

**The Bubble Economy:
Moral Hazard and Speculative Bubbles**
(First Draft)

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In this paper I offer an explanation for the rise of high-risk financial speculation over the last two decades, producing what might best be termed a “bubble economy”—roughly, a macro-economy with a hyperactive financial system, that is prone to speculative binges. At the root of the trouble, I believe, is a large moral hazard problem that was inadvertently introduced by changes in macro-policy making. In particular, at least three major policy changes combined to gradually transform the impact of business cycles on the financial system’s speculative excesses: 1)an active lender of last resort emerged as part of a larger financial safety net that thwarted cascading failures in the financial system; 2)the gradual adoption of Keynesian macro-policies transformed the business cycle, making long and deep recessions less likely; and 3)the Federal Reserve became an effective anchor against surges in inflation after the 1970s outburst. Together these changes combined to subvert the normal market mechanism that checked reckless speculative activity by regularly liquidating overextended speculators and the financial institutions that financed them. For some time, however, financial regulation substituted for the market mechanism by limiting highly speculative activity, complementing the new macro regime. Over time, however, financial deregulation gradually eroded the effectiveness of regulatory constraints on the growth of high-risk financial activity. The end result was to unleash an economic crisis reminiscent of the pre-Keynesian era before WW II.

I. Introduction

The popping of the housing bubble and the financial crisis that followed began the most profound U.S. and global economic crisis since the 1930s.¹ About forty-five years ago Minsky asked: “Can “it” happen again?”² Perhaps the appropriate question to ask today is: *Why did “it” almost happen again?* There are competing answers to this question. The usual one is that financial crises are, in Kindleberger’s words, a “hardy perennial” and, by implication, our current troubles are just another in a long line of financial calamities due to speculative excesses.³ However, there are at least four good reasons to reject this view of events and to believe that the Great Recession of 2008 is more than just another post-war recession associated with a financial crisis.⁴ First, the Great Recession is unlike any recession-financial crisis in the post-war period both in the severity and scope of the financial panic, the resulting collapse in employment, and the contagion effect. In fact, the current crisis has much more in common with the periodic depressions prior to the 1940s than any economic crisis since.⁵ Second, there is a great deal of evidence documenting the ballooning of the financial sector since the 1980s to an extent that has been unprecedented.⁶ Third, the degree of risk taking during the current crisis is strong evidence of disaster myopia on the part of our most prominent financial institutions.⁷ And lastly, it must be remembered that this is the *second* major bout of “irrational exuberance” in the U.S. over the last two decades.⁸ At the very least, the U.S. economy has been making a habit of blowing bubbles.

An appealing explanation, I will argue, is that there is a large, macroeconomic moral hazard problem at work tilting our economic system in the direction of excessive financial risk taking. For the 19th century and a good portion of the 20th century, business cycle downturns accompanied by large financial meltdowns were the main endogenous mechanism restraining financial gambling, the spread of highly speculative markets, and the imprudent allocation of credit.⁹ Recessions performed this function by bringing on an economic and, in the most severe cases, a financial crisis that disciplined high risk financial activity by imposing large losses on speculators, their creditors, counterparties, fellow investors, and, of course, many innocent bystanders. In the “good” old days when economic collapses were allowed to run their course unimpeded, if not aided, by policy we had what might be termed a “classical” business cycle. In this classical cycle, the contraction phase was characterized by frequent and severe “depressions” followed by large-scale financial liquidations.¹⁰ At the microeconomic level, the impact of these intermittent deep contractions associated with financial crises was to place financial institutions under the constant threat of failure. The threat of impending disaster imposed a degree of caution on financial decision making, particularly in decisions made by large, established financial institutions that had the most to lose.

Gradually, however, the emergence of a financial safety net, whose most important component was an effective lender of last resort, as well as the adoption of Keynesian countercyclical policies “tamed” or, to use the more fashionable term, “moderated” the U.S. business cycle. In particular, the success of macro policy making transformed *both* the contraction *and* the expansion phases of the cycle.¹¹ The most important impact of the new macro policy regime was that it greatly reduced the likelihood that an economic collapse would result in the often brutal liquidation process that was the norm in the “classical” era. Of secondary importance, the new macro-

policies aimed and succeeded at making the typical economic expansion longer and more robust. An unintended consequence of this new policy regime was to create a large moral hazard problem. Moral hazard was introduced by the success of the new macro-policies once downturns became less ruinous and expansions were prolonged. These developments engendered adverse incentives that made reckless behavior in the face of potentially catastrophic risks more likely. Like all moral hazard problems, this one arose primarily because financial risk takers were partly shielded in downturns from the full cost of the adverse consequences of their decisions.¹² In addition as booms became longer and more vigorous, this development raised the rewards to those who made and financed high-risk, financial gambles.

Specifically, three major policy changes combined to produce this large moral hazard problem. The first change came as government policy makers succeeded in containing financial instability and contagion (until recently) by erecting a financial safety-net for our once crisis-prone financial system.¹³ In particular, policy makers reduced the likelihood of a system threatening financial crisis by creating an active lender of last resort that greatly reduced the threat of multiple financial failures spreading through financial markets.¹⁴ Second, the gradual triumph of countercyclical macro-policies, that worked by manipulating aggregate demand, also produced moral hazard. After the disaster of the 1930s, monetary and fiscal policies came to be directed both at keeping recessions short and mild as well as extending booms. The combined impact of these changes was to substantially reduce potential losses to financial speculation during contractions and to make financial risk-taking more profitable during expansions. This mix became a toxic brew as financial regulation began to wane. At that point, policy was inadvertently encouraging financialization along with the flourishing of high-risk, financial decision making.

The final ingredient needed to turn what had been a significant taming of the cycle into the so-called “Great Moderation” of the 1980s and 1990s was the re-emergence of the Federal Reserve as an effective anchor against inflation. The acceleration of inflation in the 1970s produced dramatic losses for financial firms that granted medium and long term credit. After the long economic expansion of the 1960s, the surge of inflation in the 1970s exposed the vulnerability of financial markets and institutions to upward movements in commodity prices, particularly in oil prices. In part, the problem was that as policy makers prolonged booms and cut short recessions they risked exacerbating nascent inflationary pressures. The re-emergence of a Federal Reserve in the early 1980s as a credible nominal anchor assuaged the fear of another inflationary outbreak. By the 1990s, the fear of a rerun of upward price instability during a prolonged boom greatly subsided. This meant the last “levy” was in place to shield financial institutions and markets from potential large losses.

II. Moral Hazard and the Lender of Last Resort

In the economics literature, the concept of moral hazard was first introduced to analyze potential flaw in insurance markets. At the most basic level, the providers of insurance protect individuals from the risk of pre-specified losses. In 1963, Arrow pointed out that there was an inherent moral hazard problem created by issuing protection against loss.¹⁵ The reason is that insurance reduces the cost of “risky behavior,” and, therefore, induces

those who are insured to be *careless if not reckless*. For example, auto insurance reduces the cost of accidents to insured motorists because these drivers no longer pay the full cost of their driving mistakes. As a result, they have less reason to maintain prudent driving habits. The perverse effect of insuring individuals against risk is a potential *increase in accidents*. To reduce the likelihood of moral hazard, insurers can require policy holders to pay a portion of their losses. By doing so, insurers reduce the incentive for those protected by insurance to behave badly.

In terms of the financial system, the standard argument is that a similar moral hazard concern is introduced every time the central bank (or other government agency) acts as a lender of last resort.¹⁶ A narrowly considered lender of last resort makes emergency loans to distressed financial institutions to try to ward off the possibility of a financial panic.¹⁷ It is conceded by economists of almost all stripes that self-fulfilling panics are a real and dangerous threat to economic stability in an interdependent financial system with inherent liquidity and solvency problems.¹⁸ Moreover, it is also recognized that a lender of last resort can be an effective instrument to prevent financial failures that usually lead to a panic.¹⁹ The supposed quandary is that moral hazard is introduced because bailouts that prevent panics inadvertently lower the ultimate cost of making high-risk financial gambles.

More specifically, moral hazard concerns are introduced as financial firms begin to *anticipate* the actions of the lender of last resort.²⁰ The reason is that once financial institutions come to expect that emergency loans will be forthcoming when a worst case scenario materializes, then they have less incentive to be cautious and may even *increase* their risk-taking. Much like the problem in insurance markets, the long-run impact of bailouts of troubled financial institutions is said to create incentives for future bad behavior. In theory, at least, such bailouts may cause even greater financial instability than they prevent. From the policy standpoint, government policy makers need to weigh the benefits gained today of any intervention—preventing a financial panic and its consequences—against the prospective future costs of inciting even more reckless speculation and the resulting cost from the need for even larger future bailouts.²¹

To minimize potential adverse side effects, rules have been suggested to guide the lender of last resort. The most widely recognized such guideline came from Bagehot, known as the “Bagehot Principle.” Bagehot argued that a lender of last resort must lend freely to those with good collateral to prevent panics, but should do so at a penalty to discourage unnecessary borrowing.²² Modern central bankers have added an addendum to Bagehot’s rule; namely, that emergency credit should be granted freely but only to those distressed financial firms that they judge to pose a risk to the stability of the *system*. As former Federal Reserve Chairman, Greenspan, testified regarding the Fed’s actions during the failure of Drexel Burnham: “Then as now, our concern was not with the fortune of a particular firm; rather it was and remains the orderly operation of financial markets because that is a prerequisite for the orderly functioning of the economy.”²³

The stability of the financial system can be threatened in a number of ways. Perhaps the classic case is if a large financial institution, one thought of as “too big to fail,” is on the precipice of collapse. These circumstances usually warrant a rescue because the initial failure has a high probability of infecting the entire interconnected financial system and starting a panic. A similar dilemma can arise if several smaller financial firms are in danger of failing and their collective demise endangers the system.

However, if a small, isolated financial institution that poses no system risk collapses, then it is likely to be liquidated or “re-organized” instead of being offered a bailout. In part, the liquidation of firms that do not pose a system risk is intended to serve as a harsh lesson aimed at discouraging reckless financial risk-taking.²⁴

There are two related problems with the conventional view outlined above. The first is that it overstates the case it makes.²⁵ It is hard to believe that financial institutions (even large ones that are “too big to fail”) will engage in imprudent behavior simply because they realize that in their hour of need they might be “rescued.” For unlike the case with private insurance markets, which cover the costs of individual “risk-taking” by providing known, predetermined payouts, the “insurance” that a lender of last resort provides is to protect the system as a whole, not its individual pieces. In practical terms, this means that the authorities can and will allow many individual firms to perish in the course of rescuing the financial system. Even those firms that are lucky enough to be “rescued” might find themselves fully or partially destroyed—remember Bear Stearns--by the “system insurance” provided from the lender of last resort.

The second, and more important, shortcoming is that the conventional view *vastly understates the nature and scope of the moral hazard problem*. Individual insurance protects financial institutions from a loss and thereby increases the incentive for risk-taking at the margin. In contrast, the system insurance offered by a modern lender of last resort is closer to the economic equivalent of what Solow likens to as the introduction of *levies on a flood plain*.²⁶ Once they are erected, effective levies greatly reduce the probability of a flood which then encourages construction that would never take place before the levies were in place. In a similar way, a lender of last resort’s system insurance reduces the probability of a system-wide financial crisis. The impact must be to transform the entire makeup of the financial system by allowing the construction of financial markets, institutions, financial practices, and products that would be unthinkable in the absence of system insurance.

To sum up, the consequence of establishing a lender of last resort that provides system insurance (as opposed to individual insurance) is that it engenders incentives for the expansion of high risk, high return financial activity.

III. The Transformation of the Business Cycle

The large moral hazard problem also has its roots in the Keynesian revolution. In the pre-Keynesian era, before the moderation of the business cycle,²⁷ frequent and long economic downturns, particularly those recessions associated with financial crises, served to discipline speculative activity. One reason was that in classical era collapses in aggregate demand were not countered by macro policy and financial crises were not contained by an effective lender of last resort. Instead, downturns and financial crises were allowed to run their course leaving a trail littered with financial failures (and near failures). In addition, expansions were routinely cut short by preventable contractions in demand and containable financial instability. Using the National Bureau of Economic Research reference dates,²⁸ in the “pre-Keynesian” (or classical era) the average length of an expansion from 1854 through 1897 was 27 months, and 23 months for the period between 1897-1933. During these two periods, contractions were almost as long, averaging 24 months from 1854 to 1897 and 20 months from 1897 to 1933. In other

words, in the classical era the average expansion was a little over two years long followed by a contraction that was nearly two years in length as well!

In terms of financial crises, they were a regular occurrence in the classical era. In the pre-World War II era, according to Bordo and Murshid, there were 11 major international financial crises starting with the crisis of 1825.²⁹ In the Post Civil War years until 1933, the U.S. had a rich history of financial disorder.³⁰ There were severe economic downturns (by Burns and Mitchell standard) associated with financial crises (by Kindleberger’s reckoning) in 1873, 1893-94, 1907-08, 1914, 1920-21, and, of course, 1929-32. In addition, there were 9 banking crises (based on Torpe and Friedman and Schwartz) in the U.S. in this period and 21 (by Morgenstern chronology) stock market crashes.³¹

During much of the classical era, the gold standard reigned and the macro-policy regime embedded in the gold standard reinforced the classical cycle. Almost by default, classical policy was focused on maintaining fixed exchange rates; the free movement of goods and capital across countries; and a rigid anchor to prevent upward price instability. The commitment to these objectives made it difficult if not impossible for policy makers to pursue effective counter cycle measures.³²

In the “Keynesian era,” in contrast, economic expansions have been much longer and contractions significantly shorter. The modern era can be divided into two periods. The first was from 1933 to 1982 and the second, the period of the so-called “great moderation” from 1982 to 2007. The great moderation followed the successful stabilization of the 1970s inflation. In the first period the mean expansion lasted 49 months or approximately *twice as long* as in the classical era and in the second, 88 months, or almost *four times as long*. The average length of the downturns was cut in half to 11 months in the first period and to only 8 months during the great moderation.

Average Duration of Expansions and Contractions in the US 1854-2007 (Months)

Period	Mean Length of Expansion	Mean Length of Contraction
“Classical” Era		
1854-1897	27	24
1897-1933	23	20
“Keynesian” Era: Period I		
1933-1982	49	11
Great Moderation: Period II		
1982-2007	88	8

Source: For the 1854-1982 see Victor Zarnowitz, *Business Cycles: Theory, History, Indicators, and Forecasting*, p. 23. After 1982, I averaged the data from the National Bureau of Economic Research to complete the table.

IV. Containing Inflation and the “Great Moderation”

The fading away of the classical business cycle and the emergence of the moderated cycle led to a potential problem—the new transformed cycle was prone to upward price

instability, or surges in price inflation.³³ Keynes recognized the issue early on. He argued that once governments adopted policies to maintain high levels of demand to moderate the business cycle, money wages would begin to increase faster than productivity growth, creating an upward bias to prices. In the post-war era, Keynes' followers tried in vain to find a practical way to constrain wage inflation to match productivity growth.

Of course, the monetarist school also recognized that there was an inherent inflationary bias to the new macro regime that emerged after the War. They argued that if government policy makers at the Federal Reserve tried to target an employment rate-growth rate that was too high (above the economy's natural employment rate and growth rate), then money growth would become excessive, leading to inflation. Their "solution" was to abandon the Keynesian project and argued that policy should be redirected to maintaining price stability instead. The reason they urged a scuttling of the Keynesian venture was their belief that the monetarist critique uncovered a fatal flaw in Keynesian policies; namely, that the Keynesians were over reaching by trying to make policy do more than it was capable of. However, they thought the more modest goal of price stability was in reach.

The nature of the inflationary threat that evolved in the post-war era did not correspond completely with either the Keynesian or monetarist prognosis. Keynes' fear of the potential adverse consequences of maintaining high levels of demand proved prescient. However, instead of demand pressure setting off wage explosions that then led to inflationary outbursts, it was *run-away commodity prices*, with oil prices taking the lead, that fed the inflation of the 1970s. Making matters worse from the Keynesian perspective, there was no practical policy options to constrain a rise in commodity price led inflation, except, of course, a return to the classical remedy of deliberately reducing demand and building up a "reserve army" of unemployed labor, idle capacity, and excess supplies of commodities.

A lack of alternatives eventually culminated in the "Volcker solution"—the use of tight monetary policy to contain inflation. The subsequent emergence of a vigilant Fed that was willing and able to provide an anchor against surges in inflation certainly eased fears that a return to 1970s style inflation was likely. It is important to note that the Federal Reserve did not permanently abandon the Keynesian project as much as amend it. Now the Fed was willing to alternate between classical and Keynesian policy. It would temporarily use tight monetary policy to contain inflation when needed and then switch to prolonging expansions and keeping recessions short and mild.

V. Conclusion

The addition of an inflationary anchor was a resounding success in the short-to-medium-term, particularly in the eyes of free market economists. Adding an inflationary anchor first resulted in containing the inflation threat and then in further moderating the business cycle.³⁴ So much so, that economists began calling and celebrating the twenty-five year period that followed Volcker's war on inflation the "Great Moderation." Of course, the real Great Moderation, as I have argued, occurred after the Great Depression with the advent of an effective financial safety net and the gradual adoption of Keynesian macro-policies. A new generation of policy makers--epitomized by Greenspan, Rubin, and Summers--came to believe that containing outbursts of inflation was the real and most

important job of policy and that most of the financial safety net was unnecessary, outmoded and, in the name of reform, needed to be removed. What they did not appreciate is the large moral hazard problem they were creating by deregulating financial markets in an environment with greatly reduced system risks. In the end this combination proved disastrous, bringing into existence our bubble economy.

Endnotes

1. The IMF has done a very good job of tracking and analyzing the current crisis. In their latest *World Economic Outlook* they sum up the crisis as follows: “The global economy is a severe recession inflicted by a massive financial crisis and an acute loss of confidence.” IMF, *World Economic Outlook*, p. 1. In chapter 3 of their report they uncover three stylized facts concerning recessions in the post-World War II era: 1)Over the last two decades recessions have moderated becoming shorter and milder while expansions have become longer; 2)Recessions associated with financial crises have been longer and deeper and recoveries from them slower and weaker; and 3)Highly synchronized recessions have been longer and deeper and recoveries from them weaker. The current “Great Recession” is, by the IMF’s calculations, the most highly synchronized recession and the one associated with the worst financial crisis since the Great Depression. See *ibid*, p. 104. Also see Eichengreen and O’Rourke’s comparison between the Great Recession and Great Depression. They find that in terms of world industrial production, stock prices, and the volume of trade the Great Recession, as of June, is very comparable to the 1930s collapse. See Barry Eichengreen and Kevin H. O’Rourke, “A Tale of Two Depressions,” *Voxeu*, June 4, 2009.

2. See his collection of essays under that title, Hyman P. Minsky, *Can “It” Happen Again?*, (Armonk, NY: M.E. Sharpe, 1982). His original article, “Can “It” Happen Again?,” can be found in Deane Carson, ed., *Banking and Monetary Studies*, (United States Office of the Comptroller of the Currency, 1963).

3. The phrase is the sub-title of the first chapter of Kindleberger’s classic on the subject. See Charles P. Kindleberger, *Manias, Panics, and Crashes: A History of Financial Crises*, (New York: Basic Books, 1978), p. 3.

4. Lawrence Summers view is a good example of the conventional thinking that the crisis as just another financial crisis, though more severe. Summers writes: “Economic downturns historically are of two types. Most of those in the post-World War II-America have been a by-product of the Federal Reserve’s efforts to control rising inflation. But an alternative source of recessions comes from spontaneous correction of financial excesses: the bursting of bubbles, de-leveraging in the financial sector, declining asset values, reduced demand, and reduced employment.” Later he describes what led to the current crisis: “An abundance of greed and an absence of fear on Wall Street led some to make purchases—not based on the real value of assets, but on the faith that there would be another who would pay more for those assets. At the same time, the government turned a blind eye to these practices and their potential consequences for the economy as a whole. This is how a bubble is born. And in these moments, greed begets greed. The bubble grows.”

“Eventually, however, this process stops—and reverses. Prices fall. People sell. Instead of an expectation of new buyers, there is an expectation of new sellers. Greed gives way to fear. And this fear begets fear.” See Lawrence Summers, “On the Economic Crisis and Recovery,” Brookings Institution, March 13, 2009. Krugman’s view is similar—a toxic mix of deregulation (he stresses the Garn-St. Germain Depository Institutions Act of 1982) and a bubble. He adds an additional element; namely, that there was a savings-glut (from China and elsewhere) that made the bubble possible. See Paul Krugman, “Reagan Did It,” *The New York Times*, June 1, 2009.

5. See Fredric S. Mishkin, “Asymmetric Information and Financial Crises: A Historical Perspective,” pp. 69-108 in Glenn Hubbard ed., *Financial Markets and Financial Crises* (Chicago: The University of Chicago Press, 1991). Mishkin argues that it is possible to distinguish between “real” and “pseudo” financial crises based on a host of financial data, including stock prices, interest rates, and, most importantly, risk spreads. Using these criteria he found six severe recessions associated with “real” financial crises from 1850 to 1940—1857-1858, 1873, 1893, 1907, 1929-1933, and 1937-1938. From 1940 to 1990 he found only *two* periods where the degree of financial distress had risen to the level where it had the *potential* to trigger a financial panic—1970 (the Penn Central affair) and 1987 (the stock market crash)—before effective intervention by the Federal Reserve put an end to them. Perhaps, the 1990-1991 recession, 1998 (the failure of Long Term Capital Management) and the crash of 2001 can be similarly characterized as potential financial crises that were arrested by intervention. From this perspective the likes of the current crisis has not been seen in *seventy years*.

6. I am referring to the process described in the literature as financialization or financial-led capitalism. Financialization is defined by Epstein as “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operations of the domestic and international economies.” See Robert Guttman, “A Primer on Financial-Led Capitalism and its Crisis,” *Revue de la Regulation*, no. 3/4, 2e Semestre 2008: varia.

7. Examples of disaster myopia abound. In retrospect, the risks taken by Bear Stearns, Lehman Brothers, Merrill Lynch, Citibank, AIG, and smaller firms such as Wachovia, and WaMu were clearly excessive by any prudent standards.

8. See Robert J. Shiller, *Irrational Exuberance*, (Princeton: Princeton University Press, 2000).

9. There have been other mechanisms suggested that, at least in theory, could check reckless speculation. Milton Friedman argued in making his case for flexible exchange rates that stabilizing speculators could profitably trade against their destabilizing counterparts. Modern free market theorists believe that monitoring by counterparties, depositors, and other affected parties could constrain reckless speculation.

10. Prior to the Keynesian revolution and the catastrophe of the Great Depression, there was a liquidationist school that sung the praises of economic collapses that led to large-scale failures. This school included Hayek, Schumpeter, and top officials at the Federal Reserve. They argued that downturns were necessary to repair the macro-economy and create the conditions for a healthy recovery. In fact, Hoover’s Treasury Secretary, Mellon, advised the President at the start of the Great Depression to liquidate. Hoover recounted the following: “The ‘leave-it-alone liquidationists’ headed by Secretary of the Treasury Mellon felt that government must keep its hands off and let the slump liquidate itself. Mr. Mellon had only one formula: ‘Liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate’. He held that even panic was not altogether a bad thing. He said: ‘It will purge the rottenness out of the system. High costs of living and high living will come down. People will work harder, live a more moral life. Values will be adjusted, and enterprising people will pick up the wrecks from less competent people.’” Quoted in J. Bradford DeLong, *Slouching Towards Utopia?: The Economic History of the Twentieth Century* Unpublished, 1997, Chapter XIV, “The Great Crash and the Great Slump.”

11. I am arguing that one of Keynes' most important contributions to economic policy making was his implicit reasoning that the business cycle could be thoroughly recast by macro-policy. In the US, for the most part, monetary policy has been the main policy used to end recessions. See Christina D. Romer and David H. Romer, "What Ends Recessions?" NBER *Macroeconomics Annual*, Vol. 9, 1994, pp. 13-57. Discretionary fiscal policy has turned into the stimulus policy of last resort when monetary policy is inadequate. Of course, economists have wrongly down played the role of "automatic" fiscal policy, which can be quite significant, as Krugman has pointed out.

12. For a synopsis of the term moral hazard, see William Safire, "On Language; Moral Hazard," *The New York Times*, December 20, 1998. Safire states that the term originated in the insurance industry and then was transported into the economics literature by Kenneth Arrow in the early 1960s. Arrow was asked by the Ford Foundation for an analysis of the economics of the medical care industry. Arrow told Safire that: "It struck me immediately that one problem with insurance was that the user (the patient) was not required to pay the full cost (indeed only a relatively small fraction of it). Therefore, according to usual economic principles, the patient would use medical care excessively." "It came back to me that the insurance industry had already recognized this problem and had used the term moral hazard for it. The simplest example is burning down one's house to collect insurance, an act that might clearly be regarded as immoral -- less immoral if one had been slightly less careful in putting candles out." By the early 1980s the term began to be used to describe the potential adverse impact of a bail out on risk-taking. "Now it's applied in a wide variety of fields, including in the last 15 years to the behavior of banks when they have reason to believe that they will be bailed out if they get into trouble." Although the term has been used in this context for only a few decades, the problem was well understood for quite some time. In fact, Thornton raised the issue in his 1802 classic *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*. For example, he wrote: "It is by no means intended to imply, that it would become the Bank of England to relieve every distress which the rashness of country banks may bring upon them: the bank, by doing this, might encourage their improvidence." Quoted by Charles Goodhart and Gerhard Illing, "Introduction" in Charles Goodhart and Gerhard Illing, eds, *Financial Crises, Contagion, and the Lender of Last Resort: A Reader*, (Oxford: Oxford University Press, 2002), p. 7.

13. See any of Minsky's papers on endogenous, financial fragility.

14. I am using the term lender of last and financial safety net in a broad sense that includes the entire policy regime at work used to prevent and extinguish financial instability. That regime includes the provision of emergency credit; financial regulation and supervision aimed at protecting the financial system from a system-wide failure; deposit insurance; and ad hoc policies that arise to deal with insolvent (and those threatened with insolvency) financial institutions (like TARP) that threaten financial stability. See Xavier Freixas, Curzio Giannini, Glenn Hoggarth, and Farouk Soussa, "Lender of Last Resort: A Review of the Literature," in Charles Goodhart and Gerhard Illing, eds, op. cit, p. 30.

15. In Arrow's 1963 paper he was concerned with the market for medical services, but he understood it was a general problem with insurance markets. See Kenneth J. Arrow, "Uncertainty and the Welfare Economics of Medical Care," *American Economic Review*, December 1963, Vol. 53, No. 5, p. 961.

16. The term lender last resort originated with Francis Baring in 1797, given theoretical justification by Thornton in 1802, and then expanded and popularized by Bagehot in 1873. For a useful survey of the lender of last resort, see Xavier Freixas, Curzio Giannini, Glenn Hoggarth, and Farouk Soussa, "Lender of Last Resort: A Review of the Literature," in Charles Goodhart and Gerhard Illing, eds, op. cit, pp. 27-56.

17. There are those who argue that lender of last resort protection should only be given to *solvent* firms experiencing liquidity problems. In practice, however, it is impossible in a crisis to distinguish between solvent and insolvent institutions. Moreover, a solvent institution can be made insolvent by a run that forces it to liquidate its assets at fire sale prices. In any case, in terms of preventing a panic, it matters little whether the precipitating failures are the result of insolvency problems or not. Goodhart argues that believing it is possible to distinguish between illiquid and insolvent institutions in a crisis is a myth. See Charles Goodhart, "Myths about the Lender of Last Resort," in Charles Goodhart and Gerhard Illing, eds, op. cit, p. 229.

18. A self-fulfilling panic can start with a run on a financial institution. The simplest model of a run assumes that an individual with funds at risk will withdraw their monies (run) if they fear that others in a similar position might withdraw their funds. The reason is that each player with funds at stake recognizes that if enough individuals withdraw this will make the institution insolvent. This impulse is magnified by the fact that payouts are on a first-come, first-served basis. If a run starts, everyone is aware that can avoid losses only if they withdraw first. As one and all head for the exit, the run brings on the problem feared. The failure (or near failure) created by an initial run can lead to a panic (multiple runs) via a contagion effect. As fear of impending disaster spreads, others with money at risk pull their funds and the problem snowballs. Of course, the best way to stop a panic is to prevent the initiating financial failure. In the words of Bagehot: "In wild periods of alarm, one failure makes many, and the best way to prevent the derivative failures is to arrest the primary failure that causes them . . ." Quoted by George G. Kaufman, "Lender of Last Resort: A Contemporary Perspective," Research Papers of the Research Department, Federal Reserve Bank of Dallas, April 1990, No. 9008, p. 3.

19. The exception to this view is the so-called "free banking school," that claims that banks can manage their own liquidity and do not require a lender of last resort. Even orthodox monetarists believe in a limited role for a lender of last resort. They argue that a central bank is needed in a liquidity crisis to expand high powered money to prevent a decline in the money supply. However, they argue that it is not necessary for a central bank to grant individual loans to troubled institutions because the inter-bank market will distribute any needed funds to solvent, liquidity-strapped, financial institutions. This is called the "money view." See, Goodhart and Illing, "Introduction," in Charles Goodhart and Gerhard Illing, eds, op. cit, p. 2.

20. Kindleberger sums up the problem well: "Markets generally work, but occasionally they break down. When they do, they require government intervention to provide the public good of stability . . . [But] if the markets know in advance that help is forthcoming under generous dispensations, they break down more frequently and function less effectively . . ." Quoted by Kaufman, "Lender of Last Resort: A Contemporary Perspective," op. cit., p. 19.

21. Summers calls those who insist that the future costs of any bailout must be greater than any benefit obtained from preventing a financial panic “moral hazard fundamentalists.” See Lawrence Summers, “Beware Moral Hazard Fundamentalists,” *Financial Times*, September 23, 2007. A recent example of this perspective is Thomas F. Cooley, “Moral Hazard on Steroids,” in *Forbes.Com*, March 11, 2009. Cooley writes: “The basic idea of moral hazard is pretty simple: If you protect people or firms against risk, you encourage the taking of more risk. How should we deal with this issue? By allowing firms that take too much risk to suffer the consequences--and by charging the insured for the protection.” In a later edition of *Mania’s Panics, and Crashes*, Kindleberger and Aliber discuss the moral hazard problem as the modern reason behind the “do nothing” position. They write: “The primary rationale for noninterference is the moral hazard that the more interventionist the authorities are with respect to the current crisis, the more intense the next bubble will be, because many of the market participants will believe that their possible losses will be limited by government measures.” Charles P. Kindleberger and Robert Aliber, *Manias, Panics, and Crashes: A History of Financial Crises*, 5th edition (Hoboken, New Jersey: Wiley, 2005), pp. 203-204.

22. To quote Bagehot: “First. That these loans should only be made at a very high rate of interest.” “Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them.” Walter Bagehot, “A General View of Lombard Street (Excerpts),” in Goodhart and Illing, eds, *Financial Crises, Contagion, and the Lender of Last Resort: A Reader*, op. cit., p. 71.

23. Quoted by Kaufman, “Lender of Last resort,” op. cit., p. 17.

24. There are two differing perspectives on financial crises. Following Friedman and Schwartz’s analysis of the depression, monetarists have argued that real financial crises develop out of banking panics. Banking panics produce real financial crises because they have a macro impact by reducing the money supply. To prevent the money supply from contracting, monetarists argue that the central bank needs to conduct open market operations to increase the supply of base money. Following this view to its logical conclusion, Schwartz famously argued that all other episodes of financial distress are pseudo financial crises that do not warrant a policy response. She states: “No financial crisis has occurred in the United States since 1933, and none has occurred in the United Kingdom since 1866. All the phenomena of recent years that have been characterized as financial crisis—a decline in asset prices of equity stocks, real estate, commodities; depreciation of the exchange value of a national currency; financial distress of a large non-financial firm, a large municipality, a financial industry, or sovereign debtors—are pseudo-financial crises.” See Anna J. Schwartz, “Real and Pseudo-financial Crises,” in Forrest Capie and Geoffrey E. Wood, eds., *Financial Crises and the World Banking System* (New York: St. Martin’s Press, 1986), p. 12.

In contrast, the tradition that comes out of the work of Minsky and Kindleberger argues that financially-sophisticated capitalist economies have inherent financial instability problems. Business cycle expansions, particularly those accompanied by “manias,” create a fragile debt structure that can come apart if shocked by adverse events during a downturn. From this perspective, real financial crises can be sparked by banking panics but also by collapses in asset prices; failures of firms, particularly large interconnected financial firms; deflations and even disinflations; deep recessions; large-scale defaults; and significant changes in currency values, to name the most obvious

cases. Once started, they disrupt the financial system and have a macro impact by leading to a collapse in aggregate demand and initiating a host of possible vicious circles, the most famous of which was Fisher's debt-deflation. Of course, the Minsky-Kindleberger view of what constitutes real financial crises leads to a policy perspective that supports a real financial safety net and a broad lender of last resort to counter financial instability.

In an interesting article, Mishkin tries to bridge the gap between the two by providing theoretical and empirical support for the Minsky-Kindleberger view. He argues that asymmetric information problems embedded in financial markets make them susceptible to a variety of shocks. Mishkin then shows that both the timing and nature of 19th and 20th century financial crises fit the broader Minsky-Kindleberger perspective. See Fredric S. Mishkin, "Asymmetric Information and Financial Crises: A Historical Perspective," in Glenn Hubbard, ed., op. cit., pp. 69-108.

25. Goodhart calls it a myth to believe the moral hazard problem, as conventionally theorized, is a pervasive and significant policy problem. He States: "The third myth is that moral hazard is everywhere and at times a major consideration." Charles Goodhart, "Myths about the Lender of last Resort," in Charles Goodhart and Gerhard Illing, eds, op. cit, p. 238.

26. See Robert Solow, "On the Lender of Last Resort," in Charles P. Kindleberger and Jean-Pierre, eds., *Financial Crises: Theory, History, and Policy*, (Cambridge: Cambridge University Press, 1982, pp. 237-248. Solow writes: "Moral hazard, however, is not confined to ordinary insurance situations. It has been argued recently that the building of levies or dikes may increase the amount of flood damage. The mechanism is similar: In the absence of levies, no one would dare to build in a flood plain. There would be many floods, but little damage each time. When levies are built, people crowd closer to the river. Floods occur very rarely, but cause much more damage when they do occur. This case differs from fire insurance in one respect; there the availability of insurance can be expected to increase the incidence of fires, whereas here the physical incidence of floods decreases, but the damage per incident rises." Solow concludes that: "The effect of the lender of last resort is something of a mixture. The number of bad debts will rise, like the number of fires. But the number of financial crises will be reduced, like the number of floods." Ibid., p. 243.

27. By business cycles, I mean what Burns and Mitchell defined as: ". . . a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; the sequence of changes is recurrent but not periodic; in duration cycles vary from more than one year to ten or twelve years . . ." Quoted by A. W. Mullineux, *Business Cycles and Financial Crises* (Ann Arbor: University of Michigan Press, 1990), p. 1. Or simply: "the observed pervasive and persistent nonseasonal fluctuations in the economy." Victor Zarnowitz, *Business Cycles: Theory, History, Indicators, and Forecasting* (Chicago: The University of Chicago Press, 1992), p. 1.

28. There is a big controversy as to whether or not the differences in the data series before and after World War II are due to real differences in the business cycle or simply a "figment of the data." The latter position has been argued by Christina Romer,

“Is the Stabilization of the Postwar Business Cycle a Figment of the Data?” *American Economic Review*, Vol. 76, No. 3, 1986, pp. 314-334.

29. Michael D. Bordo and Panini Murshid, “Are Financial Crises Becoming Increasingly More Contagious? What is the Historical Evidence on Contagion?” Rutgers University, August 14, 2000, p. 8. They state that: “The key crisis years before World War II were the following: 1825, 1837-38, 1847, 1857, 1866, 1873, 1890-93, 1907-1908, 1914, 1920-21, and 1929-33.”

30. The U.S. experienced much greater financial distress than found in other countries over this period. There are various reasons given.

31. This data is compiled by Michael D. Bordo, “Financial Crises, Banking Crises, Stock Market Crashes and the Money Supply: Some International Evidence, 1870-1933,” in Forrest Capie and Geoffrey E. Wood, eds. *Financial Crises and the World Banking System* (New York: St. Martin’s Press, 1986), pp. 204-205.

32. See Barry Eichengreen, *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939* (New York: Oxford University Press, 1992) and Paul Krugman, *The Return of Depression Economics and the Crisis of 2008*, (New York: W.W. Norton & Company, 2009). Krugman argues that over the last forty years most high income nations chose to keep free and open markets and the right to use policy to combat domestic recessions and gave up the goal of maintaining fixed exchange rates. He calls this the “Keynesian compact.” If so, during the gold standard there was a “classical compact.” The nations on the gold standard gave up their ability to use policy to moderate recessions in exchange for the benefits of fixing their currencies to gold.

33. The classical cycle was prone to downward price instability, by way of prolonged bouts of deflation.

34. See Ben S. Bernanke, “The Great Moderation,” Remarks at a Meeting of the Eastern Economic Association, Washington, D.C. February 20, 2004. Bernanke argues that there are three competing explanations for the Great Moderation. First, that “structural change” is responsible. Structural change consists of things like better inventory control systems. Second, that the change in money policy caused the moderation of the cycle. This is the explanation he favors. And three, that luck, or a lack of significant shocks, was the reason for the decline in price and GDP volatility. Bernanke’s case for explanation number two is that monetary policy in the 1970s was misguided because policy makers were too optimistic about the possibility of restoring growth and too pessimistic about their chances of containing inflation. As a result they adopted policies that were too expansionary. Volcker got it right and managed to shift in the Taylor Curve—a Phillips-like curve that shows the tradeoff between volatility in price inflation and volatility in output—leading to the Great Moderation.