retrieved August 4, 2012, from Newsweek Business www.newsweek.com

170 Petev, et al.(2011). Consumption and the Great Recession: An Analysis of Trends, Perceptions, and Distributional Effects. Stanford University.

171 The Economist (2007). CSI: Credit Crunch. Retrieved August 4, 2012, from the www.economist.com



Standard & Poors. (2012). S&P/Case-Shiller Home Price Indices . Retrieved August 6, 2012, from S&P: http://www.standardandpoors.com/indices/sp-case-shiller-home-price-indices/en/us/?indexId=spusa-cashpidff--p-us----

The Glass-Steagall Act and reduced lending criteria showed that the government believed the banking industry did not require such heavy oversight, and that borrowers and lenders were responsible enough to determine appropriate levels of leveraging. Buoyed by new freedoms and rising house prices, banks were increasingly confident in lending and looked to new avenues to increase loans. Creative financing and increasingly relaxed lending standards allowed banks to target those with poor credit histories. Commonly, borrowers were being introduced to mortgages with low initial rates and minimal repayments as a way of shielding them from the significance of the outstanding loan. Examples of this are adjustable rate mortgages, with two year fixed rates or

interest-only and payment-option loans. Americans of every demographic were being invited to live out the dream of home ownership, which grew on the back of seemingly accessible mortgages that the average American either did not understand, or believed they could use to their advantage.

By 2004, home ownership in the US had risen to 69 percent on the back of new forms of loans, and prices continued to rise.[172] In 2005 interest-only loans accounted for 23 percent of all mortgages, with payment only loans accounting for 8 percent although the figures were much higher in some markets, such as California where interest-only loans accounted 34 percent of all mortgages.[173] Between 2004 and 2006 the percent of subprime mortgages increased from 8 to 20 percent, of which over 90% had adjustable rates.[174]

Many would claim that the system made it hard for borrowers to know what they were getting in to. Some borrowers knew they would not be able to make the higher payments once the initial grace period ended and were planning to refinance their mortgages after a year or two of house price appreciation. Regardless of the methodology, as house prices continued to grow, both sides of the market seemed happy to go along for the ride with regulators exercising little oversight in the booming market. By 2007, borrowing had hit such heights that the ratio of debt-to-disposable personal income had risen from 77 percent in 1990 to 127 percent, much of which can be attributed to mortgages.[175]

172 Bankrate, Inc. (2012). Homeownership Rate Plunges. Retrieved Aug 6, 2012, from Bank Rate: http://www.bankrate.com/finance/money-guides/homeownership-rate-plunges-1.aspx

173 Ibid

174 Ibid

175 Lewis, M. (2010). The Big Short: Inside the Doomsday Machine. New York: W. W. Norton & Company.

THE GREAT RECESSION

The credit and house price explosion led to a building boom which was ultimately its undoing. A surplus of unsold homes caused U.S. housing prices to peak, and begin declining. In mid-2006, the housing market, which had risen for so long, was beginning to correct itself.

The unexpected decline brought about the unusual situation of borrowers having zero or negative equity in their homes. Consider a borrower who needed $180,000 for a $200,000 home; they have an equity margin of 10% and a debt ratio of 90%. If their house fell in value by 25% that $200,000 asset is now only worth $150,000 and the borrower now owes more than the value of the house. And while the situation does occur, the rate at which it was occurring was previously unseen. By March 2008 it was estimated that 8.8 million borrowers or 10.8% of homeowners had negative equity in their homes. This figure went on to rise to 23% by September 2010, well beyond the end of the Great Recession.[176]

Many borrowers had expected to be able to refinance their loans once introductory periods ended, as their house value would have further appreciated over this time. However, refinancing of adjustable rate mortgages had become more difficult and borrowers who found themselves unable to escape higher monthly payments by refinancing began to default. Between August 2007 and October 2008, 936,439 US residences completed foreclosure placing further downward pressure on housing prices, which fell 20% between the mid-2006 peak and September 2008.[177]

176 Liebowitz, S. (2009, July 3). New Evidence on the Foreclosure Crisis . The Wall Street Journal .

177 Clifford, C (2008). CNN Foreclosures. Retrieved August 4, 2012 from www.CNNMoney.com.

While the focus of this paper is on the average household, it is important to note the role that the financial markets played in taking a localized housing crisis, and creating a Global Financial Crisis. With investors always looking to new means to make money, the subprime mortgage market represented potential. Through securitization, the risks and impacts of lending were no longer confined to borrower and lender. Banks were distributing credit risk through the common practice of Mortgage Backed Securities (MBSs) and Collateralized Debt Obligations (CDOs). However, unique to this situation was that below-prime mortgages, brought about through relaxed lending and creative financing, were playing an important role by forming an increasingly large share of CDOs, up to 36% in 2007 from 5% in 2000.[178] Further, it was becoming more common to pass on the risk of a subprime loan to a third party investor, with the securitized share of sub-prime mortgages increasing to 75% in 2006.[179]

The securitization market represented more than a third of America's credit market. As mortgage delinquencies soared, the value of these securitized assets crumbled. By August 2008 financial firms around the world had written down holdings in subprime securities by $501 billion, wiping out much of the capital in the banking system.[180] Soon to follow, in September, was what would later be considered a defining moment of the late 2000s, the fail of Lehman Brothers, the fourth largest investment bank in the US. By November the crisis had spread further, and the S&P 500 was down 45% from its 2007 levels.[181] See Exhibit 3.

Exhibit 3

178 Lewis, M. (2010). The Big Short: Inside the Doomsday Machine. New York: W. W. Norton & Company.

179 Ibid

180 Bloomberg (2008). Bloomberg: Worldwide. Retrieved August 4, 2012 from www.Bloomberg.com.

181 Lewis, M. (2010). The Big Short: Inside the Doomsday Machine. New York: W. W. Norton & Company.

S&P 500 – 2007 to 2012

Yahoo! (2012). S&P 500. Retrieved August 6, 2012, from Yahoo! Finance: http://finance.yahoo.com/echarts?s=^GSPC+Interactive#symbol=^GSPC;range=1d

Much of the focus of the fallout of the Great Recession has been on the reaction of Wall Street, and rightly so given the unprecedented failures of groups such as Lehman Brothers who were previously considered "too big to fail." The severe impact being seen at this level had disastrous results for the global economy and is still being seen today.

But how was the American household--who the government and Wall Street ultimately service--coping? The activity on Wall Street was light years from most households whose median income in 2008 was approximately $52,000.[182] Even $1 billion--a relatively minor figure compared to the losses and bailouts that occurred--would take someone earning $52,000 a year 19,230 years to earn. The figures discussed are so astronomical that in some ways they have no meaning to the average household, as they are difficult to truly comprehend. Yet, the impact of the Great

182 Lewis, M. (2010). The Big Short: Inside the Doomsday Machine. New York: W. W. Norton & Company.

Recession was just as visible on the average family, although losses were typically in the thousands or in the more extreme cases, hundreds of thousands. A 2010 Pew Research poll showed that more than 50 percent of adults in the US labour force had experienced some form of "work related hardship" since the recession began in 2007.[183] In 2008, the economy shed 3.6 million jobs and lost another 4.7 million in the year that followed as long-term unemployment eventually rose to 17.4% in October 2009, the highest levels since mid-1940s.[184]

According to a Federal Reserve survey, the average wealth of U.S. households, including homes, fell from $598,000 in mid-2007 to $481,000 in 2009.[185] This equates to approximately 25 percent of net worth in 18 months, the largest decline seen since World War II. Data from the Federal Reserve on America's median net wealth also shows devastating results, falling 40% from 2007 to 2010, and taking American's back to 1992 levels.

Individuals were not only feeling the effects at the time, but also saw a bleak future. By one calculation, assets in retirement accounts such as 401(k) plans lost $2.8 trillion, or about a third of their value, between September 2007 and December 2008, creating further concern.[186] Along with people losing their jobs, society was being faced with the prospect of longer working lives to support the reduced retirement accounts.

183 Warner, J. (2010, August 6). What the Great Recession Has Done to Family Life. The New York Times .

184 Ibid

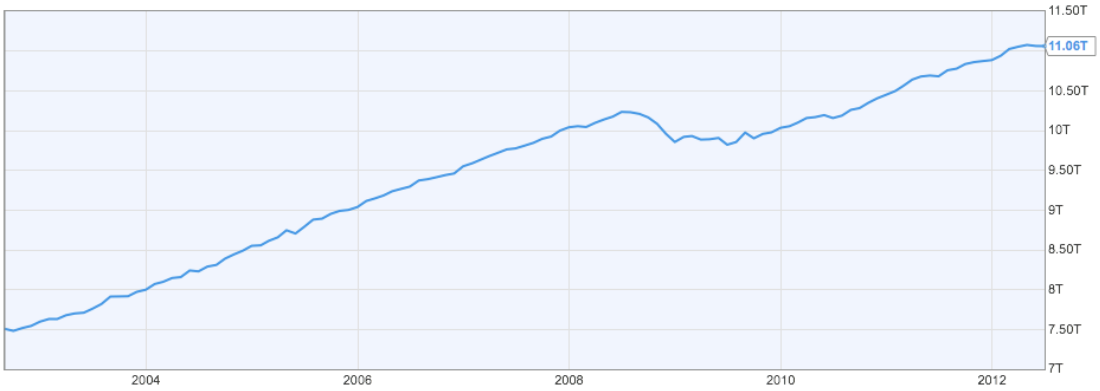
185 Ibid

186 Warner, J. (2010, August 6). What the Great Recession Has Done to Family Life. The New York Times .

As noted, Personal Consumption Expenditure, accounting for approximately 70% of GDP, provides an important insight into the state of the economy from the mindset of the people.[187] Looking at what people are spending is often used to measure consumer's long-term economic confidence. See Exhibit 4. In the years that followed the Dot-com bubble, consumption figures grew, strengthening the country and bringing the US out of recession.

Exhibit 4

PCE Index – 2003 to 2012



Ycharts (2012). US Personal Consumption Expenditures. Retrieved July 31, 2012, from Y Charts: http://ycharts.com/indicators/personal_consumption_expenditures

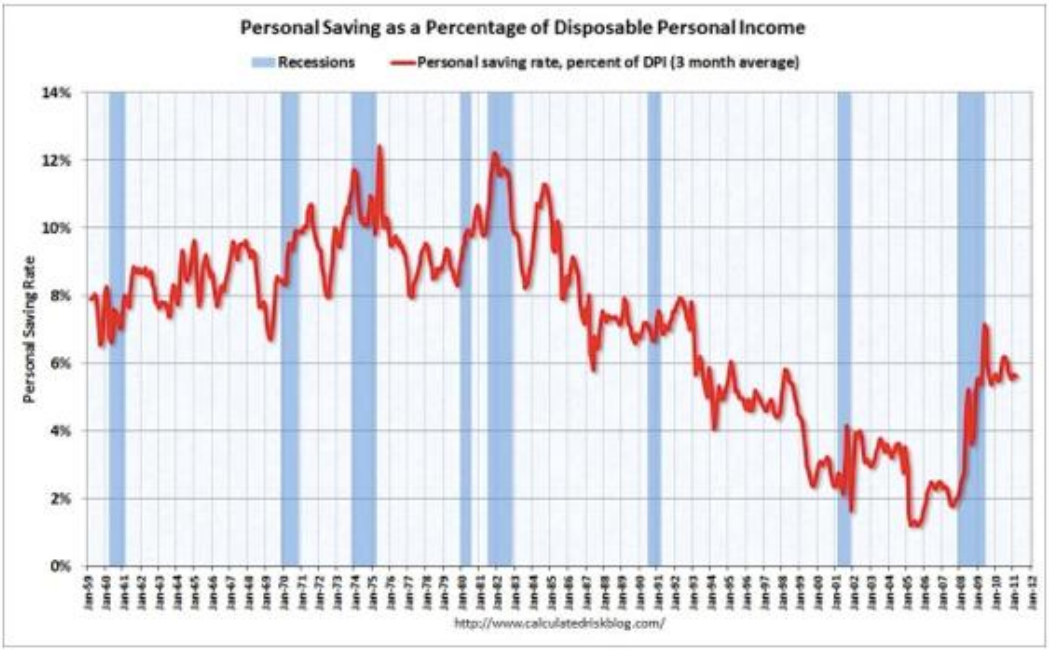
During the second half of 2008 and the first half of 2009, consumption fell by an annual rate of 3.5%, indicating that people couldn't or wouldn't spend the same level of money that they were previously.[188] The fall in consumption can partly be traced to lack of access to funds as wages and financial income dropped -6.9 percent and -26.5 percent in light of significant job losses

187 Amadeo, K. (2012). What is GDP? Retrieved August 6, 2012, from USE Economy: http://useconomy.about.com/od/grossdomesticproduct/p/GDP.htm

188 Petev, et al.(2011). Consumption and the Great Recession: An Analysis of Trends, Perceptions, and Distributional Effects. Stanford University.

around the country.[189] However, this is only part of the story; consumption levels fell further than that of disposable income, which was assisted by government transfers to households, offsetting some of the individual loss. And while the early 2000s saw households acting without adversity to debt, so as to facilitate the purchase of larger items such as cars, the credit crunch that followed the Recession meant such financing was no longer as readily available. Spending on automobiles fell by 40% over the Great Recession.[190] However, just as important as a lack of access to money, the fall in consumption is also attributed to a loss in consumer confidence, reducing spending due to an accumulation of precautionary savings. See Exhibit 5.

Exhibit 5



189 Ibid

190 Ibid

Petev, et al. (2011). Consumption and the Great Recession: An Analysis of Trends, Perceptions, and Distributional Effects. Stanford University.

The Volatility Index, referred to as "VIX" or commonly known as the Fear Index, measures expectations of volatility in the market. High values indicate investor's uncertainty and expectations that the value of the S&P 500 will vary greatly, up or down, in the next 30 days. During the recession of 2000-2001 the VIX exceeded standard market levels, usually "20", peaking at 38 in 2001.[191] However, the failings of 'Dotcoms' were limited in effect. While the market and economy did suffer significant losses, many households were not directly affected by the losses. The Great Recession was a different beast, built on the back of a housing crisis that spread across American backyards, and into Wall Street. On October 24 2008, at the height of the Great Recession, the VIX rose to 89.53 as fear continued to mount.[192] See Exhibit 6.

Exhibit 6

VIX Index - 2000 to 2012

191 Yahoo! (2012). VIX: Summary for VOLATILITY S&P 500. Retrieved August 6, 2012, from Yahoo! Finance: http://finance.yahoo.com/q?s=%5EVIX

192 Yahoo! (2012). VIX: Summary for VOLATILITY S&P 500. Retrieved August 6, 2012, from Yahoo! Finance: http://finance.yahoo.com/q?s=%5EVIX

Yahoo! (2012). VIX: Summary for VOLATILITY S&P 500. Retrieved August 6, 2012, from Yahoo! Finance: http://finance.yahoo.com/q?s=%5EVIX

Households were worried about their financial future and actions reflected this. Recognizing the importance of personal consumption, a series of stimulus packages were released during and after the Great Recession. On February 2008 President Bush signed off on a $168 billion economic stimulus package directed to taxpayers. The break, which arrived months later, coincided with an untimely increase in gasoline and food prices, which generally lead to the stimulus simply covering higher prices without the intended effect of real increased expenditure. As a result, consumptions levels remained low and, unlike in 2001, America was not able to execute a swift recovery plan.

LIFE BEYOND THE RECESSION

The second half of 2009 saw the US exit the recession as its GDP grew, although this remained inconsistent and the effects of the most damaging recession since the Great Depression remain. By 2012, 8.8 million Americans had lost their jobs, and by the end of 2011 the economy had only

regained 30%. While this is expected to grow in 2012, it is unlikely to exceed 50% by the year's end.[193]

Homeownership, after peaking at 69.2% in 2004, had only reduced slightly by 2010 to 66.9%.[194] While this appears relatively positive, it is in fact the opposite as approximately a million homes remain in foreclosure, with several million more in the pipeline, and just under a million previously foreclosed homes still on the books of banks. High levels of homeownership continue to tie the American household to the crisis that tried to ruin it. House prices remain unstable and are currently at the lowest level seen since 2002.[195] With real estate housing sales remaining slow, economists predict the backlog of foreclosed houses will take another two to three years to clear.

Still today, people are concerned and confused about the economy. Even since the technical end of the Great Recession, the VIX has twice hit similar levels to that seen during the 2001 recession, demonstrating the significance of this Recession. Along with uncertainty about investment, job security, and the economy comes reduced spending as households delay purchases and look to create their own safety nets. This creates something of a self-fulfilling prophecy as a lack of spending exacerbates a falling economy.[196]

As well as demonstrating the large effect of this crisis on the consumer, consumption levels provide an important insight into the significance of the Great Recession both in history and in

193 Financial Crisis Inquiry Commission. (2011). Financial Crisis Inquiry Report. Washington: United States of America Government.

194 Bankrate, Inc. (2012). Homeownership Rate Plunges. Retrieved Aug 6, 2012, from Bank Rate: http://www.bankrate.com/finance/money-guides/homeownership-rate-plunges-1.aspx

195 Ibid

196 Global Insight. (2012). 2012 Employment Forecasts and the Impact of Exports. Washington: Global Insight.

the future. For example, given the period of consumption growth since the 1970s, the US has experienced six recessions:

- 1973 to 1975 - Oil shock;
- 1980 – Money supply restrictions;
- 1982 to 1983 – Energy crisis and tighter monetary policy;
- 1990 to 1991 – Oil price shock and debt accumulation;
- 2000 to 2001 – Dot-com bubble;
- 2007 – 2009 – sub-prime mortgages;

All recessions severely impacted the US in different ways with varying levels of unemployment and dramatic falls in GDP. However, consumption levels stand out as a key differentiator between the Great Recession and all others. While consumption has historically responded immediately to the beginning of a recession, consumption at the start of the Great Recession was relatively unchanged, taking multiple quarters to fall significantly. And in terms of recovery, while some improvement was seen during 2009 and 2010, consumption levels remained below pre-recession levels for 4 years after the onset of the crisis.[197] By comparison, the next slowest crisis recovery followed the 1990-1991 recession; here however, 15 quarters after the onset of this crisis, consumption had recovered to be 5% greater than before the recession.[198] This recovery time serves as an important indicator to the severity of a crisis and, in this case, points to the Great Recession as above all others in the last forty years.

197 Petev, et al.(2011). Consumption and the Great Recession: An Analysis of Trends, Perceptions, and Distributional Effects. Stanford University.

198 Ibid

Unfortunately, these results are not surprising; the complete de-leveraging of such debt can often take seven years, and in the years that follow recessions countries will typically grow 1 to 1.5 percentage points below that of the previous decade largely because previous growth had been inflating by private borrowing.[199]

CONCLUSION

America showed its ability to rebuild following the 2000 – 2001 recession and many hoped that the recession of 2008 – 2009 would follow a similar pattern. However, in many ways America's recovery from 2001, built on significant levels of debt, was what led to the Great Recession in the first place.

As the government provided easier access to funds and relaxed borrowing standards in the early 2000s, households were encouraged to spend. Society increasingly encouraged a consumerist lifestyle that increased personal debt and took mortgages to new heights. On the back of soaring house prices, lenders continued to look to new markets of potential borrowers, regardless of their ability to service a mortgage, believing the safety of an asset increasing in price would provide protection, while borrowers took advantage of low introductory mortgages that they believed could be refinanced in a strong market in the future. Both sides of the equation understood the situation, and believed they could use it to their advantage. Wall Street also saw the potential of the subprime mortgage market, taking on and sharing the risk of a subprime loan to third party investors everywhere.

199 Various. (2010). The Squam Lake Report: Fixing The Financial System. Princeton: Princeton University Press.

However, increased interest rates and excess supply corrected the housing bubble, which for so long seemed like it would never burst, affecting borrowers and lenders alike. Homeowners defaulted and lenders were left with assets that they couldn't sell and that were depreciating in value. The securitization market, which represented more than a third of America's credit market, crumbled and brought down some of the largest companies in the world. For families, defaulting on mortgages, job loss, a 25% reduction in net wealth, and a loss in retirement savings have had lasting effects.

The immediate benefits of increased consumption and an active housing market can have a significant positive effect on many facets of a country, namely the economy. However, the Great Recession has shown that this is not sustainable. The debt created in America in the early 2000s, and the faith and money placed into a flawed banking system, resulted in the undoing of years of economic progress. The Great Recession ended mid-2009 when GDP returned positive, yet uncertainty remains and three years after the end of the recession, market uncertainty, measured through the VIX, is reaching mid-recession levels. Saving is a bigger priority than spending, and consumption remains below pre-recession levels, slowing any potential recovery. However, given the severity of the crisis, a slow and steady recovery may be the only sustainable solution. In the meantime, households, companies, financial markets and governments around the world continue to feel the effects of a crisis that proved to be a greater recession than any seen since the Great Depression.

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Chapter 27

Financial Alchemy: Debt, Leverage and Federal Bailouts

By: Daniel Coulson

Harvard Extension School Student

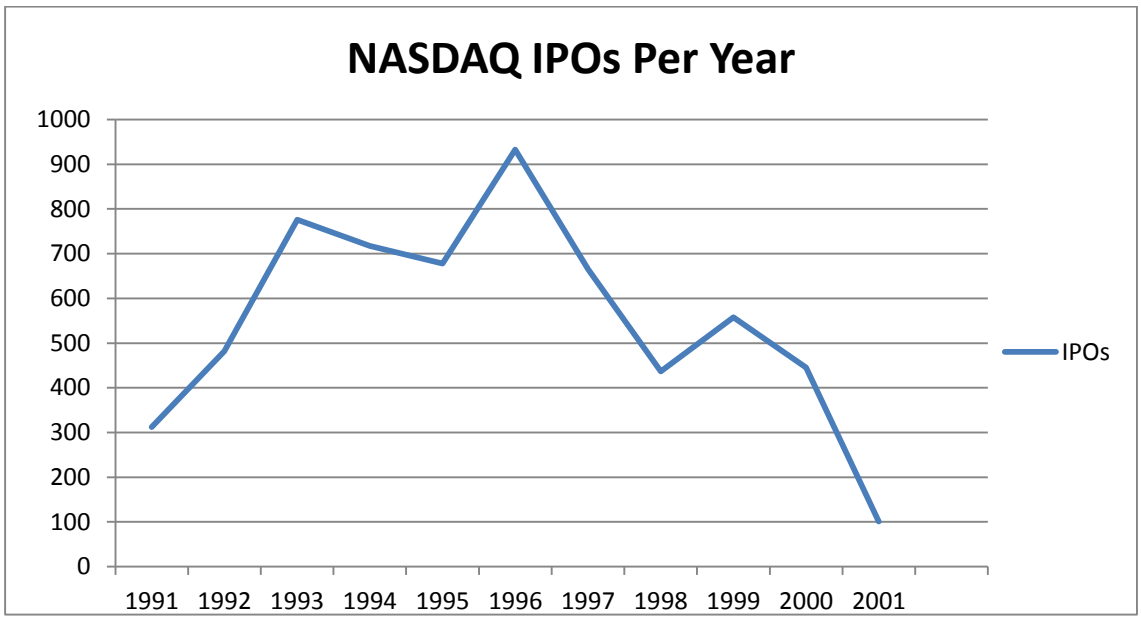
Until a few years ago, the worst financial and economic crisis the United States had gone through had been the Great Depression which originated in 1929. Seventy-nine years later, the country would once again witness an unparalleled shock to its financial system, which, not unlike the Great Depression, would affect the world as a whole. I think it is important to take a look at the economic background which led to the so called Great Recession; this could give us a better understanding of how the environment could have been an accomplice to the result. Absent some notable and serious exceptions that occurred during 2000-2001, the economic sentiment leading up to the Global Financial Crisis was quite optimistic (whether rightly or wrongly so), as described below in the context of the Dot-Com boom and bust, the Post-Dot-Com bubble transition, the advent of financialization in the pre-Crisis period, the housing bubble and bust, and resulting financial and economic crisis.

The Dot-Com Bubble

Many investors and financial analysts alike expected the internet to provide an economic stimulus as big as the automobile; it was thought the internet would be the next best thing to bring about an important amount of growth into different sectors of the economy. For a couple of years, this really did seem true. The NASDAQ composite managed to rise an incredible 75% in 3 years:

from 758 in December 1993 to 1310 in December 1996. See Exhibit 1. Volumes for stocks traded on the NASDAQ were also booming, they doubled (from 300 million to 600 million) in the same period of time. Along with this boom came an increase in the number of IPOs during the "bubble inflation period". It is widely considered that the bubble started in 1995 and burst in the year 2000-2001.

Exhibit 1



Source: Author constructed

[200]From 1991 to mid-1996, there was a substantial increase in the number of companies selling their shares for the first time in the market. At the time, this was seen as evidence that the internet was in fact providing an important stimulus to the economy, for it was increasing the number of

[200] Source: Bloomberg- NASDAQ IPOs 1991-2001

startup companies listing their stocks in this technology related index, and was providing a wider range of investment opportunities to the public.

The Russian default in 1998 also played a major factor in increasing both volume and value in the NASDAQ. After Russia defaulted on their country's obligations in August 1998, there was a massive flight to quality of international capital, and what better place than the most advanced economy in the world? Also, inside that economy, what better place than the next great economic game changer, technology and internet related companies? The optimism generated by this boom was such, that financial advisors started divorcing themselves from the age old practice of valuating a stock based on its earnings and P/E ratios. Many of the listed companies still hadn't posted any profits, some were even operating at substantial losses in order to generate market share for their companies, but nevertheless, their stock prices kept increasing, fueled by speculation over which of these companies would emerge as the leading innovator. However, the FED raised interest rates six times during 1999-2000; less money was available to venture capitalists, which translated into less money available for many dot com startups or even listed companies needing more capital to "further increase their market share". Eventually, many companies quickly burned through the amount of cash they had raised through their IPOs and slowly but surely, many companies started going bankrupt and delisting. This of course took its toll on the NASDAQ index and all those investors caught up in this huge speculation. This happened around mid-2000. See Exhibit 2.

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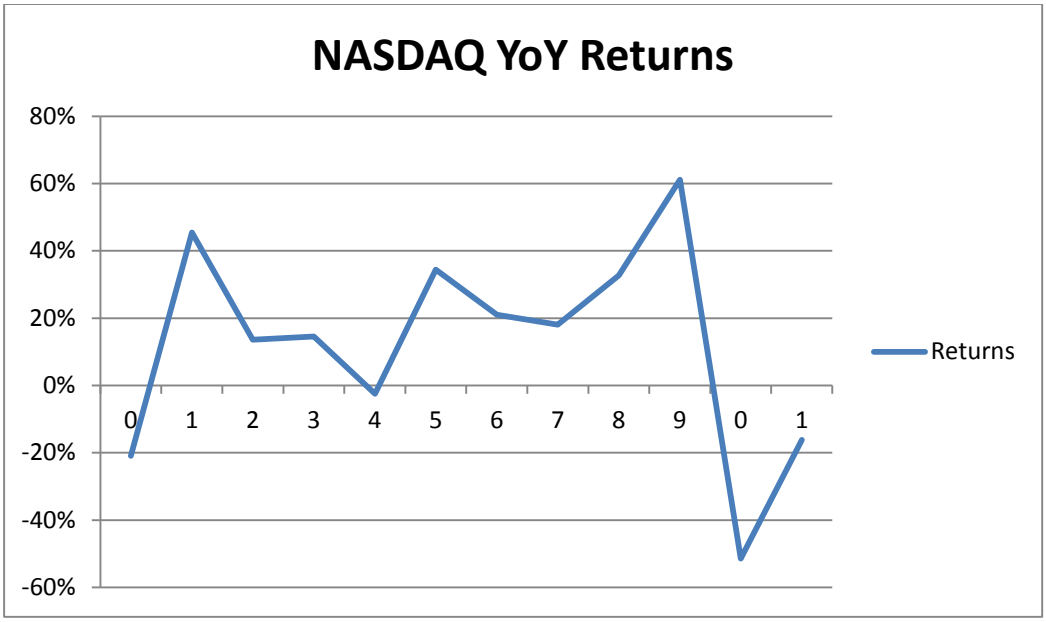
Exhibit 2



Source: Author constructed

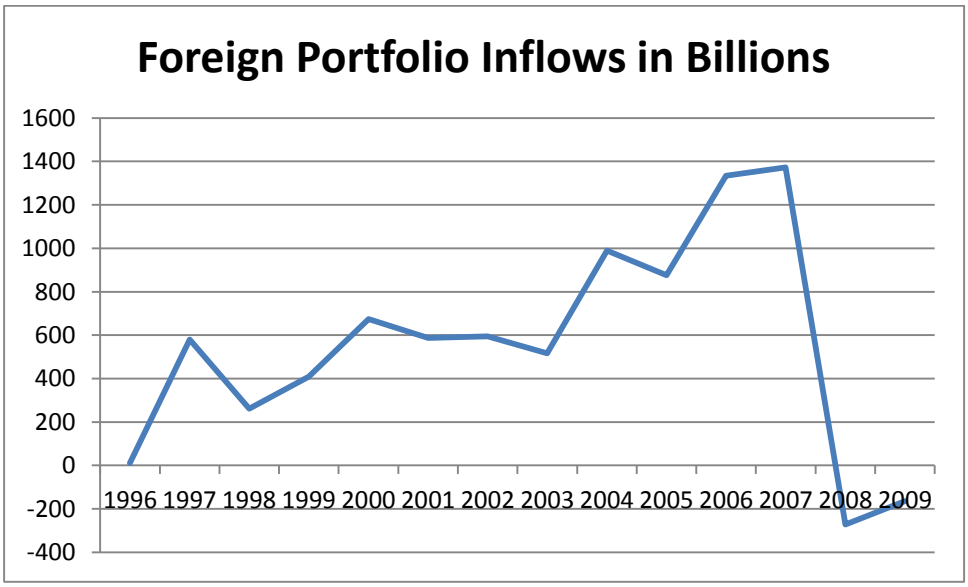
[201]Post Dot-Com Bubble and Transition

The US economy entered the new millennium having come from a speculative crisis in which the outcome did not generate the necessary growth to provide positive returns for the bets placed. The FED rate was quite high, at about 6%, and the GDP in 2001 had barely grown at a 1% rate[202]. Many believed that we entered this era in a brief recessionry period. "Although the massive stock market decline in 2000 seemed to presage a serious economic decline, business losses were cushioned and wider economic disruptions were curtailed by a real estate bubble-leading only to a relatively minor recession in 2001". [203] In order to pump more liquidity into the

[201] Data gathered from Finance.yahoo.com
[202] Source: US Department of Commerce: Bureau of Economic Analysis
[203] "The Great Financial Crisis" Foster, John B. and Magdoff, Fred

system, and as a result of the terrorist attacks of September 11, the Federal Reserve Board decided to gradually push down interest rates. From January 2001 to June 2003, via a total of 12 successive cuts, the Fed funds key rate was dropped from 6% to an almost 50 year low rate of 1%. The market was suddenly flooded with cheap money in a Federal Keynesian effort to stimulate the economy under the guidance of Chairman Alan Greespan. It was this same low rate that many economists believe was a major contribution to the creation and growth of subprime loans. Some other interesting things were happening in this time period, the Euro had reached a record high against the dollar $1.1779/Euro on May 26, 2003, Germany had the highest trade surplus since 1984, and China had an economic surplus of 2 billion dollars. World GDP growth rate was also advancing, presenting an upwards trend from 2003. In short, Euro holders had greater purchasing parity against the dollar, China had an economic surplus, and the World GDP growth rate was starting to pick up: the money, once again, had to go somewhere. See Exhibit 3.

Exhibit 3



Source: Author constructed

[204]The key difference between the global financial crisis and the dot com crisis is that in the dot com crisis capital entered the United States fleeing from risk; in the global financial crisis, capital was looking for greater risk and return. Unfortunately, the outcome would show us that the risk that investors willingly took on was drastically higher than what anyone would expect, whereby:

Cheap money + High Euro + Economic Surpluses + Risk Aversion = Market Boom

"You are born short of roof over your head and must cover, either by renting or buying"

- *Paul McCulley*

Flash forward to the late 2004 and early 2005 era. We find ourselves once again in an emerging economic trend in the world's most stable economy, only this time innovation was created by the market, not vice versa. As such, I will expand on my belief that the market created the innovation. Pre-crisis, there was absolutely nothing new in real estate investing; people have and always will acquire houses be it either as an investment opportunity or a place of residence. Interestingly, many circumstances- low interest rates, capital surpluses, technology and even a bit of human innovation- conspired together to create an opportunity for a housing boom, the financial sector being at the center of this boom. It seemed that everyone, banks as well as individual investors, wanted to get a piece of this pie, and so analysts and banks started looking for ways to "spread the wealth". This is what would make the global financial crisis so different and interesting.

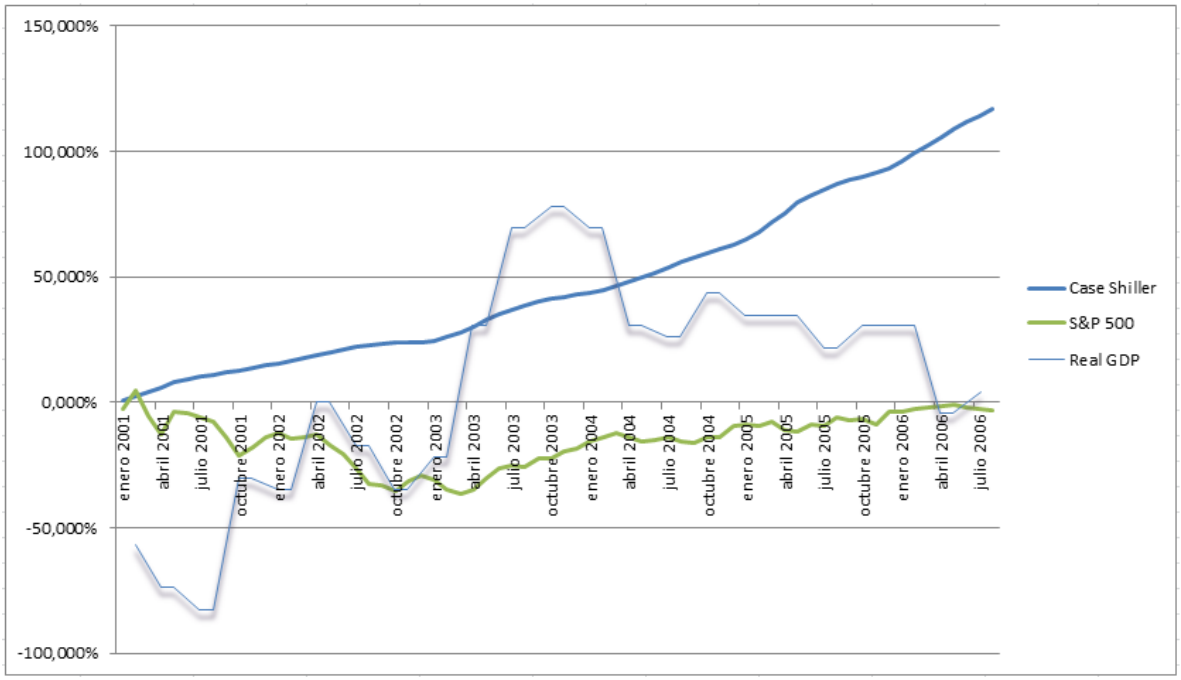
[204] "Foreign Investments in US Securities "Jackson, James K.

In an effort to generate more profits and cash flows, the financial sector started thinking of ways to capitalize on rising house prices, and they found it. It was called Mortgage Backed Securities. This is when the market gave birth to innovation; various forms of investments, in most cases highly leveraged ones, were "created" from the underlying housing boom and transferred from Main Street to Wall Street and back to Main Street. Because of the record low Fed rate, many banks at the time had their balance sheets filled with cash positions. The housing boom, partnered along with the ever optimistic sentiment that "prices (in this case, houses) can only go up" provided an opportunity for banks to start letting loose some of that cash to create profitable returns. Many loans were being made to people who could never afford to pay them back. These loans were then used to purchase homes, many times with no down payment at all, at higher market rates called "subprime" loans. The banks had no problem taking on this risk, as long as housing prices continued to rise, which, for a while they did. See Exhibit 4.

"Prices Can Only Go Up"

Exhibit 4

"S&P 500, Case Shiller Index and Real GDP Growth using January 1, 2001 as 0"



[205]The graph above shows the cumulative variations for the S&P 500, Case Shiller Index and real GDP. I am using the January 2001 reading as a "0" value, and graphing the variations from that point. It clearly shows that the initial increments in house prices could not be explained by rising market returns, nor by changes in purchasing power. Values at point 0 are 114.58 for the Case Shiller index, 1276 for the S&P 500, and a 2.3% real GDP growth rate. The only real explanation for the increments in housing prices was debt. Virtually everybody could get in on the rising housing market, regardless of their credit; thanks to the creation of sub-prime loans. Risky

[205] Sources gathered from: data360.org. All variations are calculated from January 2001, considered a 0 period.

lenders were more than willing to take on these higher priced loans. They needed no collateral, no down payments, and could become a part of the booming market. It was the "American Dream" at a higher interest rate.

Financialization of the Crisis

As always, banks and big investment firms wanted to get in on the action as much as possible. They started designing various financial instruments via the use of derivatives, using real estate and mortgage loans as underlying assets. In brief, banks would sell off mortgages at a discount to investors who would then receive cash flows from these mortgage payments. It was, in a sense, a kind of bond, except in this case their prices were not backed by corporations or governments but by real estate asset, and instead of coupon payments they had mortgage payments. These instruments were issued in many forms and shapes, and had investment grades like any other fixed income asset, from AAA to D. As far as investment firms were concerned, this was as good as financial "alchemy".

They would purchase all types of loans, "fuse" them into packaged derivatives and sell them off as mortgage backed securities (the now infamous MBS). Having the benefit of hindsight, I can find a couple of issues in this process. First and foremost, there is the amount of risk being handed over to the individual investor. When these securities were packaged together; all types of risky assets were mixed. In many cases, they had all types of credit ratings, but since they included AAA rated securities (as well as junk rated loans), they would commonly be considered safe, because somehow having exactly the same underlying asset but adding high credit rating was considered diversification. The end result from all the purchases of different types of

mortgages and packaging was an investment grade instrument that was sold to the public. Sometimes these securities even having the same credit rating as a US Treasury Bond, but were backed by infinitely riskier assets.

The Freedom to Invest

Now, many people have argued that this is where the "public was ripped off by Wall Street, and all those Wall Street bankers". I, for one, have a different point of view. Yes these securities were risky, and also misleading, but I don't remember anyone being forced to invest in them. We are still talking about the biggest financial market in the history of mankind where the Wall Street Journal estimates that the US derivatives market cap exceeds 30 trillion dollars[206]. That's equivalent to 38% of the world's GDP in 2011. MBS were not the only type of investments available to the public. One of the golden rules of investing is "never put your money in something you don't understand", and I believe the vast majority of individual investors broke that rule during the 2005-2008 period. Another point of view is that the SEC and FINRA should have intervened earlier, but I also have a different opinion.

Maybe the FDIC disclosure present in most of the account paperwork we sign that reads, "Not FDIC Insured-May lose value," and "No bank guarantee" actually means that we should think about the consequences of the investment before we jump into it. I pay special attention to "no bank guarantee and may lose value", for this is actually what happens when markets start to collide, and this is exactly what happened in 2008. One of the things that make the US markets so attractive and liquid is the number of investment opportunities and the great variety of

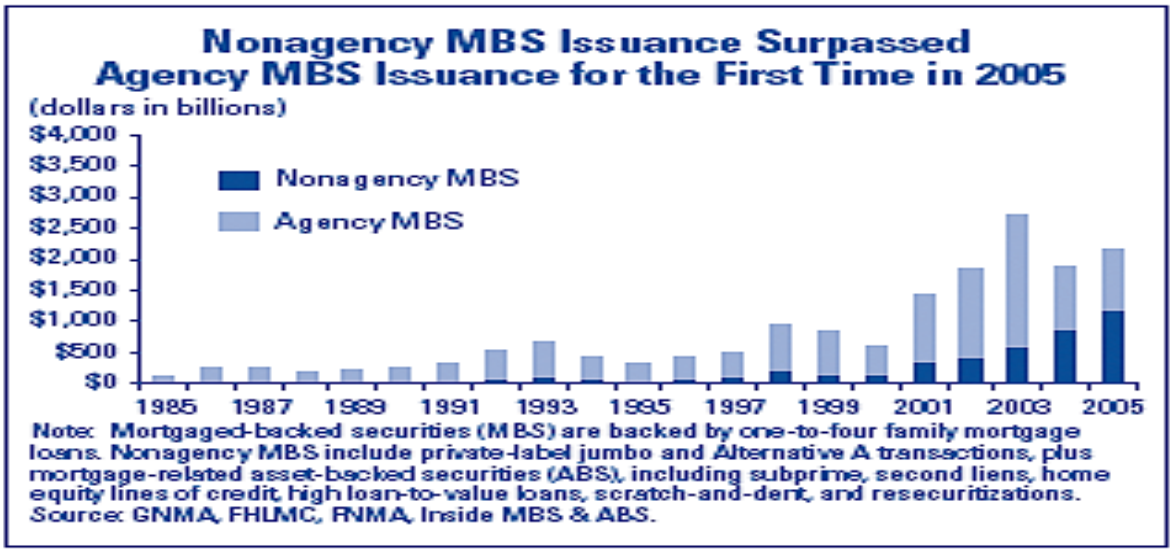
[206] http://www.netinst.com/resources/case-studies/chicago-board-options-exchange.php

instruments. If we ask the SEC- or anyone else for that matter- to intervene every time they consider the market to be inflated, then we are asking someone else to subjectively censor investment opportunities and giving them the power to categorize growth versus bubbles. That is giving someone an immense amount of power in my opinion, and the kind of power that can be used to pursue one´s own interests. Growth can be very easily converted into a speculative bubble when the vast majority of people start mistaking one for the other.

Bubble Busting

The big firm's "financial alchemy" required them to hold assets they purchased in their prop accounts while they were being packaged--a process that would take on average about 30 days. See Exhibit 5. During the securitization process, we are talking about billions of highly leveraged risky assets being held under the banks' names and at their own risk. Any minor price volatility would translate into hundreds of millions, even billions of dollars, in losses to investment banks and other players such as hedge funds.

Exhibit 5


Nonagency MBS Issuance Surpassed
Agency MBS Issuance for the First Time in 2005
(dollars in billions)
$4,000
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
Nonagency MBS
Agency MBS
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
Note: Mortgaged-backed securities (MBS) are backed by one-to-four family mortgage loans. Nonagency MBS include private-label jumbo and Alternative A transactions, plus mortgage-related asset-backed securities (ABS), including subprime, second liens, home equity lines of credit, high loan-to-value loans, scratch-and-dent, and resecuritizations.
Source: GNMA, FHLMC, FNMA, Inside MBS & ABS.

[207]The reality check first came in mid-2007 with the falling of two Bear Stearns hedge funds, both highly invested in MBS. Home prices could actually move downward rather than upward! Then Lehman: The world was struck on September 15th, 2008 with the bankruptcy of investment giant Lehman Brothers. The Dow Jones Industrial Average closed down 500 points that day. The Federal Reserve Board called together an emergency meeting to try and contain the already titanic crisis. It was decided that Lehman Brothers' was not considered too big to fail. The government would then go on an $800 billion journey to repurchase risky assets under the "Toxic Asset Relief Program" euphemism; a Keynesian economy at its best. TARP would then become "Quantitative Easing", a much nicer sounding name. Funds would no longer go to banks, but to the US Treasury, but the spirit behind the financial rescue plan would be the same

Unnatural Economic Cycles

"Those who fail to learn history are doomed to repeat it"

- *Sir Winston Churchill*

The end result of the "Great Recession"--assuming we have seen it--has been the biggest government intervention in the history of capitalism. We must ask ourselves, is this the most efficient way of learning from our mistakes? In my opinion, the capitalist state is the most perfect type of economic system. I am a firm believer in Adam Smith's "Invisible Hand Theory", and I believe the market does in fact regulate itself. This is as true today as it was in 1759 in the *Theory of Moral Sentiments*. The strongest companies must maintain their crown by being innovative, productive, and competitive, while weaker (less productive) companies must

[207] Source: Federal Deposit Insurance Corporation (FDIC)

innovate or die. One might even say the market is a Darwinist environment, where only the fittest survive. Maybe 2008 should have brought a few of the companies which the government considered too big to fail to the grave yard. Perhaps some of these firms were no longer being efficient in managing their substantial assets. Investment banks and hedge funds alike saw an opportunity to make large amounts of money, and they took it and ended up on the wrong side. They placed their bets and ended up losing.

In the spirit of capitalism, maybe some of these banks should have been left to die, in an orderly manner of course. I know this is a very expensive proposition, but the future cost of not learning from our mistakes because "Uncle Sam" will bail us out will be immensely greater, guaranteed. In the spirit of capitalism, these big names should have been allowed to take the fall for their bad call. Such is the natural economic cycle in this great economy: expansion, prosperity, contraction, recession. But when the Fed tries to lessen the negative impact of a booming expansion and prosperity cycle, the cycle is no longer natural. It has been tempered with, and this is not capitalism. Unnatural cycles are created where expansion and prosperity are followed by contraction. The public has gotten used to bailouts, and once the earliest signs of contraction emerge, they will be expecting one. If nothing is offered, or even hinted, we go straight into recession. The contraction period is almost reduced to the following question "will we receive governmental aid". The Fed is no longer a lender of last resort-it has become a lender of first resort.. The effect is even worse when substantial amounts of taxes are diverted from other investments into these bailouts.

Conclusion

The spread of the 2008 housing boom collapse has surpassed most analysts' fears. The contagion

has gone into Europe and its effects have been notorious. Sovereign credit downgrades have been emitted, jobless rates have increased, Greece has defaulted (in an orderly manner) and the Eurozone's stability has been greatly compromised. The disadvantages of an integrated regional market and same currency have been exposed, and even threatened. That said, the world still looks up to the United States as an example in many aspects, primarily its economy. So it is no wonder that the Eurozone is trying to eliminate their economic problems the same way the US did, via government intervention, short sale prohibitions, and economic stimulus.

At this time**,** Greece alone has received more than 100 billion Euros to meet their sovereign obligations in early March. If 100 billion Euros have been provided just for the March obligations, then what will happen to the rest of Greece's obligations? What will happen to Italy, Spain, Ireland and Portugal's obligations? Does the European Economic Commission really have enough money to bail them all out? If not, then who chooses which country should get bailed out and which country should not? In my opinion, this was the worst result of the Great Recession; the false belief that government can and should carry out their enterprise's obligations when they fail to do so. By using these "rescue methods" we are not solving any problems, just trading corporate deficits for fiscal deficits, and prolonging the problem, which in time will only get worse.

Chapter 28

The General Theory of Everything…….Especially Securitization

Daniel Elnegaard

Introduction

Since the first use of mortgage securitization in the early 1970s, the market has undergone a great transformation that has made mortgages available as an investment to investors all over the world. Securitization quickly became popular both with the government sponsored entities (GSEs) and private originators and during the buildup to the financial crisis the use of securities skyrocketed. Figure 1 shows that the global value of securitizations (not only mortgage securitizations) rose to an unprecedented high of $2.5 trillion in 2006. After the breakout of the crisis the number plunged.

Figure 1 – Boom in Securitization

Source: The Economist (http://www.economist.com/node/15770756)

While securitization is used with many assets, this paper will mainly focus on how this is done in the mortgage market, and what the consequences have been. First we will take a general look at securitization, and then the credit agencies' role will be examined. The third section analyses the loan process and the frictions that arise, and the fourth section focuses on diversification. After that, the role of securitization in the outbreak of the financial crisis is evaluated.

Securitization

Up until the beginning of the 1970s the mortgage market was based solely on the so-called originate-to-hold model. This means that when a consumer bought a house, he would go to a savings and loans association to obtain a mortgage. The savings and loans association would then keep the loan in its portfolio for the entire duration. It thus performed all 3 functions connected with mortgage issuance by originating, funding, and servicing the loan.

Then things started to change in the mortgage market. In 1970 the first mortgage backed security (MBS) was issued by Ginnie Mae in the form of a mortgage pass-through security. A pass-through is created by pooling a number of individual loans into a single paper. The issuer then collects payments on each loan and forwards them to the holders of the pass-through security. In the beginning, these securities were only issued by the fully-or-partly government controlled institutions, Ginnie Mae, Fannie Mae, and Freddie Mac, but in 1977 private issuers also entered the market. Securitizing became increasingly popular, and by 2008 the share of securitized home mortgages had risen to 59 percent from only 11 percent in 1980[208].

[208] Barth et al (2009)

In the beginning, MBSs were created as pass-through securities as described above. Later the market evolved and issuers began dividing the securities into tranches with different risk characteristics. There are typically 3 groups of tranches in a security: Senior, Mezzanine and Equity. The senior tranches are above the two other and is the first to receive payments from the cash flow of the underlying mortgages. Only when the cash flow is large enough to cover the promised payment to the senior tranches does the subordinated tranches start to receive money. This structuring shifts the risk downwards in the tranches, allowing the senior tranche to obtain a high credit rating, which makes it available to investors that are bound by restrictions on the credit rating of the papers they invest in. The lower tranches are more risky which is compensated for by higher yields.

The use of securitization delinked the originating, funding, and servicing functions from each other which led to a transformation of the loans market. Securitization has made it possible for institutions to specialize in origination and then sell on the loan to a third party. The loans can afterwards be pooled together in a MBS and sold to investors. This has greatly increased the capital available to the mortgage market as well as the liquidity of mortgages by making them available to a whole new range of investors. The originators can now tap into the resources of hedge funds and pension funds resulting in a larger supply of loans and lower interest rates to the benefit of homeowners.

However, because securitization transfers risk from the originator to the investor, who buys the MBS, it may introduce frictions as the originator has superior information about the borrower. This may lead the originator to offer the homeowner a loan that is too big, while knowing that there is an elevated risk of default. The provider of the loan can then sell the right to the cash

flow to an investor who is unaware of the credit quality of the borrower and at the same time cash in an origination fee. In this way, the originator earns a profit without having to bear the risk for the duration of the loan. The investors are of course aware of this moral hazard problem but may not be able to obtain the necessary information on every single borrower. This is where the credit rating agencies come into the picture.

Credit Rating Agencies

Securitization has allowed investors to invest in mortgages in faraway areas. It may be too costly or infeasible for investors to perform the necessary due diligence on the mortgage backed papers they invest in. Therefore they often have to rely on ratings to measure the risk. The rating agencies' original core business is the rating of corporate bonds, but they quickly expanded into the new market for structured products.

The agencies, however, do not have an impressive track record. Barth[209] finds that ratings are not a good reflection of the market's perceived risk as measured by the CDS spreads on a sample of S&P500 corporate bonds. When it comes to structured papers, the rating agencies have fared especially bad: In 2007, more than 2,000 securities were downgraded and another 11,000 followed the year after[210]. And these are just the numbers for AAA-rated papers! How was it possible for the rating agencies to misjudge such a large number of securities?

A controversial aspect of the credit rating industry is the so called issuer-pays model which is currently the prevailing system. The problem is that the issuer of a security pays the credit rating agency to rate that security. This creates a conflict of interest for the agencies who may be

[209] Barth et al(2009) p. 162
[210] Benmelech et al (2009)

tempted to inflate ratings in order to attract more customers. Another danger of the model is ratings shopping: An issuer of a security can obtain preliminary ratings from different agencies and then choose the best one. This may again contribute to the inflation of ratings.

Several solutions have been suggested in the literature – most notably a reintroduction of the investor-pays model which was the norm prior to 1970[211]. Having investors paying the rating agency is not a perfect solution either though, as they are often small and dispersed which makes it hard to organize. Also, a free rider problem arises because a credit rating resembles a public good. The investor-pays model may not even eliminate the bias in ratings, but simply reverse it to a downwards pressure, as investors receive higher yields if the rating is lower. All in all the current system seems to work adequately despite its obvious drawbacks.

Another problem is the computer models that are used by rating agencies to assess the risk of a security. These are designed to determine default probabilities based on stress tests. In order to do this for structured papers the programs make use of financial modeling, but leaves room for individual judgment which again opens up to ratings inflation.

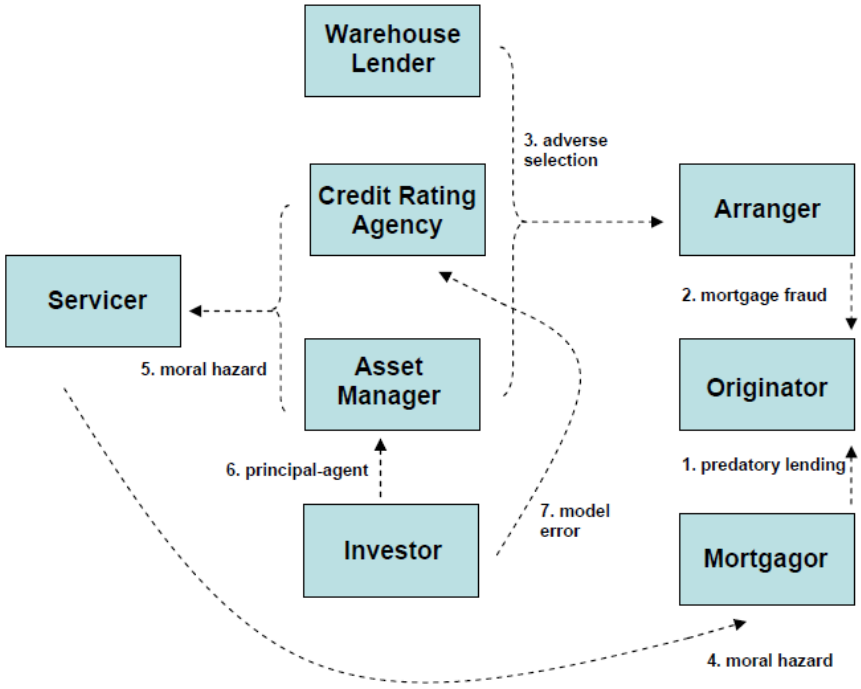
The models typically include parameters related to diversification among mortgagors but do not consider diversification among different originators. This may have prevented a number of downgrades, as it turned out that the problems were limited to four issuers of mortgage products[212]. Also, because only limited historical data for structured products typically exists, the ratings of these are more uncertain than those of corporate bonds.

[211] Deb et al (2009)
[212] Jacobs (2009)

The securitizing process and potential dangers[213]

This section will describe the complicated process that starts when a homeowner obtains a mortgage and analyze the potential issues that can arise due to asymmetric information. An overview of the system is provided in Figure 2.

Figure 2 – The Securitization Process



Source: Ashcraft et al (2008)

The first step is that the homeowner wanting to obtain a mortgage (the mortgagor) applies for a loan at an originator either directly or through a broker. Already, at this first stage the first friction arises as the mortgager does not usually have the same knowledge about the loans as the originator. The borrower therefore risks being a victim of predatory lending practices where the

[213] This section draws on Ashcraft (2008)

originator convinces the borrower to take a loan on unfair terms. While there are laws trying to protect borrowers from predatory lending it may be necessary to educate homeowners e.g. through financial literacy courses.

If the originator does not want to hold the mortgage in his own portfolio, he will either securitize it himself or contact a dedicated securitizer (or arranger) to try to resell the loan. This again introduces several frictions. Firstly, there is the problem of adverse selection, as the originator has superior information about the borrowers and can choose which loans to keep in the portfolio and which to pass on to other investors. The originator may thus try to hold on to the best loans while selling more insecure loans to investors. This problem is largely taken care of though, as loans are typically pooled randomly together. Secondly, the existence of asymmetric information can distort incentives for the originator, leading to predatory lending practices. Because the originator does not bear the risk of the mortgagor defaulting he may be careless when assessing loan applicants' credit quality and provide more credit than the borrower can afford. In order to prevent this, the originator normally has to guarantee the performance of the loans for a period of time. However, this is a poor guarantee if the originator goes bust. Keys et al[214] has showed that when loans are easily securitized (based on the historical rule-of-thumb of a FICO credit score above 620) the securitizer performs only a perfunctory examination of the borrower. The result is that papers, based on the high-FICO score loans, actually default 10-25% more often than similar risk, low-FICO based papers, which have undergone more thorough credit checks.

When the securitizer has decided to buy loans from an originator, it needs to raise the necessary capital to fund the purchase until the securities based on the loans are issued. If the securitizer

[214] Keys et al (2010)

does not have the necessary capital on hand it can turn to third-party lenders known as warehouse lenders. These warehouse lenders do not know the exact quality of the loans that the securititzer is buying which again leads to an adverse selection problem.

Before issuing the securities, the issuer usually wants to obtain a credit rating which leads to a conflict of interest as described in the previous section. The issuer may also try to keep unfavorable information about the loans from the rating agency to achieve a higher rating. The securitization is, in practice, done by transferring the loans to a special purpose vehicle (SPV) that handles the issuance of the bonds. This serves to isolate the risk of default from the securitizer as well as to protect investors. The SPV typically outsources the task of servicing the loan to an external servicer that will collect the payments from mortgagers and channel them to the bond holders.

Another source of friction is the limited liability of homeowners. When a homeowner takes out a mortgage, the lender bears all of the risk as the borrower can default and walk away if the value of the house falls below the amount borrowed. The payoff to the homeowner thus resembles that of a put option on the house. If prices go up, the increase goes to the homeowner, while the loss in the event of default cannot be higher than the down payment on the house. This creates a moral hazard problem between the mortgagor and the lender/servicer as the mortgager has no incentive to try to maintain the property or pay for insurance for a property that is heading for foreclosure when he can walk away for free.

Higher down payments could be part of the solution to this moral hazard problem, as this would act as a buffer and shift some of the risk of price movements to the homeowner, who is the one controlling the cash flows. However, this creates a problem for borrowers, as they will need to

have more capital of their own in order to obtain a loan. This may especially cut off poor families from the property market, and it is therefore not only an economic issue but also a political trade-off between financial stability and equality. A better solution might be to remove the limited liability of the homeowner, thus providing an incentive to keep maintaining the house and servicing the debt even if house prices fall below the value of the mortgage. This model is used in other countries, such as Denmark.

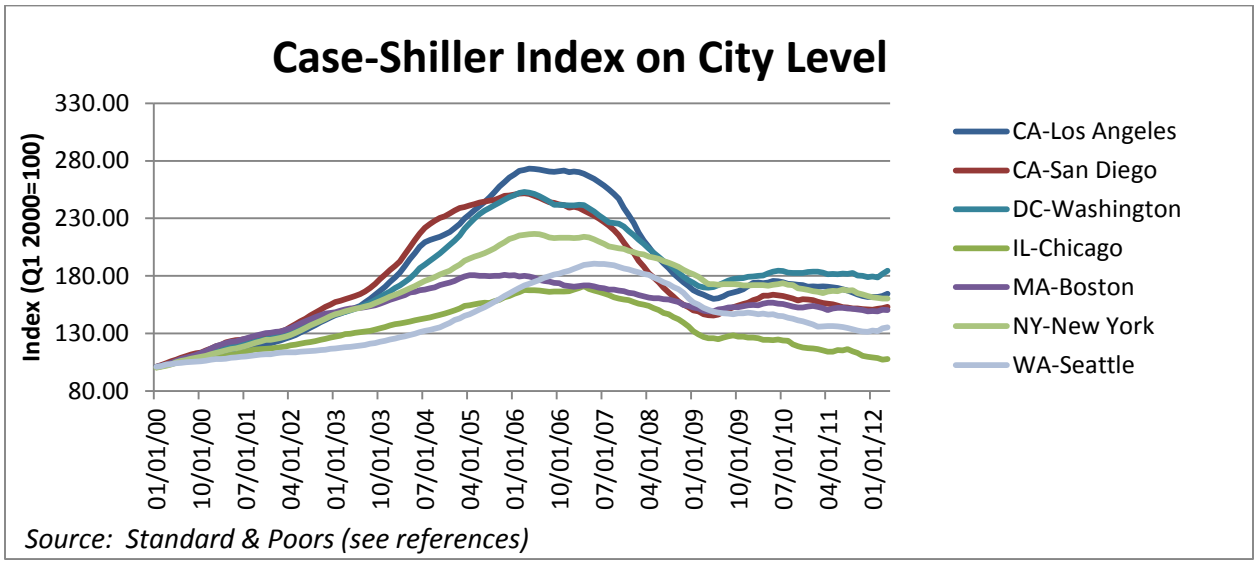
The last friction that will be treated here is the relationship between the investor and the asset manager of the SPV that holds the mortgages and issues the securities. The asset manager is (supposed to be) working in the interest of the investors, and handling the task of due diligence. However, the effort of the asset manager is not perfectly observable to the investors, and the manager is typically more sophisticated, which leads to a standard principal-agent-problem. In order to mitigate this problem the asset manager is typically subject to a number of limitations regarding which assets the SPV can hold, including the credit rating and comparisons to benchmark performance.

Diversification?

One of the proposed advantages of securitization is diversification. By pooling together a large number of different mortgages the MBSs diversify away the risk of a default on individual loans. As modern portfolio theory describes, it is possible to achieve both a larger return and a lower standard deviation by combining assets that are not too positively correlated. The only problem is that the mortgages were highly correlated with each other, which invalidates the diversification argument.

Housing prices are typically highly correlated across owners, cities and even states. Figure 3 shows the development in housing prices in a number of major cities across the country. The figure shows a clear correlation between the prices in the different areas, with a buildup until around 2006 and then a sharp decline before leveling out around 2009.

Figure 3 – Development in Housing Prices as Measured by the Case-Shiller Index



In a paper from 2009, Coval et al[215] investigate how correlation between the mortgages in CDOs affects default rates. The big challenge in predicting default rates for structured papers compared to corporate bonds is that one needs to estimate the joint distribution of default for the underlying mortgages. On top of this, the tranche structure complicates things further as a high correlation will make senior debt much more risky because the buffer from the mezzanine and equity tranches quickly disappears if there is a large downturn in the economy. Coval et al therefore

[215] Coval et al (2009)

conclude that the pooling of loans in CDOs does not lower risk. Instead it minimizes losses in normal periods and moves the risk to extreme states because of the tranche structure. This makes it harder for credit rating agencies to predict the likely default rate as even small errors in the estimation model are magnified. It also means that one should be careful comparing different asset classes with the same ratings, as structured bonds are more sensitive to economic fluctuations than corporate bonds.

Securitization and the Global Financial Crisis

Securitization, in interaction with a number of other factors, seems to have played a large role in the global financial crisis. The mortgage backed securities became wildly popular in a time of generally low yields, delivering a high promised return and a seemingly low risk. This sounds almost too good to be true and it soon turned out that it was.

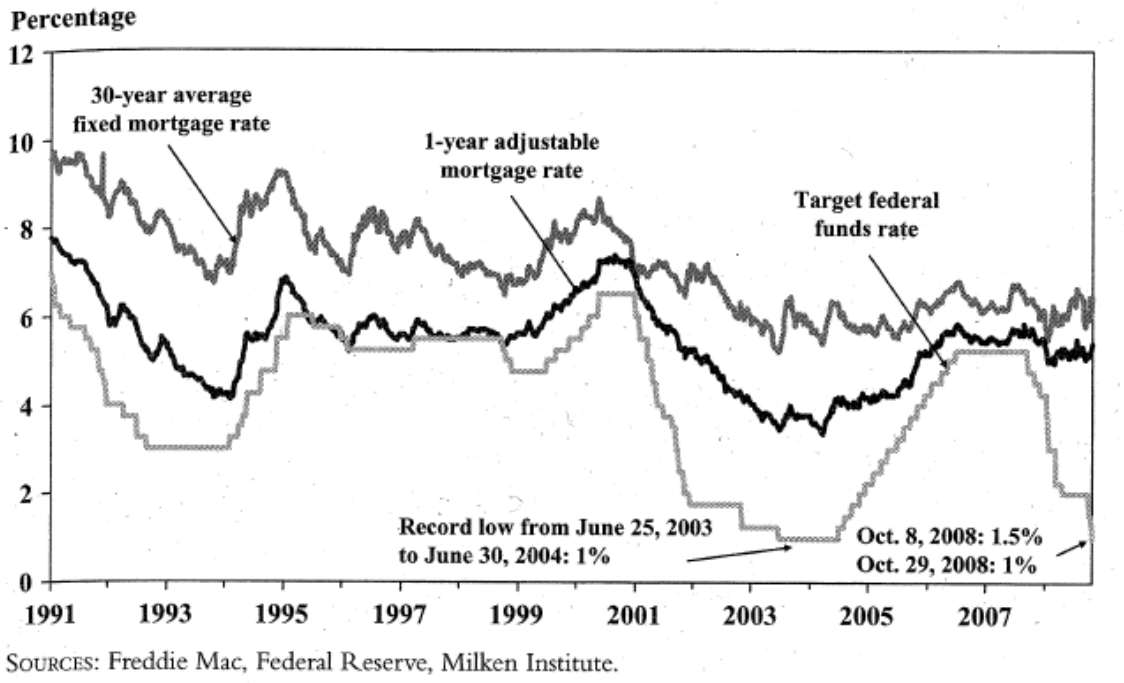
The advent of securitization in the mortgage market gave house buyers access to new sources of funding. The mortgages could be pooled together and divided into tranches in order to achieve a high credit rating for the top tranche. This allowed institutional investors, bound by requirements to the rating of their assets, to invest in the mortgage market. Securitization thus served to connect home buyers to cheap capital and provide investors with higher yields.

MBSs became increasingly popular in the low interest rate environment during the aftermath of the Dot-com bubble where the Fed lowered the policy rate to just 1%. The attractiveness of MBSs drove down the mortgage rates which resulted in a lending boom that pushed homeownership rates to a new record high of 69.2%[216]. Figure 4 shows the sharp fall in in the

[216] Barth et al (2009)

Fed rate and the simultaneous decline in both fixed and adjustable mortgage rates. The decreasing borrowing costs fueled the buildup in housing prices and started a feedback loop. As prices rose, investors' belief in mortgage products strengthened, resulting in further capital flows to the mortgage sector which again put an upwards pressure on prices and so on.

Figure 4 – Fed Funds Rate, the 30-year Fixed and 1-year Adjustable Mortgage Rates



Source: Barth (2009)

An important factor in the collapse of the securitization market is the complicated structure of many products that made it nearly impossible to assess the true risk of the investment. Issuers would not only pool together a lot of mortgages in a MBS but also build other securities on top of the MBSs. As mentioned, the MBSs are divided into tranches so the senior tranche can receive AAA-rating. During the buildup to the crisis it became popular to repackage the mezzanine tranches along with other types of debt (e.g. credit card loans and student debt) into CDOs that

were once more divided into tranches thus allowing the new senior tranche to get AAA-rated. On top of this, individual CDOs were again pooled together to create so called CDO^2s and CDO^3s. Issuers even utilized CDSs on mezzanine tranches to create synthetic mezzanine bonds to package into CDOs[217].

The very complicated structures proved a challenge for credit rating agencies. They had to rely less on fundamentals and more on financial models that left room for interpretation. This, combined with the issuer-pays model, may have caused an upwards bias in ratings. It was actually revealed that Fitch Ratings had used a model that assumed constantly appreciating home prices[218]! The high ratings as well as the illusion of diversification, made investors regard the upper tranches of MBSs and CDOs as relatively safe assets. However, when the housing bubble started to deflate in 2007 and 2008, and the default rates rose, investors realized that the securities were far more risky than previously thought. This led to massive devaluations which brought several financial institutions to their knees. As investors tried to offload their positions, the market for CDOs vanished. This was all amplified by the heavy use of leverage by many financial institutions that made them vulnerable to even small price movements. The securitization of mortgages thus served as a link between the housing market and the financial markets.

[217] Jacobs (2009)

[218] Friedman (2011)

Conclusion

The advent of securitization is, on its own, a positive development that has introduced new possibilities for investors and greatly expanded the funding available to home buyers. The fault then lies primarily in the way securitization has been used. The breakup of functions has introduced adverse selection, and moral hazard, and the securities were way to complex, which made it virtually impossible to measure the risk. Unable to understand the risk, investors turned to the flawed ratings of credit rating agencies and believed they were safe because of diversification. This however, turned out not to be the case so the whole CDO market came tumbling down when the housing bubble burst. The market for mortgage backed products came to serve as a link between the housing market and the financial markets when institutions rushed to unwind their positions. Thus, securitization connected the housing market and the financial market to the benefit of both, but ended up playing a central role in the financial crisis.

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Chapter 29

Why the United States recovers and Europe may not be on the right track

David Martins

My perspective on the recent Global Financial Crisis is an attempt to describe my opinion on some general solutions undertaken during the economic crisis that took place from 2007-2009.

The global characteristic of the Great Recession, as well as the fact that some parts of the world, mostly the European Union in this case, are still experiencing economic damages, implies that we should take a worldwide look at public solutions and results.

In the book *The Subprime Solution*, Robert Shriller endorses bailouts as short-term solutions to avoid the consequences of the crisis. Such actions have been undertaken both in Europe and in the US, preventing more failure from occurring.

The FED and the European Central bank have both lowered their main interest rates. This has led to a recovery of the banking system. Still, these measures have produced different results. Furthermore, the US already started to recover whereas some countries in the European Union are now facing a Sovereign Debt liquidity crisis.

I believe that one of the fundamental indicators of economic recovery is the job market. In that sense, bailout solutions and institutional programs, as well as actions on interest rates need to be packaged with job market stimuli. In my view, the US job market situation presents better results than the European one.

Market-liquidity solutions stop being effective when they face market doubts about fundamentals. My opinion is that the results of intervention policies are more effective in the United States - even if they are not perfect and some effects are far from the expected ones, than in Europe. The actual Euro debt crisis is, in my belief, one of the consequences of the uncertainty of several fundamentals in countries of the European Union.

The first part of this paper explores the historical housing price levels that both the US and most of the European countries experienced before the housing crisis. In the second part, I will focus on the answers provided by local authorities in the short run; several bailouts, new institutional (in the US) liquidity injections and interest rate reductions. The energetic actions undertaken by the US government, sometimes criticized for being too intrusive and not efficient, lead to both recovery in the banking system and the job market.

In Europe though, another crisis came before the solution to the first one; a Debt crisis on the Euro to which actions undertaken, principally bailouts and money injection in the banking system, are still not producing effects.

A "real" social misunderstanding behind a real estate crisis

At the time this paper was written, US Home prices had roughly reached their 2003 levels after reaching an unprecedented level in mid-2006 (data based on the book Shriller, *The Subprime Solution*, 2008). In Europe, several domestic real estate markets are still recovering, especially in Portugal, Italy, Greece and Spain. See Exhibits 1 and 2.

Robert Shriller explained in his 2008 book, "The Subprime Solution," that housing price bubbles have been seen worldwide. Indeed if we use a different example than those given in the book,

for example, US and Spain's housing market, we clearly distinguish a high level of correlation in prices during the pre-crisis period

Exhibit 1: S&P/Case-Shiller Home Price Indices

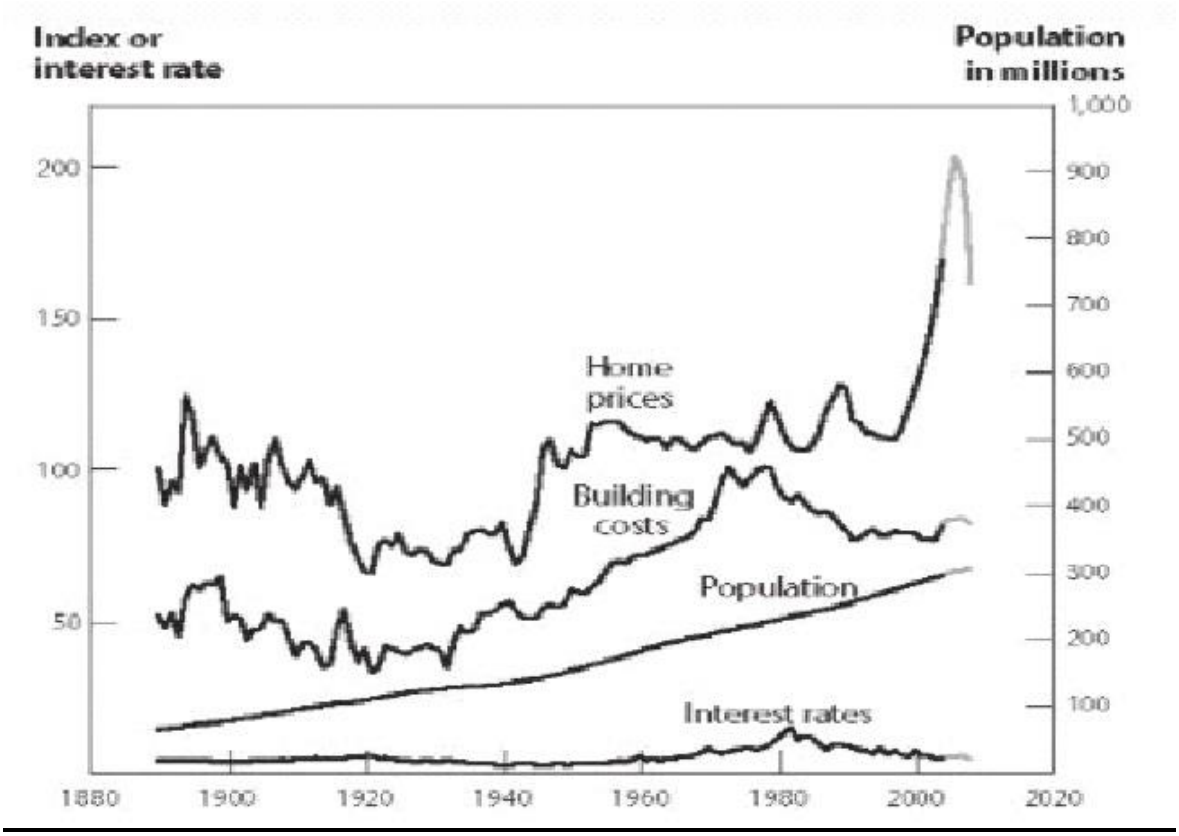
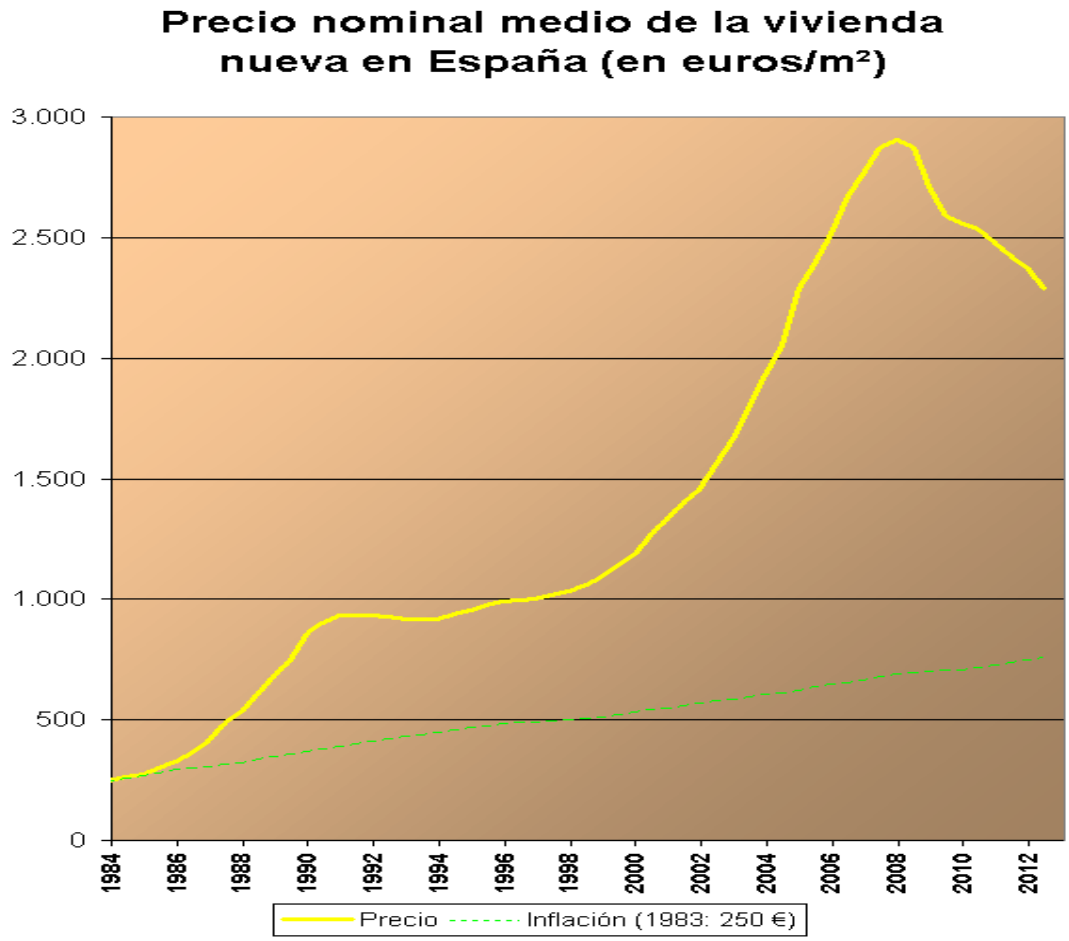


Exhibit 2: Spain housing prices by square meter compared to the inflation rate

(Source: wikipedia.es)



Economic crises, like the one that followed the last housing bubble are not new to any economist; as the famous adage goes, "we have been there before." So too with the familiar adage from the book titled *This Time Is Different* by Reinhart Rogoff; as he argues that even if "highly leveraged economies, particularly those in which continuous rollover of short-term debt is sustained only by confidence in relatively illiquid underlying assets, seldom survive forever,

particularly if leverage continues to grow unchecked" (*This Time is Different*, page 341, electronic version of the book).

Indeed, what is new in the Great Recession is the level of sophisticated financial engineering developed by financial operators. Innovation became a key in financial product development and was widespread on Wall Street as mentioned in Scott Patterson's 2010 book, *The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It*, and then went worldwide.

Securitization and the spread the counterpart risk

The Securitization process is often blamed for the economic troubles and the collapse of the worldwide banking industry. So are mortgage-backed securities (MBS) and collateralized debt obligations (CDO). MBS are asset-backed securities built in three steps through the process of securitization: the origination of the mortgage, the loan securitization (done when Fannie Mae and Freddie Mac provide liquidity to the market by buying the mortgages), and the payment of the monthly installment by the borrower.

CDO's are asset-backed securities made of a pool of assets and bonds as collateral. They provide different tranches ranked by level of risk and return to investors and a way to divert the principal and interest according to investors risk preference.

As Bruce Jacobs explains in his CFA chapter "Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis": **"**The current crisis has been characterized by a lack of due diligence on the part of mortgage brokers, lenders, and investors, a lack of oversight by banks and credit rating agencies, and a lack of regulation and enforcement by government agencies."

That being said, two ideas should be remembered. First, as derivatives, such products rely on an underlying asset, and in this case, on cash flow coming from the loan payments. As a consequence, these products do not naturally pose a default risk from the debtor, even if they allow the cash-flow payment series destination to change as these products are traded between financial institutions.

Secondly, housing bubbles also happened in European countries where securitization has not been so developed. In Spain, the housing bubble crash that started in 2006 is due to an oversupply of real estate products and did not require the development of MBS or CDOs to take place.

Thus, financial instruments and the securitization process are only media that reproduce the consequences of economic fundamentals of underlying assets.

Answers provided in the short run

As the first signs of economic recession occurred in 2007-2008, US authorities started to take action. So did European authorities but, in my view, in a different way and with different goals.

In the US, the solution adopted by the Bush Administration and then the Obama government clearly reminds us of the solutions of the Great Depression of the 1930's. Shriller speaks about "A new New Deal" and puts the emphasis on the need for bailouts even if they may be seen as unfair, especially to Keynesian opponents. This is due to the possible moral hazard that it may bring into the market, as some agents may try to take more risk that they should, hoping that their "too big to fail" position is enough to – directly – qualify for a bailout.

The most famous actions taken were undoubtedly the federal takeover of Fannie Mae and Freddie Mac, the AIG bailout as well as some US banking bailouts in the United States (even Goldman Sachs).

In Europe, since the huge Franco-Belgium Dexia Bank bailout in October 2008, bank bailouts have become common; more than five years after the beginning of the Crisis, the Spanish banking system just received a 100 billion Euro bailout! Several car manufacturers like the French-Japanese giant Renault-Nissan has been backed by the French government.

From an institutional point of view, the US solution of launching new stimuli and institutions seems to be a consistent and relevant approach to solve the crisis. First, the Economic Stimulus Act of February 2008 of the US Congress was aimed at developing a series of economic stimuli. Among these were tax rebates to low- and middle-income taxpayers as well as incentives to boost business investment.

Second, the American Recovery and Reinvestment Act of 2009 (ARRA) has been approved to help save and create jobs in the short run. The second main goal has been to institute relief programs by investing in education, health, infrastructure, and green energy development.

This is an ambitious package of US governmental measures, a typically Keynesian approach, whereby public investments are meant to offset the contraction in private consumption. This constitutes an example of what should be followed by the European Union.

Although intervention has not been perfect, the positive effects of these bailouts and actions have led the US economy to recovery. The US GDP growth rate is expected to be 1.5% for the 2nd

quarter of 2012. In Europe and in the Eurozone, about 11 countries are expected to be in a recession at the moment!

In terms of spending ambitions, the ARRA was expected to cost around 831 billion dollars over 10 years. In a recent meeting of Mario Draghi, President of the ECB, Angela Merkel, the Chancellor of Germany, and François Hollande, the recently-elected French President, reports have been made of a possible European Union program of investment in innovative firms for a total of about 1% of the EU budget (around 120 billion euro, or less than 25% of the ARRA budget).

Public action, consensus and the role of "interconnected variables"

It is hard to find a consensus about economic consequences of public action. Some voices will argue that public spending consequences have to be avoided as they bring more public damage than positive results. Others say that it is impossible to determine what would be the situation without public intervention, especially when the economic situation urgently requires it. Feedback is always made ex-post and once intervention is made, it is easy to say that it should have been avoided.

I believe that a great "indicator" of the efficiency of governmental action is the fact that governments do not need to repeat actions to reach an initial goal. In that sense, some macroeconomic variables and relations should be taken into account by governments when facing serious economic and financial crises.

Production output, job market and inflation as variables to monitor for an economic recovery

Financial markets are not blind; fundamentals of a country clearly determine the interest rates investor demand to invest in sovereign debt, either in the US, or Europe. By fundamentals, I am referring to components of Professor Richard Selden's three-building-block classical model (assembled by Professor Selden in a 4-corner diagram showing equilibrium values for the price level, P, real output, Q, employment E, and both real and nominal wage rates. The first "block" we need to consider is the aggregate production function, that assumes a stock of capital K (all productive inputs, including labor) and a state of technology T.

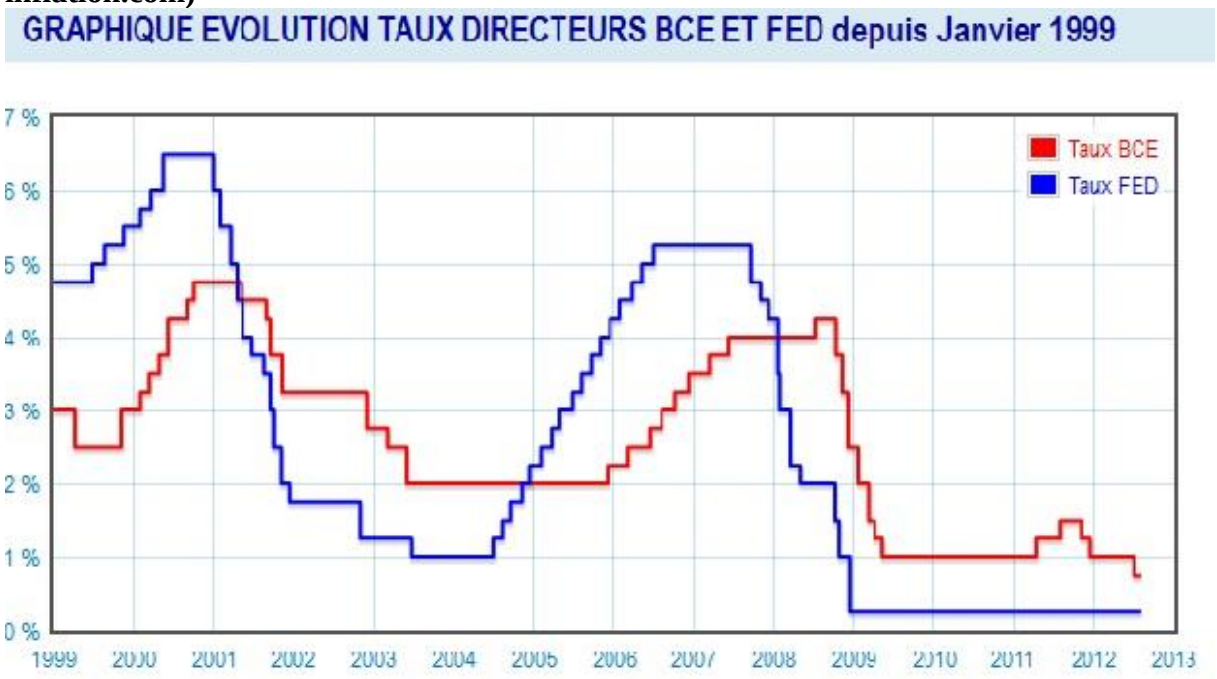
The second block, the labor market, assumes that labor is an increasing function of the nominal wage rate divided by the price level in the economy (the relative wage rate). Labor demand from firms depends on employer's estimates of the marginal physical productivity of labor multiplied by the market value of the extra output. Finally, the third block of the model relates the level of output of the economy and the level of prices.

Among the rich and numerous teaching of this model, I believe that investors certainly look at the production level of a country, the GDP, the job market – most precisely the unemployment rate – and inflation when deciding to invest or not in sovereign debt. So do banks when they make credit available to business and consumers. As the Selden model illustrates, several real economic variables need to be taken into account and the recommended solution cannot be only about injecting more money in the economy.

Interest rates, liquidity injection and ratings; when more money is not enough money

Since the liquidity crisis of 2008, and especially after Lehman failed, the FED's main interest rate is about 0%-0.25% (December 2008), which led the interbank FED funds rate to follow this tendency too (Exhibit 3).

Exhibit 3: Policy interest rates of the FED and of the ECB since 1999 (source: france-inflation.com)



The ECB also lowered its main interest rate but the tendency is more difficulty to get; 1% from May 2009 to July 2011, then 1.5% and back to 1.25% in November and 1% in December 2011. It seems that the ECB itself had doubts about the correct course of interest rate action to take in 2011!

It is the first time in Europe that interest rates are so low and that massive liquidity injections in the banking system by the ECB took place. At the same time, the European results in terms of growth, consumption, and above all on the jobs are still to come. Not surprisingly, countries with higher unemployment rates and lower GDP growth have the worst grades from rating agencies. After bailouts that came from outside the Eurozone (from the IMF bailouts) Spain recently

received a 100 euro billion bailout to save its banking system that came from the 17 Euro Group countries.

Economic fundamentals such as GDP, unemployment rate, and inflation play a high role in the determination of the yield of sovereign debt when issuing debt for countries (Exhibit 4). Recently, Germany allotted about 4.17 billion euros on 2-year bonds at a negative rate of -0.06%. In contrast, as for the last available data available on August 6th 2012, Spain's 2-year note yield was 3.804% per year and the yield on Greek debt was 164.304%!

Exhibit 4: Comparison of macroeconomics fundamentals (data of July 2012, computed by author)

	Unemployment rate	Delta GDP	Delta Inflation	Yield 2yr bond	Yield 10-yr bond	Fitch rating	S&P rating	Moody's rating
Germany	5.6%	2.7%	1.7%	-0.059%	1.435%	AAA	AAA	AAA
France	10.1%	1.7%	1.9%	0.153%	1.734%	AAA	AA+	AAA
Greece	21.9%	-6%	1.3%	164.304%	26.557%	CCC	CCC	C
Spain	24.6%	0.8%	1.9%	3.7890%	6.837%	BBB	BBB+	BAA3
USA	8.2%	1.5%	1.7%	1.448%	1.448%	AAA	AA+	AAA

In the European Union, the Unemployment rate is 10.4% as of June 2012 and the Delta GDP +1.4% a year in 2011.

Data source:

http://www.touteleurope.eu/fr/actions/social/emploi-protection-sociale/presentation/comparatif-le-taux-de-chomage-dans-l-ue.html

http://www.indexmundi.com/fr/espagne/produit_interieur_brut_%28pib%29_taux_de_croissance_reelle.html

https://www.cia.gov/library/publications/the-world-factbook/

http://tempsreel.nouvelobs.com/economie/20120622.OBS9371/crise-de-l-euro-un-mini-sommet-a-rome-pour-deblayer-le-terrain.html

http://www.tradingeconomics.com/inflation-rates-list-by-country

http://fr.wikipedia.org/wiki/Fichier:Notation_financi%C3%A8re_des_Etats_europ%C3%A9ens_par_Fitch_Ratings.svg

http://en.wikipedia.org/wiki/List_of_countries_by_credit_rating

Lowering interest rates to unprecedented levels, both in the US and in the Eurozone, offer results that in my belief stop producing the desired effects when "some fundamentals do not follow the pace" and uncertainty remains visible. And the situation is less uncertain in the US than in Europe at this time.

Money that does not circulate properly for fundamental reasons

In a traditional Money Supply-Demand chart, the actions undertaken by the FED through OMO (open market operations) and interest rates operations, as well as those of the ECB lead to the Money Supply curve to move to the right. Still, the quantity of money in circulation depends on the willingness and the capacity of banks to make loans to businesses and individuals.

In 2011, the US monetary base was about 2.5 times higher than in the EU and the money base stands at, respectively, about 20% and 11% of the total GDP (Exhibit 5).

The level of reserves deposited in the respective central banks is a great indicator of how the money effectively circulates in an economy. As commercial institutions, banks look for profit and as such try to avoid moral hazard when dealing with any counterpart.

Since December 2010, the required reserve ratio for US banks with more that 58.8 million of transactions is 10% of the net transaction accounts. Both required reserves and excess reserves remuneration by the FED is 0.25%. The level of excess reserves from US banks clearly contrasts with the European bank situation, where they do not get any remuneration (Exhibit 5); even if the level of total reserves is higher in the US, the economy has recovered in a better way than in Europe!

Exhibit 5: Monetary Base and Excess Reserves in the US and EU

(Source: FED and http://cib.natixis.com/flushdoc.aspx?id=57762)

Reserves: Obligatoires = required reserves

I believe that the economy recovery is only starting in the US and that in some countries in Europe that the best is still to come. Indeed, private investors, including banks, required a market-return rate higher than what is available at this point in order to invest in projects. In the meantime, the US stock market is undervalued.

Apparently, US banks opted for depositing money received from Fed Open Market Operations as excess reserves. Clearly, at this time there is still uncertainty and the positive effects of the US package of monetary policy and new institutions and acts may be higher in the future. But even taking this into consideration, the unemployment rate that I believe is the central key to economy recovery has dropped since the crisis.

The European Union situation appears more worrying. As the level of required reserves has dropped recently from 2% to 1% for European banks (10 times lower than in the United States), with no possible remuneration for excess reserves in the Eurozone, the amount of money in circulation has not been able to fix the unemployment problem.

More than that, unemployment still rises in the Union, and several countries (Portugal, Spain, Greece, Italy) are about to enter a recession. European countries with lower labor costs have more difficulties to fix their unemployment rates! Initiative should be taken in the European labor markets, especially about flexibility.

It seems that as ambitious as an interest rate policy and a monetary action can be, the effects of such actions are being offset by high counterpart risk and troubling economic forecasts of some countries, in this case in European countries.

The Euro Debt crisis, a threat for the Social Fabric

As implied in its name, the Euro Debt crisis originated in European countries, from weak fundamentals, before spreading counterpart risks all over the World.

So did the uncertainty about the survival of the Eurozone. The exit of Greece as a result of weak fundamentals and economic conditions went from being fiction to a real possible scenario.

Observably, the Euro sovereign debt crisis knocked on the door at a time when Europe was still looking for solutions for the subprime global confidence crisis. Among the 27 European Countries and the 17 Eurozone countries, Germany has the best fundamentals in terms of the employment rate, GDP results and competitiveness. German failure is not on the agenda and there is no visible social contest about the economic situation.

This is not the case in other European countries, especially in Greece, Spain or Portugal, where strikes began to rise since the intervention of the IMF and its conditional measures for bailouts.

And to the surprise of many economists, it seems that the European Union did not take the initiative to calm these social behaviors. While in the United States, the global financial crisis has been a starting point for ambitious plans like the American Recovery and Reinvestment Act or the time to discuss a new US national healthcare system.

In my view, this is not the road that current European solutions are following. On the contrary, nationalist movements recently emerged from pools, like in Greece, and the Euro currency keeps on being attacked by its opponents in several Euro countries. Most people simply do not get why so much is demanded of the broad public for so few results in terms of growth, standard of living, and unemployment.

The rising fiscal policy used in several countries like in Spain, Portugal or Greece are, with no doubt, only short-term measures as they threaten the levels of public consumption.

Shriller (*The Subprime Solution*, 2008) reminds us that John Meynard Keynes, in his 1919 book *The Economic Consequences of the Peace*, alerted us to the social risks of some policies. In that sense, European institutions should be reminded that less than one century ago, drastic economic conditions in Germany started to threaten the peace in Europe and finally lead to a catastrophic worldwide war a couple of years after.

Fortunately, we are not at that drastic point. Nevertheless, there is no doubt that markets and investors monitor the consequences of social situations in Europe after having experienced a major liquidity crisis during the global financial crisis of 2007-2009 and now a sovereign debt crisis.

Conclusion

As said previously, it is easy to comment on economic policies ex-post. Every decision produces effects and every initiative leaves room for debate no matter which school of economics we are talking about or concepts we are using.

My perspective on the global financial crisis relies on the idea that the more consistent a package of measures is, the faster the effects will occur.

In that sense, I believe that the ambitious measures taken by the United States in terms of investment, bailouts, money injection, and monitoring the job market, to face the global crisis contrast with the situation in Europe. It is true that the FED has a double goal of inflation control and lowering the unemployment rate, while the ECB aims at keeping the inflation under 2% a year.

A crisis like the Great Recession is clearly a test to governmental and institutional measures and calls for more than just bailouts. What was first a liquidity risk and counterpart risk may lead to a sovereign debt crisis like the current European one.

Thus, the financial markets are certainly waiting for more European measures to solve this second crisis whereas they highlight the ambitious US decisions.

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The US GDP growth rate is expected to be of 1.5% for the 2nd quarter of 2012 (http://www.tradingeconomics.com/united-states/gdp-growth)

In Europe and in the 17 Eurozone countries, about 11 countries are expected to be in recession at the moment! (http://money.cnn.com/2012/05/15/news/economy/europe-gdp/index.htm)

Professor Selden, A classical perspective on Macro Policy, Global Financial Crisis course, (Harvard Summer School, 2012)

The FED main interest rate is about 0%-0.25%. The situation remains unchanged since December 2008 (source; http://france-inflation.com/taux-directeurs-bce-fed.php)

Germany allotted about 4.17 billion euros on 2-years bonds at a…negative rate of -0.06% during the second week of July 2012. (http://www.bloomberg.com/news/2012-07-18/germany-sells-two-year-notes-with-negative-yield-for-first-time.html)

The US monetary basis was about 2.5 times higher than in the European Union (Exhibit 4 http://cib.natixis.com/flushdoc.aspx?id=57762)

John Meynard Keynes, The Economic Consequences of the Peace (1919)

Chapter 30

Cash Will Always be King

Ernesto Sebastian Asbun

Importance of Cash

No matter what economic cycle the world is going through, cash, or some form of currency, is a necessary item for transactions to occur successfully.[219] One constantly hears the term "cash is king". "Cash is king" is an expression sometimes used in analyzing businesses, investment portfolios or personal finance.[220] It refers to the importance of cash flow in the overall fiscal health of a business or of an individual. For individuals, if you do not have cash you cannot pay for general expenses and the safe keep of your assets. Having assets in general, the safekeeping and maintenance of them involve expenses and for these reason you need cash. For investors it may also describe times when it is advantageous to have a large percentage of cash or short-term debt instruments available, either due to falling financial markets or due to the availability of investment opportunities that one needs cash for in the short run.

"Cash is king" also describes the importance of sufficient cash, as an asset in a business or personal finance situation for short-term operations, purchases and acquisitions. A company or individual could have a large amount of accounts receivables on its balance sheet, which would also increase its equity, but the company or individual could still be short on cash needed to make purchases. This may include paying wages to workers for labor or even paying taxes.

[219] (Krugman & Wells 2009, Chapter 14: Money, Banking, and the Federal Reserve System: Reserves, Bank Deposits, and the Money Multiplier, pp. 393–396

[220] http://www.ameinfo.com/66656.html

Unless a corporation or individual is able to convert its accounts receivable and other current assets to cash quickly, it could fail and be technically bankrupt despite a positive net worth.

What Happened

Clearly in this financial crisis, many companies and individuals did not hold large amounts of cash, due to the ease of financing the US has had in the past, and the larger returns received from leveraging debt. Cash did not return yields as high as leverage would. Financing came to a halt during the financial crisis, causing a liquidity trap. Many investors and corporations, prior to the crisis, used leverage as a way to gain profits, until the house of cards came crashing down.

"The 2007–2012 Global Financial Crisis, is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s."[221] Since we are at a time where information travels at incalculable speeds the financial crisis spread throughout the world causing global drops in many sectors. In this period we witnessed financial institutions, stock markets, banks, governments and unemployment crumple as volatility scared even the savviest investors. This caused slumps and bankruptcies of even those institutions with the highest credit ratings.

Rating agencies had a problem of their own. People had much confidence and believed in the loose ratings they issued. All this changed once a highly rated company, Bear Stearns, crumbled to pieces in the beginning of the crisis in 2007.

[221] "Two top economists agree 2009 worst financial crisis since great depression; risks increase if right steps are not taken" (February 29, 2009). Business Wire News.

There are many reasons why the economy of the US and other countries decayed during this financial crisis, but one major factor can be linked to the housing bubble that peaked in 2006 in the US, and lead to a whirl of economic issues. The housing bubble is not the only cause, because without the fueling of the debt bubble caused by banks with easy lending, assets prices in homes would have not skyrocketed in such a short period of time.

The fueling of the housing bubble took a few years to reach its peak, starting around 2002, after the dot COM crash, and peaking towards mid-2006. As banks began to give out more loans (in 2002) to potential homeowners who had a risky profile, housing prices began to rise at rapid rates, fending off fear from banks on defaults because they had a "rising price asset" backing up the loan. Bankers were not worried because real estate could only go up; this again had to stop sometime because of the highly unsustainable expansion of debt the US was incurring.

Phases of a Bubble

According to J. Foster & F. Magdoff there are five phases in an asset bubble, from beginning to end. The five phases of a bubble can be applied to any asset bubble. Since we are talking about the housing bubble, we need to acknowledge that in order to complete the five phases of the bubble more than just speculation is needed to feed the creation of this bubble. Indebted households are not the only ones to blame. We need to look at the other side of the equation, and that has to do with the lending agents, banks, and the stock market, which is betting on this new bubble.[222] Even though there have been huge slides in the stock market in the past years, the

[222] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

decline of 2000 seemed to be washed away thanks to the fast real estate bubble of ascending prices. 2001 was considered a minor recession, and real estate was the new moneymaker.[223]

The first stage of an asset bubble is Novel Offering. Here lending institutions and Wall Street play a key role with hyping up the new market and the investment possibility that real estate was. Through this novel offering investment vehicles are created to facilitate the process of leveraging and making the new bubble grow. Stage two is the Credit Expansion period, where people were taking on more debt, because it was easier to acquire through cheap financing and difficult to understand terms of lending that changed and caused issues with peoples repayment of mortgages.[224]

Since individuals acquired more debt through lending, feeding rising house prices, then the path to feed the asset bubble was right on course. Stage three is Speculative Mania, a critical point of the asset bubble, because in a sense this is where this becomes a ponzi-financing plot. In this stage there is a rapid increase in the quantity of debt and an equally rapid decrease in its quality. This was doomed for failure sooner or later.[225]

Stage four is when trouble is already apparent; this stage is when there is distress. This could be applied to the end of 2006 and beginning of 2007. Distress marks an abrupt change in the direction of the financial market often resulting from some external event. This stage can be considered when the housing bubble was first "pricked" in 2006 due to rising interest rates, from the Fed, which caused a reversal in the direction of the housing prices in the hot sub-kkprime regions. The regions that were first affected were California, Nevada, Arizona and Florida. This

[223] Ibid
[224] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"
[225] Ibid

has to do with the fact that the housing market was "cooling off" in these regions, leading to a rapid drop in home prices, scaring investors. Again at this stage, mighty Wall Street came up with a temporary solution to calm investors and this speculative solution were credit swaps, designed to protect investors and used to speculate on credit quality summing up to roughly a $42.5 Trillion dollar value. This did not ease off the volatility and led to the fifth and final stage.[226]

Stage five, crash and panic, this is the final stage in a financial bubble where we saw massive drops in stock markets worldwide. In this grueling final stage there is rapid selling of assets in a "flight to quality", cash once again becomes king because of the lack of liquidity in the present times (liquidity trap). When companies or individuals are over leveraged and do not have liquidity, such as cash, panic leads to large problems such as the initial market crash that shook the markets in July 2007 causing Bear Stearns to lose ninety percent of its value. This created a chain of financial panic worldwide due to speculation of other countries tied into mortgage-backed securities.[227] Fire sales were in vogue, in order to raise cash.

The five stages of a bubble are important to understand, but in order to better understand the lending frenzy that lead to the creation of this bubble, it is important to understand what had happened with interest rates. Decreasing interest rates backed by the U.S Federal Reserve from 1982 onward and large inflows of foreign funds created easy credit conditions for a number of

[226] Ibid
[227] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

years prior to the financial crisis, fueling a housing construction boom and encouraging debt-financed consumption.[228]

Fed and Wall Street

In response to the stock market implosion in 2000, the Federal Reserve decreased interest rates, thus, leading households to increase borrowing on homes, cars, and credit cards. In this period of decreased interest rates, household mortgage debt increased 75 percent from 2000 to 2005 as homeowners refinanced and obtained a larger mortgage.[229] A "ponzi" problem arose from this easy financing, as new people participated in the housing boom, homes sold at increasingly inflated prices to those with low credit ratings. This had the effect of shifting the stock price bubble that crashed years before to a bubble of home prices. This was Wall Street's next "big thing".

Wall Street wanted to bank on this next big thing, and found ways to fuel the Housing bubble. Debt helps fuel the financial speculation, this time on housing prices, and at the same time financial speculation leads to more debt, this is a vicious cycle with a not so glamorous ending. The magnitude of speculation in all manners of financial "instruments" such as stocks, futures, derivatives, and currency is truly amazing. The daily trading on the world currency markets has gone from $18 billion a day in 1977, to the current average of $1.8 trillion a day in the mid-2000s. This means that every twenty-four days the dollar volume of currency trading equals the entire world's annual GDP.[230] On a world basis, of the approximately ten billion contracts

[228] President Bush's Address to Nation". *The New York Times*. September 24, 2008. Retrieved May 2, 2010

[229] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

[230] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

(futures, options on futures, and options on securities) traded in 2005, less than 8 percent were on agricultural commodities, metals, and energy. About 92 percent of bets on futures are placed in the financial sector.[231]

As part of the housing and debt bubble, financial institutions created financial instruments called mortgage-backed securities (MBS) and collateralized debt obligations (CDO's), which derived their value from mortgage payments and housing prices.[232] These financial instruments facilitated institutions, investors and even countries around the world to invest in the U.S. housing market. These financial instruments seemed like a safe bet and provided a great return on investment. Everything seemed perfectly fine as prices rose, and borrowers paid their mortgage payments. As housing prices declined, major global financial institutions that had borrowed and invested heavily in sub-prime loans and MBS reported significant losses,[233] in most cases these losses resulted in a deterioration of companies, governments and countries balance sheets. Over leverage left all the entities that invested in these MBS or CDOs with lack of liquidity, severely hindering them.

Homeowners could not repay their loans, and therefore entered into foreclosure, which then caused a chain of reactions. The ongoing foreclosure epidemic began in early 2007 in the U.S. and drained wealth from consumers and eroded the financial strength of banking institutions. This also led to major drops in consumer confidence and therefore affected the stock markets. Defaults and losses on other loan types also increased significantly as the crisis expanded from the housing market to other parts of the economy.

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[231] Ibid

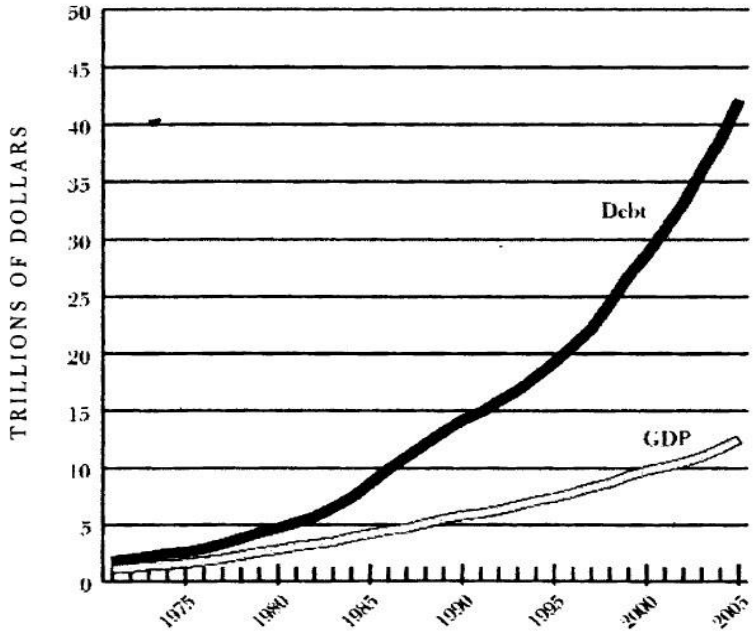
[232] Michael Simkovic, *Competition and Crisis in Mortgage Securitization*

[233] IMF Loss Estimates" May 1, 2010. http://www.imf.org/external/index.htm

The book by J. Foster & F. Magdoff, *The Great Financial Crisis: Causes and Consequences*, touches on an interesting point regarding the facts surrounding the debt explosion that the US encountered. Over leverage is a main issue with this recent financial crisis. This book clearly explains the causes and consequences of the financial crisis in a very simple and easy to understand way. What seemed to be interesting was the discussion about the rapid expansion of debt in the U.S. economy, which was much greater than the expansion of economic activity, measured by GDP, as seen in Exhibit 1.

Exhibit 1

CHART 2.1: *GDP and Total Debt*



US total GDP and Total Debt J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

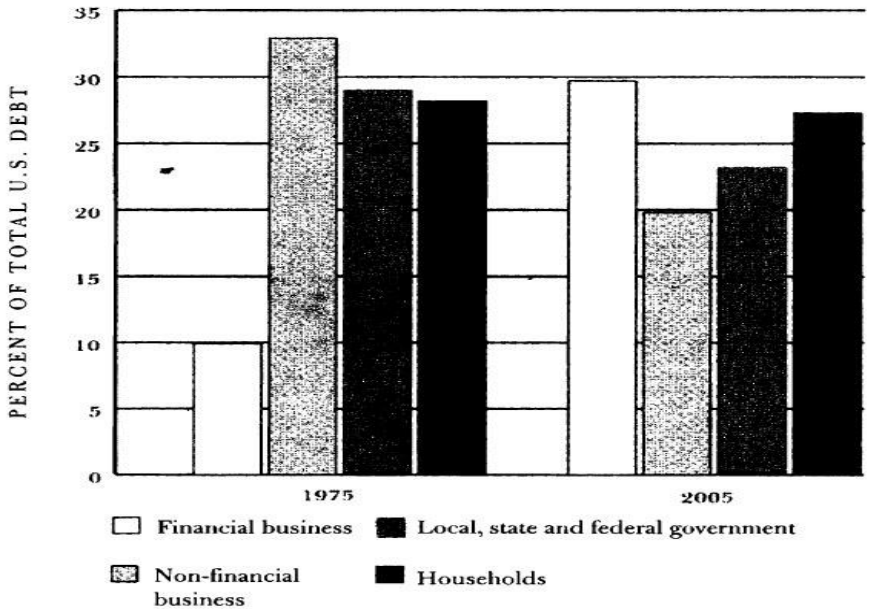
the divergence between the growth in outstanding debt in the economy and the underlying economic growth enlarged significantly. By 2005 total U.S. debt was almost three and a half times the nation's GDP and rose up to roughly $44 trillion. This amount of debt is extremely unsustainable when the country's GDP is about 12 trillion dollars.[234]

What seems alarming is the composition of the debt in the United States, when we compare the years from 1975 to 2005. See Exhibit 2. By looking at the four sectors represented as columns in the exhibit we can see that in general, local, state, federal government, and non-financial businesses have decreased in total debt to GDP and consumer debt remained at about the same proportion. What is distressing is the massive increase in the financial business debt; rising from a substantial 10 percent of total GDP in 1975 to a whopping 30 percent in 2005. Expansion of the financial sector's debt may explain much of the decreased stimulation of the economy by debt expansion.

Exhibit 2

[234] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

CHART 2.3: *Composition of United States Debt in 1975 and 2005*



Composition of the United States Debt in 1975/2005 J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

In 2005, household's spent more than they earned, and, U.S. households spent 13.75 percent of their after-tax, or disposable, income on servicing their debts. With little to no income growth among wage earners, from July 2005-June 2006, people spent $1.1 trillion more than they earned. According to Federal Reserve data, total household debt stood at $11.8 trillion at the end of March 2006.[235]

Shadow Banking

Through an article published by Paul Allen McCulley an American economist and former managing director at PIMCO, we can see the housing bubble from a different perspective. McCulley coined the terms Minsky moment and Shadow banking system which became famous

[235] J. Foster & F. Magdoff "The Great Financial Crisis: Causes and Consequences"

during the financial crisis. In this article many interesting relationships are discussed, such as government policies with banks and conventional banking versus shadow banking.

"Loosely defined, a Shadow Bank is a levered-up financial intermediary whose liabilities are broadly perceived as of similar money-goodness and liquidity as conventional bank deposits. These liabilities could be shares of money market mutual funds; or the commercial paper of Finance Companies, Conduits and Structured Investment Vehicles; or the repo borrowings of stand-alone Investment Banks and Hedge Funds; or the senior tranches of Collateralized Debt Obligations; or a host of other similar funding instruments."[236]

Another problem that affected the global financial crisis has to do with the nature of shadow banking. Unlike conventional regulated banks, unregulated shadow banks fund themselves with uninsured short-term funding. Levered-up intermediaries operate in the shadows without backstopping from the Fed's discount lending window or access to FDIC deposit insurance. Shadow banks are also commonly known as investment banks, or providers of structured investment vehicles, and hedge funds. If there is no regulation, then issues can arise from this lack of regulation.[237]

Issues and confidence in shadow banks became a bit blurry since they received approval from regulators and rating agencies with minimal information. Shadow banking needed some approval so that providers of short-dated funding could convince themselves that their claims were "just as good" as deposits at banks. "Credit rating agencies, paid by the shadow bankers, stood at the ready to provide such seals of approval. The bottom line is that the shadow banking

[236] Paul A. McCulley (November 2008). "The Paradox of Deleveraging Will Be Broken

[237] McCulley chapter In class reading

system created explosive growth in leverage and liquidity risk outside the jurisdiction of the Fed".[238]

Rating Agencies

Credit rating agencies help evaluate and report on the risk involved with various investments. The rating processes now are being re-examined and improved to encourage greater transparency regarding the risks involved with complex investments. Rating agencies have recently begun to aggressively downgrade large amounts of mortgage-backed debt. They have also begun taking action to address perceived or actual conflicts of interest, including additional internal monitoring programs, third party reviews of rating processes, and board updates. How reliable is this, is the question today, after what we have witnessed in the past. The result of all this is that credit rating agencies are now under scrutiny for giving investment-grade, "money safe" ratings to securitization transactions and high risk investments. The reason why they are under the magnifying glass currently is because in the past, these high ratings encouraged a flow of global investor funds into these securities, funding the housing bubble in the U.S.[239]

Conclusion

Looking forward, the global financial crisis might be over when the Dow Jones reaches the 14,000 mark once again and then the US might enter a point of growth. It is assumed that the market itself is undervalued, but this is not a sure answer to safe gains if one chooses to invest. Hitting this psychological number of 14,000 might bring back consumer confidence and re-ignite

[238] McCulley chapter In class reading
[239] http://www.pri.org/stories/business/giant-pool-of-money.html

the growth the US economy has been waiting for. Now this is just an assumption, but as we have found through our empirical studies, many stocks are undervalued currently. [240]

In the semi-strong-form of the Efficient Market Hypothesis (EMH), it is implied that share prices adjust rapidly to publicly available new information limiting large gains. When we ran the stocks and found alpha's or returns surpassing 100% in stocks such as GE with roughly 400% return or alpha, one really questions how efficient the market is and why there is such a large potential to gain. We cannot forget that currently volatility is a key when earnings or news is posted or available to the market in order for price increases or decreases to occur. The semi-strong-form says no excess returns can be earned by trading on that information, but with the programs we used we can predict in an educated matter if stocks have a potential upside or downside.

Personally, I believe that the US recovery is still far from over. We have many underlying issues that need to be tackled before we reach a full recovery. What is troublesome is that there are many other factors that could bring our economy into a recession once again, such as student loans, fluctuation of oil prices, and credit card debt. Through my studies in this subject matter, I find it very interesting to see how the speed of information and technology is rapidly shortening the time span between recessions. Recessions are inevitable in my opinion, they are cycles that will continue, and all we can do is plan for the worst and remember that Cash will *always* be king.

[240] Professor James Grant

Chapter 31

From Profligacy to Prudence

Jaron Chua Jie Rong

The world has experienced the worst financial turmoil since the Great Depression. Around the world stock markets have plunged, and the specter of a full-blown European debt crisis looms large. Uncertainty prevails and global economic growth has stalled. The collapse of the subprime market catalyzed the rapid meltdown of the entire US housing market, leading to the eventual crash of the economy. Unemployment was also especially persistent, and still remained way above pre-crisis levels even 36 months post-crisis (See Figures 1 and 2). Subprime lending can first be traced back to national policies that encouraged home ownership.

Figure 1

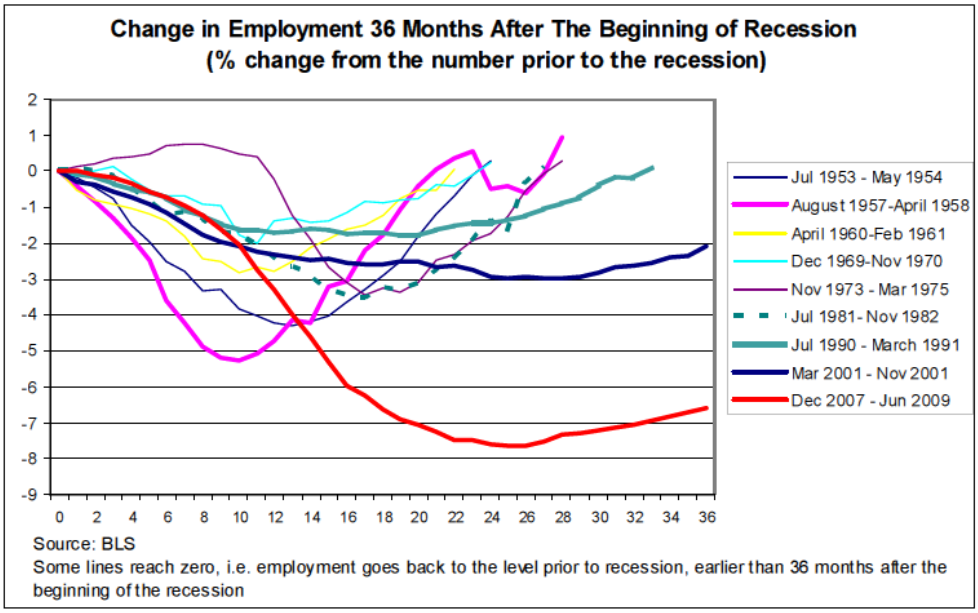
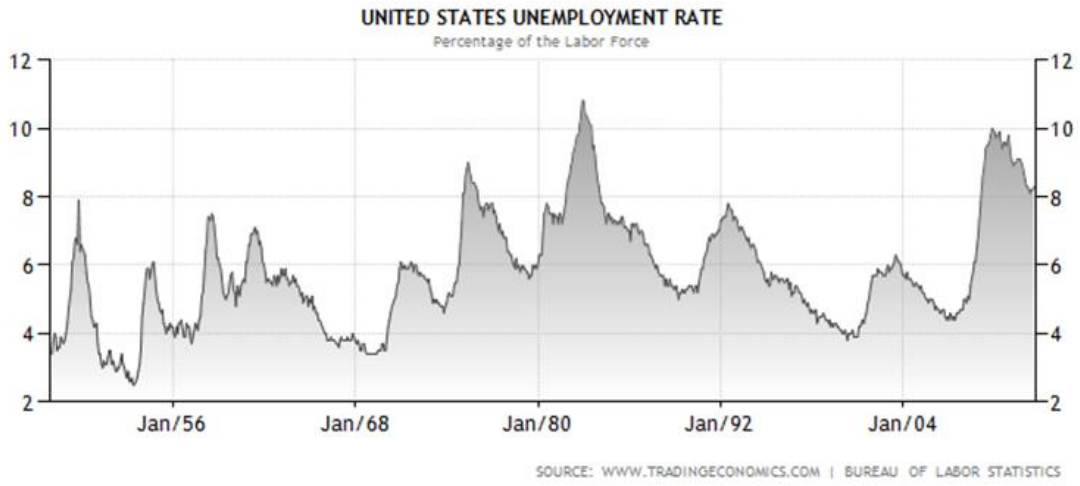


Figure 2



Desire for home ownership

Almost everyone desired to live the "American dream", and a nice house was quintessential to living the dream. The size and quality of one's house was commonly perceived to be a yardstick by which one's success can be measured. The house was thus a potent symbol of success, and for many people, the house was inexorably tied to the family wealth – a house was typically the family's largest asset and the mortgage was the largest liability.

National policies also helped to feed the dream. Many economic policies since the Great Depression were geared towards encouraging home ownership. Institutions such as Fannie Mae and Freddie Mac facilitated home ownership, and homes became increasingly affordable.

Sub-prime loans

With rising housing prices and increasing demand for houses, banks were doing a roaring trade originating loans. Competition among banks, however, was becoming strong and the pool of creditworthy borrowers was limited. Banks thus began to target a largely untapped and lucrative group of borrowers – subprime borrowers.

Subprime borrowers had lower credit ratings and were charged a higher interest rate. This translated into higher profits for lenders. Subprime borrowers had a higher chance of defaulting on their loan payments, but with rising home prices, the possibility of any losses seemed remote. Banks reasoned that home owners could easily refinance with the increased home equity, and even if the house were to be foreclosed, rising prices meant banks could recoup any losses.

To gain a larger market share, banks began to lower their lending standards. For instance, loan-to-valuation ratios were lowered and overstatements of borrowers' incomes were tacitly approved.

Wall Street Greed and Excess

With the collapse of the tech stocks, bankers were looking for the "next great trading opportunity" (Professor James Grant), and housing was clearly seen as the next big thing. Wall Street bonus culture has also significantly contributed to the crisis.

The Financial Crisis Inquiry Commission concluded that Wall Street compensation systems encouraged short-term performance and excessive use of leverage and risk-taking. Large bonuses fueled greed, which led to a degradation of ethics and a breach of fiduciary duties. Bankers put profits above their clients, aggressively selling financial products that they knew were junk, and at the same time betting against the very same products. A case in point is Goldman Sachs,

which faced charges from the Securities and Exchange Commission that it fraudulently marketed a mortgage-related financial product and did not properly disclose the involvement of a hedge fund betting against the product.

Congress also attempted to regulate compensation with the Dodd-Frank Wall Street Reform Act in 2010. Wall Street lobbyists promptly went into overdrive mode, dragging out the approval process and nullifying key sections of the Dodd-Frank Act; bank regulators suggested that just a sixth of banker annual bonus be withheld for three years. Little has changed; while ordinary people faced an unemployment rate of 10% and stagnating real wages in 2011, Wall Street enjoyed a bumper year of bonuses – America's six largest banks paid out US$144 billion in compensation.

These mind-boggling figures, however, would not be possible without the vast amounts of investment dollars flowing into the US financial system. Where did all this money come from? We would have to look back to the turn of the Millennium.

Before the crisis

Following the burst of the tech bubble and the September 11 terrorist attacks, America was in turmoil; the public was reeling from the shocking attacks and the stock market witnessed record declines. The Federal Reserve pursued an expansionary monetary policy and pushed interest rates to historic lows. From 2000 to 2003, the Federal Reserve lowered the federal funds rate target from 6.5% to 1.0%.

Other countries watched apprehensively as the US economy faltered and soon mirrored the Fed's expansionary policy. Central bankers have traditionally been cautious of setting interest rates too

low as it might stoke inflation. At that time however, there was a major factor that allayed central bankers' concerns – China.

The month of December 2001 heralded the entry of China into world markets after 15 years of negotiations. To applause, trade ministers from almost all the WTO's 142 members unanimously voted in favor of China's application, precipitating a massive shift of global manufacturing operations into once-isolated communist China. Trade barriers were lowered and cheap Chinese goods flooded global markets. Prices fell nearly everywhere and inflation was banished to a remote corner of central bankers' minds.

Instead, deflation, a menace that was much greater feared, emerged as a not-so-remote possibility, prompting central bankers to set interest rates at unprecedented lows.

The low interest rate environment further accelerated China's explosive economic growth, and China soon became the "factory of the world". The rapid expansion of the manufacturing and export sector in China boosted global demand for oil and other commodities, pushing prices up. Rising prices further widened the US trade deficit, as huge sums flowed out of the US to commodity-producing nations.

Fueled by; (1) the Fed's low interest rates, (2) the Bush administration's tax cuts, (3) the proliferation of credit cards, (4) the wide availability of personal loans, and (5) the prevalent view that Chinese imports were a bargain, American consumerism surged to new heights. The US trade deficit ballooned, and export-oriented and commodity-producing countries became flush with cash. Investors from the export-oriented BRIC economies (Brazil, Russia, India, China) accumulated vast pools of export revenue, while the Middle Eastern nations collected hundreds of billions as a result of booming oil demand.

Much of this vast pool of wealth returned to the US as investments. With the status of the world's reserve currency, US dollar-denominated investments were a preferred investment. Initially, investors bought mainly US Treasury bonds, which provided a safe but low return. With the flood of liquidity brought about by foreign investments, interest rates were pushed lower, along with Treasury yields.

Investors soon began to chase higher returns, and Wall Street provided a ready solution. Low interest rates worldwide allowed investors to borrow cheaply and magnify their returns. Investors wanted leverage, and Wall Street provided it.

With increasing financial innovation, Wall Street had also been rolling out new investments. Wall Street was able to customize products to investors' risk appetite with securitization. By now we know that there was serious mispricing of risk, but at that time bankers thought that they were able to create products that had relatively high returns and low risk.

They created innovative financial products that were great in isolation and achieved high returns for investors in the short run. Investors were pleased with the superior returns and demanded more such products. Wall Street happily obliged.

The party went on for a time, and ended in a dramatic collapse of a kind not seen since the Great Depression.

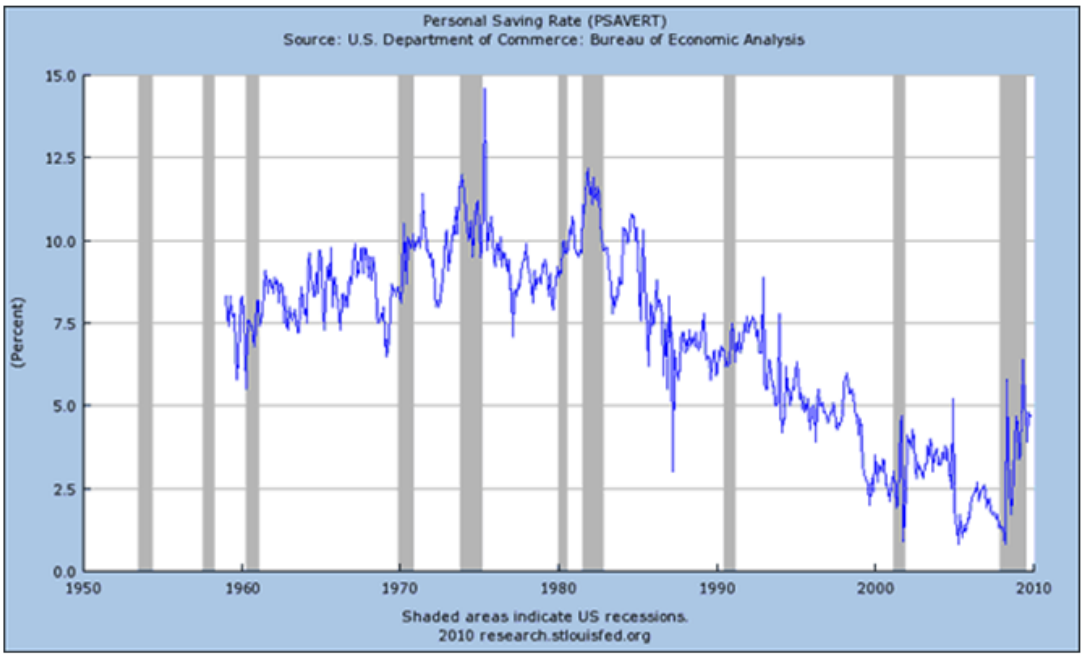
The global economic crisis which we are experiencing today, however, should not be seen as an event, but rather a result of something that has been building up over time.

A long period of excess

The root cause of the financial crisis is the imbalance in the US circular flow of income. In other words, the US was spending far more than it could afford.

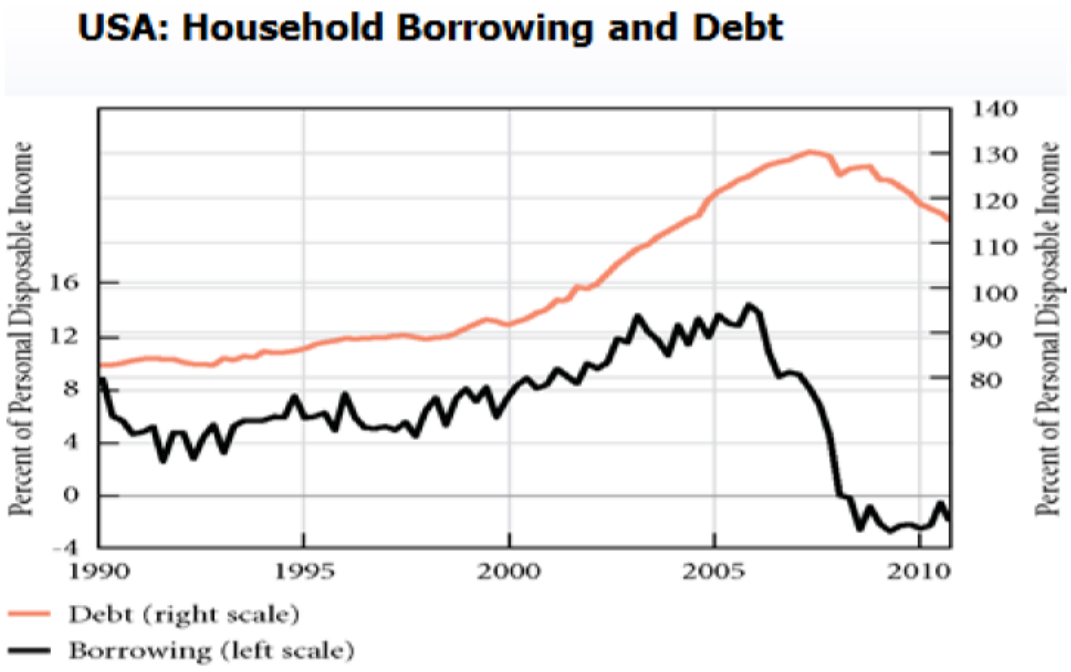
Up until 2007, the average savings rate in the United States fell as low as 1%, and during a brief period was actually negative. The personal savings rate fell to historic lows (see Figure 3) and the overall savings rate fell to levels not seen since the Great Depression.

Figure 3



Americans consumed more than they produced. This meant that the shortfall had to be made up with borrowing. (See Figures 4 and 5). One large creditor is China, a nation of "savers" where national savings averaged 50% of income.

Figure 4

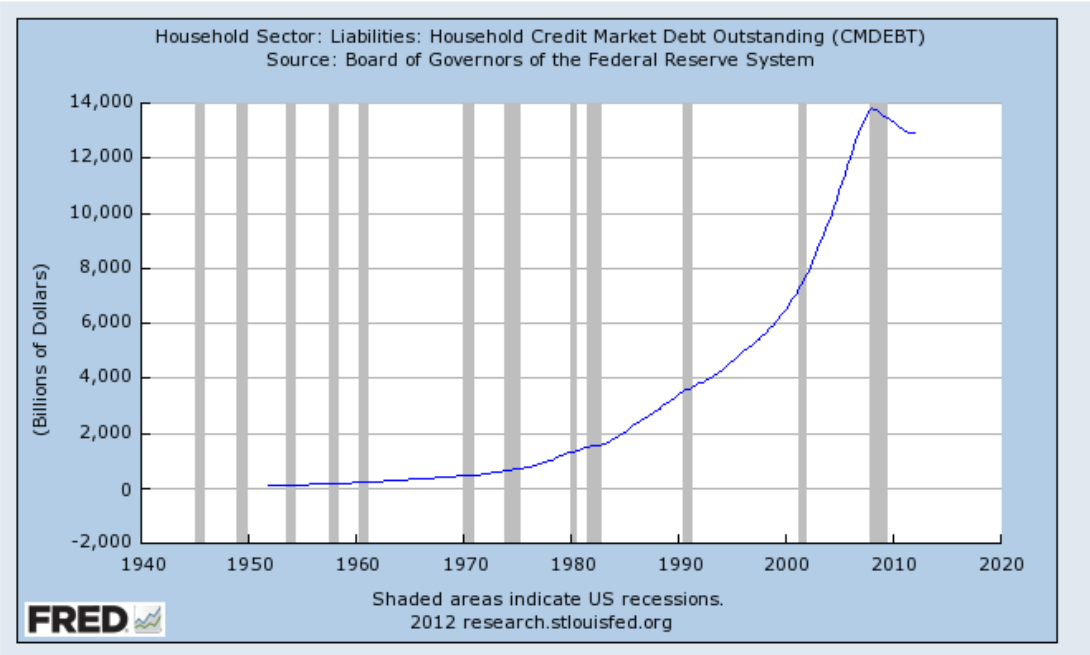


Sources: Federal Reserve: BEA

Figure 5

Household Sector: Liabilities: Household Credit Market Debt Outstanding (CMDEBT)

2012:Q1: **12,919.16** Billions of Dollars Last 5 Observations
Quarterly, End of Period, Seasonally Adjusted, Updated: 2012-06-08 3:47 PM CDT



The US has been running large and persistent trade deficits with other economies, such as China and Japan, for decades. From 2000 to 2008, while US households increased consumer spending, household income stagnated. In the process, US households had been building up huge amounts of debt owed to foreigners. (See Figure 4) These debts came in various forms such as credit card debt, automobile loans and housing loans.

Lenders, such as commercial and investment banks, played a key role in accumulation of debt, and the "Greenspan put" exacerbated the problem.

The Greenspan put

Interest rates have been falling steadily through the 1980s and 1990s. In the early 2000s, the Greenspan-led Federal Reserve board cut interest rates precipitously from 6.5% to just 1%.

Greenspan seemed to believe that cutting interest rates aggressively was a panacea for most economic problems. For instance, Greenspan argued that lowering interest rates sharply in the wake of Black Monday in October 1987 ensured continued economic expansion, and again in 1998, the same strategy seemed to have successfully contained the fallout from the collapse of Long Term Capital Management.

The tech bubble crisis appeared to be a similar problem, and past experiences seemed instructive. Thus, interest rates were lowered once again.

These actions led Wall Street to believe that the Fed would, and could, significantly mitigate or even prevent any financial crisis. In essence, the "Greenspan put" was an implied promise that if things got too bad, the Fed would come in to the rescue.

This, together with Wall Street's view of chasing short-term rewards discussed earlier, led to moral hazard. Banks generally tried to expand their business activities to a level where they became "too big to fail", and the government (or the Fed) would have no choice but to bail them out to prevent a contagion effect that threatened to bring down the rest of the economy.

Essentially, prudent risk-taking was punished while profligacy was rewarded. The combination of Wall Street greed and profligate consumer spending and borrowing led to unsustainable levels of debt. Thus, on the macro level, the basic cause of the crisis was an imbalance between income and spending. In order to see how this came about, we will have to look back to the Great Depression and the Gold Standard.

The Gold Standard: Lessons from History

The real problems behind financial crises have little to do with the Gold Standard, but with the mismanagement of spending and debt, and also governments that have too large a balance sheet.

Some conventional economists have suggested that one of the main causes of the Great Depression was the Gold Standard. Their argument was that the Gold Standard "removes financial flexibility"; the Gold Standard was a rigid constraint in a system-wide financial crisis.

The Gold Standard restricted spending, debt accumulation and the printing of money. Many economists blamed the Gold Standard for getting the US into the Great Depression.

"Financial flexibility" thus allows for higher levels of debt, greater spending and the unlimited printing of money. The problem is that this could lead to massive inflation, especially if other governments and central banks started doing the same. Indeed, to save their economies today, many countries have resorted to quantitative easing and also competitive devaluation of their currencies to boost exports.

Sky-high national debt levels limit the government's options, such as issuing more bonds to finance stimulus spending. For instance, the Greek government is currently highly indebted, and higher yields demanded by investors in return for higher perceived risk have crippled government finances. Maintaining a relatively low level of debt through disciplined spending gives governments more options in a crisis.

Furthermore, as mentioned earlier, excessive debt and fiat currency printing can result in high inflation, and inflation is a tax on the people. Inflation is an insidious tax, much like a thief in the

night. Inflation erodes the value of bank deposits, and unsustainable levels of debt and continued quantitative easing can result in hyperinflation.

History has shown that the risk of fiat currency going back to its intrinsic value – merely the worth of the paper it was being printed on – is very high. Throughout the centuries, precious metals such as gold and silver have always come out on top of fiat currency, essentially re-valuing themselves to reflect their true value.

Winston Churchill once said “The further backward you can look, the further forward you are likely to see”. The history of fiat currency is illuminating.

Currency crashes have occurred time and again throughout history; with the first great currency crash in Athens in 407 B.C. Rome later supplanted Athens as the dominant power. Unfortunately, Rome did not learn from the mistakes of past empires and, history repeated itself.

Over 750 years, various leaders inflated the Roman currency supply. By the time Diocletian ascended to the throne in 284 A.D, inflation was raging and in 301 A.D, Diocletian issued his infamous Edict of Prices, which imposed the death penalty on anyone selling at prices higher than the government-mandated level and also froze wages. Prices, however, simply kept rising. (The Edict of Prices is analogous to Executive Order 6102, which was signed on April 5, 1933, by US President Franklin D. Roosevelt "forbidding the Hoarding of Gold Coin, Gold Bullion, and Gold Certificates within the continental United States". The order criminalized the possession of monetary gold by any individual, partnership, association or corporation).

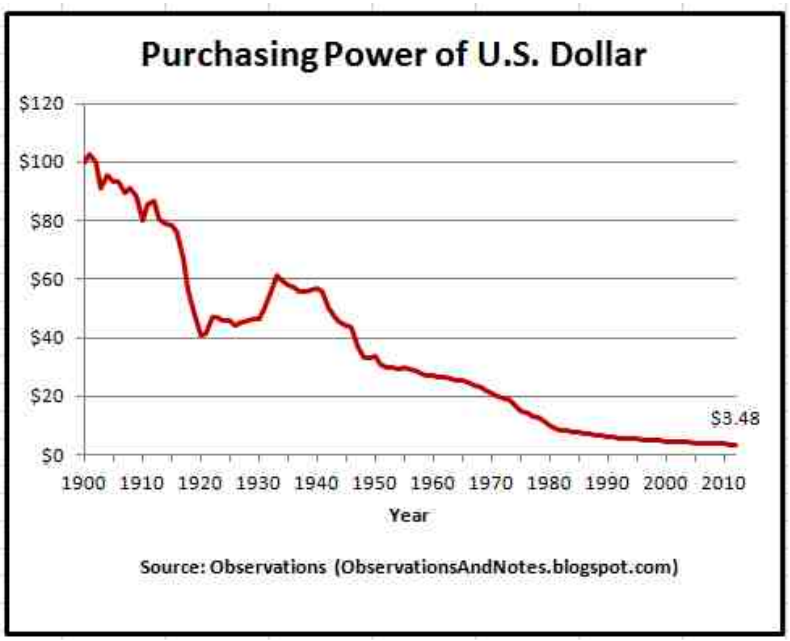
Due to the poor state of the economy, Diocletian adopted a "guns and butter" policy – essentially increasing spending by going into a deficit with military and public works spending. This is akin to today's massive deficits and stimulus spending.

The Roman deficit was not sustainable, and when they ran out of funds, Diocletian minted vast amounts of new bronze and copper coins, further debasing gold and silver currency. The result was the world's first documented hyperinflation. This scenario seems *eerily* similar to quantitative easing and the Fed's massive bond-buying program today.

The value of the US dollar has already declined precipitously over the past century. See

Figure 6. If a shopper was magically transported from the year 1900 to 2012, the $100 bill that he had then would now be worth only $3.48. That is a 96.4% decrease in buying power. The trend of increasingly huge government spending and quantitative easing is clearly unsustainable.

Figure 6



No empire was immune to the laws of economics, and there is no reason the US and world today should be any different.

As Professor Brian Domitrovic pointed out (Author, "*Econoclasts*"), during the critical period of 1928-1933 Fed officials ignored the rules of the gold standard, which would have forced them to increase the money supply in response to inflows of gold. Instead, the Fed exercised discretion and tightened, making deflation of the early 1930s worse.

Then there is also the claim that while the Gold Standard ensures that prices remain stable over an extended period of time, it can result in serious shorter-term problems. As Chairman Bernanke remarked, "over shorter periods, maybe 5 or 10 years, you can actually have a lot of inflation, rising prices, or deflation, falling prices."

The case of the California gold rush in 1849 is instructive. The large gold discovery resulted in a general price level increase of 12.4% over 8 years, or 1.5% a year. Under the fiat currency system, that 8 year cumulative increase was exceeded in 1974, 1979 and 1980 alone. Since President Nixon took the US (and effectively the world) off the Gold Standard in 1971, inflation has averaged 4.4% a year. In contrast, the current Fed inflation target is 2% a year, which is equivalent to a 17% increase over the next 8 years.

Without the discipline imposed by the Gold Standard, recessions have become more frequent and more serious. During the period of 1971 to 2010, unemployment averaged 6.3%. This is worse than the average of 4.7% from 1947 to 1967. (See Figure 2)

Under the post-World War II Gold Standard, there were no financial crises that posed a systemic

risk to the US economy. Since 1971, however, we have experienced many crises ranging from the 1973 and 1979 oil shocks to the 1998 Asian currency crisis, and the global financial crisis, which set off today's European sovereign debt crisis. It is notable that the European crisis is also the result of profligacy and the accumulation of enormous amounts of debt. It is common sense that having ever-increasing amounts of debt is a sure way to catastrophe, and spending within one's means and accumulating reserves help ensure that the country is resilient.

Government Finances: The case of Singapore

Singapore has adopted prudent macroeconomic policies and in most years the government has experienced budget surpluses. The surpluses are saved as national reserves.

The level of Government debt outstanding as at December 2011 was 108% of Gross Domestic Product (GDP). According to World Bank figures, Singapore's GDP for 2011 was US$239.69 billion (Singapore does not borrow to finance government expenditure, but to deepen the local bond market).

Singapore's official foreign reserves as at 30 April 2012 were S$304 billion, and Temasek Holdings, a government-owned investment company, managed S$198 billion as of 31 March 2012. Singapore also has a sovereign wealth fund, the Government of Singapore Investment Corporation. The size of this fund is considered a national secret, and what has been revealed is that the figure is "well over US$100 billion".

Since 2003, Singapore has consistently achieved the top short-term credit ratings as well as long-term credit ratings of triple-A, with a stable outlook from the three main credit-rating agencies.

The rating agencies cited Singapore's high level of economic resilience derived from rapid economic growth, strong balance sheet, strong external finances, and fiscal surpluses as rating strengths. Singapore is thus well-equipped to deal with future crises and is not bogged down with high debt servicing costs.

Going Forward – Long-term solutions

The only way to prevent future bigger crises is to return to disciplined spending and prudent debt management, and while we not necessarily need to go back to the Gold Standard, it is clear that we do need some sort of standard.

1. A New Gold Standard

A new Gold Standard could be based on a variant of the "Bancor" proposed by Keynes in the late 1940s. This was a basket of 30 commodities intended to be less deflationary than pure gold. The idea was revived by China's central bank chief Zhou Xiaochuan in 2009 as a way of curbing the "credit-based" excess. A standard along this line should be explored.

2. Global and Sovereign-level Systemic Risk Regulator

As Robert E. Litan noted in his paper, "Regulating Systemic Risk", the financial crisis has revealed that there was no one in charge of overseeing systemic risk. He recommended that related regulatory functions should be consolidated into one Systemic Risk Regulator (SRR) that can monitor and take action to protect the health of the entire financial system.

Once SRRs are established at the country-level, a supra-national Global Systemic Risk Regulator

can be established to coordinate policy and facilitate international dialogue and cooperation. Given today's highly interconnected world, it is essential that one country's action does not result in adverse consequences for another. This helps ensure that the health of the global financial system is also monitored.

3. Financial Education for the Masses

A large part of the global financial crisis was a result of unsustainable spending and imprudent investment decisions at the micro level. If the general public were financially literate, better spending and investment decisions would have been made and the financial crisis would have been much less severe. For instance, according to Federal Reserve surveys done prior to the subprime shock, almost half of lower-income homebuyers (mostly subprime) did not understand basic features of their mortgage, such as how their interest rate was determined or whether it was capped. This, along with predatory lending and lax lending guidelines, was a major cause of the housing bubble.

The frenzied investment in housing is akin to the Dutch Tulip Mania of 1637. Investors at that time had little financial education and were probably unable to recognize that the price level of tulips was simply ridiculous.

Today, the rates of financial literacy are still relatively low. This has to do with our education system, where there is generally little emphasis on financial education. As Robert T. Kiyosaki explained, there are three types of education – Academic, Professional and Financial education (cited in references). Academic education refers to subjects like Math and Science, while professional education refers to professional training such as law or medicine. Schools currently

do a good job of the first two, while financial education is hardly emphasized. Thus, financial education should be incorporated into the school syllabus and be made compulsory.

Towards a more stable world

The three solutions outlined above would ensure stability at both the macro and micro levels. The New Gold Standard and the Systemic Risk Regulators would impose fiscal discipline on the macro level, while high levels of financial literacy would impose discipline on the micro level.

Both governments and individuals need some form of restraint. The financial excesses and extreme debt leverage of the last quarter century would probably not be possible under the discipline of gold. Standards and restraints on endless money and debt accumulation do not cause economic problems and depressions. It is the lack of constraints that leads to catastrophe.

As compared to gold and silver currency of old, today's fiat currency system is inherently unstable, and it is only with discipline that today's system does not go the way of Athens or Rome.

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Chapter 32

The Impact of the American Mortgage Market and Concerns about Norway

Jon Håkon Findreng

Introduction

The financial crisis of 2007-2009 had its origin in the burst of the American housing bubble. This paper explains how a burst in the housing bubble could lead to such an international recession in the overall economy. It focuses on the role played by the Federal Reserve providing easy credit, the government's policy of making mortgages available for everyone, and the risk financial securitization faced by the high correlation of house prices within America. Secondly, this paper will put its focus on Norwegian house prices that have increased rapidly in recent years. The paper will discuss the author's view of what we can learn from the global financial crisis and the chances for a burst in the potential Norwegian house bubble, and what affect that might have on the overall Norwegian economy.

"While the vulnerabilities that created the potential for crisis were years in the making, it was the collapse of the housing bubble – fueled by low interest rates, easy and available credit, scant regulation, and toxic mortgages – that was the spark that ignited a string of events, which led to a full-blown crisis in the fall of 2008" (Financial Crisis Inquiry Commission, 2011, p. xvi)

Pre-Crisis Economic Growth and Monetary Policy

The Federal Reserve has faced critics in the time after the global financial crisis. After the tech bubble and the terrorist attack on 9/11, the Federal Reserve has applied a very low interest rate. Figure 1 shows a very low interest rate in the early 2000s and a rapid increase starting in 2004. It can be argued that the Federal Reserve should have increased the interest rate earlier, and that this could have prevented the housing boom.

Figure 1

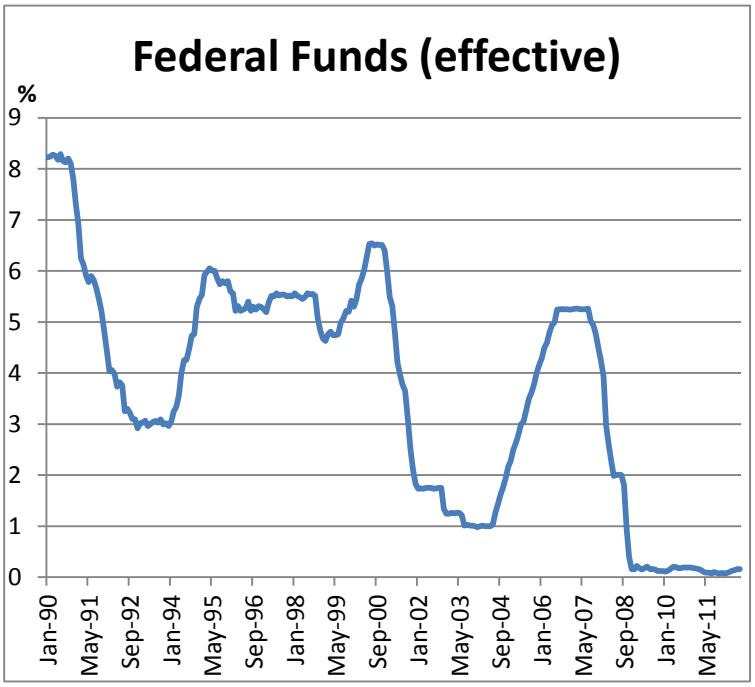

Figure 1: Federal Funds effective interest rate.

Data: http://www.federalreserve.gov/releases/h15/data.htm

Figure 2 shows the annual growth of gross domestic product in the United States. In 2003 and 2004 the annual GDP growth was 2.55% and 3.48%. The Federal Reserve did not start increasing the interest rate before late 2004. The interest rate increased until it was around 5.20% in the first half of 2007. The pre-crisis low interest rates provided the United States with cheap credit, and good conditions for economic growth.

Figure 2

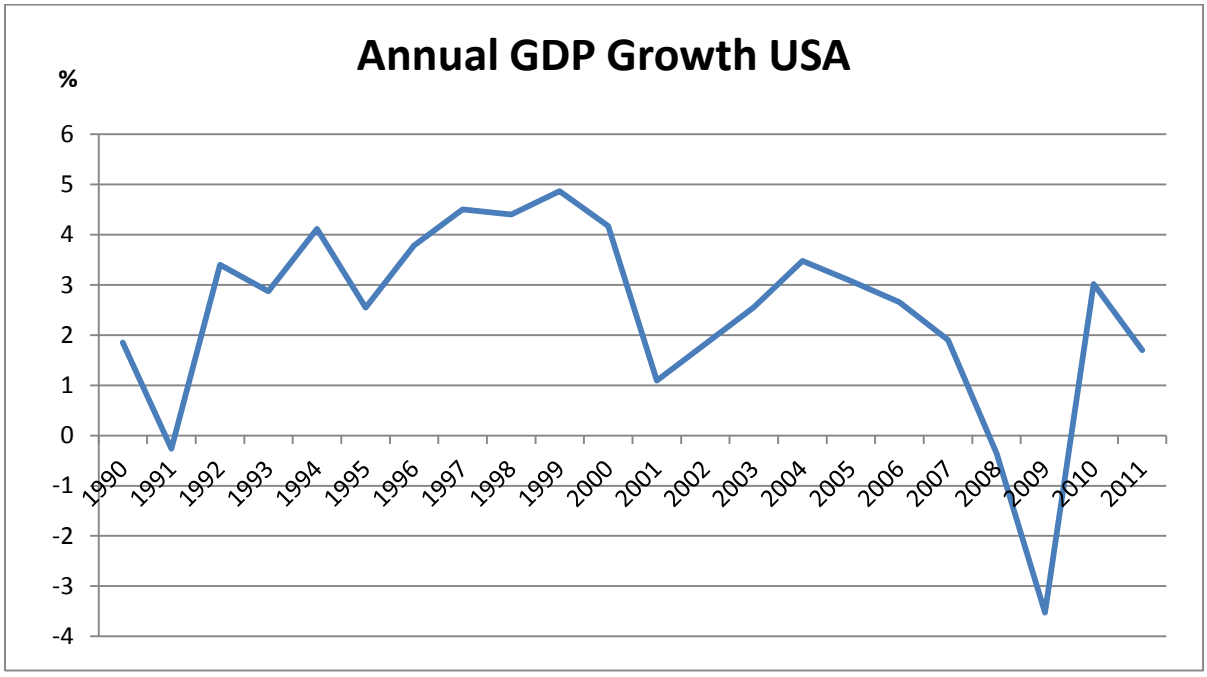

Figure 2: Annual growth in American gross domestic product measured in percentage as a growth from the year before[241]

Figure 3 shows the Standard & Poor's Case-Shiller Home Price Indices (SPCSUSA). There is a significant increase in home prices during the low interest rate period from early 2002, until the Federal Reserve started tightening in late 2004 through the first half of 2007. According to the SPCSUSA index, the American house prices reached their peak during the summer 2006.

Figure 3

[241] Data: http://databank.worldbank.org/ddp/home.do

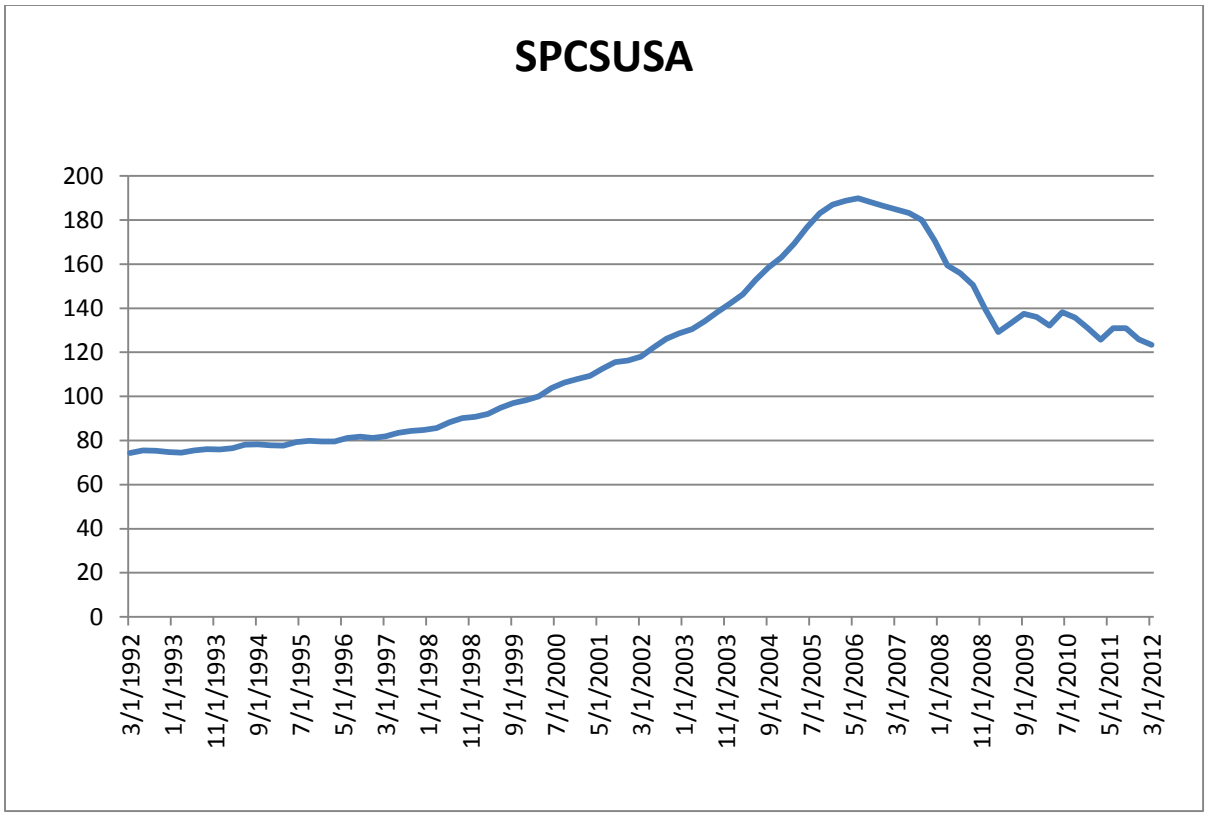

Figure 3: Standard & Poors Case-Shiller Home Price Indices, represented by SPCSUSA[242]

How Could a Burst in Home Prices Cause the Global Financial Crisis?

The financial world faces bursting bubbles in different assets frequently. This section of the paper discusses how a burst in the American housing market could have such an impact both nationally in the United States and internationally. That a fall in house prices results in lower consumer spending, thus a decrease in the gross domestic product, is a reasonable assumption. However, as Wallison (2009) argues; a burst in the housing bubble should not by itself have enough impact to cause what we have named the Big Recession.

[242] Data: Home Prices Continue to Rise in May 2012 According to the S&P/Case-Shiller Home Price Indices(PDF)

Governmental Influence

"Since the beginning of the 20th century, the United States has had a policy of fostering homeownership" (Wallison P. J., 2009, p. 198). The American government put a lot of effort in making mortgages available for everyone, including people with poor creditworthiness. Issuers of mortgages have for a long time been encouraged to make these loans of bad quality. Under the Clinton Administration in the early 1990s, a policy entered into force where banks were not only encouraged, but required to make these loans to underserved communities (Wallison P. J., 2009, p. 198). Fannie Mae and Freddie Mac were two governmental sponsored enterprises owned by shareholders. Originally the missions for these two companies were to maintain a liquid secondary market in residential mortgages. In 1992, however, their mission was expanded to include promoting cheap mortgages. The Department of Housing and Urban Development got the task of governing these missions (Wallison P. J., 2009, p. 199). Fannie Mae and Freddie Mac bought a significant portion of the total mortgages in America, to keep the market liquid and make sure lenders could get rid of the risk through financial products. With support in the government, Fannie and Freddie were able to raise capital cheaply. Their purchases increased through the 1990s and the early 2000s. When the two companies got taken over by the government in September 2008 they were responsible for approximately $ 5.3 trillion in mortgages (Wallison P. J., 2009, p. 200)

Wallison (2009) argues that to meet the requirement from the Department of Housing and Urban Development, the governmental sponsored enterprises affected the market by driving down the risk premium and (in competition with Wall Street) drove up the numbers of subprime and other junk loans. Not only were more subprime loans created and the premium driven down, but as the market searched for more raw materials, the quality of the loans went down. In 1998; the market

offered loans with 3% down payment; in 2002 the market offered 0% down payment. Even in the period 2004-2007 when interest rates grew, Fannie and Freddie kept on purchasing, and homeownership was able to grow despite the higher interest rates (Wallison P. J., 2009, p. 201). "Although many have argued that it was Wall Street that led the subprime boom, that claim is disproven by the total number of subprime and Alt-A mortgages that Fannie and Freddie ultimately became responsible for" (Wallison P. J., 2009, p. 202).

Alt-As are other nonprime mortgages with poor quality due to the terms of the loans. Fannie Mae and Freddie Mac were very successful in increasing homeownership, but this policy was very dangerous when we look back at it today.

Systematic Risk

Diversification is an effective tool to eliminate unsystematic risk. Unsystematic risk is the individual risk for an individual asset. In the mortgage market, unsystematic risk can be individual factors for defaulting on a mortgage, such as an individual facing economic distress independent of the economic environment. Systematic risk can be seen as the risk of the whole market, and cannot be escaped. By holding a large portfolio with a high number of assets, unsystematic risk can be eliminated by the law of large numbers.

Securitization Products

An important aspect of the financial crisis was the role played by financial products with the purpose of reducing risk. Individuals who bought houses financed by mortgages can be said to have invested in put options sold by the lender (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 53). In a put option framework, the underlying asset will be the value of the house and the strike price will be the value of the mortgage. In a situation

where the price of the house is worth less than the mortgage, the house owner will choose to default on the mortgage leaving the house with the issuers of the mortgage. The cash flow received from the buyer of the put will be equal to MAX[K-S,0][243]. The price of the option will equal the down payment of the borrower. In this way the risk is overtaken by the issuer of the option. Mortgages can be sold through special purpose vehicles (SPVs). SPVs pool a great number of residential mortgages into residential mortgage backed securities (RMBS) (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 54). Structured investment vehicles (SIVs) issue short term commercial paper and medium term notes for purchase by risk-averse investors (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 56). SIVs were, in the start of the financial crisis, heavily invested in commercial and residential mortgage backed securities including subprime mortgages (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 54). SIVs were also heavily invested in collateralized debt obligations (CDOs) that again were heavily invested in RMBS. Just as the RMBS pooled a great number of mortgages, the CDOs pooled hundreds of RMBS (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 54). These financial products were therefor highly diversified in terms of being exposed to a high number of individual mortgages. Unsystematic risk for individual default was wiped out. However, all the mortgages were directly exposed to the house prices. A decrease in home prices would give mortgage borrowers incentive to exercise their put options. The question is therefore how much house prices are correlated. A high correlation in housing prices in the United States reduces the value of diversification.

[243] K = Strike price given by the value of the mortgage, S = value of asset, namely the house price.

Portfolio Effects: Role of Diversification (or lack thereof)

The author of this paper has calculated the correlation between housing prices in Los Angeles, California and Miami, Florida using Standard & Poor's *Case–Shiller* Home Price Indices. The result is for illustration purposes only, and the result can be argued to be very misleading as both Miami and Los Angeles were hit hard by the house bubble. Figure 4 shows a high correlation of 0.74 in the period before the financial crisis. Even with the high diversification of mortgages, this shows that a portfolio holding mortgages from the two geographical areas does not have high diversification benefits.

Figure 4

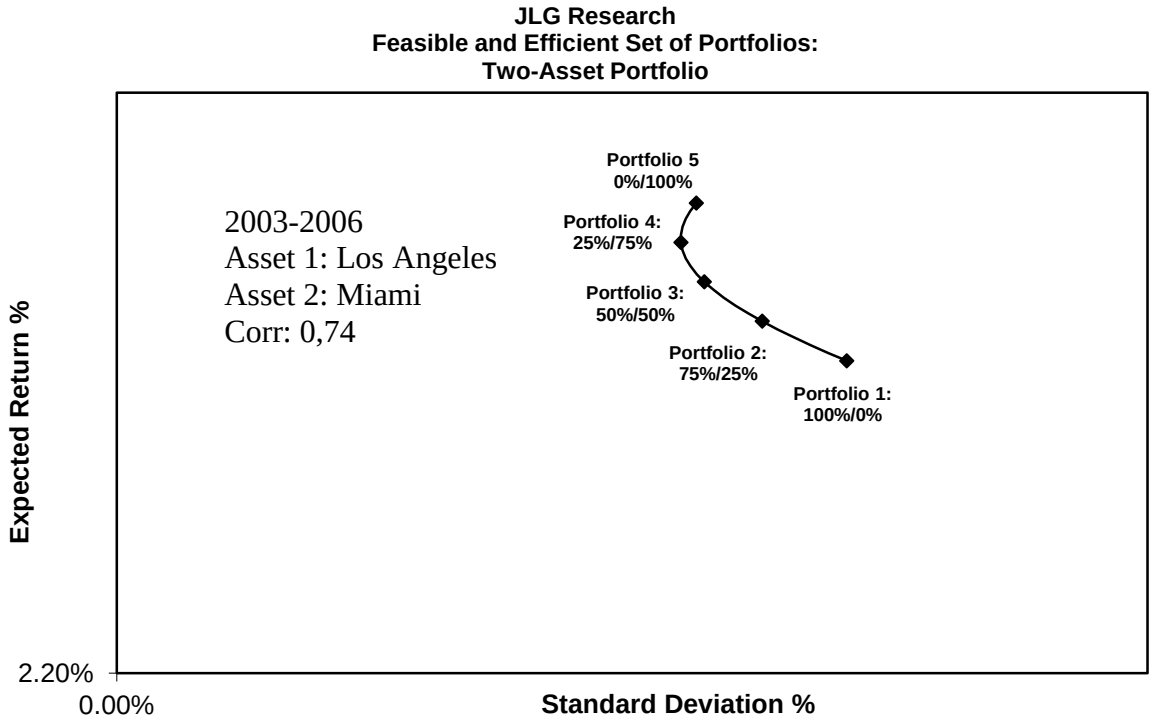

Figure 4: Correlation between LXXR (CA-Los Angeles) and MIXR (FL-Miami). Portfolio 1 is invested 100% in LXXR, while portfolio 5 is invested 100% in MIXR.[244]

However, what is interesting is that during the financial crisis the correlation between the two indexes increased significantly. Figure 5 shows a correlation of 0.90. A hypothetical correlation of 1 gives no diversification benefit in terms of escaping the risk of falling house prices.

Figure 5

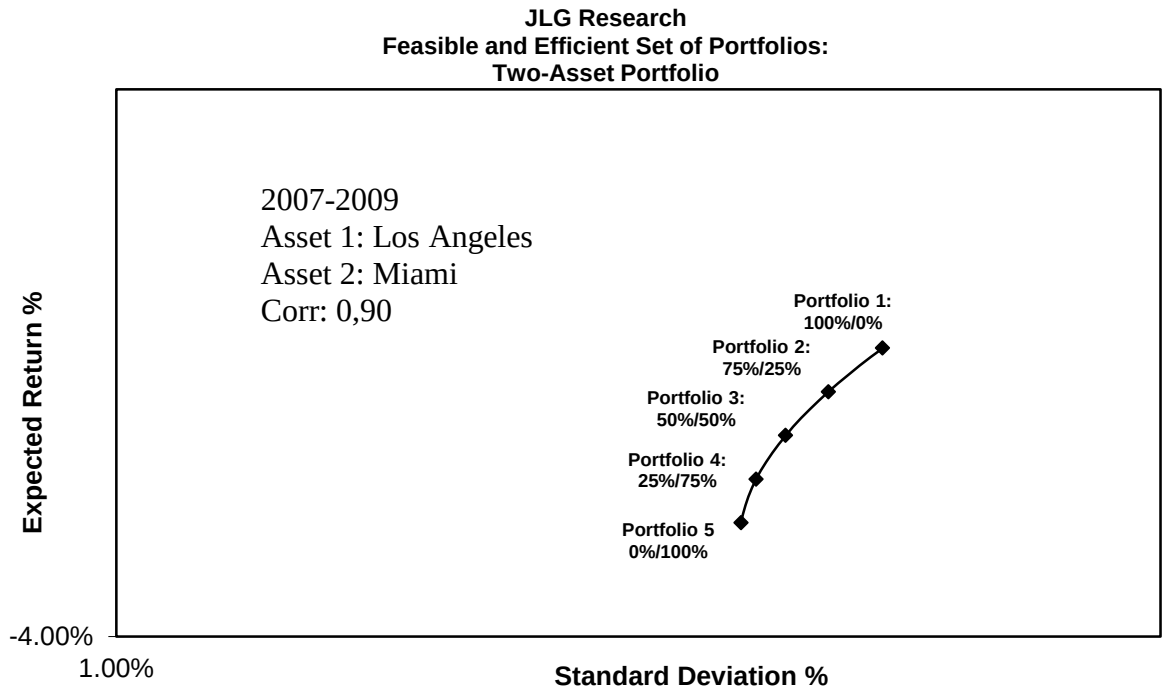

Figure 5: Correlation between LXXR (CA-Los Angeles) and MIXR (FL-Miami). Portfolio 1 is invested 100% in LXXR, while portfolio 5 is invested 100% in MIXR. [245]

Credit-rating Agencies (CRAs)

[244] All numbers are calculated using tools provided by JLG RESEARCH (www.jlgresearch.com). All data is quarterly return provided by http://www.standardandpoors.com

[245] All numbers are calculated using tools provided by JLG RESEARCH (www.jlgresearch.com). All data is quarterly return provided by http://www.standardandpoors.com.

The securities were divided into tranches. The upper or "senior" tranche was the safest one, and the one to receive the first payments from mortgage borrowers. The tranche on the bottom was the last one to receive any payment, and therefore the one with the highest return and highest risk. The credit-rating agencies can be accused of having done a poor job analyzing these products. Normally credit-rating agencies will analyze the fundamentals of the underlying asset. "… [T]he agencies routinely analyzed the underlying RMBS tranches, but not the original mortgages" (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 60). Many of these financial securities received AAA rating, and securities that got rated more poorly could be pooled into a new mix that would receive a higher rating.

"Credit-rating agencies played a crucial role in the success of subprime mortgage securitization, inasmuch as their ratings came to be viewed as virtual guarantees of investment quality" (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009, p. 60).

The System Fail

"Greed on Wall Street was a given--almost an obligation. The problem was the system of incentives that channeled the greed" (Lewis, The Big Short, 2011, p. 256). In answering how a burst in the house bubble could have such an impact on the world economy, there are three aspects the author puts extra emphasis on. Firstly, the demand for mortgage backed securities was unnaturally high, especially given the role of the government. Thus, too many financial products were created, both with roots in real mortgages and synthetic products created to give a similar cash flow. Secondly, the underlying portfolio consisted of assets with high correlation. The products received good credit ratings, but the diversification benefits were probably overestimated in addition to credit-rating agencies not analyzing the fundamentals of many of these products. The financial products were in many cases build up by so many assets that they

were too complex to really get an understanding of what they consisted of. However, after the crisis it is clear that the financial products were too exposed to a fall in overall house prices. Thirdly, the correlation is not constant, and as the example above with house prices in Miami and Los Angeles illustrates; the correlation increased during the downturn in the market. This is an important argument, when institutions calculate their value at risk. In the belief that correlation is low no matter what situation the economy faces, the leverage might be far too high.

Not only were these financial products a device for moving along risk rather than sharing risk, but it also made it possible for banks to issue huge amounts of risky loans. They were able to pass along the risk, and therefor able to make new loans as the old loans were no longer on their balance sheet. This increased the total number of subprime mortgages significantly.

The Norwegian Situation

As an interesting comparison, house prices in Norway have increased significantly both before and after the global financial crisis. Since early 1992 to the second quarter of 2012, the Norwegian house price index has more than quadrupled (Figure 6). A direct comparison of Norwegian house prices to American house prices gives at first glance reason for concern. The opinion held by the average Norwegian today is in many ways similar to the opinion held in the United States before the global financial crisis – the house market will never stop increasing. Recently Norwegian media has started to address the problem and question if it is a sustainable growth. Norway got through the global financial crisis in very good shape compared to the international economy. However, the central bank dropped the key policy rate significantly after the fall of 2008 as a direct result of the financial situation.

Figure 6

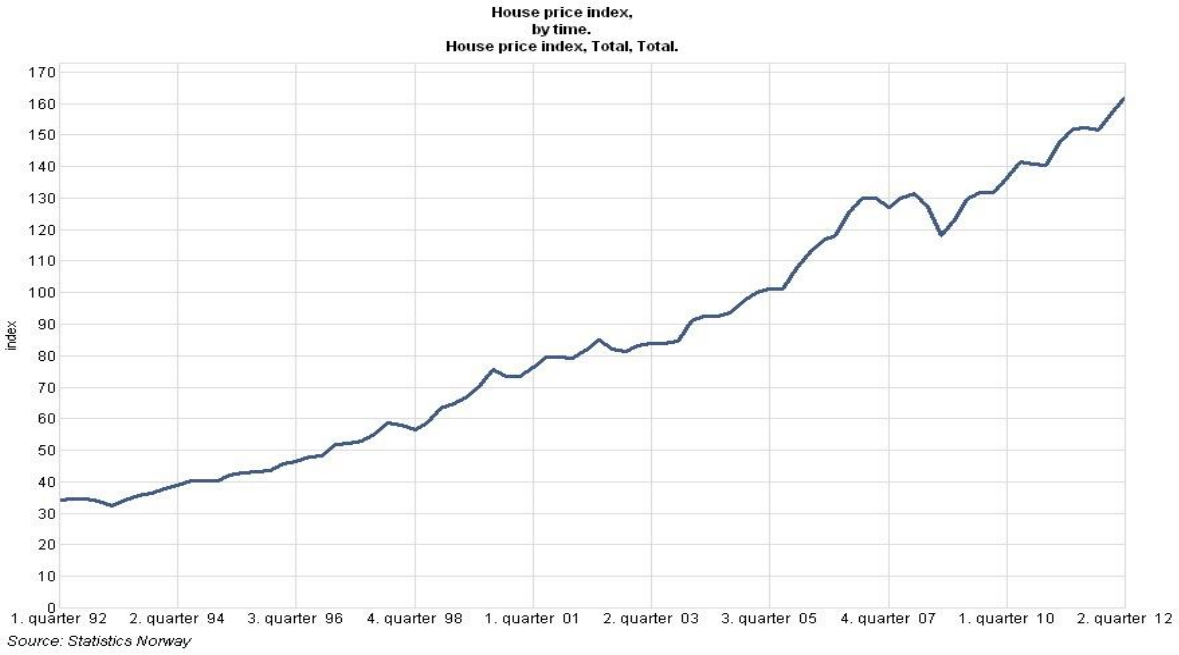

Figure 6: Norwegian house price index[246]

The Central Bank's Dilemma

Figure 7 gives an overview of the key policy rate set by the Norwegian Central Bank. It has been kept low from the fall of 2008 and until today. It can be argued that the key policy rate should have been increased already due to the strong economy. However, the interest rate has been kept low to protect Norway's international competitiveness. Norway's economy is dependent on exports, and adapting to the international situation is essential. In the pre-crisis period Norwegian house prices grew rapidly despite the high key policy rate almost reaching 6% in 2008. In the author's view, this was a result of a strong national and international economy. However, the

[246] Data: www.ssb.no

rapid increase after a small dip in 2008 can perhaps be blamed on the very low interest rate set by the Central Bank.

Figure 7

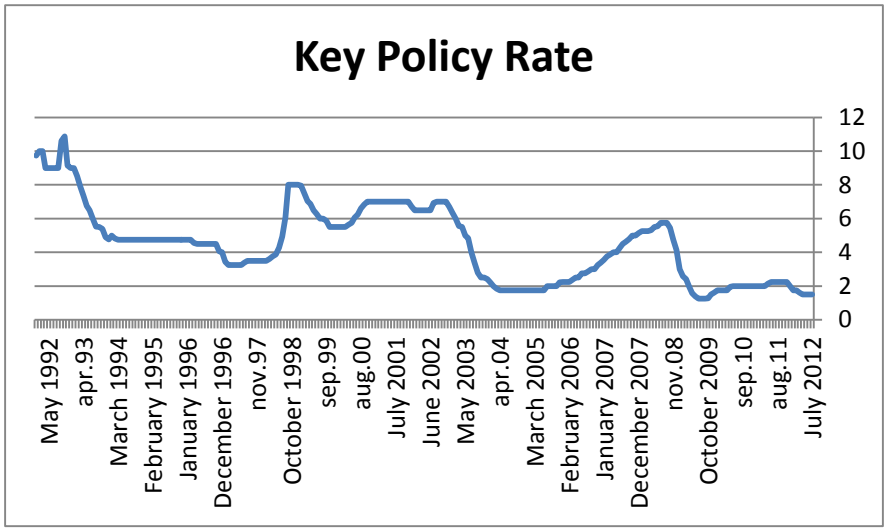

Figure 7: The Key Police Rate set by the Norwegian Central Bank.
Data: http://www.norges-bank.no/en/price-stability/interest-rates/key-policy-rate-monthly-average-of-daily-observations/

A Sustainable Situation?

The interest rate will keep on playing a key role in the Norwegian housing market. A continued low key policy rate will in itself impact home prices for further growth. The Norwegian mortgage market is however not influenced by subprime mortgages. The Norwegian government increased the demand for down payments on mortgages from 10% to 15% in December 2011[247]. The guidelines for improving mortgage loans in Norway today are not comparable to the situation in the United States before the global financial crisis, in terms of having much higher creditworthiness among borrowers. Above, we explored the effect the American government had

[247] Freely translated from http://www.nrk.no/okonomi/boligprisvekst-tross-strengere-krav-1.7978025.

on the financial crises due to their policy of increasing homeownership. In Norway people can receive help on down payments and paying interest rates through Husbanken[248]. Again, compared to the role played by the American governmental sponsored enterprises and policy for providing mortgages to underserved communities, the Norwegian government is playing it safer. Norwegian homeowners will not have as high an incentive to default on their mortgages as the American homeowners had.

A situation with high house price, hence high mortgages, can be very unstable if the overall economy is performing poorly or the interest rate is increasing. These two scenarios are, in the author's view, likely. With the present unstable financial situation in Europe, a poor economic performance is not unlikely both internationally and nationally. Another concern, due to the situation in Europe, is the possibility of tightened access to money for the banks, thus increasing inter-bank rates. This will again lead to a higher rate for mortgage borrowers despite an unchanged key policy rate. On the other side, positive growth in international and national economies will probably lead to an increase in the Norwegian policy rate, also leading to a rise in mortgage rates. Keeping the interest low is increasing the likelihood of a future burst, and the question might be how dramatically the growth is going to change.

Possible Impacts from a Burst in Norwegian House Prices

As described earlier in this paper, there were more factors than just a burst in the housing bubble that crafted the global financial crisis. The author believes that these factors are not present in the Norwegian market in terms of; a great number of financial products exposed to house prices with high correlations within each other; the misleading credit-ratings; and the extreme amount of

[248] www.husbanken.no

subprime mortgages created in addition to synthetic financial products. For these reasons, a hypothetical decrease in Norwegian house prices will probably not affect the overall economy in the same way as in the United States. With this said, it is to be considered that a home for the everyday Norwegian is an investment of huge significance, thus consumer spending will probably fall if house prices fall. However, a crash in the financial market is, in the author's view, less likely.

Conclusion

House prices in Norway today might face a decline just like the American housing market faced from 2006 and until today. There are similarities in the monetary policy with low interest rates. Just like the Federal Reserve, the Norwegian Central Bank might find itself in the position of increasing the interest rate too late. Especially if we assume that a change in the key policy rate will have a lagged effect on economic growth. However, the Norwegian Central Bank is pressured by the export business to prevent the exchange rate from increasing, in the low interest rate environment the world currently faces.

In comparison to the United States, a decrease in housing prices is less likely in the sense that Norway is not infiltrated with subprime mortgages. The down payment today for example is 15% in contrast to situations with down payments of 0% in the United States pre-crisis. The overall incentives of creating mortgages are also low in comparison to the United States.

A burst in the Norwegian housing bubble is perhaps likely. The unstable situation in Europe that might lead to a decrease in the Norwegian economy, or the possibility of higher inter-bank rates, might release this scenario. On the other side, and perhaps an even worse scenario is the

possibility that today's situation with low interest rates keeps on going and feeding the bubble to grow to even more extreme levels into the future, making a burst unavoidable.

A drop in Norwegian house prices will not give mortgage borrowers as high an incentive to default on their loans, due to the higher down payments. The transfer of the risk starting with the mortgage borrower and over to both national and international investors through financial products made the American house bubble affect the economy significantly. The underestimated high correlation within these products was gasoline for the fire. A burst of the Norwegian housing bubble is less likely to have such an (relative) impact on the overall economy as the American burst caused.

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Chapter 33

The Winners of the Global Financial Crisis Blame Game: U.S. Government and Human Nature

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Introduction

Joseph Stiglitz opens the first chapter of his New York Times Bestseller *Freefall: America, Free Markets, and the Sinking of the World Economy* by saying that "the only surprise about the economic crisis of 2008 was that it came as a surprise to so many".[249] Indeed, there have been numerous crises in modern times, bubbles that have eventually burst leaving countries in economic downturns; periods of exceptional growth followed by decline and stagnation. Nonetheless, the crisis of 2007-2009 came crashing down on the U.S. and spread quickly to the international markets. The United States, with its financial institutions and currency in the center of the global financial system, led the way into what is now known as the Global Financial Crisis.[250] This paper will focus on two factors that, in authors view, contributed the most to the

[249] Joseph E. Stiglitz, Freefall: America, Free Markets, and the Sinking of the World Economy, 2010
[250] Edwin M. Truman, Remarks at the Eighteenth Cycle of Economic Lectures, Banco de Guatemala, 2009

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crisis: policies and actions of the U.S. Government, and a human nature that prevented people from "doing the right thing".

United States Government

The involvement of the United States government in creating a crisis ready scenario can be traced back to a couple of key factors. Firstly, the Community Reinvestment Act opened the door to the subprime mortgages that would otherwise have not been issued. Secondly, increased involvement of Fannie Mae and Freddie Mac as government-sponsored enterprises (GSE) in the subprime and Adjustable Rate Mortgage market contributed to the growth of this low-quality lending. Both of these factors impacted the behavior of banks in terms of their risk exposure and the relaxed lending standards.

Community Reinvestment Act

The drive to increase homeownership has been a part of the United States domestic policy for numerous decades. During the Hoover administration (1929-1933) and after World War II, Congress took actions to allow government-backed mortgages to be issued through reduced lending requirements. At the same time, most of the lenders continued to provide traditional lending with stricter underwriting, believing their requirements resulted in better quality mortgages and a lower default rate.[251]

The principle idea behind the Community Reinvestment Act (CRA) of 1977 was directed towards encouraging financial institutions to provide lending to low and moderate-income families in order to promote homeownership.[252] Yet again, the Congress was the driving force behind the initiatives that would allow more people to purchase homes. However, the targeted

[251] Peter J. Wallison, CFA Insights: Not a failure of Capitalism – a failure of Government, 2009
[252] Board of Governors of the Federal Reserve System website

borrowers in this situation were generally low income residents with poor credit and likely no funds available for down payments, a combination that put these borrowers at a higher risk of default. One might ask why the financial institutions did not behave as they had in the past by sticking to their principles and maintaining high standards. The answer is simple; the Community Reinvestment Act came with a catch. Peter Wallison writes in his article *Not a failure of Capitalism – a failure of Government*: "(CRA) gave regulators the right to deny bank applications for expansion if the applicant had failed to lend sufficiently in minority neighborhoods".[253] As one can imagine, this had a major impact on banks' decisions to reduce lending requirements as a way to meet the CRA objectives. In a way, the banks were being penalized for being cautious and for using their best practices. If the participation in the Community Reinvestment Act meant they could expand their business as planned, lending to individuals who did not meet the "old" underwriting criteria became a price of doing business. Once the door was open for lower quality mortgages, it was only a matter of time before these products were expanded to borrowers from outside of the CRA umbrella. Especially considering that the emerging market for subprime mortgages was driven by two big financial players.

Fannie Mae and Freddie Mac

Fannie Mae and Freddie Mac were both government-sponsored enterprises (GSE) chartered by Congress to "provide liquidity, stability and affordability to the mortgage market", according to the Federal Housing Finance Agency.[254] The primary way of carrying out their mission was through purchasing of existing mortgages from banks and financial institutions. These mortgages became either a part of the GSE's portfolios or they were repackaged into mortgage backed

[253] Peter J. Wallison, CFA Insights: Not a failure of Capitalism – a failure of Government, 2009
[254] Federal Housing Finance Agency website

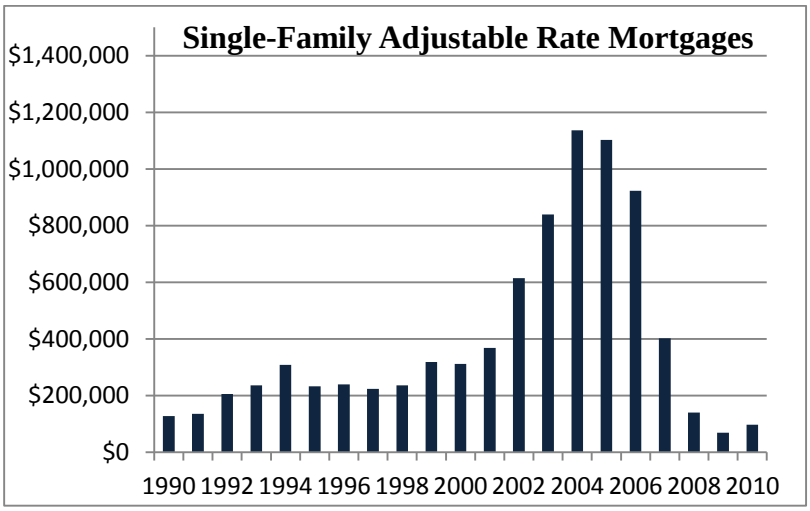
securities (MBS) which were then used in various investments in various markets. The pressure from affordable housing regulations, that Fannie Mae and Freddie Mac were supposed to promote, and their easy access to funds at a relatively lower rate through their relationship with the Unites States Government, allowed the two enterprises to quickly jump on the subprime mortgage purchases. As a result, the demand for subprime mortgages increased. It should not be surprising then that the supply of these low-quality mortgages increased as well. As mentioned before, banks have already reduced their lending standards due to the Community Reinvestment Act requirements; therefore an increase in the issuance of subprime mortgages was in line with the increased demand for such products.

It is important to realize that Fannie Mae and Freddie Mac were in the business of promoting homeownership altogether, as per the government driven initiatives. The subprime mortgages met some of these goals but it was not enough. The Adjustable Rate Mortgages, and mortgages with interest only payments, as well as negative amortization, filled in the gap nicely. Again, these products were not issued by Fannie Mae and Freddie Mac directly; neither business sold directly to the end customer. However, as in any market, where there is a demand, there will be a supply. Figure 1 and Figure 2 illustrate the dramatic increase in Adjustable Rate Mortgages and the Nontraditional Mortgages respectively from 2004 through 2006. With the GSEs being more than willing to purchase these low-quality and high-risk products, the banks and financial institutions were there to supply them. Joseph Stiglitz argues that such ”litany of defenses is, for the most part, sheer nonsense” as he claims that Fannie Mae and Freddie Mac simply “joined in the fun” by deciding to include these products in their portfolios.[255] The question that comes to

[255] Joseph E. Stiglitz, Freefall: America, Free Markets, and the Sinking of the World Economy, 2010

mind is whether there would have been any "fun" to join if no one was there to create the "fun" in the first place.

Figure 1:



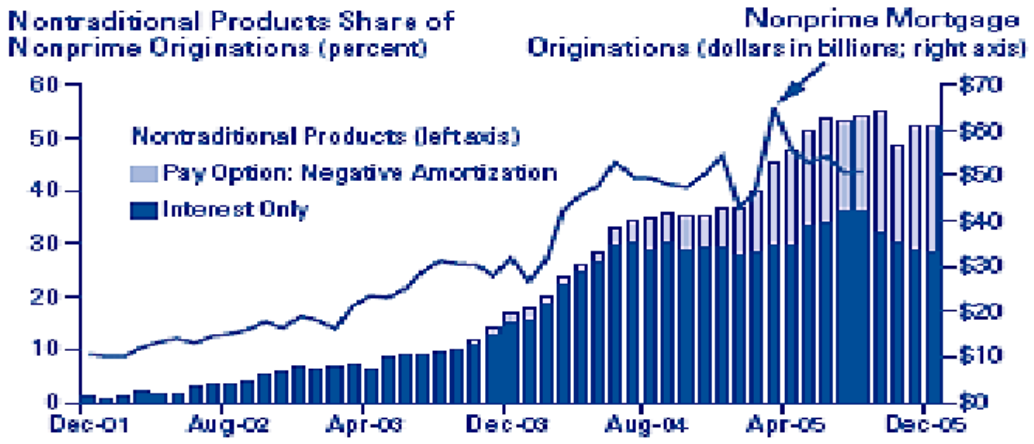
Source:

FHFA based on data from the Department of Housing and Urban Development, the Federal Housing Administration (FHA), the Department of Veterans Affairs (VA), the Rural Housing Service (RHS), and Inside Mortgage Finance Publications

http://www.fhfa.gov/Default.aspx?Page=70

Figure 2:

Nontraditional Mortgage Product



Source:

FDIC Outlook: Breaking New Ground in U.S. Mortgage Lending

http://www.fdic.gov/bank/analytical/regional/ro20062q/na/2006_summer04.html

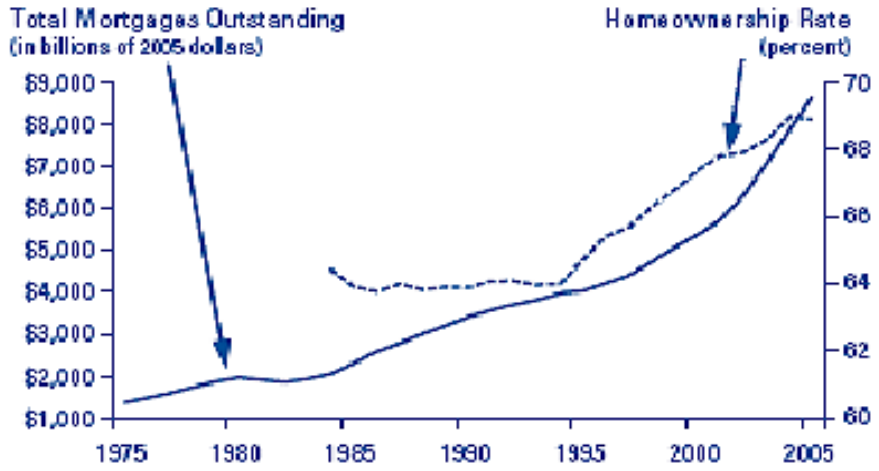
Was it worth it?

As Figure 3 clearly shows, the United States government did succeed in its quest to increase homeownership, but the price was just way too high. The subprime and Adjustable Rate Mortgages resulted in default and foreclosure rates skyrocketing. FDIC foreclosure statistics paint a grim picture[256]:

Figure 3:

Homeownership Rate

[256] FDIC FORECLOSURE STATISTICS; http://www.fdic.gov/about/comein/files/foreclosure_statistics.pdf



Source:

Federal Reserve Bureau of Economic Analysis; U.S. Census Bureau

FDIC Outlook: Breaking New Ground in U.S. Mortgage Lending

http://www.fdic.gov/bank/analytical/regional/ro20062q/na/2006_summer04.html

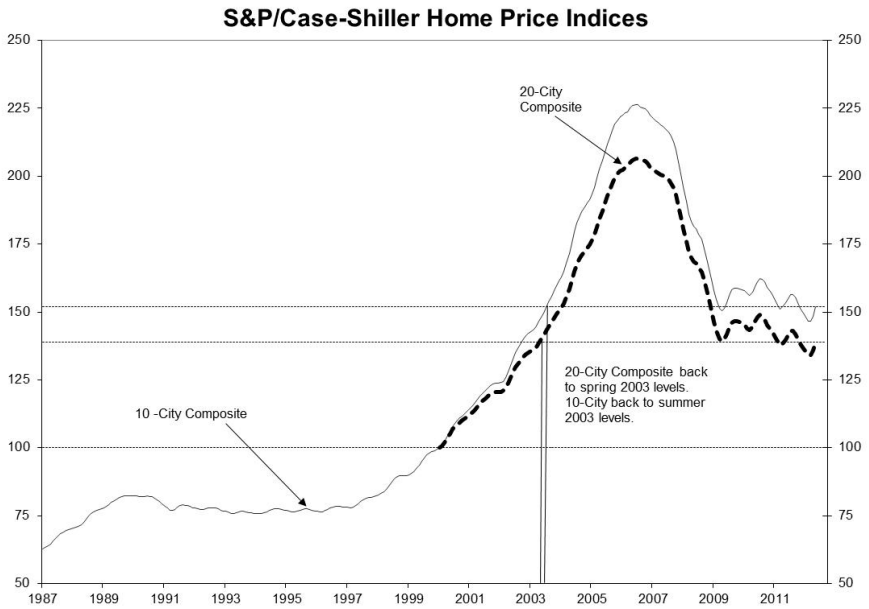
- 1 out of every 200 homes will be foreclosed upon
- Every three months, 250,000 new families enter into foreclosure
- One child in every classroom in America is at risk of losing his/her home because their parents are unable to pay their mortgage

The home prices continue the free-fall leaving homeowners wondering how low can the prices go and how much more home equity will they lose (see Figure 4). [257] The housing bubble would have burst one way or the other and the American people would likely be facing an economic crisis as such is the cycle of growth and economic decline. The magnitude of the crisis however was largely influenced directly and indirectly by the policies

[257] S&P/Case-Shiller Home Price Indices

and actions of the U.S. government, and it is the author's opinion that these policies made matters worse than they could otherwise have been.

Figure 4:



Source:

S&P Dow Jones Indices and Fiserv

http://www.standardandpoors.com/servlet/BlobServer?blobheadername3=MDT-Type&blobcol=urldocumentfile&blobtable=SPComSecureDocument&blobheadervalue2=inline%3B+filename%3Ddownload.pdf&blobheadername2=Content-Disposition&blobheadervalue1=application%2Fpdf&blobkey=id&blobheadername1=content-type&blobwhere=1245337692985&blobheadervalue3=abinary%3B+charset%3DUTF-8&blobnocache=true

Human Nature

Regardless of the extent the United States government policies played a role in the Global Financial Crisis, one might wonder, coming back to the opening statements of this paper, why is it that the crisis was such a surprise to some many people? Those involved in operations at Fannie Mae and Freddie Mac must have known something was not right with the mortgages they were purchasing and the risk they were exposing the company to. Those involved at banks must have known the mortgages they were issuing were unsustainable and with higher default probability than ever before. Those involved at AIG must have known their exposure was way off. The list goes on and on. Indeed, one can actually find examples from memos, emails and phone call transcripts showing some degree of concern but no actions. [258] It is the author's view that human nature played a key role in the Global Financial Crisis.

[258] Marianne M. Jennings, CFA Insights: Of Candor and Conflicts: What were we thinking?, 2009

The pressure to perform

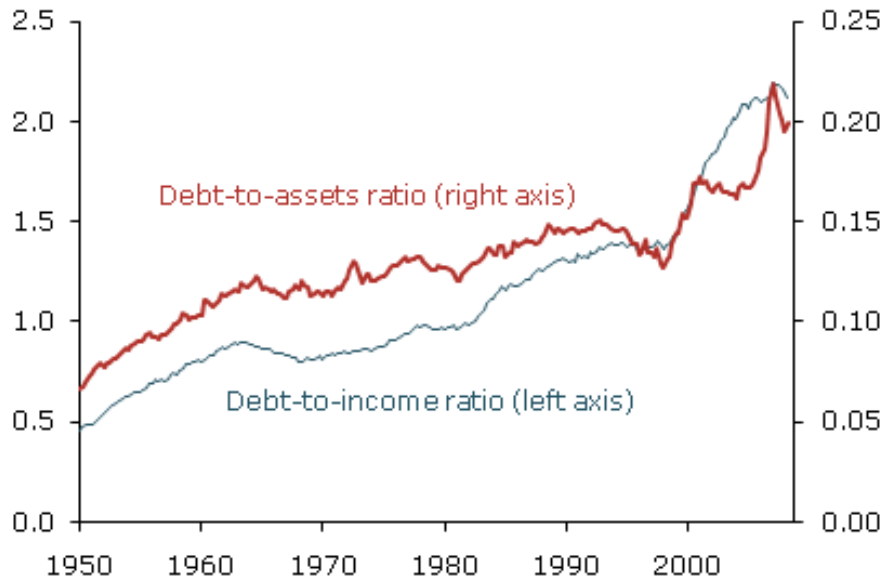
As discussed in a previous section, with the implementation of the Community Reinvestment Act, banks suddenly found themselves under new pressure to provide lending to lower-income borrowers. Pressure was building up at Fannie Mae and Freddie Mac to meet the affordable housing regulations. Evidently pressure can drive people to make decisions that they might not otherwise make under different circumstances. Marianne Jennings in her article *Of Candor and Conflicts: What were we thinking?* explores the idea of pressure playing a key role in the Global Financial Crisis though numerous examples, such as the collapse of Merrill Lynch. She cites executives who stated that the pressure to meet and exceed the goals was always present in the office. Jennings also links pressure with looking for loopholes and focusing on the short-term objective rather than long-term gain and producing sustainable growth; this shift in focus therefore led many businesses to compromising their principles. She contributes, in part, the collapse of Lehman Brothers and Bear Stearns to increased pressure to perform as well.

Bigger and Better

As much as banks had their incentives (good or bad) to issue low-quality mortgages, the borrowers were more than willing to take on the loans for more than they could actually afford. Stiglitz defends the borrowers by saying that they were "financially illiterate" and "did not understand what they were getting into".[259] It might be true in some cases, however, the author believes that for many people it was just more convenient to take the money the bank was willing to give them rather than admit they might not be able to pay it back. The reason is simple, human beings want things other people have. The "Keeping up with the Joneses" mentality makes us want the bigger house and the better car. The large amounts coming from loans were just a new way to buy something now and worry later about how to pay it back. The American people had been living beyond their means for years before the Global Financial Crisis, with the household debt-to-income ratio on increase from late 1990's (see Figure 5). The trend continued in the early and late 2000 since there was no incentive to change the behavior. Owning a home has always been an American Dream. Yet, it used to come with hard work and sacrifices. The subprime mortgages took care of the hard work part, leaving just the dream coming true on the table. The bigger and better one as well

Figure 5: U.S. household debt

[259] Joseph E. Stiglitz, Freefall: America, Free Markets, and the Sinking of the World Economy, 2010



Source:

Federal Reserve Bank of San Francisco: Consumers and the Economy, Part II: Household Debt and the Weak U.S. Recovery

http://www.frbsf.org/publications/economics/letter/2011/el2011-02.html

It is someone else's fault

When the extent of the Global Financial Crisis became more evident, plenty of pointing fingers and passing the blame onto the next party involved took place. Between the mortgage originators, companies involved in securitization, the rating agencies, the Federal Reserve and the U.S. government, everyone found someone else to accuse of wrongdoing. Human nature once again makes us search for a way out. No one was willing to step up and take responsibility. As a result, the average consumer lost faith and confidence in everyone involved; the outcome that is now making the recovery slow and unpredictable. It is easy to point fingers and hope that

it will reduce one's exposure. Humans like easy solutions. The difficult choices are, well, difficult and admitting to a mistake or a lapse in judgment takes courage. Even Stiglitz admits that restoring trust and learning to take responsibility are key features on the road to a new society.[260]

Irrational decisions of a rational investor

A significant number of home purchases during the housing bubble were associated with an investment opportunity rather than pure homeownership; which brings the human nature discussion to the idea of a rational investor making irrational investment decisions. With housing prices on the rise from 2000 to 2006, as indicated in the Case-Shiller Home Price Index (Figure 4), many investors bought the idea of a great return coming from a real estate investment, not recognizing the risks of the growing bubble. The human nature drives overconfidence and inflated optimism in good times. People get caught up in the excitement of the market and, at the same time, use incomplete information to draw incorrect decisions. One investor's willingness to pay a high price for real estate is a signal for another market player that real estate is a good investment, suggests Robert Shiller in his New York Times article *How a Bubble Stayed Under the Radar*. [261] He then continues to explain that, as more people act in such way, these signals outweigh any information or research the investors might have done on their own, that might have led them to a different decision. As the prices of real estate continued to grow, and the earlier investors saw their initial returns going up, the feeling that they had discovered the next great opportunity to make money became contagious, and this lead to herd behavior among the investors. However, these same excessively optimistic investors quickly turned around towards

[260] Joseph E. Stiglitz, Freefall: America, Free Markets, and the Sinking of the World Economy, 2010
[261] Robert J. Shiller, How a Bubble Stayed Under the Radar, 2008

excessive pessimism as the bubble burst. This excessive pessimism still lingers in the air and contributes to the very slow recovery from the Global Financial Crisis. Human nature prevented the investors from seeing that the investment that sounded too good indeed was too good to be true.

Conclusion

The Global Financial Crisis had an enormous impact on the global economy and put the international community in a recession which has been hard to overcome. With the United States in the center of the crisis, the country has the difficult job of regaining internal stability and its external position as a world leader. There are numerous points of view as to what contributed the most to the crisis and what lessons to draw from the crisis itself.

The United States Government, with its initiatives and regulations, played a key role in opening the door to the low-quality mortgages that flooded the market and provided a foundation for the spike in default rates and foreclosures. The government-sponsored enterprises, Fannie Mae and Freddie Mac, provided the demand for these subprime mortgages, therefore increasing their supply in the marketplace.

Yet, it was also good old human nature that contributed in many ways to the Global Financial Crisis. From greed and the pressure to perform, through the easy way out, and the inflated sense of entitlement to everything other people had and more, and finally irrational investment decisions coming from their behavior, we all in a way contributed our fair share to the crisis.

The road to recovery already proved to be a tough one and there are still many challenges to come for countries all over the world. Lessons remain to be learnt from the Crisis of 2007-2009. The complexity of the two factors included in the discussion above makes it even more difficult to provide suggestions on how to avoid the same issues in the future. Government regulations

and initiatives play an important part in our lives and are so crucial in many ways. At the same time, there needs to be a more comprehensive understanding of the outcomes which regulations bring about, and the effects they have on the overall economy, not just in a national sense but on the global scale as well.

One can only hope that, as individuals, we all learnt something from the Global Financial Crisis. Human nature can be difficult to overcome. Have we changed enough to stop ourselves from falling into the same traps again? Or is our memory short? In this aspect, only time will tell.

Crises come and go; it is a part of the world we live in. Let us all just hope that next time we all collectively will make better choices and will be better prepared so we can say that this time it is different.

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Chapter 34

International Dimensions of the GFC: Are ailing US Banks and EU Countries 'too big to fail'?

Kyriaki Petronikolou

Abstract

This paper presents my personal views on the current global financial crisis. The paper will attempt to provide an opinion about how the financial crisis, which initiated in 2007 in the U.S.A., ultimately developed and was handled in Europe. Further, the reaction of the EU and measures taken by it in order to remedy the situation are discussed. Over the last four years, I have worked for the European Commission, being responsible for a close follow-up and policy analysis of the bailout countries. I will attempt to bring my own personal experiences into this. Inter-governmental accounts of integration will be used in order to explain the EU's institutional response to the sovereign crisis in Europe. The structure of the EU institutional setting and provisions for Economic Union have been shown to be severely inadequate (this essay will focus on Greece as an example) and unprepared in dealing with financially challenged countries. Overall, the paper will conclude that both in the US and in Europe, the ultimate policy question has been one of systemic risk, when it comes to authorities rescuing an insolvent entity. In other words, the dilemma of "too big to fail", applicable initially in the US banking system, has come to apply to financially ailing states in Europe.

The financial crisis in the United States: Causes and Consequences

Economists and academics have pointed to a number of different factors to explain what caused the global financial crisis. The most crucial one is considered to be the big downturn in the

financial and housing mortgage sector (Donath & Cismas 2009). What initially began as a bubble burst in the U. S. subprime mortgage markets rapidly escalated and spilled over to the entire financial market of the US, and afterwards into the real economy. This crisis undoubtedly has changed the financial landscape worldwide and its full costs are yet to be evaluated. Nevertheless, in order for one to understand a crisis, its underpinnings need to be explored beforehand. In the following section, I will illustrate that apart from the main, classical monetary reasons put forward such as the shifts in the demand of housing, certain psychological reactions to these fundamentals complete the picture (Shefrin, 2009). Three consecutive periods have been identified in describing the origins and the causes of the crisis in the U.S (the 'pre-ancestor of the Global Financial Crisis'), which will be described in detail hereafter.

Mortgage and Housing Finance: Interbank contagion

From August 2007 until September 2008, there was wide agreement that macro-economic reasons and more implicitly, poor incentives in the U.S. mortgage industry had caused the problem. From 1997 to 2006, just before the financial crisis in the United States, the housing mortgage and finance market was dominated by a limited number of large commercial banks (Donath & Cismas 2009). They were in a competition with the local and international banks and financial institutions that offer those facilities at comparatively lower interest rates than banking institutions (United Nations Organization 2009). As an extension, in order to beat these competitors, the local banks in the United States decreased their interest rates and made their terms to avail the housing and mortgage facilities more flexible and, therefore, more attractive (Burger, Coelho, Karpowicz, & Tyson 2009). Consequently, consumers gradually became more and more attracted to these facilities as banks made them available without considering their customers' repayment ability. In other words, the public started overinvesting in housing finance

and mortgage contracts and all of a sudden during 2006, the boom in the prices took place. This boom can be explained if one takes into account consumers' irrational behavior driven by psychological factors.

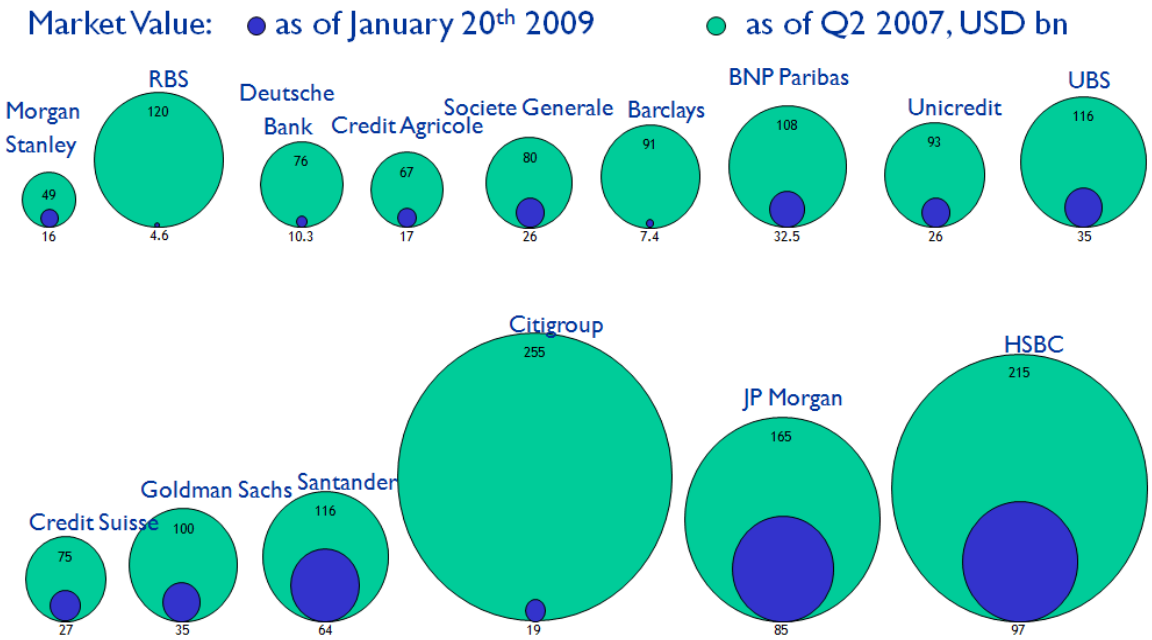
According to Schiller, therefore, the boom in housing prices was not due to macro-economic factors but rather due to a "contagion of market psychology". He emphasizes that "we as a society do not understand speculative bubbles". He tends to use market psychology arguing that the market participants were to blame for believing in the sustainability of the bubble. The government did not react to this situation as they "could not establish the new kinds of financial institutions that could have managed the boom" (Schiller, 2008). The real estate market became inflated and ultimately collapsed thereby affecting Wall Street.

Competition among Financial Institutions and Banks

As a result of the situation described above, more new international banks entered U.S markets by offering housing finance opportunities at even lower rates. This competitive environment took the shape of a fierce price competition between local and international banks and finance companies (Independent Evaluation Group 2012). As Shefrin describes, the crisis was not due to macro-economic reasons as such, but rather due to certain psychological reactions to these fundamentals such as increased risk seeking, excessive optimism, and overconfidence. Therefore, the crisis was due to irrational decision making on the fundamentals rather than the fundamentals themselves (Shefrin 2009). As a result, an overselling phenomenon was created (United Nations Organization 2009) with a significant percentage of borrowers who were unable to pay back their loans to the respective banks and financial institutions (World Bank 2012). This

incident marks the beginning of the mass catastrophe of United States' coliseum banks (see Exhibit 1) and respectively the beginning of the Global financial crisis.

Exhibit 1: Market capitalisation of largest banks before and after Lehman



Does 'Too big to fail?' apply to US banks?

As a result of the situation described above, banks and financial institutions had to sell their short and long term assets in order to pay for the loans. This fact resulted in a significant decline in the volume of their deposits and their long-term assets (Magdoff & Foster 2009). When it was made clear that no other means of funding loans existed, 'they addressed to Government for a bail out' (Corker 2012). They were in fact confident that the Government would prevent their collapse given their 'too big to fail' stature (Shorkin 2009). The US government, however, was initially not willing to give rise to moral hazard incentives for banks to let their balance sheets develop out of control, knowing that they will be bailed out. When Lehman Brothers went down in September 2008, the notion that all banks were "too big to fail" no longer held true, with the

result that every bank was deemed to be risky and in a possible free-fall fate. Within a month, the fear of a 'domino effect' through the global financial system forced governments across both sides of the Atlantic to directly capitalize their banks in order to prevent them from collapsing. Ultimately, the banks were rescued, but it was too late to prevent the global economy from going into free-fall. Credit flows to the private sector were choked off at the same time as consumer and business confidence collapsed. All this came after a period when high oil prices had persuaded central banks that the priority was to keep interest rates high as a bulwark against inflation rather than to cut them in anticipation of a financial crisis spreading to the real economy.

What follows from the above is that while the US government initially considered no bank too big to fail, the aftermath of the collapse of Lehman Brothers altered the government's stance, given the systemic, globally widespread implications the Lehman had. In other words, the moral hazard considerations, such that would see banks take no action to fix their balance sheets in anticipation of a certain bailout by the state, proved ultimately to be secondary to the consequences of a bank's failure.

The European sovereign crisis and the 'Greek patient'

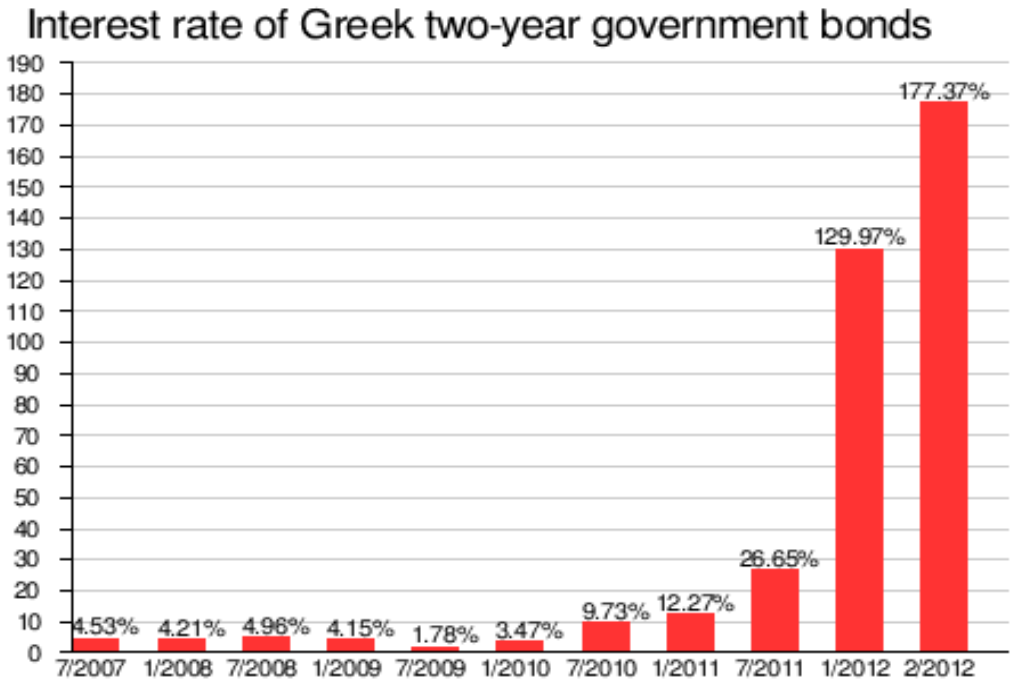
The Greek crisis and the reaction of Europe

Greece enjoyed persistently high growth rates, as well as increasing wage levels and per capita income since the late 1980s. The crisis of 2008 helped lay bare the financials of the country, as the state was required to borrow heavily to support its banking system. Following a fierce electoral battle in late 2009, it was only then that the world found out that the financials of the

Greek state were in a very dire situation, far worse than the country reported to the European statistical agency (Eurostat) and in serious breach of several EU-wide fiscal rules. In more detail, Greece found itself with a deficit-to-GDP ratio of 15.7% in 2009 and a debt-to-GDP ratio well beyond the 60% that the EU's Stability and Growth Pact dictated.

While it was made clear that Greece was in need of external help due to excessive borrowing costs (see Exhibit 2), it was unclear how this assistance would be granted, by whom and to what aim. The European apparatus did not have previous experience in directly intervening/assisting fiscally challenged EU members and the foundations of such a solution would have to be established right at that moment. What turned out to be of far more significance than the lack of an established financial assistance mechanism, was the apparent lack of clear leadership and resolution to address the emerging problem. The months that followed in Autumn 2009 gave rise to a non-ending battle for power between individual states and institutions in Europe as well as across the Atlantic. In more detail, a core of states and institutions were keen to assist Greece financially on grounds of solidarity while other states and institutions were not keen to see moral hazard considerations materialize because of financial assistance.

Exhibit 2: The cost of short-term borrowing for Greece



Ultimately, on 23 April 2010, the Greek government requested the EU/IMF bailout package. That was also the point at which the focus of concern switched from the private sector to the public sector[262]. At that time the European Union jointly with the European Central Bank (ECB) and the IMF the so-called "troika", announced that they would provide financial assistance to Greece. The loan package of €110 billion with interest rates of around 5% was "hastily" agreed to on 3 May 2010. The word "hastily" is used because, following the struggle for prevalence between the two cores, ultimately the timing of the package and its first installment to Greece came extremely tight as Greece faced bond repayments of €8.5 billion on 20 May 2010

[262] Historical events on Greek bailout were obtained from the Guardian (click to access).

(European Commission 2012). It becomes clear from the above that not only did Europe lack a mechanism to address financial issues in its members states, but it also lacked leadership and a clearly laid ideological roadmap in terms of how and to what aim it wished to provide financial support. The bailout agreement for Greece did not come without costs for the country, as the troika[263] established a well-defined, multiannual program of austerity, administrative and legislative reforms and objectives in Greece, in an exchange for the provision of financial assistance.

On the expense side, the program foresaw several rounds of tough austerity measures, pension and wage cuts (in the public as well as the private sector) as well as downsizing of the public sector. At the same time, on the revenue side, the program foresaw several rounds of increases in VAT, a crackdown on tax evasion, and the introduction of many ad-hoc taxes in order to cover ad-hoc budgetary gaps. These measures have led to what is branded as implementation fatigue in Greece. First of all, the authorities are not yet willing to fully collide head-on with long-standing established partisan practices and second (and most important), the disposable income, employment prospects, and the living standard of the Greek people has decreased significantly and abruptly, to a point that the benefits of EU/euro membership are also put into question. Ultimately, the Greek program of 2010 was replaced by a second program in March 2012, which moved relatively along the same lines as the first, but was also accompanied by a one-off partial write-down of Greek debt held by private sector investors.

[263] The "troika" is the abbreviation used to describe the teams of the European Commission, the European Central Bank and the International Monetary Fund that monitor the progress of Greece with respect to its programme targets and also recommend or not the disbursement of further aid tranches.

Greek crisis: Intra-European contagion

It had already become clear at that point that the main issue in Europe was no longer the banks' viability (as in 2008/2009) but governments' viability. Budget deficits had ballooned during the recession, mainly because of lower tax receipts and higher non-discretionary welfare spending, but also because of the fiscal packages announced in the aftermath of Lehman Brothers. As mentioned, Greece had unique problems as it covered up the dire state of its public finances[264] and had difficulties in collecting taxes, but other countries started to become nervous about the size of their budget deficits (see Exhibits 3-5). Following suit immediately, were market considerations over the health of the public finances of Ireland and Portugal, both for different reasons. The Irish state had channeled massive funds into its ailing banking system, which suffered from high exposure to the real estate sector; while Portugal's bad public finances were a result of long-standing overspending and a heavily bureaucratic, inefficient public sector. Given the experience with Greece, Europe was quicker this time in reacting, and both countries entered financial assistance programs rather smoothly.

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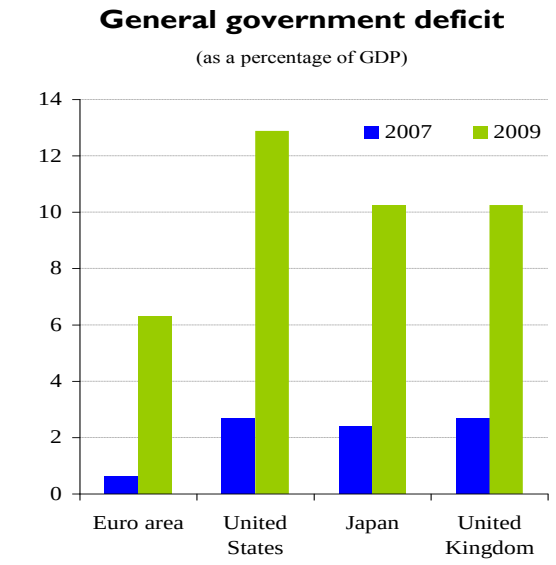
Exhibit 3: Public deficits in the euro area between 1998 and 2007

Table 1: Compliance with the preventive arm of the Stability and Growth Pact
(as a percentage of GDP)

indicates budgetary position close to balance or in surplus prior to 2005 and compliance with medium-term objective thereafter
indicates compliance with minimum benchmark only
indicates non-compliance with minimum benchmark

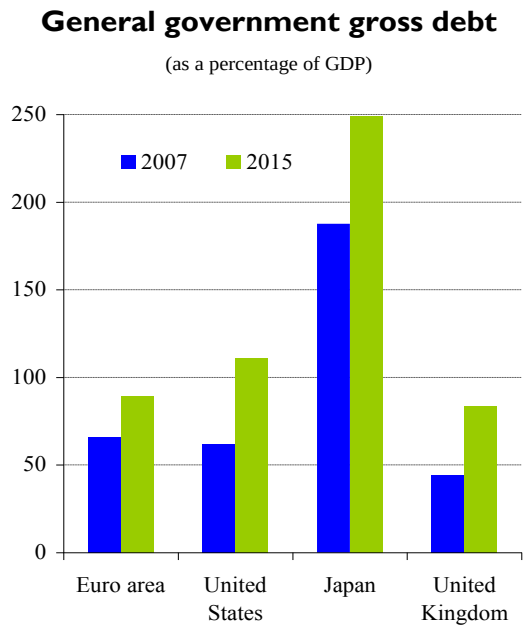
	MB	MTO	General government structural net lending (+)/borrowing (-)									
			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Belgium	-1.3	0.5	-0.6	-0.8	-0.9	0.1	-0.1	-1.1	-0.9	-0.2	-0.6	-0.3
Germany	-1.6	BB	-1.9	-1.3	-1.9	-3.4	-3.6	-3.3	-3.0	-2.4	-1.4	-0.3
Ireland	-1.5	CTBOIS	2.0	1.5	3.0	-0.2	-1.7	-0.1	2.1	1.3	2.9	0.2
Greece	-1.4	BB	-3.3	-2.6	-3.3	-4.9	-4.7	-5.9	-8.0	-5.7	-3.7	-3.5
Spain	-1.2	BB	-3.1	-1.7	-1.9	-1.4	-0.9	-0.3	-0.2	1.2	2.0	2.4
France	-1.6	BB	-2.4	-2.1	-2.6	-2.5	-3.5	-4.0	-3.8	-3.6	-2.7	-2.7
Italy	-1.4	BB	-2.5	-1.6	-2.9	-4.1	-3.4	-5.1	-4.7	-4.5	-2.8	-1.5
Cyprus	-1.8	BB	-3.7	-4.5	-3.1	-3.4	-5.1	-8.1	-5.2	-2.8	-0.7	3.5
Luxembourg	-1.0	-0.8	4.3	3.0	4.0	5.3	1.6	1.2	-0.9	0.4	1.4	2.8
Malta	-1.7	BB	-10.3	-8.5	-7.8	-6.5	-5.8	-6.5	-4.2	-4.1	-2.9	-2.4
Netherlands	-1.1	-1 to -0.5	-1.3	-0.8	-0.4	-1.3	-1.9	-2.0	-1.1	0.8	1.1	0.3
Austria	-1.6	BB	-2.5	-2.8	-3.0	-0.3	-0.3	-0.6	-3.1	-0.8	-1.4	-1.0
Portugal	-1.5	-0.5	-3.8	-3.5	-4.5	-5.4	-3.4	-4.7	-4.9	-5.2	-3.2	-2.2
Slovenia	-1.6	-1.0	-2.5	-2.4	-4.1	-4.5	-2.2	-1.9	-1.6	-0.9	-1.3	-0.7
Finland	-1.2	2.0	0.6	0.6	5.2	4.0	4.1	3.3	2.9	3.7	4.2	4.9
Euro area			**-2.1**	**-1.6**	**-2.0**	**-2.6**	**-2.7**	**-3.1**	**-2.9**	**-2.2**	**-1.2**	**-0.7**

Exhibit 4: Public deficit data in the euro area, US, Japan and UK



Source: IMF WEO October 2010

Exhibit 5: Public debt projections in the euro area, US, Japan and UK for 2015



Source: IMF WEO October 2010

However, things only remained under control until the markets set their eyes on the finances of Italy and Spain. Italy had years of fiscal mismanagement and over proportional borrowing from markets behind it, while the finances of Spain worsened as a result of the banking sectors exposure to real estate. While Spain and Italy have not entered full-fledged assistance programs for their public finances, they nevertheless put the question of "too big to fail" on Europe's negotiation table for good.

In a nutshell, the European sovereign crisis can be largely explained by the intergovernmental theory (Moravcsik 1998) of integration. A handful of states, when acting, seem to consider their

own domestic or regional priorities first, as opposed to the welfare of joint, community-oriented roadmaps aiming to resolve a crisis.

An intergovernmental approach in resolving the European sovereign crisis

To an outside observer, the EU is acting in shaping EU policy and in this case economic policy, as a block of 27 Member States unilaterally making decisions. Nevertheless, the truth behind the curtains is far from that. Having worked as an assistant in a Cabinet of a Member of a Commission, I have closely followed negotiations regarding economic policy. I have observed this at times to a lesser or greater extent. A 'tacit agreement' exists, namely that the largest Member States, and therefore, the most powerful take the lead. Three of those Member States constitute a category on their own. This concerns the U.K, Germany and France, the 'Big three' of the EU (Lehne, 2012). Those countries that own the major shares of EU's assets play an informal leadership role in shaping EU economic policy. Smaller countries are tolerating this informal leadership since the system offers them a greater influence on internationally significant events like the global financial crisis for example. Over time, France was keen to play a lead role in the EU and, therefore, deemed more willing to act in the framework of the European Institutions. The U.K. so far is in between since the fundamental question of whether it is actually a part of the same family, is still there. Therefore, the game currently seems to be between France and Germany, with Germany's predominance on economic matters recognized by France and France's leadership on political issues recognized by Germany.

There are many examples based on the above paragraphs where this conclusion was made evident:

- The delay in the designing of the first Greek program,

- the delay in designing the European response to the sovereign crisis overall,

- the persistence for austerity on behalf of certain authorities, at the expense of growth and job-creation-oriented policies,

- The rhetoric used in various occasions by various state leaders in Europe, which also revealed the ideological gap in dealing with the crisis in Greece.

From the perspective of the European sovereign crisis, the above behaviors are easy to translate into actions: Germany has always been the country that pushed for further, stronger, and deeper conditionality in exchange for funds, as well as tough austerity measures, and they overlooked the impact of the programs on the Greek economy and the living standard of the Greek people. Having said the above, moral hazard considerations and austerity-focused solutions seem to have driven the process of financial and economic adjustment in Europe, as opposed to realistic, growth-oriented ways out of the crisis. France, at the same time, and much more so since the election of Francois Hollande as president, has tried to counterweigh the German economic austerity model by pushing for growth-oriented models of adjustment. Finally, yet importantly, the U.K. has not tried to assert its dominance during the crisis but instead it has flirted with the idea and threatened to distance itself further from the European family.

Does 'Too big to fail?' apply to European governments?

As the prospects of salvation for Greece do not look optimistic despite the different solutions put on the table, the matter begs the question: Why does Europe keep asserting its solidarity to Greece, while at the same time the recipe provided leads the country to economic exhaustion and opens the door for Greece's exit from euro membership?

This essay supports the view that the above question can only be answered with one argument: In a close comparison of the US approach to "too big to fail" banks, Europe seems to follow the same approach with respect to its financially ailing states--with Greece being the most prominent example. This essay mentioned earlier how the Greek crisis (i.e. the beginning of the European sovereign crisis), and the related recurrent negative developments brought into question by the finances of other countries, essentially opening up the markets' eyes towards fiscal balances that existed before the crisis but were never closely scrutinized. Intergovernmental accounts of regional integration can further explain why Greece cannot be allowed to fail. As explained earlier, the Greek crisis brought about contagion in the debt markets of other European countries including Ireland, Portugal, Italy and Spain.

While the management of the Irish and Portuguese debt crisis seems to be effective (the countries are doing well in their program implementation), the same cannot be said for Italy and Spain. The latter do not have full-fledged programs yet, but their debt dynamics seem to be very susceptible to negative developments in the Greek crisis. At the same time, the size of their economies and debt balances are significantly higher than those of Greece, such that they could be devastating to the sustainability of the Euro area as a whole. The application of

intergovernmental accounts of decision-making in Europe, as well as the rhetoric and actions at the European level in the last 12-18 months, suggests that European governments prefer to maintain assistance to Greece (or otherwise, to keep the lifeline alive) until the financial situation in Italy and Spain has stabilized.

Conclusions

The essay juxtaposed the bank-originated financial crisis that occurred in the US since 2008 and the sovereign crisis that started in Europe in 2009, which is very much ongoing. What the author seeks to demonstrate is how the notion of 'too big to fail' has been applied in both cases, for the right or wrong reasons. Ultimately, it is shown that while the taboo was broken in the United States with the collapse of Lehman Brothers, and restored subsequently over the systemic implications on the global financial system, in Europe, the taboo is not broken yet over similar considerations, as the bankruptcy of one government could create contagion effects well beyond the control of the EU and drag down other sovereigns with it. Using intergovernmental theory, this essay has also shown how the pursuit of individual agendas in Europe has made its governments slow in reacting effectively to the sovereign crisis.

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Chapter 35

Global Financial Crisis: A Collapse of Trade

Lawrence Koh Zhi Yang

Abstract

The global financial crisis technically ended in the middle of 2009, according to the National Bureau of Economic Research[1]. However, even today unemployment in most developed countries remains elevated and optimism about the economy is low. Can we learn anything from history that will help us understand the impacts of the current crisis better? This paper explores some recent written works which detail the collapse in global trade. A further discussion on lessons learnt will be carried out, and from the findings I will suggest some possible policy choices governments can look into.

Origins of Crisis

Real estate bubbles developed across the globe, most significantly in the US, and the market peaked in 2007 before subsequently crashing. The collapse of the US housing bubble and financial securities, such as subprime mortgages and collateralized debt obligations, led to a run on the shadow banking system and bank solvency problems. Global liquidity dried up and trade collapsed. This economic shock is most commonly identified as the root cause of the global financial crisis.

Another less cited reason is the boom and collapse of commodity prices, which were in a bubble themselves'. Quoting Reinhart and Rogoff, 'We also confirm that crises frequently emanate from

the financial centers with transmission through interest rate shocks and commodity price collapses[2].' It is apparent that asset bubbles bursting are the main economic shocks that caused the crisis. This leads us to examine the conditions in place which fostered the asset bubbles. This begs the question, is the true culprit easy credit and deregulation?

This Time is Different?

The issues on the policy making and regulatory environment that led up to the crisis are addressed by authors Reinhart and Rogoff with their book, *This Time is Different*. The gist of their argument is that the 'This time is Different" syndrome arises due to two main reasons. Firstly, ignorance, as most people have not seen a big crisis in their lifetimes thus they unaware of the implications. They have a strong belief that policy makers have learnt from lessons of the past and will do the right thing. **S**econdly, arrogance, which is prevalent in boom times; people start to believe that historic measures of the market such as price earnings, debt income ratios are no longer relevant and that 'This time is Different". The new financial instruments allowed borrowers to enter mortgage markets, and were seen as part of the process of financial globalization thanks to innovation. This view was also held by policy makers at the time, including Ben Bernanke and Alan Greenspan. Quoting Alan Greenspan, former chairman of the Federal Reserve, "Financial Innovations such as securitization and option pricing were producing new and better ways to spread risk. Traditionally illiquid assets, such as houses, become more liquid. Hence higher prices for risky assets could be justified[2]." Such comments fanned the bullish flames of the housing market and reinforced the general consensus that the United States economy would do fine with superior monetary policymakers and institutions. A vital point brought up by the author is that such overconfidence has been typical of most crises in the past,

and that the business cycle has not, in fact, been tamed. Monetary policy can only do so much, and this time is *no* different. Key suggestions made by the authors are to constantly monitor key warning signs and not ignore them, and also to conduct debt sustainability exercises based on plausible scenarios to get a complete picture of total indebtedness.

Global Contagion

The "This time is different" syndrome led to easy credit in the system and the buildup of debt which fueled asset bubbles across the world, most significantly the US housing bubble. How does a US housing bubble bursting cause a global crisis? One reason would be cross linkages between the United States and various nations and institutions. Financial institutions from Japan to Germany were all directly exposed to subprime debt, making the transmission of the financial impact swift. The crisis was also transmitted through the banking system as global banks stop lending when liquidity dried up. Another key reason is the collapse of global trade, which is the main area of interest in my paper.

Collapse of Trade

In the following sections, I will examine various research papers to try to understand the unprecedented magnitude of trade decline inthis crisis. To assess the impact of trade finance, I will cover the paper 'Exports and Financial Shocks' by Mary Amiti and David E. Weinstein (2009). An IMF working paper, 'Demand Spillovers and the Collapse of Trade in the Global recession' by Bems, Johnson and Yi (2010) will be covered to explain the global impacts of demand spillovers. Bussiere et al (2011) discuss the possibility of a structural break in their paper 'Estimating Trade Elasticities: Demand Composition and the Trade Collapse of 2008-09'. The final paper covered will be on the impacts of vertical linkages by Levchenko et al (2010).

Trade Finance

Amiti and Weinstein (2009) attribute the collapse in trade during the 2008 financial crisis, to the deterioration in the health of banks that provide trade finance. They define trade finance as "the use of financial intermediaries to manage an exporter's trade credit and default risk and terms[3]." The measure of a bank's 'health' is gauged by the banks' change in the monthly market-to-book value.

The puzzle in this collapse is that exports fell much faster than domestic output during the 2008 crisis. While GDP fell by 4.6%, exports fell by as much as 17%. So what can explain this disproportionate relationship? Why might exports respond to financial crises differently from domestic output? Their argument is that exports are more sensitive to financial shocks than domestic sales.

Exporting firms tend to be more sensitive to financial shocks for two reasons – a higher credit default risk, and higher working capital requirements. The need for exporters to hedge against credit default risk and obtain working capital financing has resulted in a system in which virtually every exporter works with a bank or other financial institution to obtain credit or export guarantees. It is this type of financial agreement that they refer to as trade finance.

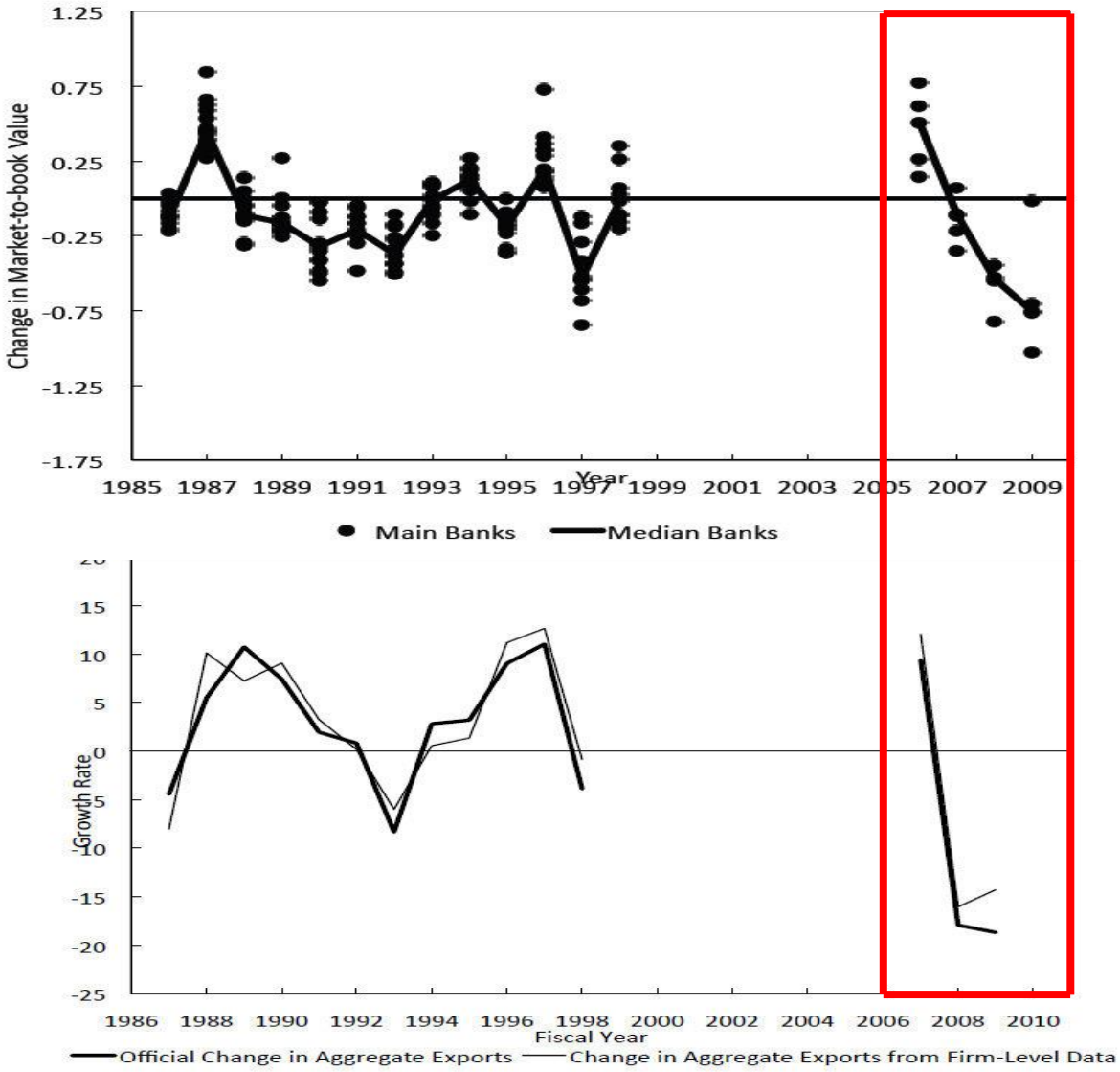
It is their argument that exporters depend so heavily on financial institutions for working capital and risk insurance, that if a credit crunch is to occur and force banks to limit their trade finance, the inability to obtain trade finance for exporting firms will result in a decline of their exports.

A natural consequence of a financial crisis is a period of credit crunch. One of the main causes of the 2008 financial crisis was the subprime mortgage crisis. The subsequent credit crunch that

followed naturally led to deterioration in the health of banks which inhibited the banks' ability to provide trade finance as they were less willing to offer credit facilities and take on more risk. With so much dependence placed on bank financing by exporting firms, the inability to obtain financing resulted in a decline in exports.

In Exhibit 1, we see that data collected from Japanese banks show that during the financial crisis the health of banks deteriorated. This, coupled with data collected from exporting firms for the same period, shows a steep decline in exports as well. This is further proof of this theory.

Exhibit 1: Correlation between banks' health and volume of exports in 2008



Demand Spillovers

Bems, Johnson and Yi (2010)[4] contribute to a growing consensus that changes in demand were a central determinant of the collapse in trade. The demand spill over effect explains how problems in the United States and some European countries were transmitted globally, or in a more literal sense, how a lack of demand originating in the US and EU spilled over to the entire world, causing a collapse in trade.

Bems et al. mentioned three important points in their research. Firstly, the presence of traded intermediate goods implies that measures of aggregate openness and bilateral exposure to foreign demand must be modified. For example, exposure to changes in foreign demand depends on the share of GDP that is absorbed into final demand abroad, not on the share of exports in GDP. Secondly, when sectors differ in the degree of their integration into cross-border production chains, the sector composition of demand changes will matter for the overall response of trade and the transmission of those changes. Thirdly, traded intermediate inputs tend to cause exports and imports to move together for a particular country, which is intuitive because imported inputs are used to produce exports.

The authors' aim was to measure intermediates trade and trace out international production chains. To develop their model they combined national input-output tables with bilateral trade data to construct a synthetic global bilateral input-output table. The final result of their model is shown in Exhibit 2, in which they examine the effects of the realized changes in final demand in all countries simultaneously.

Exhibit 2:

Country/ Region	Total domestic demand	Gross output	GDP	Gross exports	by type: final	by type: intermediate	Gross imports	by type: final	by type: intermediate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PANEL A: Demand changes for durables, nondurables and services									
EU15	-3.8	-5.2	-4.3	-10.2	-15.0	-7.1	-8.6	-10.8	-7.3
USA	-4.4	-4.9	-4.0	-11.9	-17.3	-8.5	-12.5	-18.2	-8.1
Em. Europe	-12.3	-8.8	-8.1	-10.8	-14.8	-8.1	-19.8	-34.1	-11.9
NAFTA (ex. US)	-6.4	-6.7	-5.6	-13.1	-20.4	-7.9	-15.1	-21.1	-11.6
China	12.2	3.5	3.5	-13.6	-17.8	-10.0	7.5	29.3	2.8
Japan	-4.9	-6.9	-5.5	-15.1	-24.2	-9.1	-11.7	-15.6	-9.5
Em. Asia	-9.0	-6.7	-4.6	-10.0	-15.9	-6.9	-18.3	-39.1	-11.5
South America	-1.2	-2.4	-1.2	-7.4	-11.9	-5.6	-10.4	-19.4	-5.3
World	-3.7	-4.7	-3.7	-10.5	-15.9	-7.3	-10.5	-15.9	-7.3
PANEL B: Demand changes for goods and services									
EU15	-3.8	-5.0	-4.2	-8.2	-11.2	-6.2	-7.0	-7.8	-6.5
USA	-4.4	-4.8	-4.0	-9.1	-12.7	-6.9	-10.6	-14.6	-7.5
Em. Europe	-12.3	-9.6	-8.9	-9.2	-12.1	-7.3	-16.5	-25.3	-11.8
NAFTA (ex. US)	-6.4	-6.6	-5.8	-10.3	-14.4	-7.5	-12.0	-16.4	-9.4
China	12.2	4.0	3.8	-12.0	-16.7	-8.0	8.4	29.3	4.0
Japan	-4.9	-5.9	-4.9	-9.4	-14.4	-6.1	-10.6	-14.2	-8.7
Em. Asia	-9.0	-6.2	-4.3	-7.2	-11.6	-4.9	-15.5	-33.1	-9.8
South America	-1.2	-3.2	-1.9	-8.5	-13.1	-6.7	-8.1	-12.0	-6.0
World	-3.7	-4.5	-3.7	-8.7	-12.4	-6.5	-8.7	-12.4	-6.5
PANEL C: Aggregate demand changes									
EU15	-3.8	-3.9	-3.9	-4.0	-4.3	-3.9	-3.9	-3.8	-3.9
USA	-4.4	-4.4	-4.4	-4.4	-4.9	-4.0	-4.4	-4.4	-4.4
Em. Europe	-12.3	-9.1	-10.2	-4.7	-4.8	-4.6	-9.8	-12.3	-8.4
NAFTA (ex. US)	-6.4	-5.7	-5.7	-4.2	-4.3	-4.1	-5.9	-6.6	-5.6
China	12.2	6.7	7.4	-4.5	-4.9	-4.2	6.7	12.2	5.5
Japan	-4.9	-4.6	-4.7	-3.0	-3.9	-2.5	-4.6	-4.9	-4.5
Em. Asia	-9.0	-5.5	-5.7	-2.4	-3.5	-1.8	-7.1	-11.9	-5.5
South America	-1.2	-1.8	-1.7	-3.4	-3.7	-3.2	-1.8	-1.4	-2.1
World	-3.7	-3.6	-3.7	-3.8	-4.3	-3.6	-3.8	-4.3	-3.6

Column 1 records the response of total final demand to the demand change in each panel. Elasticities for gross output, GDP, exports and imports reported in Columns 2-9, decomposed into separate elasticities for final and intermediate goods trade. The authors' generate a synchronized global recession, which is unsurprising since observed demand changes are synchronized across countries in the data.

The model yields an estimate of the "global elasticity of trade to output" that the authors' then compare to the observed elasticity from this recession. The framework delivers an elasticity of

2.8, while the elasticity during the crisis was about 4. While it is unable to "account" for the full collapse of world trade, the framework delivers approximately 70% of the decline relying solely on changes in final demand. In summary, demand changes in the U.S. and EU, the epicenter of the crisis, appear to have been strongly transmitted to foreign countries via trade channels.

The idea that changes in demand are central to the collapse in trade makes intuitive sense and is backed by a chorus of other economists. However, the framework used omits the "standard" trade transmission channel, in which home incomes decline, leading to decreased import demand and a decline in foreign exports and hence income and so on. Further, demand changes from data are taken to study the response of trade, and the authors' remain agnostic about the source of the demand changes themselves. Thus the framework cannot be used to explain the structural shocks or study how these shocks are transmitted across countries.

Vertical Linkages

Vertical linkages refer to growth in the import and export of intermediate goods between firms and countries that are needed to produce the final output[5]. The intuition to why this can be a possible reason for the collapse in international trade is that when there is a drop in final output, the demand for its intermediate inputs will also experience a drop. Together, both reductions will produce a more than proportionate decrease in trade flows.

According to Levchenko et al (2010), downstream linkages displayed strong empirical evidence of contributing to a larger drop in trade, in particular for imports. However, for upstream linkages, there was no robust pattern of significance in its results. In other words, for goods which are more intensively used in the downstream, there was a larger percentage drop in both imports and exports. In addition, there was also some evidence that showed that higher use of

production sharing is also correlated with bigger drop in imports. Given the strong evidence supporting the hypothesis, it seems credible, at least to the US, that vertical linkages played an important role in the collapse of trade.

Structural Breaks

Due to the magnitude of trade decline and the jump in elasticities with respect to GDP during the crisis, it is suspected that there was a structural break in the demand-import relationship during that time. This would suggest that behavioral changes have deemed past demand and trade models incompetent and will have a tremendous impact on the future of economics. To test this hypothesis, Bussiere et al. (2011) formulated a new import intensity-adjusted measure of demand (IAD).

The rationale for this new model is two-fold. Firstly, relative import contents of the main components of GDP are substantially different from their shares in GDP. Secondly, different components of aggregate demand showed very different behaviors during the crisis whereby investment and exports fell much more than private and government consumption in most countries. Hence, a unit decline in import-intensive components of GDP might result in a magnified decline in trade, explaining the divergence between GDP decline and trade decline in the crisis.

Most trade equations in standard models relate real exports to foreign demand and relative export prices, and real imports to domestic demand and relative import prices. The derivation of the estimated demand elasticities are usually very high with export demand elasticities ranging about 1 and import demand elasticities ranging about 2. Hence, these models predict that a fall in demand in a country is likely to be associated with falling real imports, in line with the

Houthakker-Magee Puzzle. However, these models predicted off-the-charts' elasticities for most economies in the recent crisis.

The IAD model used ranks the various components of aggregate demand by their import intensities and realizes that investment has higher import content than private consumption. In addition, exports are very import-intensive where import content of exports is 30% with peaks of about 40% for small open economies and some emerging countries on average. Import content of government consumption, on the other hand, is low across all countries. This means that a decline in investment and exports would have more impact on trade decline as compared to government consumption. The IAD model provided a better fit for historical data both in the 2008-09 trade collapse and previous recessions. With the IAD model, trade reflected a drop of 18% as compared to 8% GDP drop in the current crisis. In previous recessions, IAD reflected a drop of 2% more than GDP drop. This new model managed to reduce the volatility in elasticity estimates across countries and over time.

Having proven the hypothesis wrong, Bussiere et al. (2011) argues that the magnitude of trade fell mostly due to a decline in demand globally, especially in its most import-intensive component – investment. With increased internationalization of production and the strong dependence of the tradable sector on imported inputs, there is also a strong relationship between the exports and imports of each country. Exports fell modestly in previous recessions due to sustained external demand from trading partners in a different phase of the cycle. In this crisis, a higher degree of import intensity of exports meant higher trade co-movement. Hence, the effects of a drop in demand in one country are able to propagate globally and amplify the magnitude of the trade collapse.

Piecing the Puzzle

Piecing the puzzle together, we can conclude that factors such as demand spillovers, vertical linkages and trade finance jointly explain the drop in trade during the recession. However, the 2008-2009 financial crisis stands out in that the magnitude of the shocks were larger in general. Impact on trade rising from demand spillovers is also further propagated by more pronounced vertical linkages due to the growing interconnectedness in today's form of trade and production, and proportionally greater declines in import-intensive demand components such as investment. This is similar to the interconnectedness of the financial system mentioned in the first part, through the cross linkages and global banks. Thus an important question we should ask after the crisis is whether this interconnectedness in our global financial system and global trade gives rise to high systemic risks. And whether these risks should be addressed through policy measures to prevent, or at least lessen the severity of future crises.

Looking Forward

To conclude it would be apt to quote Rose Bertin 'There is nothing new except what is forgotten'.[7] This time is no different, and we should be aware of the lessons past crises have taught us, particularly regarding the degree of financial leverage and asset bubbles in the economy, should we seek to reduce the occurrence and severity of future crises. The most important lesson of this crisis is that, even as policy makers and institutions improve, there will always be a temptation to stretch the limits, and say "This time is different". But it is not, and key warning signs regarding rising leverage and asset bubbles should not be ignored.

The above research on the collapse of trade has shown that there is a need to reduce the interconnectedness of global systems and reduce systemic risks. This will be particularly relevant

to policymakers seeking to control contagion during a crisis, and also to enact preventive measures for future crises. Some suggestions include coordinated injections of liquidity by global central banks into the system specifically for trade financing, and enacting emergency firewalls to control systemic risks to the global financial system during crisis periods.

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Chapter 36

Crisis of Decisions - Failure and Improvement of Decisions in the Market

Mate Jendrolovics

Abstract

This paper has two purposes. The first is to provide an explanation for the pre-crisis decisions of four relevant market participants who played an important role in the events that led to the crisis. The second is to propose recommendations regarding how these decisions can be improved in the future by changes in the regulatory environment. In the paper it is argued that many of these decisions failed because of two reasons. First, many participants were not capable of making rational decisions. Second, several participants made individually rational decisions, but these decisions had disastrous consequences for the whole market because of their misaligned incentives. The paper provides four recommendations to improve decision making. The first is to increase rational decision making capabilities of the citizens by providing financial education and high quality publicly available, easy to understand information. The second is to improve corporate governance in the fields of risk monitoring and executive compensation. The third is to solve the conflict of interest between credit rating agencies and issuers. The fourth (at the time of this writing) is to set up a new division of the regulatory authority, with the duty of developing system-wide incentive structure models to identify systematic risks.

Introduction

Imagine a world, where people apply for loans while they do not have the necessary income to pay them back. Imagine a world, where banks actually provide mortgages for these people.

Imagine a world, where these mortgage providers can sell these mortgages to other financial institutions. Does this chain of events look unrealistic? In fact it describes the pre-crisis U.S. mortgage market pretty well.

It is exceptionally important to understand why these decisions have been made in the past in order to improve the regulatory and economic environment of the future. We need to understand how these decisions were made and whether they were simply not rational or actually were rational but only for the individuals, and disastrous for the market as a whole. Without that information, developing measures to prevent future crises is exceptionally difficult.

As mentioned, this paper has two purposes. The first is to provide an explanation for the decisions of four market participants who played an important role in the events that led to the crisis, namely the mortgage borrowers, the mortgage providers, the financial institutions who securitized and invested in residential mortgage-backed securities, and the credit rating agencies. The second is to propose recommendations regarding how these decisions can be improved in the future by changes in the regulatory environment.

The paper follows the following structure. First, it presents important hypotheses about economic decision making. Second, it describes the most relevant factors of the pre-crisis environment which are significant to understand the decisions made before the crisis. Third, it analyses separately the incentives and decisions of the already mentioned four market participants. Finally, it provides recommendations based on the outcomes of the analysis.

Hypotheses of wrong decision-making

This part of the essay consists of three subparts. First, it presents a well-known theory (Soros's reflexivity) that provides reasons why market participant's judgment might fail. Second, it summarizes Garrett Hardin's "The Tragedy of the Common" theory which explains why rational individual decisions can lead to disastrous consequences for the whole. Finally, it explains a framework of decision making analysis which is based on these theories.

George Soros – The theory of Reflexivity

The main argument of Soros is that "our understanding of the world in which we live is inherently imperfect because we are part of the world we seek to understand" (Soros [2009] p. 3.). He argues that people interact with the reality in two ways; through the cognitive function and the manipulative function. The former is the function of understanding the reality; the latter is the function of making an impact on the reality. Soros also argues that these two functions operate at the same time which leads to a two-way interference, which he calls reflexivity, which leads to biased understanding of the reality. For instance when someone tries to analyze the price of a stock, its past price may be determined, but its future price depends on many participants' decisions, which can be only predicted based on the views and judgments of the individual. It means that because the two functions derive each other (we manipulate reality through our judgments, while we try to understand it), decisions are not based only on knowledge, but beliefs and judgments, which makes these decisions inherently imperfect. (Soros, 2009) The argument that judgments and decisions are not purely based on knowledge and not perfectly rational is used in the essay's decision making analysis framework.

Garret Hardin - Tragedy of Commons

Hardin (1968) argues that decisions of rational beings seeking to maximize their own gains can lead to disastrous consequences for the common. He also provides an example to support his claim. In an imaginary pasture each herdsman can keep as many cattle as possible. Hardin argues that "As a rational being, each herdsman seeks to maximize his gain" (Hardin [1968] p. 1244.). He argues that "the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another…" (Hardin [1968] p. 1244.). However, if every herdsman reaches this conclusion, overgrazing occurs, which is then disadvantageous for each herdsman (Hardin, 1968). The argument that individually rational decisions can lead to disastrous consequences for the whole is used in the essay's decision making analysis framework.

Framework for the decision making analyses of the paper

A framework has been developed for this paper to analyze pre-crisis decisions in the market. It assumes that two types of wrong decisions could have played an important role in the creation of the crisis. First, when market players failed to make rational decisions, and second when these players made rational decisions, but their decisions were disadvantageous for the market as a whole.

The model also assumes that rational decision-making can fail for two main types of reasons. The first is the lack of appropriate and sufficient information, or the lack of knowledge and capabilities which would enable decision makers to draw reasonable conclusions from their information. The second is failures in human nature such as greed, which might distort rational thinking.

To provide some examples, the first type of reason played an important role in the failure of decision making, when in several companies, according to an OECD analysis "information about exposure did not reach the board" (Kirkpatrick [2008] p. 2.), or when mortgage borrowers failed to understand that housing prices cannot always increase in the long-term. The second type of reason is the main cause of the irresponsible behavior of the people, which is described by Kaplan (2009) the following way: "the public was hungry for bigger and better homes that they could truly not afford" (Kaplan [2009] p. 135.)

Another key assumption of the model is that the main roots of individually rational, but on market level, disastrous decisions are misaligned incentives. The last assumption is that these misaligned incentives can occur on two different levels. First, on the level of the individual/micro-level (compensation, promotion, etc.), which is a clear corporate governance issue. Second, on the macro/industry level (e.g.: the relationships between market players, low interest rate environment, etc.), which is a regulatory issue.

The individual/micro level incentive misalignment occurred in many cases, for instance when "incentive systems at lower levels have favored risk taking" (Kirkpatrick [2008] p. 14.) in several companies. The conflict of interest between credit rating agencies and CDO issuers is an example of incentive misalignment on the macro/industry level.

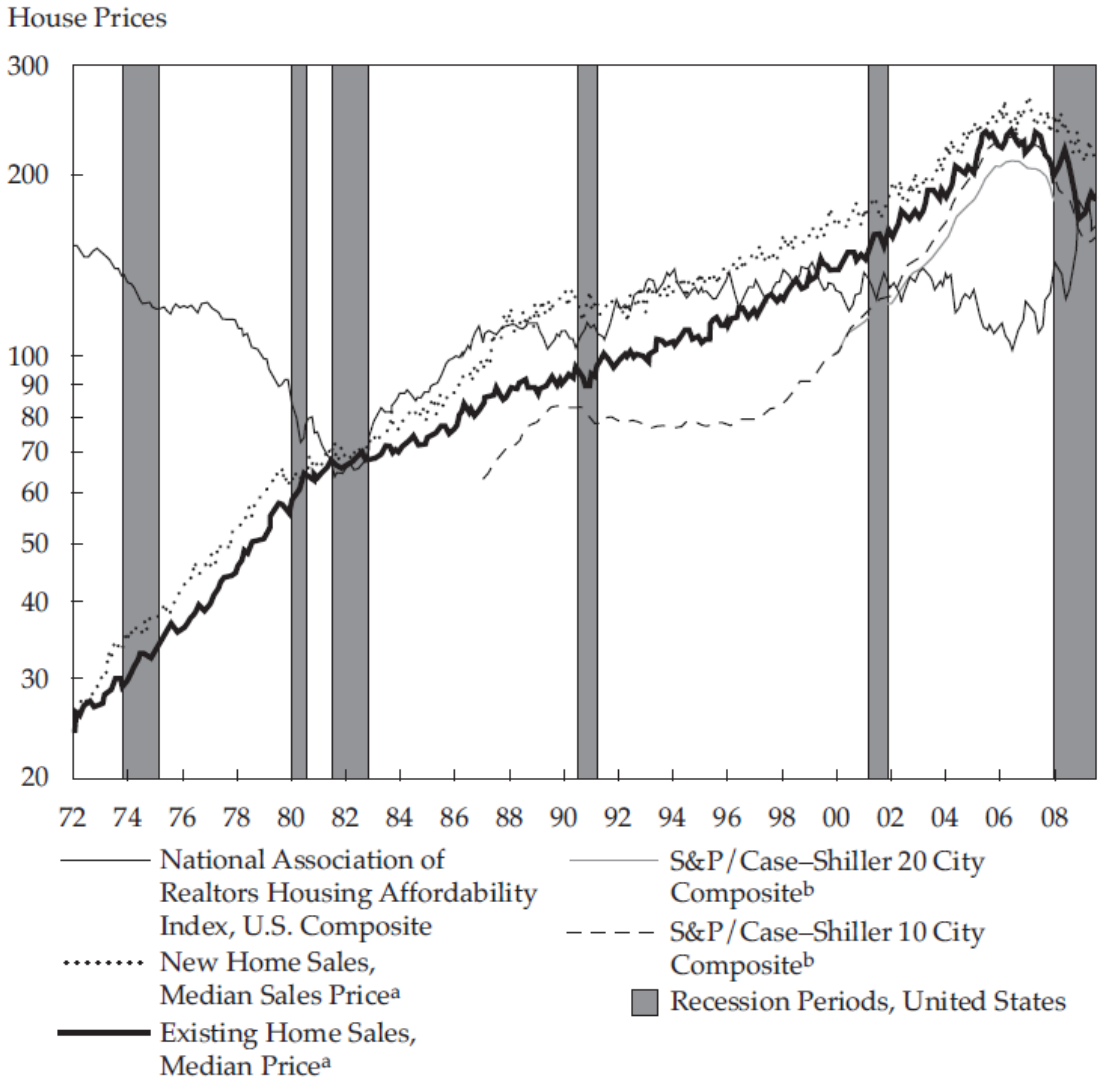
Relevant decision making factors in the pre-crisis environment

The purpose of this part of the essay is to explain three major pre-crisis economic trends in the United States which are essential to understand in order to conduct a proper analysis of the market participants' pre-crisis decisions.

Housing bubble and housing prices history in the United States

The housing bubble in the United States played an important role in the global financial crisis and also in the decision making process of the market players. As it can be seen in Exhibit 1, housing prices increased sharply from 2000, and peaked and then started to decline in 2006.

Exhibit 1



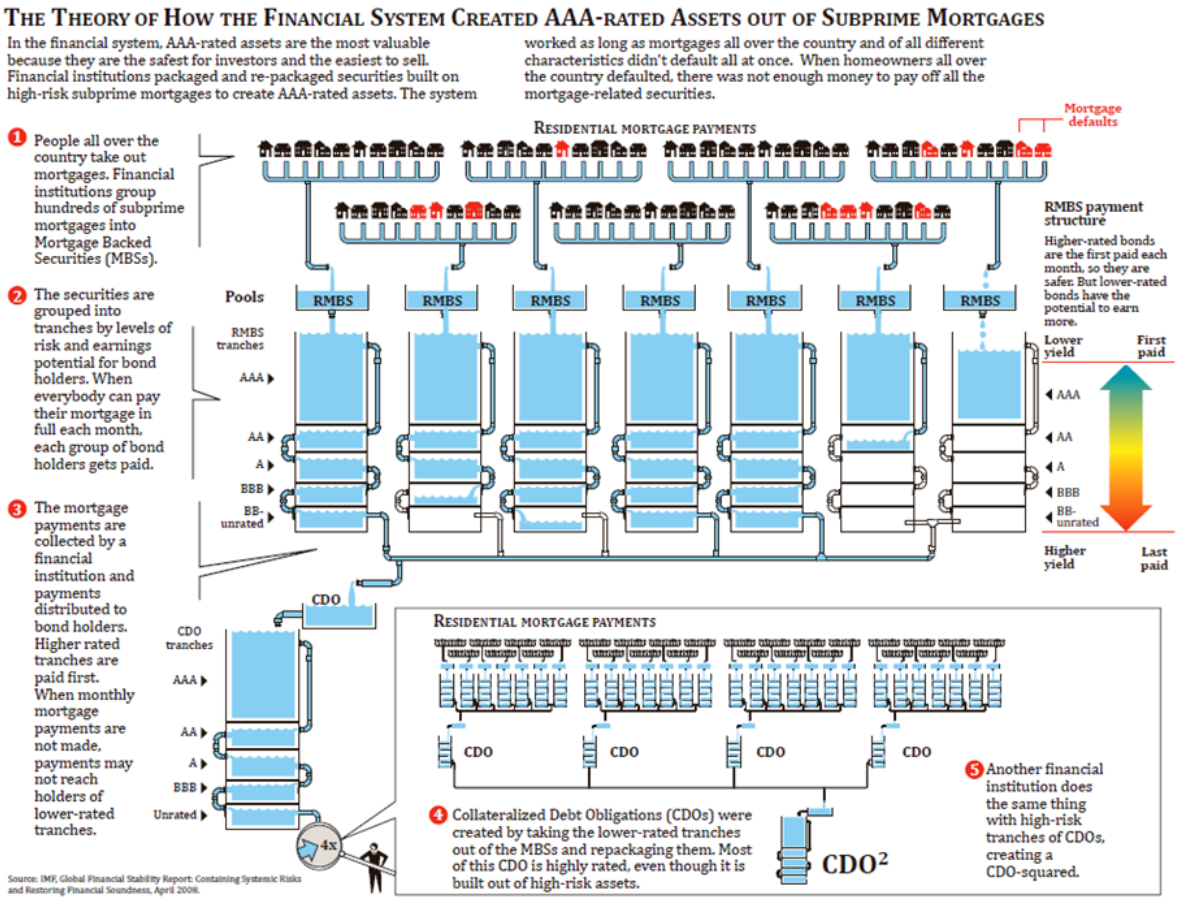
Source: p. 137. Kaplan Paul D., Idzorek Thomas, Gambera Michele, Yamauchi Katsunari, Xiong James, Blanchett David M. (2009) *The History and Economics of Stock Market Crashes* – Insights into the Global Financial Crisis *(December 2009*), Research Foundation Publications

It affected the judgment of market players in two ways. First, many of them believed that housing prices would always increase. Second, several players underestimated the potential decline in the prices. Jacobs (2009) cites a review of Bank for International Settlements and argues that the reason for that was that "such a decline had not occurred on a nationwide scale since the 1930s." (Jacobs [2009] p. 67.).

Securitization of mortgages

According to Jacobs (2009) securitization of mortgages basically meant that hundreds or even thousands of residential mortgages have been pooled together to create residential mortgage backed securities (RMBS). The key idea was to "take the payments on the underlying mortgages and redirect them – and any associated losses on them – to three categories of securities, called tranches". (Jacobs [2009] p.55.) These RMBSs had a special payment structure as the tranches had different risk-return profiles, and the higher-rated tranches were the first paid each month. (IMF, 2008). It meant that these tranches were safer, while the lower-rated ones had the potential to earn more (IMF, 2008). In many cases hundreds of these RMBSs were pooled together again to create CDOs. The process of securitization of mortgages is explained in Exhibit 2.

Exhibit 2



Source: IMF (2008) *Global Financial Stability Report: Containing Systematic Risks and Restoring Financial Soundness*

The effects of securitization on market players' decisions were very significant and affected them in two major ways. First, it shifted the risk between market players and led to incentive misalignment as I will explain later. Second, the perceived risks of these securities were very low before the crisis.

Government intention to foster affordable housing and economic growth

The U.S. government had two key intentions, both of which drastically affected the market environment, thus the decisions of the market players.

The first was the intention to foster economic growth after the burst of the dot-com bubble, which manifested in a low interest rate environment. According to the FED database, the effective federal funds rate in 2001 was 3.88%, while between 2002 and 2004; these rates were below 2 percent. (federalreserve.gov, 2012) These low interest rates created easy credit conditions, which had a huge impact on the decisions in the market.

The second intention was to foster home ownership through Fannie Mae and Freddie Mac. According to Wallison (2009), the "requirements that Fannie and Freddie promote affordable housing were gradually escalated over the years." (Wallison [2009] p. 200.) To prove his argument he states that by 2005, about 55 percent of the mortgages that Fannie and Freddie purchased from banks and other originators had to be loans made to low- and moderate-income, and 25 percent had to be made to low- or very low-income borrowers. It led Fannie and Freddie to purchase large amounts of subprime and Alt-A loans. Wallison (2009) argues that these purchases increased the competition for these loans which drove down the risk premiums on them and drove their quantity higher. This trend had a huge impact on the incentive structure of the market.

Analysis of the pre-crisis decisions of market players

This part of the analysis explains the pre-crisis decision failures of mortgage borrowers, mortgage providers, investors and credit rating agencies separately. Each analysis follows the same structure, which is based on the already explained decision-making analysis framework. First, the difference between ideal decisions and past decisions are being evaluated. Second, I

will analyze whether past decisions were rational from the market players' perspective. Third, distortions in the incentive systems are assessed to find out whether rational individual decisions tended to foster disastrous market outcomes.

Mortgage borrowers

Differences between ideal and past decisions

Ideally, a borrower should apply for a mortgage that he/she truly needs and can afford. However, before the crisis, in many cases borrowers applied for loans they could truly not afford (Kaplan, 2009). In other cases they applied for loans with only investment purposes. They planned to purchase houses with the loans, sell them on higher prices, and pay back the loans with profit. However, when interest rates rose and housing prices declined, many of these loans began to default, as people did not have sufficient income to pay the interests, or the value of the loan exceeded the value of the real estate they bought, removing the incentive to pay the mortgage back.

Non-rational elements in the decision making process

It can be assumed that rational decision making of mortgage borrowers failed because of the lack of information/knowledge and human nature.

First, it is probable enough to argue that people failed to understand the risks of rising adjustable interest rates, and the risk of decreasing housing prices because of the lack of their information and finance/economic knowledge. With that knowledge, they might have realized the true risks of applying for mortgage loans, which would have decreased the quantity and the volume of

mortgage applications. Second, it also can be assumed that greediness facilitated the demand for mortgages.

Incentive misalignment

Low interest rates, and the activity of Fannie Mae and Freddie Mac, created an environment where mortgage loans were really attractive. This clearly had an encouraging effect on the borrowing activity on the macro-level, as loan applications became individually more rational, which fueled the housing-bubble, thus making the crisis more severe.

Mortgage providers

Differences between ideal and past decisions

Ideally a mortgage provider - just like any other corporation - needs to maximize its profit over the long term, which means that it needs to have a sustainable and profitable business activity. To achieve it, it needs to conduct due-diligence on the mortgage applicants and provide mortgages to debtors who are likely to pay back their mortgages and the interests. Obviously, it can chose to take risks by providing mortgages to riskier applicants for higher returns, but these risks should not exceed a certain level. In reality, several mortgage providers failed to keep their risks below this level because they provided too many risky subprime or Alt-A mortgages, which lead to the failure of these companies during the crisis when these mortgages defaulted.

Non-rational elements in the decision making process

It can be assumed that non-rational elements in the decision making process of mortgage providers are identical to the elements of the mortgage borrowers (not understanding the risk of declining housing prices, increasing interest rates and greed). However, as these corporations are

professionals in mortgage lending, the significance of these irrational decision-making factors needs to be lower, as their knowledge about finance and economics is inherently higher. On the other hand, it is important to mention that boards, and especially risk committees of the boards, failed to provide rational judgments in the oversight of companies' risk taking activity.

Incentive misalignment

One of the main arguments of this paper is that the apparently irrational decisions in the lending activity of mortgage providers were actually partly rational because of the misaligned incentives. It is argued that wrong corporate governance created wrong incentives on the micro/individual level and securitization of mortgages with the activity of Fannie Mae and Freddie Mac created the wrong incentives on the macro/industry level.

On the level of the individual, compensation structures and promotion processes can be blamed, as they created incentives for excessive risk taking, instead of maintaining a sustainable risk exposure.

On the macro/industry level, the fact that mortgage providers could sell their mortgages to financial institutions that bundled them into mortgage backed securities drastically changed the business model, and thus the incentives of these companies. Kaplan (2009) argues that mortgage providers had less interest "to conduct due-diligence on loan applicants" (Kaplan [2009] p. 135.), and Jacobs (2009) claims that they were incentivized to limit the time spent on due-diligence and to lend as fast as possible to collect more revenues.

The dilemma of the executive team was the following. Either keep the risks low and spend valuable time and resource on due-diligence or increase lending activity aggressively, and then

sell the mortgages to other financial institutions. The latter option was more attractive mainly because of four reasons. First, it was relatively easy to sell these mortgages, as the activity of Fannie and Freddie increased the demand for them. Second, part of the default risk could be shifted to the issuers and to the investors of the mortgage backed securities, which reduced the risks of the mortgage lender. Third, from the revenue of sold mortgages, new mortgages could then be issued. Fourth, the latter decision led to higher compensation for the executive team.

This change in the business model had serious effects on the market, as it incentivized mortgage providers to lend more aggressively, which decreased the average quality of mortgages and fueled the housing bubble.

Investors of mortgage-backed securities

Differences between ideal and past decisions

The optimal goal of financial institutions that invest in mortgage-backed securities is to achieve an attractive and sustainable profit level over the long term. To reach this target, these institutions need to find a balance between risky investment possibilities with higher returns and safer investment options with lower returns. In reality, several financial institutions invested too heavily in mortgage-backed securities and failed when mortgages started to default. For instance UBS announced a $10 billion write-down, "largely because of losses on subprime AAA rated tranches of CDOs" (Jacobs [2009] p. 64.) and Bear Stearns "was brought down by its $46 billion in mortgages, RMBS, and CDOs" (Jacobs [2009] p. 65.).

Non-rational elements in the decision making process

It can be assumed that the key non-rational decision making element was that these institutions failed to realize the hidden risks of mortgage-backed securities. It is often argued that diversification and subordination of RMBSs and CDOs created a false misconception that these securities offered low risks, and relatively high returns. Jacobs (2009) argues that the disconnect between the perceived risk and returns fueled the demand for these products.

However, when subprime mortgages started to default nationwide, the risks of these products were instantly realized. It is questionable whether these institutions truly did not understand the risk because of the lack of their capabilities, or were just eagerly looking for higher returns in the low interest rate environment. Either way, corporate boards failed heavily in monitoring these risks.

Incentive misalignment

It is argued that there were misaligned incentives both on the micro and the macro level, which distorted the decision making of mortgage-backed securities investors.

On the micro level, inappropriate corporate governance and severe competition enforced excessive risk taking which drove investments towards high return RMBSs and CDOs. For instance, Shefrin (2009) identifies several flaws in the pre-crisis compensation system of UBS. First, "UBS's compensation structure barely took risk issues into consideration and made little to no adjustment for risk" (Shefrin [2009] p. 238.). Shefrin (2009) argues that it led to risk seeking behavior about positions involving subprime mortgages and their associated derivatives. Second, the compensation system emphasized short-term gains over long-term stability. (Shefrin, 2009)

On the macro level, ratings issued by the rating agencies on mortgage-backed securities fostered the misconception that these securities were safe.

If a company wanted to keep up with the competition, or if a CEO wanted higher compensation, they were incentivized to invest in these high-return securities, and the high-rating of these products encouraged these activities. These incentives drove the demand for these products which encouraged mortgage lending activity, thus fostering the growth of the housing bubble and decreasing the average quality of mortgages.

Rating agencies

Differences between ideal and past decisions

Ideally, credit rating agencies should maximize their profits through rating certain types of debt obligations in the sole interest of the investors. The better rating they provide, the better decision the investors would make. However, before the crisis credit rating agencies largely underestimated the risk of mortgage-backed securities which had a severe effect on investors.

Non-rational elements in the decision making process

Jacobs (2009) provides four reasons why credit rating agencies failed to make rational judgments in the process of rating mortgage-backed securities. First, “none of the credit-rating agencies examined by the Securities and Exchange Commission had specific written procedures for rating subprime instruments, as opposed to other MBS and CDOs.” (Jacobs [2009] p.61.). Second, credit rating agencies "were unprepared to handle the huge volume of subprime business they were asked to rate” (Jacobs [2009] p. 68.). Third, “they were not required to verify any of the

information given to them for rating purposes" (Jacobs [2009] p. 68.). Fourth, they underestimated the severity of the decline in housing prices.

Incentive misalignment

In the case of credit rating agencies, incentive systems were clearly distorted both on the micro and the macro level.

On the micro level, corporate governance can be blamed again. Shefrin (2009) argues that in the case of S&P the CEO and the Chairman established unrealistic profit goals for the organization which induced risk-seeking behavior in the rating of mortgage-related products, and cost cutting. It clearly explains why these agencies were unprepared to handle these types of ratings.

On the macro level, there was a more serious distortion in the incentives. Jacobs (2009) argues that as the entity which is seeking a rating is the one who pays for it, and as these issuers had a large say in choosing the rating agency, there was a clear conflict of interest. The rating agencies had to act not solely in the interest of the investors, but also in the interest of issuers, as their income was dependent on them. S&P's decision about its rating models explained by Shefrin (2009) proves this argument. Shefrin (2009) explains that in 2004 "Moody's unveiled a new credit-rating model that enabled securities firms to increase their sales of top-rated subprime mortgage-backed bonds" (Shefrin [2009] p. 239.) S&P had several meetings about the ongoing threat of losing deals, and then also changed the criteria for rating commercial mortgages. (Shefrin, 2009)

Recommendations

This part of the essay argues that the analyzed decisions of market participants could have been improved by several governmental and regulatory measures. It is also argued that improved decisions of these market participants could have at least significantly reduced the severity of the global financial crisis, if it could not prevent it happening. Based on the decision-making analysis framework of this paper, these decisions need to be improved in two ways simultaneously. First, market players' rational decision making skills need to be improved by providing them with more and better information and knowledge. Second, their incentives need to be changed both in the micro- and macro-level in order to make them aligned with the interests of the whole market. This paper provides four possible measures to achieve these goals.

Financial education and easy-to-understand financial information for the public

The goal of this measure is to increase the rational decision making capabilities of the public. It has been argued in this paper before, that mortgage borrowers failed to understand the hidden risks of mortgage applications. It can be assumed that better understanding of these risks would have reduced mortgage applications, and would have increased the quality of these mortgages.

This proposed measure has two sub-measures. The first is compulsory financial education for high-school students to increase their financial/economic knowledge in the long-term. The second is to expand the duty of the regulatory authorities to include the role of periodically providing relevant and easy-to-understand financial and economic analyses. The idea of this measure is to provide an easy-to-understand, independent and reliable financial information and knowledge source for the public without any financial or economic knowledge.

If this had existed before the crisis, mortgage borrowers would have had better chances to understand the consequences and risks of adjustable mortgage interest rates and the effects of the changes in the macroeconomic environment (e.g.: FED interest rate decisions).

Reform of corporate governance – risk monitoring and executive compensation

The goal of this measure is to increase the quality of corporate governance, as its' failures played an important role in the creation of the crisis. Corporate governance failed in two ways. First, it could not provide appropriate oversight of companies' (mortgage lenders, investors, credit rating agencies) risk taking activity. Second, it failed to provide adequate incentives for the executive teams.

The first failure needs to be addressed by changing the regulation of the boards. The fact that they failed to understand the risks of these companies is a clear issue of non-rational decision making, caused by the lack of sufficient knowledge and/or information. It can be addressed by the following steps. First, determining what kind of information must be provided for the board and for the risk committee. This is crucial, as Kirkpatrick (2008) argued that information about exposure did not reach the board in several cases. Second, determining the required knowledge level for every risk committee member regarding financial risk, industry business models, industry trends and firm-specific issues. Third, a regulatory authority should periodically supervise whether boards meet these requirements or not. The recent events in J.P. Morgan highlighted the relevance of this argument. This summer (at the time of this writing) J.P. Morgan disclosed more than $7 billion in losses on its botched credit debt (nytimes.com, 2012). Meanwhile the risk committee included only one member with any Wall Street experience, who "hasn't been employed in the industry for more than 25 years" (bloomberg.com, 2012).

The second failure needs to be addressed by changes in the compensation system of the companies. New compensation systems should incentivize executive teams to take less risk, make the business activity more sustainable, and focus on long-term profits. This can be achieved by the following measures. First, by introducing risk-adjusted performance measures. This means that a safer, lower-return investment opportunity would lead to higher executive compensation, than excessive risk-taking. Second, by introducing long-term performance goals for the executive teams.

If these measures had existed, boards would have had higher chances to realize the risks of excessive mortgage lending, or of RMBSs and CDOs, while executive teams would not have been incentivized for excessive risk taking.

Reform of credit rating agencies

The goal of this measure is to increase the rating quality of credit-rating agencies. As it has been argued in this paper, credit rating agencies failed to act solely in the interest of investors, because they were incentivized to act also in the interest of the issuers. To address this issue, reform of credit rating agencies need to change their misaligned incentives.

The proposed solution is to set up a new regulatory authority with the purpose of providing independent and reliable ratings of the credit rating agencies. This authority would have to provide databases and analyses about the historical performance of each type of debt obligations and their ratings. Based on this information, investors would have more information, and would be able to determine the quality of each agency's rating activity. If a difference occurs between them, investors would start to prefer the ratings of the agency with better ratings quality. If issuers want to sell their products, they would be incentivized to hire the rating agency which

people trust most. This would lead to an increase in this agency's revenues. Because of that, credit rating agencies in the new system would be incentivized to act in the interest of the investors, and not the issuers.

System-wise incentive structure models to determine systematic risk

The main argument of this paper is that rational market participants with misaligned incentives pose a huge threat for the market as a whole. Even if regulators succeed in identifying and fixing these misalignments of the past, there is a high chance that they are going to occur again. Unfortunately as markets are incredibly complex and constantly changing, it is impossible to identify and analyze incentives of each market participant. Because of that, trying to adjust them from the regulatory level is inherently impossible, and also might hurt the free economy. However, searching for possible serious misalignments in order to identify systematic risks might lead to valuable results. For instance, identification of the conflict of interest between issuers and credit rating agencies would be probable if a separate division or a separate team of an existing authority had the task of conducting researches with that purpose.

The suggestion is that a separate division or team of an existing authority should be set up. The role of it would be to identify trends in the economy which might carry the danger of systematic risk. Increasing housing prices, increasing mortgage lending and increasing securitization would probably have been identified as such trends. The next role of this division or team would be to identify the few key players and their most important incentives, and then to build models to identify whether their rational activity creates systematic risk in the long-term. If the answer is yes, regulations would need to be revised.

Conclusion

Imagine a world where people apply for loans only when they truly need one and can afford it. Imagine a world where banks provide mortgages only for these people. Imagine a world where financial institutions have a safe, sustainable investment policy. Does this seem unrealistic? The financial crisis proved that many market participants failed to act this way.

If we want to understand why it happened, we need to start with analysis on the level of the individual market participants. In this paper it has been conducted, and argued that many of these participants failed to make rational decisions, while their decisions were also distorted by serious incentive misalignments.

How can an economy recover if its market participants fail to make the right decisions? How can a new crisis be prevented if market players' incentives are misaligned?

From the arguments of this paper the following conclusion can be drawn. If a government wants the best for the economy, it has to do everything to increase the quality of publicly available information, to increase the knowledge of their citizens, and to try to align individuals' interest with the interest of the public, while maintaining freedom of the people and the freedom of the economy.

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Chapter 37

The Global Financial Crisis – A Failure to understand and learn from the similarities and differences of past crises

Nicholas Yong Kai Liang

Introduction:

"A financial crisis unlike any other that we have ever seen before," such are the widespread perceptions that were prevalent at the time of the 2007 Global Financial Crisis. However, is this really the case, or is this simply one of the many excuses that were given by those responsible for the crisis, to shift the blame off themselves?

Background:

Past historical financial crises such as the Great Depression in the 1930s have the potential of offering many valuable insights that are profoundly useful in preventing future crises. In fact there are many parallels that can be observed, such as the similar warning signs observed in periods leading up to financial crises. However, the trouble is that in times of economic prosperity, we tend to neglect these signs. We usually end up releasing the brakes and removing all safety self-checks to take full advantage of every profitable opportunity (Minsky and Kindleberger, n.d. as quoted in Shiller, 2008). However, when we finally discover that we have been moving on the wrong track and heading for a crash, it is too late to stop the inevitable. The boom was just an illusion and the bubble has burst once again just like it did numerous times in history.

As the situation in financial markets began to worsen over time, the effectiveness and relevance of financial theories have been largely questioned. Most noticeably, there has been an intense debate about whether Modern Portfolio Theory (Markowitz, 1952) still applies during the crisis. However, before embarking on this debate, investors need to question whether they themselves have done their proper due diligence in a timely fashion, and whether a portfolio that was once well-diversified *in the past* still remains well-diversified in future. A more in-depth discussion of these questions, and a thorough analysis of MPT in the context of the recent GFC will be covered in the second section of this paper.

In the aftermath of the crisis, the focus has once again shifted back to the various measures that governments have taken to bring the economy back on track, and prevent the occurrence of another financial crisis in future. While there were times in history, such as the Post-Great depression era, where revolutionary changes to the workings of the financial systems were made, a solution of such magnitude has not been seen in the aftermath of the recent global financial crisis. It is crucial to evaluate whether the solutions that are currently implemented are sufficient, whether they would have any profound long-term impact in preventing future crises, or are they merely short term fixes.

Purpose and Structure of paper

This paper asserts that the occurrence of the 2007 GFC is largely due to a failure in recognizing the similarities in financial crises, and a poor understanding of the differences in financial trends over time.

In the first section, the paper will discuss the important causes of the recent GFC, highlighting several similarities that have also been seen in past crises. In the second section, key changes and differences in financial trends that have radically impacted portfolio making decisions will be covered. An understanding of these issues prior to the crisis might have allowed us to avert the 2007 GFC and more importantly, prevent future economic crises that have yet to come. In the third and last section, this paper will explain why it is necessary to make radical institutional reforms like those seen during the post-great depression era, if we are committed to preventing future financial crises like this from devastating our economies.

Neglecting the similarities or parallels

There were several causes of the 2007 GFC that are also similarly observed in many past crises. These include the *error of attribution, social contagion and information cascade effect, and the forecastability of housing prices*. A failure in recognizing these important factors caused us to neglect important warning signs, ultimately leading to an unanticipated and severe recession in 2007.

Error of attribution:

The US property bubble of the 21st century was certainly not the first financial bubble that the world has ever seen. In fact, the first recorded occurrence of a major financial bubble was in year 1636-1637, and was known as the Dutch tulip mania (Dash, 1999). Another past crisis that possessed even greater similarities to the recent bubble was the California property bubble in the 1880s (Shiller, 2008).

The error of attribution in this context refers to the act of attributing an increase in home prices to incorrect factors. For instance, in the 1880s California property bubble, there was a mistake in attributing the surge in house prices to the increasing importance of cities in California, and the "rare beauty and climate of the area". However, the truth is that unusual booms in house prices, like in many other cases of "bubbles", are largely psychological in nature.

In the case of the recent property bubble in the 21st century, a similar error of attribution was also observed during the period of time when the bubble grew unknowingly. People were attributing the increase in house prices to improvements of economic fundamentals in the US. Key political figures such as Mr. Ben Bernanke shared such views in 2005, when he mentioned that housing price increases "reflected strong economic fundamentals". If he were right about it, the property bubble and the resultant financial crisis would not have developed in the first place. However, the problem lies in the fact that he was wrong.

Social contagion effect and information cascade:

Having introduced the error of attribution, this paper now touches on an important catalyst that is responsible for setting the property bubbles of the past and present in motion – the social contagion factor. As Professor Shiller mentioned in his book *The Subprime Solution*, "the social contagion lends increasing credibility to stories – I call them 'new era' stories." Basically the new era stories are referring to the reasons that were erroneously attributed to increase in house prices, such as an improvement in economic fundamentals in the recent GFC (Shiller, 2008).

The social contagion factor leads to a strong feedback loop, which largely reinforces the initial mindset that house prices will continue to increase. What is different in recent times however is that the extent of feedback loops and the magnitude of the social contagion effects have been

largely increased by news media and modern communication' technology. Hence this naturally leads to the conclusion that bubbles that occur in recent times are likely to be far more severe than those in the past.

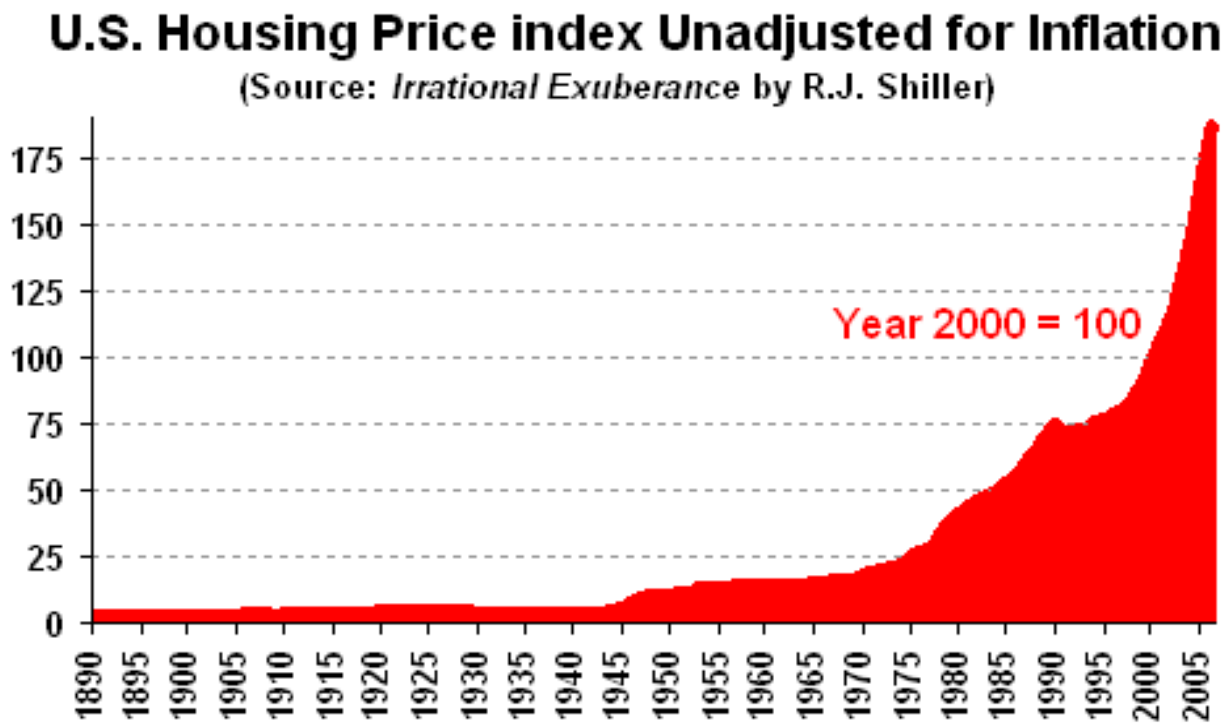
Information cascade

A related concept that further amplifies the social contagion effect is information cascades. Information cascades refers to a case where individuals tend to disregard their personal opinions in favor of conventional wisdom, as if not, this would otherwise mean that they are making a huge claim that they are the only one that is right and everyone else is wrong. Hence during periods of time where property bubbles are growing, the opinions of the minorities who may be wise and correct are often neglected, thus resulting in a decline in the quality of information over time, and a more delayed discovery of financial and economic problems (Shiller, 2008).

Forecastability of housing prices

Unlike stock prices, which generally follow a random walk, housing prices are generally easily forecasted even over long time horizons, as seen from Exhibit 1 below. The steady increase in house prices over numerous decades sends a convincing message to people that the housing boom would never ever end, and this further bid housing prices to unsustainable levels. This explains the exponential increase in housing prices over the years which are reflected in Exhibit 1.

Exhibit 1



The importance of drawing parallels from past crises

It is imperative that we learn to recognize and understand the above causes as these are common factors that are present in many past crises. By learning to be more sensitive and competent in identifying these causes, we would be able to pick up early warning signs of possible future crises, and avert them or reduce their impact through the implementation of early response measures. The claim that "this time is different" is usually a convenient excuse for some to brush off important warning signs that occurred in past crises. Understanding and becoming familiar with these warning signs gives us invaluable foresight into our economies' future, ultimately reducing the incidence of future financial crises.

Did key differences in financial trends over time lead to the "death of MPT"?

Since the introduction of Modern Portfolio Theory by Mr. Harry Markowitz in the 1950s, investors have relied heavily on this theory to minimize risk in their investments. However, with the numerous changes in financial trends over the years there has been a huge debate of whether MPT is already dead and no longer applicable in the modern world of finance. This section of the paper argues that MPT is actually still highly applicable even during and after the 2007 GFC. The only reason why it appears to not work is because MPT has been largely misused during the rampant securitization of assets that occurred before the crisis. Also investors neglected to make proper portfolio adjustments to match the current economic climate.

The Securitization Lie

The primary purpose of securitization is to reduce total risks via diversification by combining a portfolio of assets that are lowly correlated. However, in an effort to maximize profits during the boom that occurred prior to the 2007 GFC, massive securitization occurred without proper due diligence. This took place so that more financial products could be sold to investors. This inevitably turned securitization into a risk-shifting tool instead of a total risk reduction tool, where mortgage lenders could simply remove risky portfolios from their balance sheet and push the risk to other investors (Jacobs, Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis, 2009).This encouraged many irresponsible behaviors in the financial sector, and at the same time deceived numerous investors, especially the financially illiterate, into believing that the risks of these portfolios were low because they were diversified in accordance with MPT when they actually were not. As such, although portfolios with poor returns and high correlation in assets have been largely observed during the 2007 GFC, this is due to the formation of such poor portfolios that were not formed in accordance with MPT.

Adjustments in portfolio to match current economic climate

As the correlation of underlying assets in a portfolio is highly dynamic and constantly changing over different periods of time, it is vital to constantly revise portfolios from time to time to ensure that the benefits of diversification are still enjoyed by the investor under different economic conditions. As seen from the example (Exhibits 2, 3 and 4) of a portfolio that consists of two assets, Emerging Market Stocks (Vanguard) and Energy select sector fund below, the correlation between the two assets has changed rapidly over time. In this example, the correlation of the assets has moved from 0.59 to 0.94 and 0.27 for pre-crisis, during crisis, and post-crisis periods of time respectively.

Exhibit 2 (Source: Author)

Before GFC 2005-2006

	VEIX	XLE
Average returns	7.96%	6.50%
Average standard deviation	11.54%	8.24%
CORRELATION		0.59269218

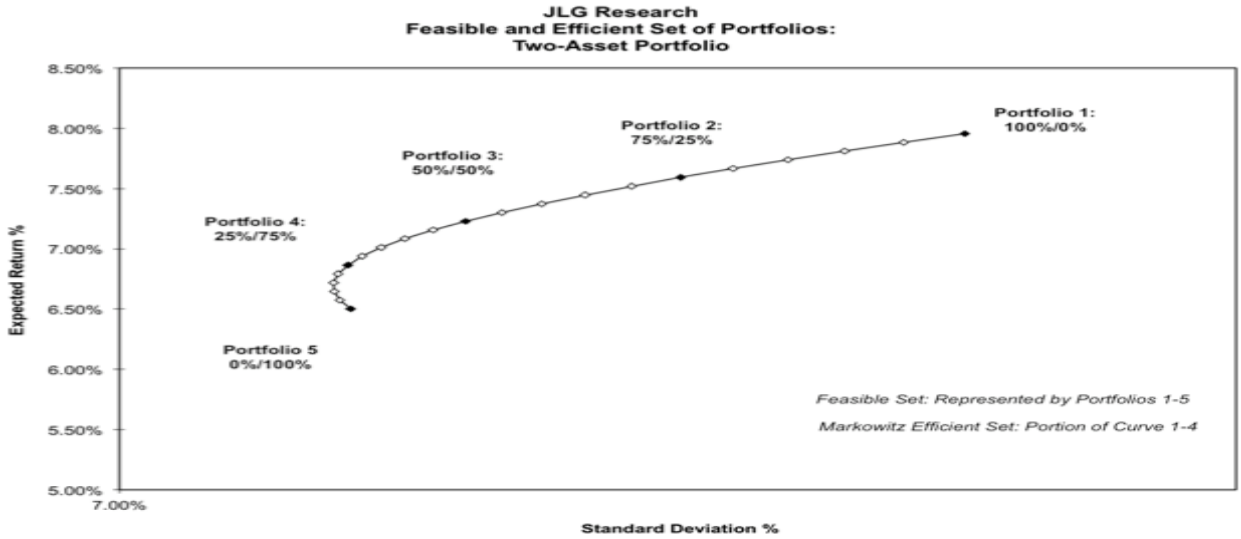


Exhibit 3 (Source: Author)

During GFC 2007-2008

	VEIX	XLE
Average returns	-1.15%	0.46%
Average standard deviation	22.26%	15.76%
CORRELATION		0.942945

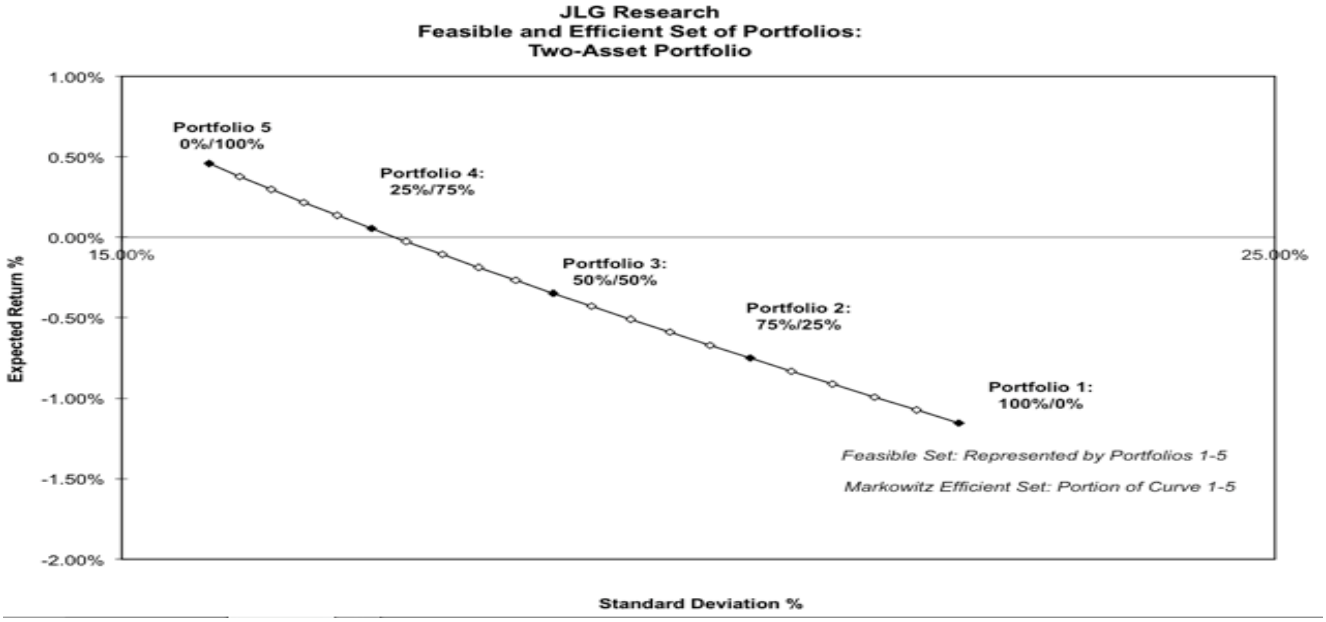
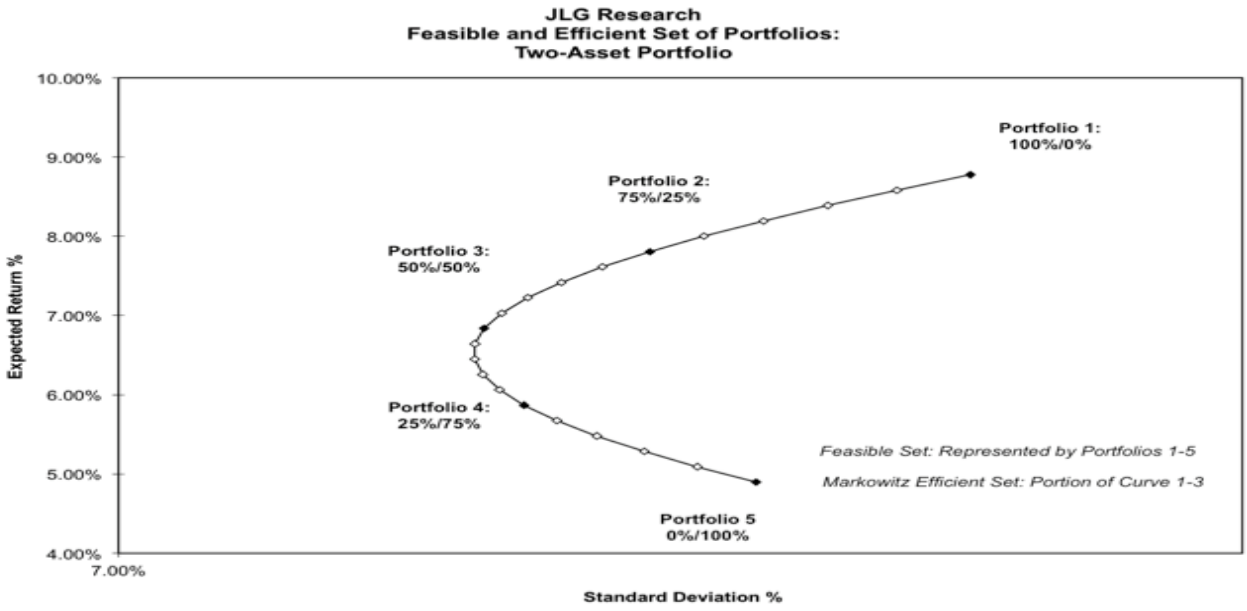


Exhibit 4 (Source: Author)

After GFC
2009-2010

	VEIX	XLE
Average returns	8.78%	4.90%
Average standard deviation	12.31%	10.97%
CORRELATION		0.26863212



It is also similarly noted in many other studies that correlations between many asset classes tend to rise significantly during periods of financial crisis, thus diminishing the positive effects of diversification. This however does not mean that it is impossible to find assets that have low correlations in challenging economic times. In fact, this is largely possible although it does take a greater deal of research to identify such assets.

Making good investment decisions in good times, and especially in bad times, require a great deal of flexibility and constant adjustments. Tools such as MPT are always readily available for use in all phases of the economic cycle. However, when factors such as the increasing prevalence of unscrupulous practices in financial markets are taken into consideration, portfolio-making

decisions become far more complex and tricky. Important financial trends such as these play a huge role in influencing our investment decisions and it is necessary to keep abreast of changes, as what happens to work in the past may not work today. While it is important for institutional and private investors to conduct due diligence on a personal level to ensure that their portfolio investments are sound, a more established system of checks and institutional reforms would have to be implemented across financial markets as well, in order to avert future financial crises (Shiller, 2008).

A Need for radical change

The measures and solutions that were taken in response to the 2007 GFC should not only be restricted to modifications of past financial crises solutions. Instead, the measures taken must be radically different. We need massive reforms, as the current checks and balances that are in place are clearly inadequate. As the complexity of financial markets and institutions increase, it is important to also have a commensurate improvement in general information infrastructure, and risk-management strategies.

A New Information infrastructure

It is imperative that we provide a brand new information infrastructure to people for the main purpose of protecting the investing public and educating them to make well-informed decisions in their investment activities. Examples of strategies include, greater disclosures required from credit rating agencies, pooling of financial databases to give customized information and recommendation of financial products to individuals, and also introducing new systems of economic units of measurements to encourage the general public to think of money in real terms, so as to prevent any formations of future bubbles that could be devastating to economies (Shiller,

2008). Once a good information infrastructure is in place, people would be more equipped with better information to make better investment decisions, which ultimately provides more opportunities for entrepreneurship and innovation to flourish, and drives economies towards greater success.

Improved risk-management strategies

As more and more new financial instruments are introduced, and as financial markets grow increasingly complex over time, it is important that we develop the right infrastructure to handle new and more complex risks as they arise. Firstly it is important to develop highly liquid markets for real estate to ensure that they are more correctly priced in future and prevent future property bubbles, which are one of the primary causes of financial crises. Secondly, it is important to have new risk-management institutions, to increase the coverage of insurance to new risks that are increasingly significant in recent times. One of the challenges for these new institutions is the need to structure their products in a way that minimizes moral hazard.

With the new and improved risk management strategies in place, people would be willing to take more insurable risks, and invest more on innovation and entrepreneurship, which are the main drivers of economic growth.

Conclusion

For every financial crisis that has yet to occur, there are always similarities and differences that we ought to examine in past crises. The common response to a growing bubble, “this time is different”, has always been a careless remark that has brought us way too much trouble in many past financial crises. We need to be deeply aware and sensitive to the parallels and changes in

order to fully identify and understand the warning signs of different financial crises in their early stages. This would enable us to make an accurate diagnostic of the root cause of the crisis, and generate a timely response that would help us to cushion the impact of the impending crisis, or even avert the entire crisis altogether.

There are no easy solutions if we truly wish to see long-term results in the prevention of future financial crises. If we are basing our solutions on old strategies that were used in past crises, the effects would most likely only be felt in the short-term. In fact, a massive remodeling of the financial systems, or institutional rebirth, like those seen in the post-depression era is what we truly need now. As mentioned by Shiller, no matter how technologically advanced a train is, it is only as good as the track that it runs on. Hence, it is time for our leaders to courageously conduct an overhaul by completely changing the tracks, and pushing for reforms at the highest level, if we truly want to see long term solutions for financial crises.

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Chapter 38

Dead in the Short Run: the Global Financial Crisis and the Failure of Keynesian Policies

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Abstract:

The paper analyses the economic policy followed by the developed Western economies in the years leading up to the Global Financial Crisis, as well as the responses of governments and monetary authorities to the turmoil in the financial markets and the subsequent recession.

The analysis provides evidence suggesting that the previous more or less successful economic interventions gave the policy makers a false idea of a significant reduction of macroeconomic risks and of their ability to implement effective economic policies. Furthermore, under the current extremely difficult macroeconomic conditions, characterised by official nominal interest rates reaching their lower zero bounds together with the rising public debt levels, popular Keynesian intervention policies adopted by the governments are ineffective, thus proving that an overreliance on the economic ideas of John Maynard Keynes has led to a situation whereby the economy is dead in the short run.

Introduction

In 1923, in his *Tract on Monetary Reform* John Maynard Keynes famously stated that "in the long run we are all dead" (Keynes, 1924: p. 80). Although he was referring primarily to the fact that contrary to the beliefs of classical economists macroeconomics and its tools should principally focus on short-term economic fluctuations, his idea proved to be truly revolutionary and groundbreaking as it opened an entirely new chapter in the history of economic thought.

Thirteen years later, with the publication of *The General Theory of Employment, Interest, and Money*, Keynes sought to tackle yet another notion underpinning classical economics – he argued that free markets are exceptionally prone to failure and incapable of restoring economic equilibrium, and thus a state intervention is necessary to foster economic growth (Keynes, Collected writings, 1973).

The idea that by adjusting its economic policy, be it in a form of a fiscal or a monetary intervention, a government is capable of steering the economy, suppressing recessions and prolonging the periods of economic expansion, has proven to be particularly popular in the decades leading up to the worldwide meltdown of financial markets in 2007. The extremely difficult economic conditions sparked by the Global Financial Crisis and the subsequent recession, however, serve as a proof that an overreliance on Keynes's ideas can actually have adverse effects on the economy, as many of the conventional economic policy tools have since become ineffective and useless. Because of that, I believe it is fair to paraphrase the quote mentioned at the beginning of this paper by saying that right now we are *indeed dead in the short run.*

The deflation of the asset bubble in the U.S. housing market has given rise to a crisis followed by a recession that have been extremely costly thus far – apart from trillions of dollars lost due to the

decline of the stock markets, as well as the extensive bail-out and stimulus programmes carried out in the most endangered economies, the turmoil in the financial markets has cost millions of people their jobs, their homes, and their future prospects (Financial Crisis Inquiry Commission, 2011). And yet, in spite of the six years of tremendous efforts of the governments and the peoples of the countries most affected by the Global Financial Crisis, economic recovery still remains very fragile and weak (Sullivan, 2009; Siegel, 2009).

The academic and political debate that has followed the Crisis addresses a number of important issues ranging from the question of whether the Crisis could have been predicted and avoided, through the one of identifying optimal economic policy aimed at curbing the recession and fostering growth, to the regulatory and policy changes that have to be adopted in order to prevent such a devastating event from reoccurring in the future. It is a confrontation between various schools of economic thought, supporters of left-wing and right-wing political policies, and even between the rich and the poor of the world.

Over the past few years, many of the world's greatest economics and finance academics and professionals have devoted their time to identify the causes of the Global Financial Crisis together with the factors contributing to the amplification of its effects. Among many others, the most important factors identified by the Financial Crisis Inquiry Commission (2011) are:

- Declining mortgage-lending standards and mortgage securitisation associated with the originate-to-distribute lending model;
- Failure to provide adequate credit worthiness assessment by credit rating agencies;
- The impact of over-the-counter financial derivative products;
- Combination of excessive borrowing, risky investments, and lack of financial transparency;

- Inconsistent response of the governments, which fuelled the uncertainty and panic in the financial markets.

A detailed discussion of all the factors listed above would go far beyond the scope and the objectives of this paper, therefore the presented analysis focuses primarily on government policy, offering an examination of the pitfalls of the policy followed prior to 2007 and of the effectiveness of the policies adopted in the post-Crisis environment. The next section of the paper presents an insight into the pre-2007 macroeconomic policies and their weaknesses, whereas the third section provides an assessment of the fiscal and monetary stimulation programmes adopted throughout the Western developed economies. Finally, a brief summary of the arguments presented in this essay concludes the paper.

Pre-Crisis Economic Policy

The beginning of the Global Financial Crisis in 2007 brought an abrupt end to the Great Moderation – an episode in the history of the developed economies characterised primarily by a very low volatility of the business cycle (Barnett and Chauvet, 2008). The magnitude of the decline of the volatility of the business cycle was very significant as it decreased by a factor of three during the period associated with the Great Moderation, due to a smarter countercyclical economic policy, and to lower output and inflation volatility that occurred in the same time, both associated with better monetary policy (Blanchard and Simon, 2001).

Figure 1 below provides an overview of the post-Second World War gross domestic product growth rates in the United States, with the period associated with the Great Moderation reflected by the shaded area. Indeed, as suggested above, sometime in the early 1980s the pattern of

behaviour of the data changed significantly, as the amplitude of the business cycle decreased dramatically.

Figure 1:

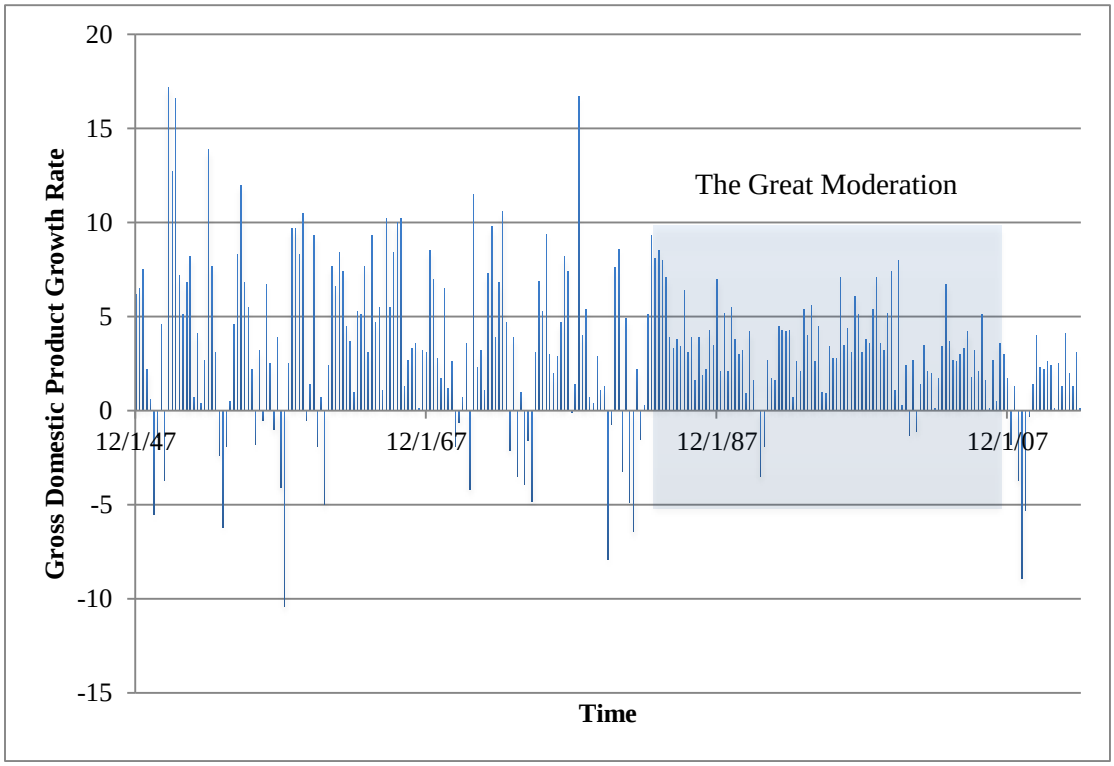

Figure 8: The Great Moderation in the United States[265]

Interestingly enough, in her paper Romer (1986) provides evidence that suggests that the Great Moderation never really occurred and that it can be associated with a data error. Having identified the sources of the inconsistency between the historical and the modern economic data collection methods, in particular data on industrial production, unemployment, and gross national product,

[265] All the charts depicting financial and economic data are the author's own work based on data obtained from Bloomberg Database, unless indicated otherwise.

Romer analysed the post-war data using the older methodology and found that there was no significant reduction in the volatility of cyclical fluctuations of economic growth.

Although Romer's (1986) findings provide a solid foundation for a greater dose of scepticism, business press and the majority of economists called the Great Moderation a triumph of modern macroeconomics. Blanchard and Simon (2001) concluded their paper with a rather remarkable statement that one could be confident about the steadiness and permanence of the increased periods of economic expansions, implying a much lower likelihood of recessions. Furthermore, Lucas (2003) went as far as to suggest that the central problem of macroeconomics, prevention of depressions, had been solved for all practical purposes. The boom and the bust cycle was supposed to be finally dead, with a new era of growing wealth and prosperity awaiting ahead.

As pointed out earlier, academics generally accept the fact that it was the improvement of monetary policy and its tools that ultimately created the environment in which the volatility of business cycle could have been dampened.

Summers (2005) points out that the most significant development associated with monetary policy was the decision to make controlling the inflation a central bank's top priority. Low and stable inflation generally contributes to a more stable economic environment, as firms' uncertainties about the future are reduced, and so are nominal distortions associated with taxation, and finally

low and stable expected inflation provides policy makers with much more flexibility in responding to unforeseen events such as banking crises (Summers, 2005).

The new monetary policy framework adopted in the early 1980s is broadly known as conventional monetary policy. As Joyce, *et al.* (2012), explain, it was based on inflation targeting, a policy aimed at achieving low and stable inflation by changing the short-term interest rate at which central banks provide money to the interbank money market in a manner that can be approximated by Taylor Rule.

With the changes in the rate of inflation associated primarily with the extent of the output gap, that is the difference between the current and the equilibrium level of output, under this new monetary regime, a central bank would raise its official rate of interest when inflation was predicted to increase above a fixed target level, and would lower the interest rate if inflation rate fell below the target - all of the aforementioned variables are incorporated into Taylor Rule, which in practical terms underpinned the interest rate setting framework of monetary authorities (Goodhart, 2010).

Despite its theoretical elegance and simplicity, and success in achieving low inflation, as pointed out by Joyce, *et al.* (2012), conventional monetary policy suffers from one significant setback – it does not prevent asset market bubbles from occurring, and while it is true that it is difficult to identify and contain an asset bubble *ex ante*, the soundness of the policy to allow a bubble to burst and then contain its negative effects rather than to attempt suppressing its development remains highly questionable.

Goodhart (2010) points out that conventional monetary policy led to a popular assumption that as long as central banks maintain macroeconomic stability, the efficient financial markets will ensure financial stability, however, as pointed out by Minsky (2008), more frequently the former may have inverse effects on the latter, as overconfidence in periods of stability may provide additional incentives to take on more leverage and risk. Because of that, central bankers tend to be very sensitive about the fact that, at least in the past, their solution to a market crash was to cut interest rates aggressively and persistently, thus encouraging a formation of a new asset bubble in the future (Goodhart, 2010).

The appropriate question to ask at this point of the analysis is whether the policy followed by the monetary authorities actually reflected the optimal official nominal interest rates determined by the framework described above. The model presented below is very useful in providing an answer to it. It is derived from the basic Taylor Rule equation represented by Equation 1 below:

Equation 1: Taylor Rule Equation

$$i = \pi^T + \pi^A + \alpha(\pi^A - \pi^T) + (1 - \alpha) \times (\bar{Y} - Y),$$

where: nominal official interest rate; target inflation level; actual level of inflation; long-term level of output; current level of output; a positive coefficient.

Following the approach based on Keynes's (Collected writings, 1973) *General Theory of Employment, Interest, and Money* described by Dickens (2011), Equation 1 is transformed to reflect the long-term equilibrium position as being characterised by the natural rate of unemployment. The relationship between inflation and unemployment was developed further by Friedman (1968), and was defined as the non-accelerating inflation rate of unemployment, that is the rate of unemployment required to stop the inflation rate from increasing.

The final element required to complete the transformation of Equation 1 is the relationship between changes in unemployment and changes in output. This relationship, investigated thoroughly by Okun (1970), is based on an empirical observation of a decrease in output associated with an increase in unemployment (Prachowny, 1993). Applying the theories described above allows transforming Equation 1 into Equation 2:

Equation 2: Modified Taylor Rule Equation

$$i = \pi^T + \pi^A + \alpha(\pi^A - \pi^T) + (1 - \alpha) \times c \times (NAIRU - U)$$

where: nominal official interest rate; target inflation level; actual level of inflation; Okun factor; non-accelerating inflation rate of unemployment; current level of unemployment.

The model relies on a number of assumptions reflected in some of the input values. First of all, it assumes that the target level of inflation is equal to 2%. Second, the value of Okun factor is assumed to be equal to 2, implying that a 1% increase in unemployment is associated with a 2% decrease in output. Third, as suggested by Taylor (1993), the value of the coefficient is assumed to be equal to 0.5. Finally, the value of the non-accelerating inflation rate of unemployment for the United States is assumed to be 5%. The aforementioned assumptions allow transforming Equation 2 into its final form, Equation 3, used in the modelling process:

Equation 3: Taylor Rule Equation Used in Modelling

$$i = 2 + \pi^A + 0.5(\pi^A - 2) + 0.5 \times 2 \times (NAIRU - U)$$

The output generated by the model (Figure 2) suggests that putting a significant proportion of the responsibility for excessive credit growth on the monetary authorities is quite appropriate, as the official nominal interest rates were consistently set below the optimal rate since 2002, only to move closer to their optimal values in the run-up to the Global Financial Crisis, when it was already too late to contain the problem.

Figure 2:

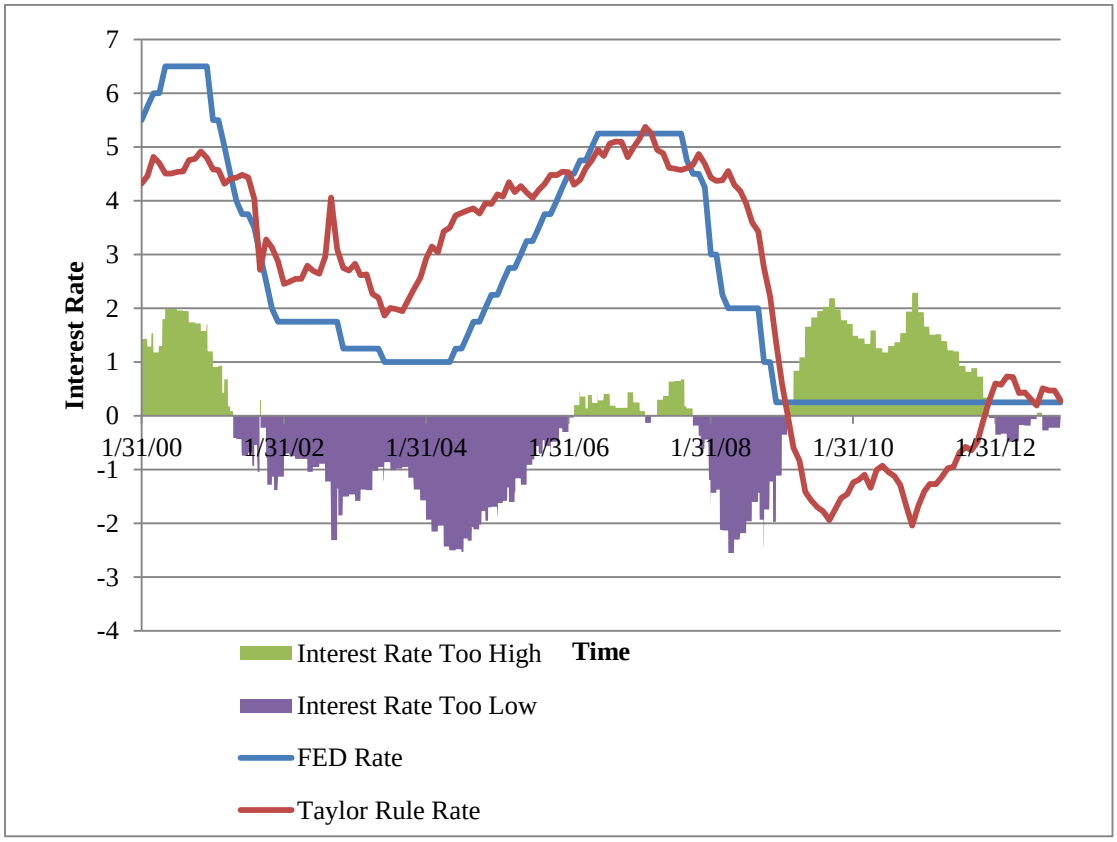

Figure 9: Official/Modeled Interest Rate in the United States

Although formulated in the late 1930s, the argument that the government-regulated monetary systems tend to perform rather poorly (Smith, 1990) seems to be still relevant. This issue was raised many times by F. A. von Hayek, most notably in his *Prices and Production* (2008), where he argued that central banks have a natural tendency to suppress the nominal interest rate below its natural level contributing to inflationary credit expansion, proving that an overreliance on a central bank's ability to intervene in the economy can indeed, as suggested in Introduction to this paper, cause significant damage to the soundness of the economy.

Siegel (2009) presents an argument that goes even further, suggesting that the whole economic system established after the conclusion of the Second World War provided a widespread misperception about the responsibility and the ability of the government to foster economic growth, occasionally intervening to counteract a recession. He explains this using four examples of government intervention policies, including two that have already been mentioned in this analysis, i.e. the ability of the government to foster the Great Moderation by skilful manipulation of the money supply, and its ability to counteract the painful consequences of an asset market crash by flooding it with liquidity.

The other two examples are those of the Great Depression, and the Great Inflation. Friedman and Schwartz (1963) pointed out that the Federal Reserve bears a significant proportion of the blame for turning the Black Tuesday Wall Street Crash of October 1929 into the Great Depression by severely restricting the money supply between 1929 and 1933, pursuing a policy of cripplingly tight money in the time of collapsing real output. An extensive programme of Keynesian deficit spending policies, introduced by the Hoover and the Roosevelt administrations, as part of the New Deal came to the rescue of the economy (even though economic historians agree that the New Deal might have worsened the Depression, and it was the Second World War that brought the United States out of it), and so, many people believe that if the government managed to get the economy out of the Great Depression through fiscal stimulation, it is capable of fixing any other significant economic problem (Siegel, 2009).

As far as the Great Inflation is concerned, it was caused primarily by an oil embargo imposed on the United States by the Organisation of Arab Petroleum Exporting Countries in 1973. With oil being an input to the U.S. economy of such a crucial importance that a significant increase in its

price would push it into a deep recession, the Federal Reserve decided to rapidly expand the money supply to avoid it, which resulted in inflation rates reaching 13.3% (Siegel, 2009). The Great Inflation came to an end with the appointment of Paul Volcker as the chairman of the Federal Reserve – although it pushed the economy into a recession in 1979 and another one in 1981 – 1982, his decision to sharply increase the interest rates brought the inflation down to the manageable level of 3.9% (*ibid*.). Once again, modern macroeconomic policy proved that it is capable of dealing with yet another threat to the stability of the whole economy.

To summarise, the misguided lesson that seems to have been learnt from the four aforementioned events is that the government has the ability and the means to solve almost any economic problem through either fiscal or monetary intervention (Siegel, 2009). Kaplan, *et al.* (2009) pointed out that greed and misaligned incentives, so typical of human nature, lie at the heart of all asset bubbles. The erroneous perception of the disappearance of fundamental macroeconomic risk factors associated with business cycle fluctuations and inflationary threats, as well as the financial innovations designed to reduce risk were, rather ironically, the means by which the risk of the occurrence of an event as disastrous as the Global Financial Crisis was greatly magnified (*ibid.*).

After the Storm

In 2008 the world was forced to choose between two equally painful alternatives of either allowing its financial system to collapse, or injecting trillions of dollars of taxpayers' money into the system to provide emergency funding to an increasing group of companies (Financial Crisis Inquiry

Commission, 2011). Some decisions were a necessary evil that provided short-term stability but had undesirable long-term effects, turning one problem into another. For example, the decision to bail out or nationalise the most endangered institutions might have improved the short-term stability of the financial system, however, it has also contributed to the rising levels of public debt in the United States, and in the United Kingdom, forcing those countries to adopt severe austerity measures in order not to default on their sovereign debt – a problem which thus far has cost them both their highest AAA credit ratings.

Barrell and Holland (2010) provide a very concise, yet accurate explanation of the main source of the current extremely difficult monetary and fiscal environment – as the liquidity crisis in the banking sector grew in scale to the extent that it finally transformed into a large-scale solvency crisis, it became increasingly clear that the central banks would not be able to act as the lender of last resort, due to their inability to lower their official interest rates any further. That meant that the government would have to step in, increasing its budget deficit in order to provide emergency funding for the banking system. Furthermore, as pointed out by Reinhart and Rogoff (2009a), the inevitable collapse of tax revenues that the governments suffer from in the wake of deep and prolonged crises, and the ambitious countercyclical fiscal policies that they have adopted, were the additional drivers of increasing national debts.

Figure 3 portrays the rise of the levels of public debt in several European economies between 2000 and 2011, proving how dire the situation of some countries has become.

Figure 3:

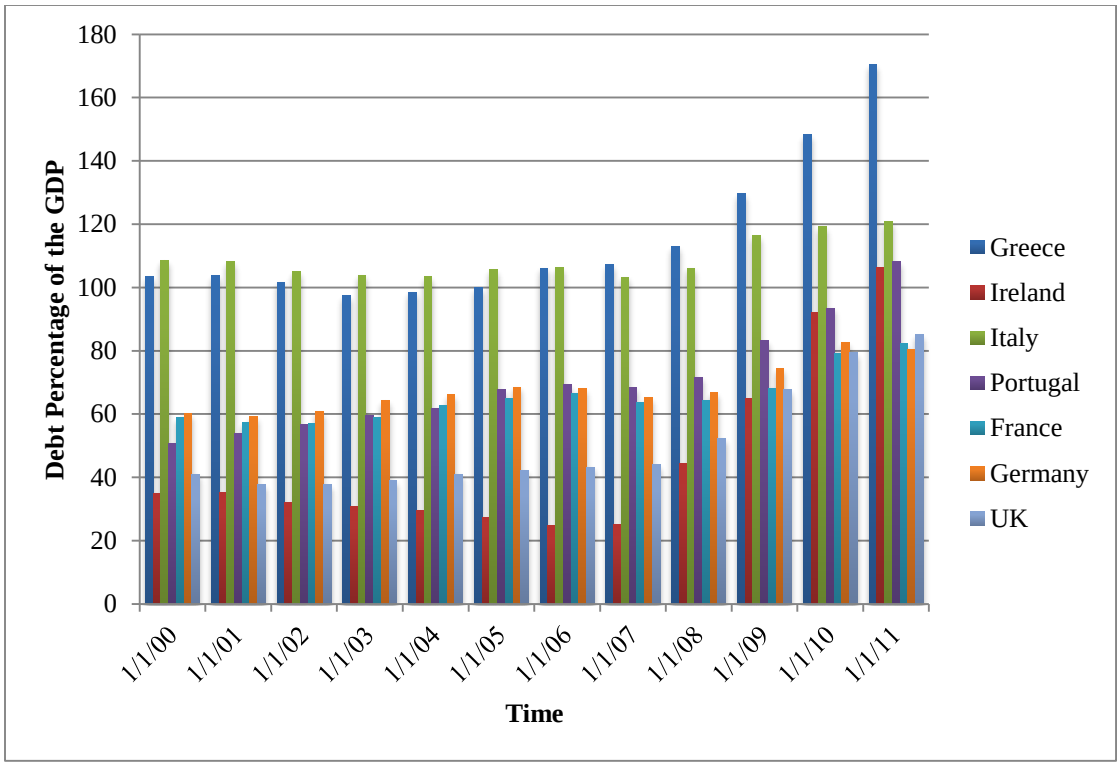

Figure 10: Public Debt as Percentage of the GDP 2000 – 2011

Ghosh, *et al.* (2013) point out that the currently observed public deficits and primary balances of the advanced economies have reached their highest levels in the last 40 years, and furthermore, that the sharp increases of their borrowing costs, from essentially risk-free rates to the levels considered prohibitively costly implying an increasing risk of possible insolvency, should serve as a warning sign to other countries at risk of exhausting their fiscal space.

Typically, a responsible government increases its primary surplus in response to rising debt service in order to maintain a constant debt-to-GDP ratio at a reasonable level, however, a large economic shock, for example a war or a financial crisis, may force it to temporarily abandon the

aforementioned policy, only to increase the primary surplus again in the future to offset the higher interest bill (*ibid*.).

Increasing the primary balance enough to offset the interest bill, however, may not be possible under certain circumstances, as at sufficiently large levels of debt, the primary balance would have to exceed the gross domestic product – if the primary balance displays fiscal fatigue, that is it fails to keep up with the increasing debt service, there is the possibility that the government will have to default having reached sufficiently high debt level (*ibid.*). The main problem is that the risk premium a government has to pay on its debt increases together with its indebtedness, so after reaching a certain level of debt, the risk of government default becomes self-propelling, as higher levels of debt imply higher risk premium, which in turn increases the borrowing costs leading to even higher levels of debt, etc. (*ibid*.). Once a government finds itself in this loop, as suggested by Arellano (2008) and Mendoza and Yue (2012), it faces a decision of whether or not to default, which is ultimately based upon the balance of gains resulting from avoiding at least a proportion of its debt service obligations, against the costs of output losses and restricted access or even exclusion from international credit markets.

As mentioned in the opening paragraph of this section, the governments of the Western developed nations were forced to introduce bail-out and stimulus programmes aimed at stabilising financial markets and curbing the recession. This serves as a classic example of a state intervention regarded

so highly by Keynes. As explained by Begg, *et al.* (2008) the starting point of the analysis of a Keynesian intervention is the following basic equation:

$$Income = Expenditure$$

Income levels portrayed on the horizontal axis of Figure 4 are associated with aggregate supply, whereas expenditure levels on vertical axis, with aggregate demand (Begg, *et al.*, 2008).

Figure 4, known as the Keynesian Cross diagram, provides a graphical representation of the equation above – aggregate expenditure, represented by the 45º line, links the points where the relationship mentioned above holds. The next component of the analysis is the value of planned expenditure, that is the amount that equals to the sum of consumption, investment, net exports, and government spending for a given period – economic output is therefore defined as the point at which aggregate expenditure is equal to planned expenditure (Begg, *et al.*, 2008).

To assess the effects of higher government spending, one should compare two planned expenditure schedules, E_1 and E_2 in Figure 4, with both representing the same level of consumption, C, investment, I, and net exports, NX, but different levels of government spending G (in case of Figure 4, G_2 is greater than G_1).

Figure 4:

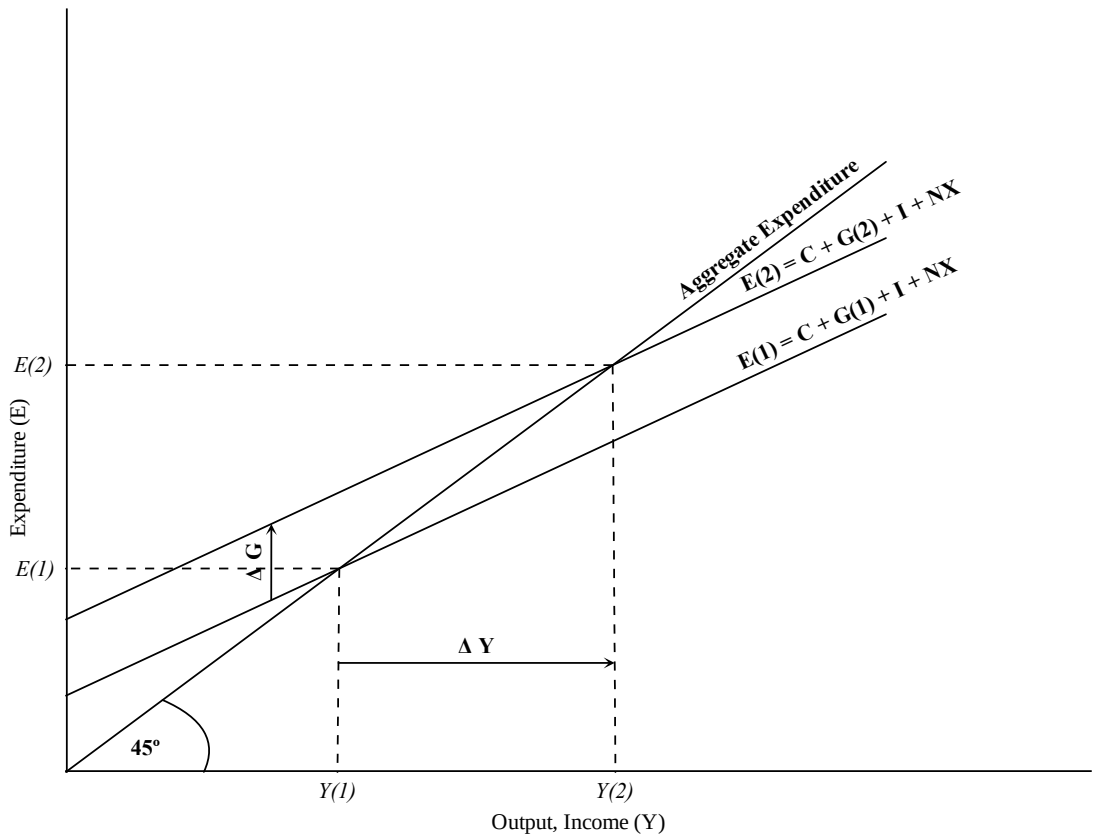

Figure 11: Keynesian Cross – Effects of Higher Government Spending on Output

The Keynesian Cross highlights the apparent effects of higher government spending, showing that an increase in planned expenditure schedule, associated with greater spending, results in an even greater increase in economic output. Keynes (1973) attributes this to the multiplier effect, that is the fact that a $1 increase in government spending brings an at least $1 increase in income.

The stimulus programme introduced by the Obama administration in January 2009 was the most extensive one among the economies affected by the Global Financial Crisis, amounting to $500 billion in 2009 and further $700 billion in 2010 (Hall, 2010). Given the fact that Hall estimates the current value of the multiplier to be equal to more or less two, the expected results should indicate that a $1 increase in government spending brings a $2 increase in output. Unfortunately, it seems that apart from contributing to an increase in public debt, fiscal stimulus failed to achieve its main objective, as the recovery of the U.S. economy remained persistently weak.

With the increasing risk of exhausting their fiscal space, understood as the scope that policy-makers have to calibrate fiscal policy without facing the risk of reaching unsustainable debt levels (IMF, 2012), governments had to abandon their fiscal stimulation programmes, and adopt austerity measures and consolidation efforts aimed at bringing their debt-to-GDP ratios back to manageable levels, particularly given the pressure from the financial markets reacting particularly badly to even the slightest hint that yet another country might be facing insolvency.

The main problem for monetary policy in the period following the Global Financial Crisis stems from the fact the official interest rates controlled by the monetary authorities are constrained in their value by zero, as individual agents can always hold on to non-interest bearing cash, even though the Taylor Rule approach might suggest setting negative nominal interest rates (Joyce, *et al.*, 2012). This particular problem renders conventional monetary policy ineffective at the moment, as given the fact that the nominal interest rate in the United States is set at the level of 0.25% since December 2008, the monetary authorities simply cannot lower their official interest

rates any further to provide more liquidity to the market and ease the credit conditions in order to facilitate economic recovery.

The neoclassical synthesis theoretical framework assumes that the economy is Keynesian in short-term and classical in the long-term (Farmer, 2012), therefore applying the *IS – LM* model to analyse some of the ongoing macroeconomic problems might prove particularly helpful. Representing the relationship between ***I****nvestment* – ***S****aving* and ***L****iquidity preference* – ***M****oney supply*, the *IS – LM* model portrays a short run general equilibrium in the goods and services market and the money market.

The *IS* side of the model captures the effects of changes in interest rates on aggregate demand, whereas the *LM* depicts the equilibrium in the money market for a given level of money supply (Begg, *et al.*, 2008). As lower interest rates increase both aggregate demand and output, the *IS* schedule line has a negative slope – changes in the rate of interest cause movements along the *IS* line, whereas any other changes in aggregate demand shift the line in one direction or another (*ibid*.). As far as the *LM* schedule is concerned, it has a positive slope, as, given that money supply is assumed to be fixed, only an increase in interest rates can counteract the effects of greater quantity of money demanded resulting from higher income, bringing the money market back to equilibrium state (*ibid.*).

As explained by Mankiw (2010), the interest rate is a variable linking the two halves of the model by plotting the relationship between income in each of the markets and the interest rate. The

following chart (Figure 5) provides a graphic representation of the two equations that have been developed from Hicks's ideas.

$$IS: Y = C(Y - T) + I(r) + G;$$

$$LM: \frac{M}{P} = L(r, Y);$$

where: Y – income/output, C – consumption, T – taxation, I – investment, G – government spending, M – money supply, P – price level, L – liquidity preference, r – interest rate.

Figure 5:

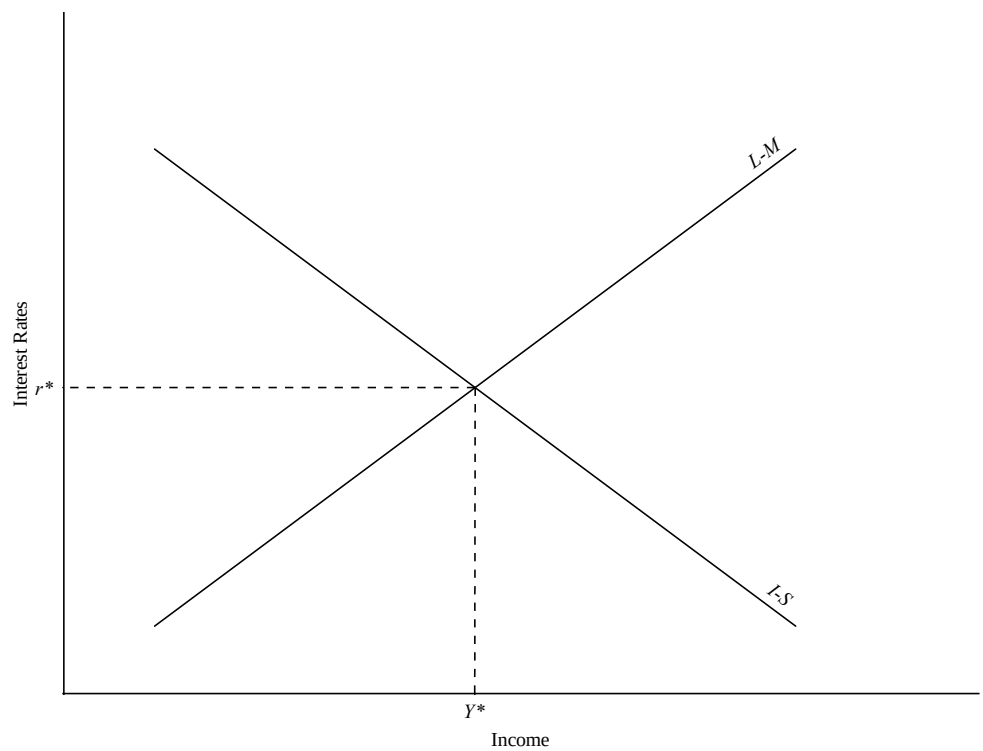

Figure 12: General Equilibrium in the *IS* - *LM* Model

One particular problem exhibited by the model was described by one of its authors, merely a year after it was finally formulated – Hicks (1937) noticed that under severe economic distress conditions, the *LM* schedule line will become flatter near its left-hand end, which means that shifting it by increasing the quantity of money supplied will have no effect on equilibrium interest rate and income, as shown in Figure 6.

Figure 6:

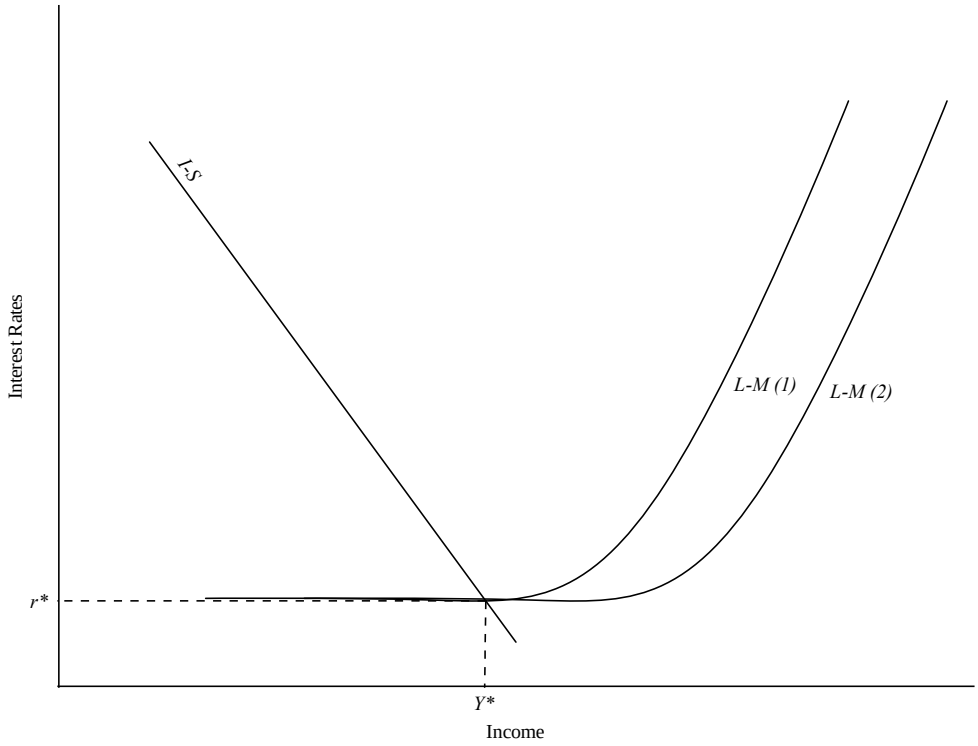

Figure 13: The problem of the *IS* - *LM* Model

This particular problem is known as the liquidity trap – the fact that, in words of Hicks, turns the "'General Theory of Employment' into Economics of Depression" (Hicks, 1937: p. 155), as

monetary policy becomes completely ineffective. Krugman (2000) explains the problem using a simple example – if we assume that bonds and money are effectively assets that can be considered perfect substitutes, which they become if interest rates are very close to zero, then conventional monetary policy, in which bonds are swapped for money in open-market operations, does not change anything.

Although monetary authorities can no longer employ the conventional policy tools in liquidity trap conditions, they can still opt for a policy which has the potential to solve the problem – a credible commitment to achieving inflation rates higher than the target-rate under normal economic conditions, which will lower the real interest rate and stimulate the economy out of liquidity trap despite the nominal interest rate remaining at a near-zero level (Jeanne and Svenson, 2007). The problem, however, is that making a credible commitment to higher future inflation rates may be difficult to achieve, as investors may expect the central bank to change its policy target rate back to the initial one once economic conditions improve (*ibid*.). To overcome this problem, Jeanne and Svenson (2007) recommend a strategy of central bank's capital management, in which capital levels are reduced to the minimum that would be consistent with a future exchange rate associated with the desired higher inflation rate, thus providing a more credible commitment to increasing inflation. This approach, however, has been criticised by Sims (2004) for minimising the central bank's potential to avoid a self-fulfilling hyperinflation threat.

In the midst of the Crisis, the lending in the interbank markets as well as lending to consumers came to a sudden halt, as banks began accumulating cash on their balance sheets having they lost their confidence about the future, pushing the economy into a liquidity trap (Skidelsky, 2011).

The Austrian School of Economics, on the other hand, provides an alternative explanation of the lack of any significant impact on output that monetary policy displays under near-depression conditions. Mises (1996) suggests that artificially induced periods of economic boom encourage overconsumption and mal-investment**,** which leads to a misallocation of the scarce factors of production with a simultaneous reduction of available stocks. In his view, a recession, or in the worst-case scenario, a depression always follows an economic boom, so consumption can return to its natural state, and factors of production can be reallocated back to the industries which use them the most efficiently (Mises, 1996). In essence, economic downturn brings about forced saving and forced liquidations, which ultimately restore the initial economic balance (Garrison, 2004). Mises (1996) points out, however, that a government intervention aimed at aiding the failing industries, which benefited from the mal-investment the most, will only prolong the period of economic downturn, as it protects them from liquidation, thus not enabling the market to return to its equilibrium state while enforcing the cost of this prolonged agony on the taxpayers.

This line of thought suggests that lowering interest when economic growth slows down results only in allowing the firms that are bound to fail, as the market attempts to correct mal-investments**,** to avoid liquidation for much longer than necessary – ultimately, by lowering its official interest rate as much as it can, a central bank prevents the market forces from restoring the balance, creating

liquidity-trap-like conditions, in which it cannot conduct its conventional policy anymore, while the economy still remains in recession.

The countercyclical monetary policy, described in more detail in the previous section, relied heavily on its ability to flood the market with liquidity in times of financial crises and recessions in order to first stabilise it and then stimulate economic recovery and growth, however, having sharply lowered the official nominal interest rate from 5.25% in 2007 to 0.25% in late 2008 in the United States, to little or no real effect, the monetary authorities found themselves in a situation, whereby they were simply unable to stimulate the economy any more, due to the fact that the official interest rates could not be decreased any further (Buckley, 2011). Conventional monetary policy had to be abandoned in favour of credit easing and quantitative easing.

The term "unconventional monetary policy" is defined largely by what it is not, rather than what it actually is – it might involve setting negative official nominal interest rates, just like in case of Denmark, or expanding the central banks' balance sheet through a series of asset purchases (Joyce, *et al.*, 2012). Although explicit quantitative monetary targets were the main policy tool underpinning the monetary framework until the early 1980s, when it was abandoned in favour of conventional monetary policy and its inflation targeting-based tools, following the failed attempts to stimulate the Japanese economy in the late 1990s, the Bank of Japan was forced to revert back to the regime of targeting quantitative monetary aggregates, giving it a new name – quantitative easing (Lyonet and Werner, 2012).

Essentially, as explained by Joyce, *et al.* (2012), quantitative easing focuses primarily on expansion of central bank's balance sheet through asset purchases – with its ability to create unlimited quantities of acceptable means of payment, the central bank is able to buy a pre-specified amount of assets, be it government bonds or other types of assets issued by the private sector. These purchases change the composition of the portfolio of assets held by the private sector, with the final outcome resulting in a smaller proportion of previously owned assets, now purchased by the central bank, and a higher proportion of claims on the central bank, i.e. money (*ibid.*). Ultimately, both assets and liabilities of the central bank, the latter most likely held in form of reserves of the banking system, increase by the same amount.

There are two main channels through which quantitative easing operates – the portfolio substitution channel, and the bank funding channel. Figure 7 below provides a graphical representation of those channels.

Figure 7:

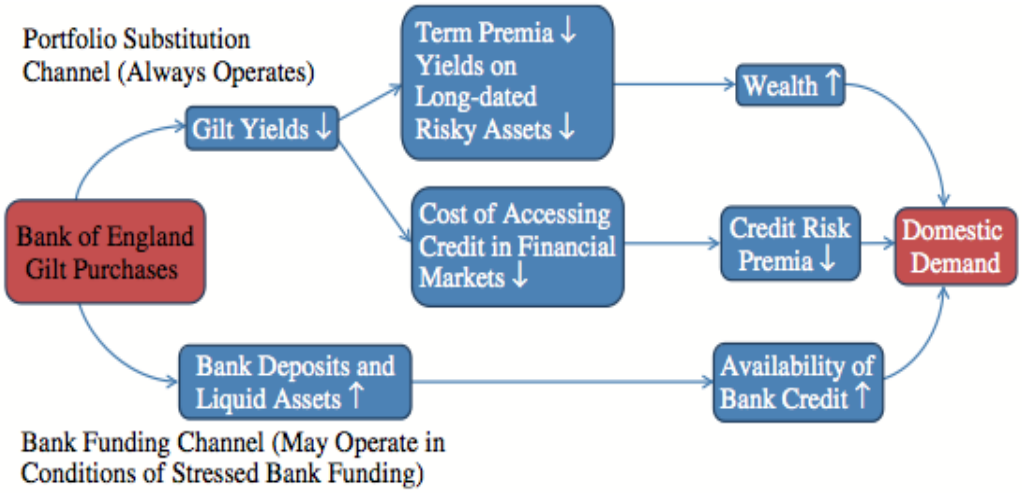

Figure 14: Quantitative Easing Operations Channels[266]

In the case of the Bank of England, as explained by Joyce, *et al.* (2012), the portfolio substitution channel works in the following way:

1. The Bank purchases gilts, reducing their free float and increasing its reserves held by commercial banks, as most of the proceeds from those sales show up in bank deposits; since gilts and bank deposits are not perfect substitutes, the exchange of assets affects the duration of portfolio held by investors, as the swap of gilts for deposits is equivalent to trading a long-dated asset for a short-dated one;

2. In order to rebalance the duration of their portfolios, some investors will use the proceeds from the sale of their assets to buy another type of long-dated assets;

[266] Joyce, *et al.* (2012), p. 278

3. By reducing the stock of privately owned long-dated assets, the Bank of England lowers the duration risk which should result in lower premium requirements, which combined with portfolio duration rebalancing result in increases in prices of long-dated risky assets, most importantly, corporate bonds and equities;

4. Higher prices of the assets mentioned above allow companies to raise funds more easily, and also result in capital gains for households, increasing their wealth, which in turn should lead to higher consumption or other form of spending, ultimately increasing aggregate demand and output in the economy.

The other channel through which quantitative easing operates, bank funding channel, is significantly less complicated and much easier to understand – as the central bank purchases gilts owned by private investors, the amounts of money deposited at banks increases, reflecting the proceeds from sales, as do the reserves held at the central bank – once the level of reserves exceeds the demand for liquidity, banks will become much more willing to expand their lending (Joyce, *et al.*, 2012).

Having explained the design and transmission mechanisms of quantitative easing, the analysis will now focus on assessing the impact that the policy had on the real economy thus far, although taking into account the effects of quantitative easing on stimulating growth in Japan, it is natural to be very sceptical about the potential for stimulation the policy displays.

At this point, however, it is worth mentioning what the scale of the quantitative easing in the United Kingdom and in the United States has been since the programmes were initiated. In total, the Bank of England created additional £375 billion in three rounds of quantitative easing (Bank of England, 2013). It is much more difficult to assess the amount of new money created by the Federal Reserve,

as its credit easing programme has explicit monthly quantity targets, unlike the British one with target amount specified for each round of stimulation. Nonetheless, during the first round of quantitative easing, the Federal Reserve bought $2.054 trillion of assets, followed by additional $600 billion during the second round, continuing to spend $40 billion a month, increased to $85 billion a month in December 2012, over the period of duration of the third round (Fawley and Neely, 2013).

The results of research carried out to estimate the effect of the large-scale asset purchases programmes on macroeconomic conditions suggests that the programme had rather modest but persistent effects on the real economy. Chen, *et al.* (2012) estimate that the effects on gross domestic product growth are unlikely to exceed a third of a percentage point, with little to none inflationary consequences. The more positive effect, however, is reflected by the fact that the observed effect of asset purchases on gross domestic product growth puts upward pressure on the interest rate, suggesting that the monetary authorities may be able to return to the previous framework under which they operated in the foreseeable future (*ibid.*). They also report that the commitment to of monetary authorities to keep the official nominal interest rate at the zero lower bound for a prolonged period has the potential to magnify the effects of a large-scale asset purchases programme (*ibid*.).

Kapetanios, *et al.* (2012) report that without the application of quantitative easing, real gross domestic product would have fallen even more than it did in 2009, and inflation would have reached low or even negative levels. They do, however, emphasise the fact that due to the relative uniqueness of the policy, the use of counterfactuals in modelling is largely uncertain, and thus the presented results are subject to a significant degree of precariousness (*ibid*.).

Furthermore, the estimates provided by D'Amico, *et al.* (2012) suggest that the two rounds of large-scale asset purchases carried out by the Federal Reserve amounted to a substantial monetary easing, equivalent to the effect that reducing the interest rate by 140 basis points as far as the first round is concerned, and by 180 basis points during the second round, under the conventional monetary policy framework would have had.

Interestingly enough, another study into the effects of quantitative easing on the gilt market found that the programme might have had diminishing effects on the market, as once market participants learnt more about the operations of the asset purchase programme, both the importance and the effects of the gilt auctions carried out by the Bank of England have decreased (Joyce and Tong, 2012).

The results of research carried out by Lyonnet and Werner (2012), on the other hand, yielded conclusions that stand in direct opposition to the ones presented above. Their study found no empirical evidence that the changes in the Bank of England's balance sheet have had any impact on nominal gross domestic product or any of the intermediary targets specified by the Bank, such as interest rates or maturity structures of its outstanding operations (*ibid.*). Furthermore, the authors criticise other studies, including some of the mentioned above, for defining the effectiveness of quantitative easing not in terms of its final economic outcome, but in terms of the impact that the policy may have on some of the intermediary targets, which may display a rather tenuous connection with the ultimate objectives of the policy (*ibid.*).

As far as the impact of large-scale asset purchases programmes on the financial markets is concerned, Bean (2011) emphasises the importance of the £185 billion Special Liquidity Scheme

introduced by the Bank of England in April 2008 allowed banks to swap the toxic mortgage-backed securities and other illiquid assets for Treasury bills, whereas the Discount Window Facility provided financial institutions requiring financial aid with access to short-term liquidity.

Similarly, D'Amico, *et al.* (2012) highlight the importance of the decision of the Federal Reserve to purchase significant quantities of debt securities from the Government Sponsored Entities, Fannie Mae and Freddie Mac, together with a large proportion of mortgage-backed securities guaranteed by the two agencies, amounting to $1.25 trillion, promoting greater stability in the hugely distressed markets.

As any other economic policy, quantitative easing exhibits certain risks. First of all, there is a good chance that the central bank will make losses on its purchases, a cost that will ultimately have to be borne by taxpayers either by paying a higher tax rate or due to an increase in inflation rate (Giles, 2013). Second, too much quantitative easing may result in higher future inflation, or even hyperinflation, destroying the value of currency (*ibid*.). This issue is fairly similar to the one concerning fiscal consolidation – too much of quantitative easing may have adverse effects on the economy, whereas not enough may not yield any results, which puts the monetary authorities in a situation whereby a correct estimation of the scope of the programme becomes hugely important. Finally, given that various unconventional monetary policies are in a way the last resort of monetary authorities, applying quantitative easing over a really long horizon can be counterproductive, as it may destroy confidence in the economy (*ibid.*).

It seems that the comparison between quantitative easing and the Apollo 13 lunar mission used by De Vita and Abbott (2011) might be quite appropriate at this point – application of quantitative easing represents an anti-crisis rescue mission that, just like Apollo 13 failed to achieve its main

objective of landing on the Moon, fails to stimulate consumption and economic growth, however, the policy has certainly allowed the banks to repair their balance sheets damaged so severely by the Global Financial Crisis and encouraged growth in the stock market, becoming a 'successful failure' (the term was used by Captain James A. Lovell, commander of Apollo 13, with reference to the fact that despite failing to achieve their main objective due to a significant malfunction of their spacecraft, the astronauts managed to get back home safely).

Bearing in mind, however, that the recovery in advanced economies still remains weak and fragile, it remains to be seen how the effects of quantitative easing will be assessed once the period of instability and low growth associated with the Global Financial Crisis is over. With the benefit of hindsight, however, particularly taking into account the Japanese experience with unconventional monetary policy, the author of this paper is rather sceptical about the policy's true potential and its ability to foster economic growth.

Summary

The historical examples of how the previous crises had been dealt with provided the governments and the citizens of the developed nations with false confidence that implementing Keynesian fiscal and monetary policies in order to approach any kind of an economic problem would bring a successful resolution (Siegel, 2009). The Global Financial Crisis and the Sovereign Debt Crisis, however, allowed verifying this misconception, by showing that running large budgetary deficits and landing in a liquidity trap make the Keynesian policies virtually ineffective. Even though Keynes was highly skeptical about the long-run economic performance, the policies he suggested provide only a temporary solution to the problem leading to further costs in the future. As pointed

out by Claessens, *et al.* (2010), generally speaking, sound economic conditions, like current account surpluses and the capability to run a fiscal deficit when needed, allow to absorb shocks better and to grow out of a crisis faster – maintaining healthy and balanced economic environment may be much easier and less costly than basing the economic growth on a series of asset bubbles requiring expensive state intervention in their aftermath.

It seems that the words of F.A. von Hayek (1989) said during his Nobel Memorial Lecture in 1974 might be particularly relevant to the current economic situation: "The economists are at this moment called upon to extricate the free world from the serious threat of accelerating inflation which, it must be admitted, has been brought about by policies which the majority of economists recommended and even urged governments to pursue. We have indeed at the moment little cause for pride: as a profession we have made a mess of things" (Hayek, 1989: p.3). Although he was talking primarily about the problems the world faced during the period of the Great Inflation, it seems to me that the exact same argument can be made with reference to the threat of the excessive debt growth.

The arguments presented in this essay can be summarised by a quote from Reinhart and Rogoff's book *This Time is Different:*

"Debt-fuelled booms all too often provide false affirmation of a government's policies, a financial institution's ability to make profits, or a country's standard of living. Most of these booms end badly." (Reinhart and Rogoff, 2009b: p. xxv).

The paper also makes it quite apparent that the top–down approach to economic recovery, despite some success that cannot be denied, is not enough to foster economic growth. In spite of this, abandoning it completely would prove infinitely costly and counterproductive, however, perhaps

what the world economy is in need of at this point is the introduction of more bottom–up initiatives – after all, we, the people, are the economy.

It is the author's hope, that the ideas and issues examined in this paper have been presented in an interesting and engaging manner, and will encourage further research into this extremely fascinating and hugely important topic that had such a tremendous impact on the world over the last six years and still continues to shape the present times as well as the future.

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APPENDIX

Reflections on the Global Financial Crisis:

I. Summary list of Potential "Causes" of the Global Financial Crisis

A Non-exhaustive (and *non*-ordered) list of the causes of the Global Financial Crisis from papers included herewith and/or class discussions include:

- Giant housing bubble (Case-Schiller Index: 2000-2006)
- Fed's easy money policies (low interest rate policy)
- Deregulation-lapse in governmental/quasi-governmental oversight
- Irresponsible lending/borrowing (local banks/individuals)
- Community Reinvestment Act-misguided social engineering
- Wall Street securitization-misguided financial engineering (RMBS, CDOs, CDS)
- Wall Street Greed and Excess
- Housing market as Wall Street's next great trading opportunity (following bursting of the tech-driven, NASDAQ bubble)
- Credit Rating Agencies-misguided rating standards/oversight
- "Irrational exuberance"-all assets & markets
- Prices can only go up mentality
- Unreasonable expectations-real estate, economy, jobs
- Consumerism-"Keeping up with Jones mentality";
- "Mc-Mansion mentality"
- Contagion conditions everywhere (locally and globally)
- Leverage and more leverage (too much debt)
- A "paradox of deleveraging"
- The "Recourse rule"
- Incentive misalignment--rational market participants but with misaligned incentives
- Non-rational elements in the decision-making process
- A "Tragedy of Commons"
- Black swan event
- Reflexivity
- Minsky moment
- Failure of corporate governance systems
- Interconnectedness-"Too Big to Fail mentality"
- Systemic risk (housing prices as macro factor)

- Misguided application of Modern Portfolio Theory [highly correlated housing markets equals low (not high) diversification benefits]
- "The securitization lie" (again, misguided financial engineering)
- Complexity of instruments (derivatives)
- 'This time is different' syndrome
- Moral hazard--"Passing the risk buck"
- Degradation of ethics
- Breach of fiduciary duty
- Behavioral factors-leading to adverse selection, risk-seeking, excessive optimism, overconfidence, among others
- Investor need for alternative investments following Dot-Com bust (VC, private equity, *real estate*)
- Persistent US trade deficits, weak dollar, and international capital flows
- Excessive local vs. international competition among financial institutions
- China (and other developing countries) as financier of pre-Crash boom and lender of last resort
- A collapse of credit and global trade
- Errors of attribution (misguided view of rising housing prices related to economic fundamentals)
- Social contagion & information cascades
- Neglecting the parallels from past crises-a naive "this time is different mentality"
- Perception that housing price changes are easily forecasted
- A "corrupted system"

Reflections on the Global Financial Crisis (continued):

II. Summary List of "Who is (was) to blame":

A Non-exhaustive (& *non*-ordered) list of "Who is to blame" for the Global Financial Crisis from papers herewith and class discussions include:

- Borrowers--individuals
- Lenders--local banks & mortgage companies
- Government Sponsored Enterprises--"Fannie & Freddie"
- Federal government—misguided social engineering
- The Fed--all *too* accommodative, then restrictive monetary policy
- Wall Street--investment bankers; big insurance; institutional investors
- Credit rating agencies (CRAs)
- Shadow banking system (investment banks, hedge funds, SIVs, SPVs & offshore funds)
- The "Quants"