The Causes of the 2007-2008 Financial Crisis

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The Financial Crisis of 2007-2008

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ABSTRACT

The financial crisis of 2007-2008 has caused economic disruption on a scale not seen since the Great Depression. If further financial crisis are to be avoided, it is necessary to examine the causes of this financial crisis. In this financial crisis, the party found most responsible for causing the crisis is the financial industry itself. Credit rating agencies operating under a flawed incentive structure, mortgage companies focused on fee-generated income determined by the quantity of sold mortgages, and the overconfident banking industry all played their part in causing the financial crisis. While

the government was found to have contributed to the crisis, this fact should not detract from the near total responsibility of the financial industry in causing the crisis. In allowing the financial industry to partly regulate itself, however, the federal government failed to provide a safe and sound financial system. A deregulatory philosophy informing government action, policies designed to increase homeownership, and an outdated regulatory framework unable to contend with modern financial markets all contributed to the financial crisis.

Professor Richard Coe

Division of Social Sciences

Introduction

The Financial Crisis of 2007-2008 has been one of the worst financial crises ever experienced in the United States. Drawing comparisons with the Great Depression, this financial crisis has left many Americans homeless, jobless, and highly indebted. If crises such as this are to be avoided in the future, the origins of this financial crisis must be examined and its causes uncovered. Only through addressing the causes of the crisis can America construct a more secure financial system.

With this in mind, this paper assesses many of the different causes commonly purported to have caused the financial crisis. These often interdependent causes are manifold and only through analyzing these component parts separately can the story of the financial crisis be told. Beginning with the financial industry, the roles of the credit rating agencies, the often untoward mortgage companies, and the banking industry commonly vilified as Wall Street are all examined in their various roles in having spawned the crisis. The role of the Federal Government in having contributed to the financial crisis is examined next with a particular focus on the role of the Federal Reserve, the legislation that has set the stage for the financial industry and its near collapse, as well as the government's housing policy made manifest in the government-sponsored-entities, Fannie Mae and Freddie Mac.

Chapter 1: The Financial Industry

The Credit Rating Agencies –

One essential actor in the financial industry that played an integral role in the financial crisis was the credit rating agencies. Credit rating agencies are meant to provide investors around the globe with an accurate analysis of the risk associated with debt securities.[1] While there are many credit rating agencies, three in particular dominate the market. Standard and Poor, Moody's Investor Service, and Fitch's Ratings hold a combined market share of around 95%. Both Moody's and Standard and Poor hold 40% each, while Fitch made up the other 15%.[2] These three rating agencies are granted special status by the Securities and Exchange Commission, the SEC, as Nationally Recognized Statistical Rating Organizations, or NRSROs. Their special status allows them to dominate the bond rating market. Credit rating agencies have three functions: to measure the credit risk of the issuer, to provide a means of comparison and to provide a common standard.

The four highest rating categories are termed "investment grade". Ranging from AAA to BBB-, these high ratings are a requisite for investment for many entities. The regulatory regime requires or encourages entities such as brokers, dealers, money market mutual funds, pension funds and many others to purchase financial instruments rated

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[1] Allesi, Christopher, Roya Wolverson, Mohammed Aly Sergie. "The Credit Rating Controversy". Council on Foreign Relations. October 22, 2013.

[2] Hill, Claire A. (2002), "Rating Agencies Behaving Badly: The Case of Enron", *Conn. L. Rev.* 35, 1145

investment grade.[3] A credit rating is an assessment of a fixed income security. The rating reflects the likelihood of a lifetime default on a security and can be changed over the course of the bond's life. [4]

The rating agencies play an essential role in the bond market as a result of the privileged information that they have access to on securities and their issuers. As investors are often unable or unwilling to obtain information relating to their potential investments, they rely on the rating agencies to ascertain the risk involved in their investments. The purpose of the credit rating agencies is thus to help pierce the fog of asymmetric information by offering opinions about the credit quality of bonds issued.[5] It is therefore essential that the ratings constructed accurately reflect the nature of the debt instruments being rated. If the ratings are in anyway corrupted, the true value of debt securities being traded daily cannot be accurately assessed. This can lead to a lack of confidence in the market that can trigger a fire-sale of debt securities causing widespread financial turmoil.

One problem with the incentive structure surrounding the rating agencies originated with the decision to switch the method by which the agencies generated revenue. In the 1970s, the ratings agencies abandoned the method of payment based on subscription to their publications instead choosing to charge the issuer of the bonds that

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[3] Ibid

[4] Ashcraft, Adam, Paul Goldsmith-Pinkham, James Vickery. "MBS Ratings and the Mortgage Credit Boom". Federal Reserve Bank of New York Staff Reports. May 2010.

[5] White, Lawrence J. "Markets: The Credit Rating Agencies". Journal of Economic Perspectives, Vol. 24, No. 2 (Spring 2010), pp. 211-226.

they were rating directly.[6] No longer accountable to the subscribers who would rely on their assessments to determine whether a given debt security was worthy of investment, the rating agencies were now in the pay of debt issuers. The conflict of interest occurs as the agencies are incentivized to provide unduly favorable ratings, especially to large issuers who bring, and could potentially take away, substantial revenues.[7]

The incentive to provide high ratings to large issuers was especially hazardous in the market for private mortgage-backed securities. The top five issuers of private mortgage-backed securities in 2006, Countrywide, General Motors, Bear Stearns, Lehman and IndyMac, controlled a market share of 39%.[8] It is interesting to note that all five issuers failed in the ensuing financial crisis. The dominance of these large issuers indicates that they had significant dominance over the rating agencies.[9] Such dominance is a hindrance to the ability of the rating agencies to provide fair and honest assessments of the debt that they rate.

In many ways the decision to end the subscription-based model was an inevitable result of new technologies. One hypothesized reason for this switch is that the rise of photo copying technology would contribute to a free-rider problem wherein investors would avoid paying the subscription to the rating agencies by obtaining free copies from

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[6] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010.

[7] He, Jie, Jun Qian, Philip E. Strahan. "Credit Ratings and the Evolution of the Mortgage-Backed Securities Market". The American Economic Review, Vol. 101, No. 3

[8] Ibid

[9]Ibid

their friends. This would diminish the revenue of the rating agencies and impede their ability to function in an industry that has great demand for their services. The reason behind the switch to charging the bond issuer directly is also hypothesized to be that it took some time for the rating agencies to realize that financial regulation mandated that bonds were required to have their stamp of approval.[10] Once they realized their powerful position in the market, they realized that bond issuers would be willing to pay for the privilege of being rated.

Regardless of the reason for the switch to the business model of charging the bond issuer directly, the skewed incentives of the rating agencies were eventually taken advantage of by the issuers of debt securities. Debt issuers realized that only two of the three ratings agencies were required to provide investors with assurances about the integrity of the financial product they were buying. This created a competition between the ratings agencies as the vied for a greater portion of market share. Sellers of rated bonds were thus able to shop for the particular rating that they wanted. An example of the pressure on the ratings agencies to give the ratings desired by bond issuers can be seen in this email from UBS banker Robert Morelli to an analyst from Standard and Poor, "Heard your ratings could be 5 notches back of moddys [sic] equivalent," he wrote. "Gonna kill your resi biz. May force us to do Moodyfitch only…"[11]

One of the errors made in the running of the credit rating agencies was the decision to begin rating structured financial products. These products included mortgage-

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[10] White, Lawrence J. "Markets: The Credit Rating Agencies". Journal of Economic Perspectives, Vol. 24, No. 2 (Spring 2010), pp. 211-226.
[11] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010.

backed securities, off-balance-sheet vehicles, derivatives, and others. The rating agencies deemed many of these structured products AAA for several years during the housing boom only to downgrade these products to below investment grade as the housing market collapsed. In the case of Moody's, the structured finance division of their business experienced explosive growth. In 1998, the structured finance division was responsible for around 28% of the firm's revenues. By 2006 this portion had risen to 43%, a year in which revenues from structured finance outweighed all revenues earned in 2001.[12] In 2006 alone, Moody's put its triple-A stamp of approval on 30 mortgage-related securities every working day. An impressive total of 45,000 mortgage-related securities were rated AAA by Moody's from 2000-2007. To give an idea of the extent to which these new products dominated the focus of the rating agencies, only six private-sector companies could claim the coveted AAA rating as of 2010.[13] Given the inexperience of the rating agencies in dealing with these innovative financial products, caution should have tempered the enthusiasm for issuing high ratings to nebulous financial products.

As could reasonably be expected, ratings given to mortgage-backed securities were overly optimistic. This is especially true for those securities issued in the lead-up to the crash. As of June 2009, approximately 90% of the collateralized debt obligation tranches that had initially received a rating of AAA by Standard & Poor's and were issued between 2005 and 2007 had been downgraded. Furthermore, 80% of these CDO tranches had been downgraded below investment grade.

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[12] Shorter, Gary and Michael V. Seitzinger. "Credit Rating Agencies and Their Regulation". Congressional Research Service. September 3, 2009.
[13] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Given the niche position afforded the rating agencies by their status as NRSROs, as well as the large portion of the market share that this afforded them, these agencies played an essential role in the financial industry. With the perversion of their incentive structure from a subscription based model to an issuer pay model, the rating agencies made themselves vulnerable to an erosion of fair and unbiased assessments. With the burgeoning new field of rating structured financial products, specifically mortgage debt, the rating agencies found themselves doing more and more business in an untested and uncertain field in which they had no experience. Given the heightened optimism that pervaded financial markets in the lead up to the crisis, the rating agencies distributed high ratings in a boom with little thought to how things would turn up when boom turned to bust. In this way, "the failures of the credit rating agencies were essential cogs in the wheels of financial destruction."[14]

Mortgage Companies –

That the mortgage industry was central to the financial crisis is indisputable. Mortgages of dubious quality, subprime mortgages, were made to borrowers lacking the means to pay the loans back. A moral hazard on the part of mortgage originators led to lax standards for lending criteria. These loans were then securitized and distributed throughout financial markets via a nebulous process known as mortgage securitization. With the eventual bursting of the housing bubble, the mortgage-backed securities became worthless and investors everywhere were left holding worthless, or toxic, assets.

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[14] Ibid.

Subprime lending is a segment of the mortgage market that accommodates borrowers with poor credit scores who would ordinarily be denied credit.[15] From a certain perspective, subprime lending is a useful tool that affords many borrowers the opportunity of homeownership that would otherwise be denied to them. The alternative perspective is that subprime lending is hazardous in that borrowers of subprime loans are charged excessive interest that will likely place them in eventual default[16]. Subprime borrowing was responsible for the increase in home ownership rates and the demand for housing during the real estate bubble. Home ownership rates rose from 64% in 1994 to an all-time high of 69.2% in 2004.[17] The increase in demand for housing that resulted from the availability of subprime loans drove housing prices skyward. Between 1997 and 2006, home prices rose an astounding 124%.[18] Fueled by this bubble, the number of subprime loans rose as rising real estate values led to increased risk taking by investors. Wall Street encouraged this excessive risk taking by bundling these individual loans into securities that were then sold to investors.[19]

Subprime lending was responsible for a massive portion of mortgage lending in the lead-up to the crisis. The share of subprime mortgages rose from 9% in 1996 to over 20% in 2006.[20] In 2006 alone, over $600 billion of subprime loans were originated. The following table published by the Financial Crisis Inquiry Commission demonstrates the drastic rise and fall of subprime lending.

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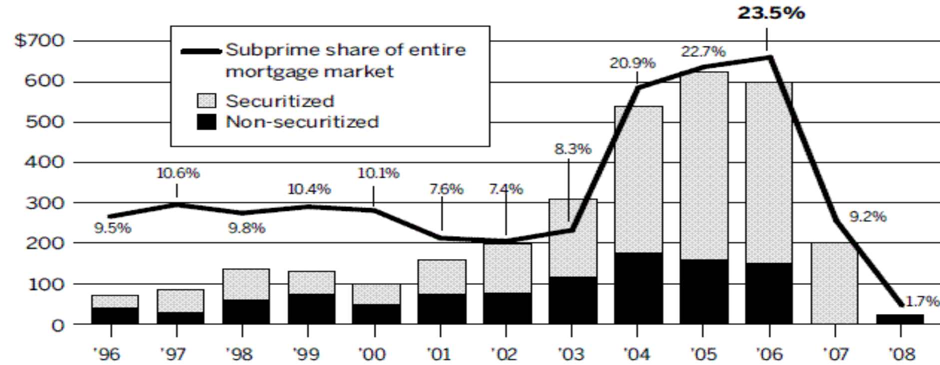
[15] Tashman, Heather M. “The Subprime Lending Industry: An Industry in Crisis”, 124 BANKING L.J. 407, 407 (2007).
[16] Ibid
[17] Bianco, Katalina M. “The Subprime Lending Crisis: Causes and Effects of the Mortgage Meltdown”. CCH Catalogue (Wolters Kluwer Law & Business, New York).
[18] Ibid
[19] Ibid
[20] Ibid



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With over one fifth of mortgages being of inferior quality in 2006, it is reasonable to assume that the prevalence of subprime lending in the mortgage industry would have undermined the stability of the financial industry as a whole. This is especially true given that subprime loans were traded alongside prime loans in packages of mortgage-backed securities. With loan packages of indeterminate quality, investors were unable to ascertain the value of the mortgage-based assets that they purchased. These financial innovations had resulted in financial products so complex and opaque they were unable to be priced correctly. When the boom ended, these products lost all liquidity and investors were left holding worthless assets that no one wanted. [22]

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[21] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[22] Crotty, James. “Profound Structural Flaws in the US Financial System That Helped Cause the Financial Crisis”. Economic and Political Weekly

The inferior quality of subprime mortgages is indisputable. The foreclosure rates on subprime mortgages have historically been around ten times higher than the foreclosure rates on prime mortgages.[23] The high rates of delinquency and foreclosure associated with subprime mortgages is in part the result of predatory lending. In many cases, mortgage brokers knowingly misled borrowers. In doing so, mortgages were created which the borrowers could not afford. According to a report published by the Center for Responsible Lending, one in five subprime mortgages made between 2005 and 2006 will likely go into default. 1.1 million homeowners that took out these loans during this period will lose their homes for and estimated cost of $74.6 billion.[24]

Mortgage brokers played an essential role in fueling subprime lending. Mortgage brokers are essentially intermediaries between borrowers and lenders. In the subprime market, independent mortgage originators became the primary channel of loan origination.[25] As their income is earned through the fees generated with each mortgage originated, mortgage brokers have only a passing incentive in whether a borrower has the capacity to pay back a loan. This lack of incentive is the moral hazard of mortgage originators.

The moral hazard of mortgage originators contributed to an almost exclusive focus on fee generated income for mortgage companies. The quality of the mortgages was irrelevant; all that mattered was the quantity. It was found that in the example of mortgage origination company New Century Financial Corporation, brokers earned

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[23] Holt, Jeff. "A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper" The Journal of Business Inquiry 2009, 8, 1, 120-129

[24] Tashman, Heather M. "The Subprime Lending Industry: An Industry in Crisis", 124 BANKING L.J. 407, 407 (2007).

[25] Berndt, Antje, Burton Hollifield, Patrik Sandås. "The Role of Mortgage Brokers in the Subprime Crisis." National Bureau of Economic Research. NBER Working Paper Series. July 2010.

average revenue of $5,300 per funded loan.[26] Perverse incentives led to a situation in which the greatest profits were often earned from originating the riskiest mortgages. Loans associated with higher profits for brokers had a greater risk of future delinquency. When these profits were the result of fee-generated income, the risk of future delinquency rose even further.[27] This indicates that in the lead-up to the financial crisis the incentives of mortgage brokers did not encourage them to ensure the quality of the loans they originated.

The practices of the mortgage-originator Ameriquest provide insight into the culture that permeated the mortgage industry in the lead-up to the crisis. Loan officers were frequently fresh out of high school enticed by the ability to earn as much as $40,000 a month.[28] Ameriquest hired corporate educator Christopher Cruise to train loan officers in mortgage origination. Cruise taught them: "You had no incentive whatsoever to be concerned about the quality of the loan, whether it was suitable for the borrower or whether the loan performed."[29]

Ameriquest rose to dominate the subprime lending industry. In 2003, Ameriquest alone originated $39 billion in subprime loans.[30] This lending was mostly the result of refinancing that allowed borrowers to take out cash against the value of their homes. The process of refinancing, however, included hefty fees that stripped away the equity that

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[26] Ibid

[27] Ibid

[28] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010

[29] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[30] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010

these homeowners had built. As Ameriquest had no intention of retaining the mortgages on its books, these hefty fees were how the mortgage originator generated revenues.

Ameriquest was eventually investigated by a group of attorneys general prompted by the overwhelming volume of complaints from consumers. One of these investigators was Prentiss Cox, former attorney with the Minnesota attorney general's office. The predatory practice of the subprime industry were first made apparent to Cox when a consumer complained that they had paid 20% of the loan amount in fees.[31] The national investigation of Ameriquest revealed that Ameriquest participated in numerous predatory lending practices. These included: inflating home appraisals, increasing the interest rates on borrowers' loans or switching their loans from fixed rate to adjustable rate at closing, as well as assuring borrowers that they could refinance their costly loans to loans with improved terms in as little as a few months despite the fact that the borrowers wouldn't have any equity to finance the cost of fees associated with the refinance.[32]

Another of the largest lenders of subprime mortgages was the mortgage originator Countrywide Financial. Countrywide Financial was one of the adopters of the originate-to distribute model of lending. The primary business strategy was to construct mortgages that it would be able to sell in the secondary market. The company sold or securitized 87% of the $1.5 trillion in mortgages that it had originated between 2002 and 2005.[33] In originating the massive volume of mortgages, Countrywide Financial frequently engaged in fraudulent practice. Investigators within the company itself found 5,000 instances of

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[31] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010.
[32] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[33] Ibid

potentially fraudulent activity in 2005, 10,000 instances in 2006 and 20,000 instances in 2007.[34]

Much of the breakdown in the incentive structure for lenders is the result of a shift from a typical banking model to an originate-to-distribute model. Historically, a bank would originate a loan and then hold onto the loan until that loan reached maturity. With the growing complexity of financial markets, however, banks could opt to sell the loans that they had originated. The originate-to-distribute model leads to an inevitable diminishing of lending standards. If banks anticipate selling a loan in a secondary market, their incentives to screen loan applicants is diminished. Banks will also have less incentive to monitor the borrowers during the life of the loan.[35] It has been demonstrated that banks that were significantly involved with the originate-to-distribute model were more likely to originate mortgages of poor quality.[36]

Loans made by banks that are distributed throughout the secondary market are of a significantly poorer quality that loans retained by the banks to maturity. It has been shown that borrowers whose loans are sold on the secondary market underperform their peers by 9% per year in the three years following the origination of the loan.[37] This can be attributed to one of two skewed incentives. Adverse selection may be prompting the banks to originate and sell loans of inferior quality, based on private information, while retaining the loans of superior quality. Alternatively, a moral hazard exists for the banks

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[34] Ibid

[35] Bord, Vitaly M., and João A.C. Santos. "The Rise of the Originate-to-Distribute Model and the Role of Banks in Financial Intermediation". The Federal Reserve Bank of New York Economic Policy Review. July 2012

[36] Purnanandam, Amiyatosh. "Originate-to-distribute Model and the Subprime Mortgage Crisis. The Review of Financial Studies. Vol 24. N. 6 2011.

[37] Berndt, Antje, Anurag Gupta. "Moral Hazard and Adverse Selction in the Originate-to-Distribute Model of Bank Credit". Federal Reserve Bank of Atlanta. March 2009.

as the sale of the loans they have originated leads to diminished monitoring by the banks.[38]

In the origination of loans to be sold in secondary markets, fierce competition existed between mortgage brokers. This prompted a race to the bottom in loan quality as borrowers with poor credit became the only avenue for increased market share. Underwriting standards had to be relaxed if mortgage companies were to compete in the lending market. With no incentive to ensure the ability of a borrower to repay the loan, the result of fee-generated income incentives, mortgages that never should have been originated flooded the mortgage market.

The Banks –

Recent structural changes in the banking industry have played a significant role in the financial crisis. Beginning in the 1980s, the following changes in the banking industry have occurred: there has been a steady consolidation of banks caused by a reduction in the number of banks as well as a greater value of total assets held by the banking industry; banks have lost substantial market share to other financial intermediaries; the number of banks has been greatly reduced, caused by a decrease in small banks; many mergers have occurred, which has also caused the number of banks to decline; independent banks have been sharply reduced; the number of bank holding companies has increased dramatically; there has been a significant increase in the number of branches and offices as well as an increase in the number of automatic teller machines;

[38] Ibid

there is also greater market concentration of banks at the national level.[39] The high degree of consolidation present in the banking industry is evinced by the fact that by 2005, the 10 largest U.S. commercial banks held 55% of the industry's assets.[40] Several events have occurred in the past several decades that have caused or at least encouraged these trends. Advances in information and communication technology eroded the competitive advantage of smaller lending institutions. Additionally, deregulation and financial innovation increased competition and pushed the least competitive firms out of the industry.[41] Examples of deregulation that would have increased competition among banks include the elimination of interest rate ceilings on bank deposits as well as the relaxation of intrastate bank branching restrictions.[42] Regardless of the causes of the changes in the banking industry, the changes themselves are clear. Banks are now larger and more integral to the economy than before. It should come as no surprise then that many consider the largest of these to be too big to fail.

While many of the changes in the banking industry have been the result of the natural evolution of technology, others are man-made. In 1999, Congress passed the Gramm-Leach-Bliley Act which repealed many of the restrictions that had previously regulated the banking industry as outlined in the Glass-Steagall Act.[43] While the details of these bills will be examined in the next chapter, it is worth noting that the passage of

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[39] Lence, Sergio H. "Recent Structural Changes in the Banking Industry, Their Causes and Effects: A Literature Survey". Review of Agricultural Economics, Vol. 19, No. 2. 1997.
[40] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[41] Lence, Sergio H. "Recent Structural Changes in the Banking Industry, Their Causes and Effects: A Literature Survey". Review of Agricultural Economics, Vol. 19, No. 2. 1997.
[42] Lence, Sergio H. "Recent Structural Changes in the Banking Industry, Their Causes and Effects: A Literature Survey". Review of Agricultural Economics, Vol. 19, No. 2. 1997.
[43] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Gramm-Leach-Bliley allows institutions to act as a combination of investment bank, commercial bank and insurance company.[44] Proponents of Gramm-Leach-Bliley argued the following points: that bank holding companies would become more profitable by making use of economies of scale and scope; that the new financial institutions would be safer through the diversification of risks; and that they would afford consumers greater convenience as it would grant one stop shopping for all financial services.[45] Opponents of Gramm-Leach-Bliley argued that allowing banks to merge with securities firms would lead to excessive speculation.[46] Additionally, allowing banks and securities firms to converge undermined the supportive “spare tire” relationship between the two types of institutions that had once been a source of market stability. If commercial banks ran into trouble, large customers would be able to borrow from investment banks and others in the capital markets. If capital markets froze, borrowers could turn to commercial banks for loans funded by deposits.[47] By blurring the lines between banks and securities firms, the “spare tire” that bolstered the stability of the financial system ceased to exist.

Another trend in the banking industry that contributed to the housing bubble and ensuing crisis is one mentioned in the previous section: the rise of the originate-to-distribute model. While the flaws surrounding the incentive structure of the originate-to-distribute model have been enumerated, the process involved deserves attention. In this model of banking, banks originate loans or purchase loans from specialized brokers. These loans are either securitized and sold in financial markets or transferred to a

[44] Sparks, Karol K. “Freeing the banks: Gramm-Leach-Bliley Brings Convergence to the Banking, Insurance and Securities Industries”. Business Law Today Vol. 10, No. 6 (July/August 2001)
[45] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[46] Ibid
[47] Ibid

sponsored structured investment vehicle, a SIV. The SIV in turn packages these loans into a variety of financial products including residential mortgage-backed securities, commercial mortgage-backed securities, collateralized debt obligations, and collateralized loan obligations.[48] Each of these financial products can receive a rating from the credit rating agencies. These products were often designed to garner a specific rating from the rating agencies.[49]

Banks were able to ensure the rating they desired by carving up the portfolios intended for sale into different tranches. Diversified portfolios were formed composed of mortgages and other types of loans, corporate bonds, and other assets. These portfolios were sliced into different tranches based on the risk preferences of investors.[50] The safest tranche offers a low interest rate, but is the first to be paid out of the cash flows of the portfolio. This tranche is known as the "super senior" tranche and is designed to receive an AAA rating. Conversely, the junior tranche, referred to as the equity tranche, or toxic waste, offers the highest interest rate, but is only paid out after the other tranches have been paid. In between these tranches are the mezzanine tranches. [51] Investors could then purchase the tranches best suited to their appetite for risk.

Financial innovation is not inherently harmful to the well-being of the economy. Financial innovation can promote savings and channel these savings into their most productive uses. Financial innovation has the capacity to increase the availability of

[48] Fratioanni, Michele and Francesco Marchionne. "The Role of Banks in the Subprime Financial Crisis". Money and Finance Research Group. Working Paper No. 23. April 2009.
[49] Brunnermeier, Markus K. "Deciphering the Liquidity and Credit Crunch 2007-2008". Journal of Economic Perspectives. Vol. 23, No.1. Winter 2009.
[50] Brunnermeier, Markus K. "Deciphering the Liquidity and Credit Crunch 2007-2008". Journal of Economic Perspectives. Vol. 23, No.1. Winter 2009.
[51] Brunnermeier, Markus K. "Deciphering the Liquidity and Credit Crunch 2007-2008". Journal of Economic Perspectives. Vol. 23, No.1. Winter 2009.

credit, aid in the refinancing of obligations and allow for better risk allocation.[52] The downside of financial innovation is that it has resulted in a preponderance of structured financial products that are so complex they are inherently non-transparent.[53] Investors that are unable to ascertain the worth of an asset they are investing in are forced to rely on the credit rating agencies to judge the asset. When the incentives of the credit rating agencies are corrupted, the ratings that inform investors become suspect.

Securitization is one form of financial innovation that played an integral role in the recent financial crisis. Securitization refers to the well-established technique developed to finance a collection of assets which by their nature are non-tradable and therefore non-liquid. The process of securitization refers to the creation of a pool of financial assets that will back securities.[54] There are three main categories of the market for securities: asset-backed securities, ABS; mortgage-backed securities, MBS; and collateralized debt obligations, CDOs. The largest type of asset that has been securitized is mortgage loans, commonly known as mortgage-backed securities.[55]

A mortgage-backed security is a security whose income payments and thus value is derived from and collateralized by a mortgage, or pool of mortgages. The origination and sale of mortgage-backed securities was the primary mechanism through which problems in the housing industry spread throughout the financial system. It has been

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[52] Sanchez, Manuel. "Financial Innovation and the Global Crisis". International Journal of Business and Management". November 2010.
[53] Simkovic, Michael. "Secret Liens and the Financial Crisis of 2008". American Bankruptcy Law Journal. January 4, 2009
[54] Fabozzi, Frank J. "The Structured Finance Market: An Investor's Perspective". Financial Analysts Journal, Vol. 61, No. 3. May-June, 2005.
[55] Fabozzi, Frank J. "The Structured Finance Market: An Investor's Perspective". Financial Analysts Journal, Vol. 61, No. 3. May-June, 2005.

argued that losses in residential mortgage-backed securities were the proximate cause of the financial meltdown.[56]

According to the Securities and Exchange Commission the simplified process of securitization is as follows: mortgage loans are purchased from banks, mortgage companies as well as other originators. These mortgages are then assembled into pools by a governmental, quasi-governmental, or private entity. This entity then issues securities that represent claims on the principal and interest payments of borrowers on the loans in the pool.[57]

Large-scale secondary markets for mortgage products, such as mortgage-backed securities, were deregulated in the late 1990s and early 2000s.[58] These mortgage products were initially designed to mimic the securitization structure of the quasi-governmental institutions', Fannie Mae and Freddie Mac, also known as agency-backed securitization. Initially, private-label products were larger than those securities issued by Fannie and Freddie, but they were not necessarily riskier. In the 1990s, the private-label market began to securitize mortgages of a qualitatively different variety.[59] By incorporating subprime and nontraditional mortgage products, the private-label secondary mortgage market experienced explosive growth. From 2003 to 2005, the private-label market grew

[56] Levitin, Adam J., Andrey D. Pavlov, Susan M. Wachter. "Securitization: Cause or Remedy of the Financial Crisis?" Georgetown University Law Center Business, Economics and Regulatory Policy Working Paper Series Research Paper No. 1462895. 2009.
[57] U.S. Securities and Exchange Commission. "Mortgage-Backed Securities". SEC.gov.
[58] McCoy, Patricia A., Andrey D. Pavlov, and Susan M. Wachter. "Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure". Connecticut Law Review. Vol. 41 Number 4. May 2009
[59] McCoy, Patricia A., Andrey D. Pavlov, and Susan M. Wachter. "Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure". Connecticut Law Review. Vol. 41 Number 4. May 2009

from 24% of all mortgage-backed security issuances totaling $586 billion to 55% of all mortgage-backed security issuances for a total of $1.19 trillion.[60]

One of the problems associated with mortgage-backed securities revolve around their illiquidity and their opaqueness. Private-label mortgage-backed securities were typically held in portfolio rather than traded. As these products were not standardized, they could not be traded in a liquid market.[61] In a typical liquid market, investors are able to express negative views by short-selling which lowers the price of the securities and can lead to fundamental market stability. As each underlying mortgage was unique, however, pricing diverse pools of mortgages was difficult. Trading on these pools of mortgages was uncommon and as a result the market remained illiquid. Lacking in the ability to short-sell the mortgage-backed securities, investors turned to credit default swaps to hedge their risk.

The credit default swap is another financial instrument at the heart of the crisis. Credit default swaps are insurance contracts where the buyer pays a premium to the seller who must compensate the buyer in the event of default. The buyer must be compensated for the difference between the notional principal insured and the recovered amount.[62] Credit default swaps allowed securitizers and investors to hedge the credit risk of subprime loans. It is estimated that the gross notional amount of outstanding credit

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[60] McCoy, Patricia A., Andrey D. Pavlov, and Susan M. Wachter. "Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure". Connecticut Law Review. Vol. 41 Number 4. May 2009

[61] McCoy, Patricia A., Andrey D. Pavlov, and Susan M. Wachter. "Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure". Connecticut Law Review. Vol. 41 Number 4. May 2009

[62] Arentsen, Eric, David C. Mauer, Brian Rosenlund, Harold H. Zang, Feng Zhao. "Subprime Mortgage Defaults and Credit Default Swaps". AFA San Diego Meetings Paper. January 15, 2012.

default swaps in 2007 ranged from $45 trillion to $62 trillion.[63] The sheer magnitude of the credit default swap market is the result of a unique characteristic of credit default swaps, namely that neither the purchaser of protection nor the seller of protection need have a claim on the underlying asset being protected. It is in this way that credit default swaps differ from standard insurance contracts. As such the notional principal of any referenced asset can greatly exceed the principle of the underlying asset.[64] The existence of credit default swaps where neither party had a claim on the underlying asset encouraged speculation.

On the surface, credit default swaps serve useful functions in financial markets. They allow credit risks to be borne by those best suited to handling them which allows financial institutions to make loans that they would otherwise be unable to make. The prices of credit default swaps also reveal useful information about the credit risk involved in the underlying assets.[65] The existence of credit default swaps lured investors into a false sense of security. There was no reason to suspect that a triple-A rated tranche of a security backed up by a credit default swap was a risky investment. It was assumed that the probability of a CDS counterparty defaulting was so small it could be ignored.

Credit default swaps also discourage monitoring by lending institutions. The separation of risk-bearing and funding made possible by credit derivatives reduces the

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[63] Brunnermeier, Markus K. "Deciphering the Liquidity and Credit Crunch 2007-2008". Journal of Economic Perspectives. Vol. 23, No.1. Winter 2009.
[64] Arentsen, Eric, David C. Mauer, Brian Rosenlund, Harold H. Zang, Feng Zhao. "Subprime Mortgage Defaults and Credit Default Swaps". AFA San Diego Meetings Paper. January 15, 2012.
[65] Stulz, Rene M. "Credit Default Swaps and the Credit Crisis." Journal of Economic Perspectives, 24(1): 73-92. 2010.

incentive of lenders to monitor their loans.[66] Perhaps more significantly, investors were able to hedge the credit risk of subprime mortgage-backed securities by purchasing credit default swaps on these securities. This fueled demand for subprime loans which in turn encouraged lenders to relax their lending standards. An investigation into the effect of credit default swaps on the likelihood of default on a loan found that credit default swap coverage significantly increased the probability of loan delinquency. [67] This would support the idea that lenders were less concerned with a borrower's ability to repay a loan if a credit default swap was involved.

Credit default swaps played a more obvious role in the financial crisis as a primary factor for the downfall of American International Group, AIG. AIG issued credit default swaps to investors who had purchased tranches of collateralized debt obligations, which will be discussed later. Credit default swaps made these CDOs more attractive to investors as they eradicated the risk of default for these financial products. The downside of credit default swap protection was the large exposures for AIG.[68] These exposures ultimately resulted in near financial collapse of AIG. Rating downgrades and declines in the values of the "super senior" tranches of collateralized debt obligations for which AIG had written credit default swaps forced AIG to post large amounts of collateral.[69] This ultimately led to the intervention by the Federal Reserve in which AIG was bailed out. This government assistance flowed to counterparties of AIG and prevented a potential

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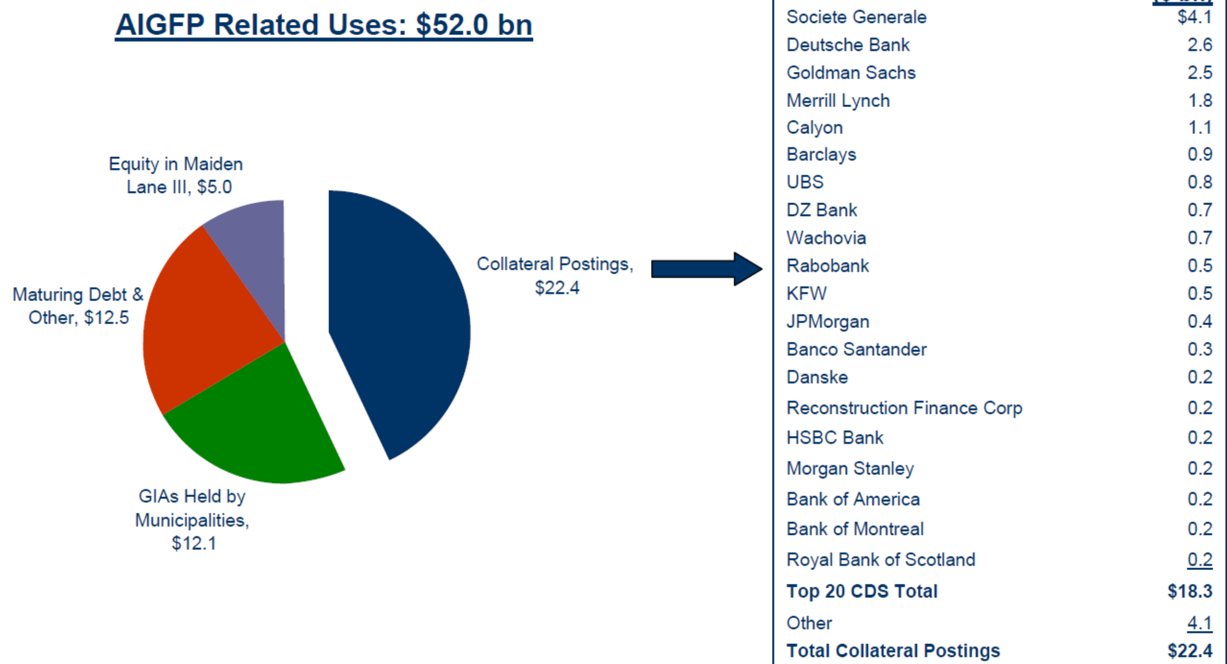
[66] Stulz, Rene M. "Credit Default Swaps and the Credit Crisis." Journal of Economic Perspectives, 24(1): 73-92. 2010

[67] Arentsen, Eric, David C. Mauer, Brian Rosenlund, Harold H. Zang, Feng Zhao. "Subprime Mortgage Defaults and Credit Default Swaps". AFA San Diego Meetings Paper. January 15, 2012.

[68] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[69] Harrington, Scott E. "The Financial Crisis, Systemic Risk, and the Future of Insurance Regulation". The Journal of Risk and Insurance, Vol. 76, No. 4 (December 2009)

systemic collapse of the financial system. The following table demonstrates that a large portion of government assistance went to posting collateral for a variety of financial institutions that were counterparties of AIG involved in credit default swaps.



Counterparty	Amount Posted ($ bn)
Societe Generale	$4.1
Deutsche Bank	2.6
Goldman Sachs	2.5
Merrill Lynch	1.8
Calyon	1.1
Barclays	0.9
UBS	0.8
DZ Bank	0.7
Wachovia	0.7
Rabobank	0.5
KFW	0.5
JPMorgan	0.4
Banco Santander	0.3
Danske	0.2
Reconstruction Finance Corp	0.2
HSBC Bank	0.2
Morgan Stanley	0.2
Bank of America	0.2
Bank of Montreal	0.2
Royal Bank of Scotland	0.2
Top 20 CDS Total	**$18.3**
Other	4.1
Total Collateral Postings	**$22.4**

[70]

To prevent the collapse of AIG, the federal government committed more than $180 billion.[71] It was believed that were AIG allowed to fail, cascading losses would be triggered throughout the global financial system. To prevent this, the federal government ensured that AIG would remain operational, able to pay its debts and meet its obligations.

[70] AIG Discloses Counterparties to CDS, GIA, and Securities Lending Transactions, March 15, 2009.
[71] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

The aid received by AIG from the federal government was essential in providing liquidity to systemically important financial institutions.[72]

It is worth mentioning another financial instrument that played a role in the financial crisis, the collateralized debt obligation, or CDO. CDOs are similar to mortgage-backed securities with the chief difference between the two being that CDOs can be backed by a variety of assets including but not limited to mortgage debt. CDOs also allowed securities firms a means of moving their worst assets off of their balance and into a CDO instead. CDOs became the largest purchaser of triple-B tranches of mortgage-backed securities, at one point buying and repackaging an estimated 85 to 95% of these tranches.[73] These CDOs would themselves be tranched with a large portion of the tranches receiving triple-A ratings from the credit rating agencies. While the highly rated tranches of these CDOs could be sold to investors, the triple-B tranches could be repackaged into CDO squareds. Reassembled triple-B tranches of CDO squareds could even be repackaged into CDO cubeds. [74] Through a type of modern alchemy, highly-rated financial products were created out of assets of ever-diminishing quality.

When firms ran out of mortgage-backed securities to underlie their CDOs, they began creating synthetic CDOs. These products were not composed of real mortgage securities, merely bets on mortgage products. [75] Credit default swaps were essential to the existence of synthetic CDOs. Whereas typical CDOs derive their value and payments

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[72] AIG Discloses Counterparties to CDS, GIA, and Securities Lending Transactions, March 15, 2009.
[73] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010.
[74] McLean, Bethany, and Joseph Nocera. "All the Devils Are Here: The Hidden History of the Financial Crisis." New York: Portfolio/Penguin, 2010.
[75] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

from assets such as mortgage debt, synthetic CDOs derive their value and payment streams from premiums paying for a credit default swap. Synthetic CDOs amplified the losses from the collapse of the housing bubble by allowing multiple bets to be placed on the same underlying securities. Synthetic CDOs also spread losses in the housing market throughout the financial system as investors around the globe purchased these securities.

The innovations of the financial industry led to a preponderance of products that contributed to the financial crisis. Securitization encouraged the sale of risky subprime mortgages. Banks and mortgage brokers encouraged mortgage sales because of the fee income generated by these sales. Banks earned large fees securitizing mortgages and selling them to capital markets in the form of mortgage backed securities and collateralized debt obligations.[76] Credit default swaps were initially purchased as a means of alleviating risk, but were eventually perverted into a tool of speculation. Since it was generally believed that banks distributed most of these mortgages to capital markets as asset-backed securities; it was expected that little if any bank risk was involved in the process.[77] While the banks believed that they had effectively eradicated the risk, they had merely spread it throughout the financial system.

Another aspect of modern banking deserves attention, the shadow banking system. Shadow banking is a term used to describe banking activities that take place outside of the regulated banking system. The following chart demonstrates the magnitude of the shadow banking industry. At one point the shadow banking system accounted for

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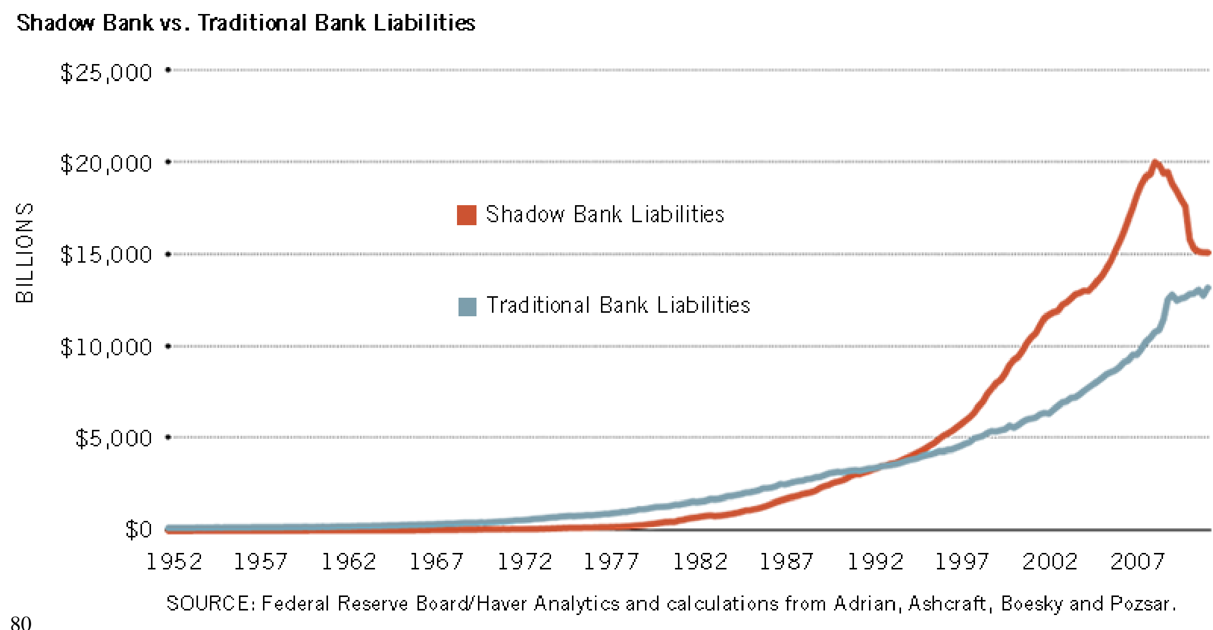
[76] Crotty, James. “Profound Structural Flaws in the US Financial System That Helped Cause the Financial Crisis”. Economic and Political Weekly, Vol. 44, No. 13, Global Economic & Financial Crisis (Mar. 28 - Apr. 3, 2009), pp. 127-129, 131-135

[77] Crotty, James. “Profound Structural Flaws in the US Financial System That Helped Cause the Financial Crisis”. Economic and Political Weekly, Vol. 44, No. 13, Global Economic & Financial Crisis (Mar. 28 - Apr. 3, 2009), pp. 127-129, 131-135

nearly $20 trillion, eclipsing the size of the traditional banking sector.[78] The shadow banking system includes traditional financial actors: investments banks, money market mutual funds, and mortgage brokers. These actors employ financial instruments such as sale-and-repurchase agreements, asset-backed securities, collateralized debt obligations as well as asset-backed commercial paper, to operate the shadow banking system.[79] This system met the needs of institutions left unfullfilled by traditional banking while circumventing the regulatory apparatus of traditional banking.



[80]

Simply put, the shadow banking system refers to the various investors that purchase asset-backed securities and finance these purchases with short-term

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[78] Noeth, Bryan J. and Rajdeep Sengupta. "Is Shadow Banking Really Banking?" Federal Reserve Bank of St. Louis. The Regional Economist. October 2011.
[79] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. "Regulating the Shadow Banking System [with Comments and Discussion]". Brookings Papers on Economic Activity. Fall 2010.
[80] Noeth, Bryan J. and Rajdeep Sengupta. "Is Shadow Banking Really Banking?" Federal Reserve Bank of St. Louis. The Regional Economist. October 2011.

borrowing.[81] The types of investors that prefer shadow banking over traditional banking typically are those with large cash holdings for whom deposit insurance is insufficient. With deposit insurance capped at $250,000 per account holder, organizations including pension funds, mutual funds, states and municipalities, as well as cash-rich nonfinancial companies, do not have access to safe, interest earning short-term investments. [82] These organizations turn to shadow banking to meet their specialized needs.

While the nature of asset-backed securities has been previously examined in this paper, the short-term borrowing of shadow banking is worth examining. This short-term borrowing takes the form of repurchase agreements and asset-backed commercial paper. Repurchase agreements, or repos, are sales of securities with a promise from the seller of the securities to buy the securities back at a later date. In this way, the initial seller of the securities is acting as a borrower using the securities as collateral. With the assurances provided by the posting of collateral, repos are preferred by many organizations whose funds exceed the amount covered by deposit insurance. Similarly, asset-backed commercial paper is a category of commercial paper collateralized by financial assets. Asset-backed commercial paper is typically a short-term instrument with an average maturity of 30 days. [83] A company seeking to create additional liquidity may choose to sell its receivables to a bank which in turn issues commercial paper to its investors. The purchaser of commercial paper will receive the cash inflows of the receivables. Asset-

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[81] Stein, Jeremy C. “Securitization, Shadow Banking & Financial Fragility”. Daedalus. Fall 2010.
[82] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. “Regulating the Shadow Banking System [with Comments and Discussion]”. Brookings Papers on Economic Activity. Fall 2010.
[83] Covitz, Daniel M., Nellie Liang, and Gustavo A. Suarez. “The Evolution of a Financial Crisis: Panic in the Asset-Backed Commercial Paper Market”. Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C. August 18, 2009.

backed commercial paper was generally used by investors to generate short-term gains while simultaneously diversifying assets.

To comprehend the danger posed by the shadow banking system, it is useful to note the fragility of the typical banking system. At its most basic level, banks are mere intermediaries that obtain funds from lenders in the form of deposits and provide funds to borrowers in the form of loans.[84] Banks are able to function by exploiting the fact that only a small number of depositors need access to their funds at a given point in time. Banks are thus only required to hold a small portion of depositors' funds in liquid assets and are able to lend out the rest in the form of long-term loans. The downside of taking advantage of the liquidity demands of their depositors is that banks become vulnerable when too many depositors demand their funds at the same time, in what is known as a bank run. This can lead to the collapse of a bank as the illiquid long-term loans cannot be liquidated to meet the demands of depositors for their funds. For the financial needs of a wide variety of depositors to align precisely wherein all depositors demand there funds simultaneously is highly unlikely. The primary cause of bank runs occurs when depositors fear that their bank may not be able to repay the deposited funds. As banks are forced to liquidate their assets to meet the demands of panicked depositors, a self-fulfilling prophecy emerges.

To promote the stability of the banking system and prevent bank runs, the federal government provides deposit insurance on deposits held by a bank. This has alleviated bank runs as depositors have received a promise from the federal government that their

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[84] Noeth, Bryan J. and Rajdeep Sengupta. "Is Shadow Banking Really Banking?" Federal Reserve Bank of St. Louis. The Regional Economist. October 2011.

deposits will be repaid regardless of their bank's financial health. The deposit insurance that supports the stability in the traditional banking sector, however, does not exist in shadow banking. It has been argued that the most recent financial crisis was caused by just this; a run on the shadow banking system. This banking panic occurred as the depositors in repo transactions with banks feared that the banks would collapse. This would force the depositors to sell the securities that had been provided as collateral in the repo transactions.[85] These sales would likely occur at a loss for the depositors as such a vast amount of collateral securities would be sold simultaneously.

Investors reacted to uncertainty in the repo market by increasing "haircuts" on repo agreements. A haircut is a percentage that is subtracted from the market value of an asset that is being used as collateral. The size of a haircut is a reflection of the perceived risk of a given asset. An increase in a repo haircut is essentially a withdrawal from the issuing bank.[86] As haircuts were increased, the financial institutions looking to borrow funds were forced to sell assets to meet their additional funding needs. These haircuts caused the financial institutions looking to borrow funds to deleverage, which spread the financial crisis to other classes of assets.[87] Essentially, a bank run in the shadow banking system took place as increases in haircuts occurred in the repo market.

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[85] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. "Regulating the Shadow Banking System [with Comments and Discussion]". Brookings Papers on Economic Activity. Fall 2010.
[86] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. "Regulating the Shadow Banking System [with Comments and Discussion]". Brookings Papers on Economic Activity. Fall 2010.
[87] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. "Regulating the Shadow Banking System [with Comments and Discussion]". Brookings Papers on Economic Activity. Fall 2010.

One of the biggest purchasers of asset-backed commercial paper has continually been money market mutual funds.[88] Money market mutual funds, or MMMFs, were particularly hard hit during the financial crisis. The goal of a MMMF is to earn interest for investors while maintaining a net asset value of $1 per share. Unlike other investments, such as stocks, shares in money market funds are always worth $1. The $1 value is maintained by paying out the mutual fund's net income as dividends to shareholders on a daily basis. The collapse of Lehman Brothers triggered concerns that the MMMFs would be unable to maintain their $1 net asset value.[89] This led to a run on the MMMFs causing the MMMFs to sell assets at low prices as a diminished confidence combined with a lack of insurance panicked investors.

The financial crisis was thus similar to other historical crises in that a run on banks resulted in near financial collapse. While the bank run did not take place in the traditional banking sector, the collapse of the shadow banking system had all the characteristics of a traditional banking crisis. The fear of collapse in the banking industry caused depositors to demand the return of their funds causing banks to rapidly sell illiquid assets during suboptimal conditions. Lacking the confidence provided by federally guaranteed deposit insurance, the shadow banking system experienced a bank run that caused the collapse of the financial system.

[88] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[89] Gorton, Gary, Andrew Metrick, Andrei Shleifer and Daniel K. Tarullo. "Regulating the Shadow Banking System [with Comments and Discussion]". Brookings Papers on Economic Activity. Fall 2010.

Leverage, which is defined as borrowing to finance investments, is also often cited as one of the causes of the most recent financial crisis.[90] Prior to the crisis, financial institutions were highly leveraged. Excessive borrowing left many financial institutions susceptible to financial distress in the event of even a slight decline of their investments. For example, in 2007 the five largest investment banks – Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley – were operating at an extraordinarily high leverage ratio, by some measures at a leverage ratio of 40:1.[91] This figure uses the assets to equity measure of leverage and means that there was only $1 in capital to cover $40 in assets in the event of losses. The benefit of highly leveraged positions is that it allows for the generation of higher short-term profits, the basis for determining employee bonuses at large financial institutions. Highly leveraged positions were made possible by financial innovations that allowed for the circumvention of capital requirements.

To understand the danger posed by having a highly leveraged position, it is useful to look at an example that uses the assets to equity measure of leverage. Suppose a bank has $1 million is assets. If the bank borrows an additional $9 million, it would be operating at a leverage ratio of 10:1. It would then invest this $10 million to purchase securities. In this case the balance sheet of the bank would be as follows:

[90] Simkovic, Michael. "Secret Liens and the Financial Crisis of 2008". American Bankruptcy Law Journal. January 4, 2009.
[91] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Assets	Liabilities & Equity
$10 million securities	$9 million debt
	$1 million capital

Let us assume that the securities purchased by the bank performed well as they did in the lead up to the crisis. If the value of the securities doubled, the $10 million worth of securities would become $20 million. Because it is a fundamental identity of accounting that assets must equal liabilities and equity, and because the bank is not taking on any more debt, the amount of capital held by the bank would become $11 million. The resulting balance sheet for the bank would be as follows:

Assets	Liabilities & Equity
$20 million securities	$9 million debt
	$11 million capital

Thus from an initial investment of $1 million, banks would have earned an additional $10 million. As long as securities performed, as they were sure to during the housing bubble, leveraging could significantly magnify gains.

In the absence of leverage, profits are much less impressive. From an initial capital investment of $1 million, the firm's assets double in value again:

Assets	Liabilities
$ 1 million securities	$1 million capital

After the doubling in value, the firm's balance sheet is as follows:

Assets	Liabilities
$2 million securities	$2 million capital

While a $1 million increase in capital is an impressive feat, it is a pittance compared to the return experienced from the same appreciation in assets magnified through the use of leverage.

The downside of leverage is that in addition to magnifying gains it also magnifies losses. Assume that the bank is in the same position that it was in the beginning of the previous example.

Assets	Liabilities & Equity
$10 million securities	$9 million debt
	$1 million capital

This time, however, the securities it has invested in perform poorly. Rather than doubling in value, let's assume that the value of the securities has decreased by 10%. Assets would now be equal to $9 million. As the bank has done nothing to repay its debt,

the reduction on the liabilities and equity side of the balance sheet would have to come from a reduction of capital. The resulting balance sheet would look like the following:

Assets	Liabilities & Equity
$9 million securities	$9 million debt

In the event of this 10% reduction in asset value, the initial equity has been wiped out. The highly leveraged bank would be rendered insolvent. Lacking proper collateral, the lender may force the borrower to sell its $9 million in assets to pay off their debts. If this were to happen, the initial amount of $1 million in capital would be lost to the investor. This would result in a return on investment of negative 100%.

If there is a precipitous drop in the value of assets that numerous financial entities have invested in, the problems resulting from leverage are magnified further. If the value of a given firm's assets falls below the value of its debt, the firm is at risk of default. To prevent against default, firms are forced to sell their assets to cover losses. As a wide variety of firms sought to deleverage simultaneously by selling their assets, asset prices experienced a reduction in value.

The financial crisis threatened the solvency of many separate financial institutions as a result of the desire of many firms to sell their assets, which had been increased through the use of leverage, simultaneously. Using the figures from the previous example, the counterparty risk that is the result of leverage is made clear. If a multitude of financial firms are attempting to rid themselves of securities to pay down their debt,

the price will fall even lower. This can be thought of as a market surplus in which there is a greater supply of securities than there is demand for them. In this situation, the price of the securities may be forced downwards to make them more appealing. Suppose that in the above example, many firms are trying to sell their securities for the $9 million that they are currently estimated to be worth. The downward pressure on the price of the securities that results from excess supply may force the sellers of these securities to sell them for a value of only $8 million. If the firm was able to sell at this price, it would be unable to pay off its debt of $9 million. Other financial firms that acted as counterparties to these now insolvent financial firms by financing their leverage would be the ones suffering losses. It is in this way that the financial crisis spread to institutions that were not themselves necessarily overleveraged.

Financial innovation was also used to generate higher levels of leverage than what was considered safe by financial regulators. While securitization can be used to effectively spread risk to those market participants ideally suited to bear it, it can also be used to generate higher levels of leverage by circumventing capital adequacy requirements. Capital adequacy requirements are put in place to bolster the stability of financial markets by limiting the degree of leverage at which a firm can operate. When these requirements are disregarded, the financial system is put in a precarious position as financial firms take on excessive leverage and increase their risk of insolvency. By using financial innovation to circumvent capital requirements, financial institutions overleveraged themselves in a way that increased the likelihood of their insolvency.

The capital requirement is the amount of capital a bank or other financial institution is required to hold. A firm’s capital is compared to its assets which are

weighted according to the risk associated with those assets. This comparison is the basis for determining the capital adequacy ratio. Financial regulators set this ratio at a level that they determine is necessary to protect depositors and ensure the safety and soundness of the financial system. The idea behind having a capital adequacy requirement is to ensure that a bank's depositors are compensated in the event of the collapse of a bank's assets. By allowing financial institutions to originate and hold assets off of its balance sheet, securitization has generated much higher levels of leverage than what is considered a safe amount of leverage.[92] The incentive to operate at high levels of leverage is a result of the desire of financial agents to generate high profits, which are the basis for determining bonuses. By increasing their leverage, financial institutions are able to magnify gains in the short-term. The losses experienced as a result of overleveraging during economic downturns are of little importance to the financial actors that have already earned their large bonuses.

Securitization has a worthy purpose in that it can be used to spread risk. In the lead up to the financial crisis, however, securitization was not used to spread risk, but to circumvent capital adequacy regulations.[93] One of the primary methods of avoiding the capital requirements was to create off-balance-sheet entities which would hold onto securities. These off-balance-sheet entities were referred to as conduits and would hold onto the securities rather than trade them. One of the more popular types of conduits is the structured investment vehicle, mentioned previously as a tool employed in the creation of securities. By removing these loans from the balance sheet and placing them

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[92] Fabozzi, Frank J. and Kothari, Vinod, "Securitization: The Tool of Financial Transformation." Yale ICF Working Paper No. 07-07.
[93] Acharya, Viral and Matthew Richardson. 2009. "Causes of the Financial Crisis." Critical Review 21(2–3): 195–210. May 12, 2009.

in conduits, banks were not required to hold capital against them. The banks were thus able to operate with higher levels of leverage.[94] Prior to the financial crisis, J.P. Morgan Chase & Co. as well as Citigroup each held nearly $1 trillion worth of assets placed in these conduits.[95]

With loans placed in conduits rather than on the bank's balance sheets, banks were able to avoid capital adequacy requirements, but had done nothing to abolish the risk that they held. The asset-backed securities held by the off balance sheet entities were paid for with asset-backed commercial paper. To sell the asset-backed commercial paper, banks had to provide a guarantee to the buyers of the commercial paper of its credit worthiness. This guarantee essentially transferred the risk back to the bank, even as it had removed the loans from its balance sheet.[96] As losses in the value of MBSs and CDOs were triggered by mass defaults on subprime loans, the market for asset-backed commercial paper collapsed. Unable to fund their off balance sheet entities with commercial paper, banks were forced to move the diminished assets back onto their balance sheets.[97] The combination of the reduction of value of bank assets held on their balance sheets and the movement of the devalued assets held by off-balance sheet entities back onto the balance sheet sharply reduced bank capital.

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[94] Acharya, Viral and Matthew Richardson. 2009. "Causes of the Financial Crisis." Critical Review 21(2–3): 195–210. May 12, 2009.

[95] Crotty, James. "Profound Structural Flaws in the US Financial System That Helped Cause the Financial Crisis". Economic and Political Weekly, Vol. 44, No. 13, Global Economic & Financial Crisis (Mar. 28 - Apr. 3, 2009), pp. 127-129, 131-135

[96] Acharya, Viral and Matthew Richardson. 2009. "Causes of the Financial Crisis." Critical Review 21(2–3): 195–210. May 12, 2009.

[97] Crotty, James. "Profound Structural Flaws in the US Financial System That Helped Cause the Financial Crisis". Economic and Political Weekly, Vol. 44, No. 13, Global Economic & Financial Crisis (Mar. 28 - Apr. 3, 2009), pp. 127-129, 131-135

Another method employed by banks to circumvent capital-adequacy requirements was through the purchase of securities that it had itself originated. Banks could make loans and move them off of its balance sheet by securitizing them. The banks would then purchase the triple-A rated tranches of these loans and hold them on its balance sheets. As the Basel Accords stipulated that triple-A rated securities required substantially less capital held against them than was required of standard loans, banks were able to reduce their capital requirements and effectively increase their level of leverage.[98]

In the financial crisis financial innovation was used as a means of avoiding regulation. The securitization of loans became so popular in part because it allowed regulated banks to move assets off of its balance sheets thus avoiding regulatory capital requirements. [99] While regulators in the financial industry had determined the levels of risk at which firms could operate, financial firms determined these levels to be suboptimal in their profit seeking. Rather than abide by the rules that governed a well-functioning financial system, they chose to subvert regulation.

[98] Acharya, Viral and Matthew Richardson. 2009. "Causes of the Financial Crisis." Critical Review 21(2–3): 195–210. May 12, 2009

[99] Calomiris, Charles W. "Financial Innovation, Regulation, and Reform." The Cato Institute. 2009.

Chapter 2: The Role of the Government

The Federal Reserve –

As the central bank for the United States, the Federal Reserve plays an integral role in the functioning of the economy. In 1913, the Federal Reserve Act established the Federal Reserve and set the objectives for monetary policy. These objectives were maximum employment, stable prices, and moderate long-term interest rates.[100] Given the rampant unemployment, crashing home prices and historically low interest rates present in the Financial Crisis, it is safe to say that the Federal Reserve failed to meet its objectives. The extent to which the Federal Reserve contributed to the Financial Crisis is still a matter of debate. However, while the degree to which the Federal Reserve contributed to the Financial Crisis is uncertain, there were clear actions taken by the Federal Reserve that created an environment ripe for financial calamity.

Perhaps the simplest contribution to the Financial Crisis made by the Federal Reserve was through its inaction in providing effective regulation. The Federal Reserve was the only government organization in a position to set prudent regulation regarding the quality of mortgages.[101] Had the Federal Reserve established standards to ensure the

[100] "What are the Federal Reserve's objectives in conducting monetary policy?" Board of Governors of the Federal Reserve System. September 19, 2014. http://www.federalreserve.gov/faqs/money_12848.htm
[101] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011

quality of mortgages, the stream of toxic mortgage products that spread throughout the financial system would have been quelled. Unfortunately for the housing market, when concerns about predatory lending practices were brought to the attention of Alan Greenspan they were ignored. In response to complaints regarding the inaction of the Federal Reserve, Greenspan stated that the Fed was not equipped to investigate deceptive lending and as such it could not be held accountable for the subsequent growth and bursting of the housing bubble. This position of Greenspan's, however, is at odds with the Senate Banking Committee's position. Chairman of the Senate Banking Committee at the time of the crisis, Christopher Dodd, compared financial regulators to "cops on a beat" whose job it was to protect consumers. Dodd noted that despite this mandate of consumer protection, the regulators at the Federal Reserve remained spectators for far too long as unscrupulous financial actors preyed on the naiveté of consumers. In response to claims by financial regulators that the regulation of many of the new mortgage companies fell to state regulators and was beyond the purview of the Federal Reserve, the Senate Banking Committee argued that federal financial regulators did indeed have the authority to exert jurisdiction over these lenders.[102]

The Federal Reserve also deserves criticism for contributing to the housing bubble whose bursting was the initial domino that sent the Financial Crisis in motion. Economists have argued that the U.S. housing bubble was partly caused by historically low interest rates.[103] In order to soften the blow caused by the bursting of the dot com bubble and to reassure investors panicked by the terrorist attacks of September 11th, the

[102] Bianco, Katalina M. "The Subprime Lending Crisis: Causes and Effects of the Mortgage Meltdown". CCH Catalogue (Wolters Kluwer Law & Business, New York).
[103] Bianco, Katalina M. "The Subprime Lending Crisis: Causes and Effects of the Mortgage Meltdown". CCH Catalogue (Wolters Kluwer Law & Business, New York

Federal Reserve lowered the federal funds rate from 6.5% in 2000 to just 1.0% in 2003.[104] To realize the effect of this action on the housing market, it should be noted that as interest rates were cut in the early 2000s, home refinancing increased from $460 billion in 2000 to $2.8 trillion in 2003.[105] The following chart demonstrates the historically low interest rates targeted by the Federal Reserve:

[106]

When the Federal Reserve lowers interest rates, it is attempting to spur economic activity. In theory, lowering interest rates should have the following effects:

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[104] "Federal Reserve Board: Monetary Policy and Open Market Operations". Board of Governors of the Federal Reserve System. November 15, 2013. http://www.federalreserve.gov/monetarypolicy/openmarket_archive.htm

[105] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[106] Board of Governors of the Federal Reserve System. "Effective Federal Funds Rate: 1990-2008." Economic Research Federal Reserve Bank of St. Louis.

discouragement of savings, as lower interest rates give a lower return from savings; a reduction in borrowing costs, which should encourage investors to take out loans to finance greater spending and investment; a lowered cost of mortgage payments; and increases in asset prices, an essential ingredient in economic bubbles. When interest rates are low, it becomes cheaper for consumers and businesses to borrow. This in turn encourages spending as well as investment which should lead to an increase in aggregate demand and economic growth.

By lowering the short-term interest rate, the Federal Reserve contributed to the crisis in two key ways. The first of these is that lower short-term interest rates encouraged the use of adjustable rate mortgages, also known as ARMs. With rising home prices many potential home buyers became unable to afford mortgage payments that involved fixed rate mortgages. With low short-term interest rates, however, ARMs could provide a prospective home owner with lower initial monthly payments. ARMs allowed many borrowers to afford homes that they would otherwise have been unable to. The downside of ARMs is that after a relatively brief period of time, typically two years, interest rates on the mortgage loans would increase making the monthly payments on the mortgages unmanageable.[107] Unable to meet their monthly mortgage obligations, homeowners were forced to default on their mortgages. Widespread default on mortgage payments was the primary cause of losses in financial markets that had developed and distributed mortgage derivatives throughout global markets.

[107] Holt, Jeff. "A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper" The Journal of Business Inquiry 2009, 8, 1, 120-129

Lower short-term interest rates also inflated the housing bubble by encouraging investment with borrowed money, or leveraging. With low short-term interest rates, investors could borrow funds relatively cheaply and invest these funds in long-term securities with much higher yields. Mortgage-backed securities are a prime example of the type of investment so desired by investors seeking profits. With heightened investor demand for mortgage-related financial products, financing for mortgage lending was abundant. Investors could purchase additional securities by leveraging their assets. With the additional funding made possible through leveraging, investors flooded the housing market with demand for mortgage-products. Eager to meet that demand, mortgage brokers supplied mortgages to borrowers that under different market conditions would have been denied outright.[108]

The Federal Reserve has also been blamed for the crisis in that its past actions have given rise to a moral hazard that encourages excessive risk taking by financial institutions. A moral hazard occurs when one actor is willing to take more risks because a separate actor is willing to bear the burden of those risks. When the Federal Reserve acts to cushion the blow from adverse financial events, a moral hazard occurs. By diminishing the consequences of engaging in risky financial behavior, the Federal Reserve increases the chance of continued carelessness in the future.[109] In a typical free market, excessive risk taking is punished when asset prices drop and firms that have overextended themselves fail. By intervening in a financial crisis, the Federal Reserve prevents the free

[108] Holt, Jeff. "A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper" The Journal of Business Inquiry 2009, 8, 1, 120-129

[109] Rosenblum, Harvey, Danielle DiMartino, Jessica J. Renier and Richard Alm. "Fed Intervention: Managing Moral Hazard in Financial Crises". Economic Letter. Federal Reserve Bank of Dallas. Vol. 3, No. 10. October 2008.

market from acting as the arbiter of which firms should fail and which firms should flourish.

If financial institutions counted on an intervention by the Federal Reserve in the event of financial collapse, they would be inclined to take on excessive risk. Financial institutions felt that they could rely on the Federal Reserve during economic downturns as a result of what is known as the Greenspan Doctrine. Under the Greenspan Doctrine, the Federal Reserve has stated that it will take no action to prevent asset bubbles, but when the bubbles do inevitably burst, the Federal Reserve would act to cushion the fall. This is essentially a promise to partially bailout institutions that have made bad investments. Colloquially referred to as the "Greenspan put", ailing financial institutions now operated under the assumption that they had the option to sell depreciated assets to the Federal Reserve.[110]

The belief of financial institutions that the Federal Reserve would be there in the event of financial collapse was supported by historical precedent as well. In 1998, the Federal Reserve Bank of New York made a decision to organize the recapitalization of Long-Term Capital Management, LTCM, to the tune of $3.6 billion. LTCM was a hedge fund that overleveraged itself to the point that its $4.8 billion in capital supported a $1 trillion notional amount of OTC derivatives and $125 billion in securities.[111] The rationale behind the decision to prevent LTCM's failure was the systemic importance of its operations. The failure of LTCM, Greenspan testified before Congress, "would not only have a significant distorting impact on market prices but also in the process could

[110] Dowd, Kevin. "Moral Hazard and the Financial Crisis." Cato Journal, Vol. 29, No. 1 (Winter 2009)
[111] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

produce large losses, or worse, for a number of creditors and counterparties, and for other market participants who were not directly involved with LTCM."[112] The rationale behind the Federal Reserve's bailout decision making becomes clear. Systemically important financial institutions would be rescued regardless of their lack of responsibility.

While the Federal Reserve did oversee the orderly liquidation of LTCM's derivatives and securities to the benefit of the financial system, the financial managers of LTCM did not experience a windfall. In overextending itself and becoming insolvent, LTCM was forced to liquidate its assets and was eventually dissolved entirely. The partners that owned LTCM had collectively contributed $1.9 billion of their own wealth to the fund, wiped out in in its entirety when the fund collapsed.[113] Firms still had an obvious incentive to operate safely and remain solvent when their own wealth is involved. This incentive ceases to exist however, when firms use money that is not their own as is nearly always the case with the larger financial institutions.

Concerns that the Fed's bailout of LTCM would result in a moral hazard in which banks took on excessive risk is supported by the testimony of Harvey Miller, the bankruptcy counsel for Lehman Brothers. Miller stated that hedge funds, "expected the Fed to save Lehman, based on the Fed's involvement in LTCM's rescue. That's what history had proved to them."[114] In establishing a precedent of bailing out systemically important financial institutions, the Federal Reserve created a moral hazard that diminished the incentive for financial actors to behave responsibly.

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[112] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[113] Lowenstein, Roger. "When Genius Failed: The Rise and Fall of Long-Term Capital Management." Random House. ISBN 0-375-50317-X. 2009
[114] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Under the tutelage of Alan Greenspan, the Federal Reserve failed in its mission of promoting economic stability. Free-market fanaticism led to the removal of key regulation that had been put in place to safeguard the economy from collapse. Even when legislation established the widespread authority of the Federal Reserve to regulate the financial industry, it chose not to do so. By failing to regulate the mortgage industry, the Federal Reserve subjected the American consumer to the predatory practices of mortgage originators concerned not with the quality of the loans they were originating, but with the fees that they could generate from issuing mortgages of any quality. By keeping interest rates at historic lows, the Federal Reserve encouraged excessive borrowing that fueled the housing bubble. Low short-term interest rates also prompted the creation of adjustable rate mortgages that lulled borrowers into the false belief that they were purchasing affordable homes. Lastly, by setting a historical precedent of bailing out ailing financial institutions, the Federal Reserve had created a moral hazard that encouraged excessive risk taking by financial institutions.

Government Legislation –

In assessing the role that the government played in contributing to the financial crisis, it is crucial to examine the legislation that has been either enacted or repealed in the run up to the crisis. Several key pieces of legislation stand out from the rest as having potentially served a significant role in the crisis. The repeal of Glass-Steagall is often cited as a main factor in spawning the crisis. Famous for separating commercial banks and securities firms in the wake of the Great Depression, the Glass-Steagall Act was

eventually repealed in 1999 with the passage of the Gramm-Leach-Bliley Act. Additionally, the Community Reinvestment Act has also been blamed as a factor contributing to the loosening of lending standards by banks throughout the nation. It has been argued that the loosening of lending standards is linked to the rise of subprime mortgage loans and the subsequent collapse of the housing market. Finally, the Commodities Futures Modernization Act will be examined for its role in the crisis. Passed in 2000, the CFMA was a bill designed to deregulate credit default swaps and other financial derivatives. The CFMA also ensured that the one financial regulator actually keen on regulating, Brooksley Born, would be stripped of her authority to do so. Heavily influenced by the lobbying of the financial industry, the legislative branch of the federal government was willingly complicit in the unraveling of regulation designed to protect the American economy from financial and economic calamity. Through either corrupt or naïve motivations, Congress passed legislation that significantly contributed to the financial crisis.

In the past century, no piece of regulation of the financial industry has been as heavily contested as the Glass-Steagall Act. Originally passed in response to the Great Depression, Glass-Steagall established the Federal Deposit Insurance Corporation, the FDIC, to insure bank deposits, a decision regarded as essential in promoting a secure and steadfast banking industry. The existence of deposit insurance effectively neutralizing the motivation behind bank runs that proved so dangerous in the Great Depression. Less universally agreed upon as a beneficial decision, Glass-Steagall also prohibited commercial banks from underwriting or dealing in securities. Banks were prohibited from affiliating with securities firms and banks were also limited in their involvement with

insurance companies.[115] While the repeal of Glass-Steagall meant that commercial banks, securities firms and insurance companies were allowed to merge under a single company, these businesses had been engaging in each other's industries for some time. As the financial crisis arose as a result of problems with subprime mortgages and mortgages backed securities, for the repeal of Glass-Steagall to have caused the financial crisis it would have had to have facilitated subprime lending and mortgage securitization in some way. However, commercial banks were already engaged in subprime lending as a result of the Community Reinvestment Act of 1977, prior to the repeal of Glass-Steagall, and were encouraged to securitize those mortgages by the government.[116]

The Glass-Steagall Act of 1933 sought the complete separation of commercial and investment banking. The rationale behind such a divorcement is that bank credit was being used excessively to speculate in the stock market. Sponsor of the Glass-Steagall Act, Senator Carter Glass, feared that banks that were members of the Federal Reserve System would use the funds borrowed from the Federal Reserve to engage in stock market speculative operations, thereby creating a speculative investment banking system.[117] The restrictions placed on commercial banks participation in the securities markets were also put in place to end the banking practices of the 1920s in which commercial banks sold highly speculative securities to depositors.[118]

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[115] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[116] Markham, Jerry W. "The Subprime Crisis – A Test Match for the Bankers: Glass-Steagall VS. Gramm-Leach-Bliley." University of Pennsylvania Journal of Business Law. Vol 12:4. September 2010.
[117] Markham, Jerry W. "The Subprime Crisis – A Test Match for the Bankers: Glass-Steagall VS. Gramm-Leach-Bliley." University of Pennsylvania Journal of Business Law. Vol 12:4. September 2010.
[118] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

While the repeal of Glass-Steagall through the passage of Gramm-Leach-Bliley has been heralded as a major coup for the financial industry, its significance is still a matter of debate. It has been argued that prior to the repeal of Glass-Steagall the regulations stipulated in the Act had been steadily rolled back. In this way the passage of Gramm-Leach-Bliley is viewed more as expanding and ratifying changes that had already been made through regulatory decisions and prior legislation.[119] As terms such as "engaged principally" and "primarily engaged" that were used in the bill were not explicitly defined, the Federal Reserve interpreted the law as it saw fit. Under this interpretive freedom, the Federal Reserve allowed bank holding companies to engage in nonbanking activities, such as securities activities, as long as these activities were determined to be closely related to banking.

Immediately after the passage of the Glass-Steagall Act, certain types of securities were excluded from restrictions imposed by the bill. Municipal general bonds, U.S. government bonds, private placements of commercial paper, and mortgage-backed securities, collectively referred to as "bank-eligible securities", were all exempt from Glass-Steagall restrictions. Securities that fell under the restrictions imposed by Glass-Steagall were referred to as bank-ineligible securities. However, given the interpretive freedom afforded the Federal Reserve, bank holding companies were permitted to own subsidiaries that engaged in limited securities activities involving the bank-ineligible securities. The extent to which these subsidiaries could engage in bank-ineligible securities activities was initially limited to 5% of the subsidiaries total revenue stream.

[119] Barth, James R., R. Dan Brumbaugh Jr. and James A. Wilcox. "Policy Watch: The Repeal of Glass-Steagall and the Advent of Broad Banking". The Journal of Economic Perspectives, Vol. 14, No. 2, pp. 191-204. Spring, 2000.

This percentage was raised to 10% in 1989 and then to 25% in 1997.[120] Restrictions imposed by Glass-Steagall were also rescinded in 1984 by a determination made by the FDIC which concluded that Glass-Steagall did not apply to affiliates of banks that were not members of the Federal Reserve System. The passage of Gramm-Leach-Bliley, and its corollary of the repeal of Glass-Steagall, removed the 25% limit of a bank subsidiary's revenue from securities activities completely. Banks, securities firms and insurance companies were permitted to affiliate through a bank holding company structure. Rolling back restrictions on securities activities performed by banks, as outlined in Glass-Steagall, had been a general trend of financial regulators for some time. Given the degree to which the Glass-Steagall Act had been effectively neutered prior to its formal repeal in the passage of Gramm-Leach-Bliley, it is difficult to assess the impact that the repeal of Glass-Steagall had on the formation of the financial crisis.

Even if the formal repeal of Glass-Steagall did not contribute to the Financial Crisis it is possible that the gradual reduction of the restrictions in Glass-Steagall contributed to the crisis. By blurring the lines between commercial banks and investment banks, commercial banks took their depositors funds and invested them in risky securities. Ideally, commercial banks would be highly risk-averse institutions. They serve as a safe place for depositors to store their wealth while earning modest returns. They then grant loans to those that are in a position to repay them. They make money by charging a higher rate of interest on the loans that they grant than on depositor's funds. Commercial banks should act in a risk-averse manner to prevent the panic that would

[120] Barth, James R., R. Dan Brumbaugh Jr. and James A. Wilcox. "Policy Watch: The Repeal of Glass-Steagall and the Advent of Broad Banking". The Journal of Economic Perspectives, Vol. 14, No. 2, pp. 191-204. Spring, 2000.

occur if depositors believed their funds to be in jeopardy. Investment banks, however, are expected to behave in a less risk-averse manner. The motivations of investment banks revolve less around mild returns from safe investments and more around maximizing profit by engaging in risky behavior. By erasing the divide between commercial and investment banking, people seeking a safe place to store their wealth find that wealth be invested recklessly with no additional gain be passed on to the depositors. As commercial banks began engaging in investment banking activities, investment banks were forced to rely on proprietary trading wherein they would speculate with their own capital and take on high levels of leverage to increase their returns to remain competitive.[121]

With the repeal of the Glass-Steagall Act through the passage of Gramm-Leach-Bliley came increased competition between commercial banks and investment banks. Commercial banks and investment banks were compelled to take on additional risk as a result of this competition. While the regulations of Glass-Steagall had been eroded over the years, the final nail in the coffin was the Gramm-Leach-Bliley Act. Increased risk-taking and higher levels of leverage undermined the soundness of the financial system. While the passage of the Gramm-Leach-Bliley Act did not itself cause the financial crisis, the gradual elimination of the barrier between commercial and investment banking did contribute to a climate of excessive risk-taking.

Perhaps a legislative contribution to the financial crisis is to be found in the Community Reinvestment Act, or CRA. The CRA was enacted in 1977 to prevent banks

[121] Arner, Douglas W. "The Global Credit Crisis of 2008: Causes and Consequences". The International Lawyer, Vol. 43, No. 1. Spring 2009.

from engaging in redlining.[122] Redlining is the practice of denying credit to individuals and businesses in certain neighborhoods regardless of the creditworthiness of those individuals and businesses. The CRA made it mandatory for banks and savings and loans to lend, invest, and provide financial services for the neighborhoods in which they took deposits. The CRA granted the federal financial supervisory agencies the authority to withhold approvals on certain transactions if the applying bank did not have a satisfactory CRA rating. The types of transactions that the supervisory agencies could quash if the applying banks were found lacking include mergers, acquisitions, as well as the expansion of branch banking.

In assessing the impact of the CRA on the housing market and subsequent Financial Crisis, the degree to which the provisions in the CRA were implemented by banks and the degree to which these provisions altered the normal operations conducted by the bank must be assessed. Between the mid-1990s and the mid-2000s there was a noticeable increase in homeownership rates in the United States. This increase was especially significant in minority and lower income groups.[123] Several policy changes, including changes to the CRA, were implemented in the 1990s that coincided with the increase in homeownership levels. These policy changes pushed banks to adopt the stipulations of the CRA more explicitly. Under the new policy many banks began new special mortgage lending programs or expanded on existing ones. When surveyed by the Federal Reserve, banks indicated that by adopting the provisions of the CRA they had

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[122] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[123] Bhutta, Neil. "The Community Reinvestment Act and Mortgage Lending to Lower Income Borrowers and Neighborhoods". Journal of Law and Economics, Vol. 54, No. 4. November 2011.

made loans that they would not have otherwise.[124] Additionally, banks pledged increased quantities of money to be used in CRA lending agreements with local housing groups compared with that pledged before the provisions of the 1990s. Given the increase in homeownership rates coinciding with the policy changes regarding the implementation of the CRA it is reasonable to conclude that the CRA had an effect on homeownership rates. Coupled with the response of banks that they were compelled to make loans that they wouldn't have without the CRA, it is understandable that some have argued the CRA contributed to the Financial Crisis by forcing banks to take undue risks.

It is reasonable to assume that by compelling banks to make loans to individuals and businesses in neighborhoods it would have otherwise avoided the CRA may have made a contribution to the Financial Crisis. Upon further review, however, the CRA was found not to have had a significant impact on the rising tide of subprime mortgages. Many of the mortgage originators that fueled the subprime mortgage market were not themselves banks and as such were not subject to the provisions of the CRA. Furthermore, research has determined that only 6% of subprime loans were related to the CRA.[125] While the CRA did encourage banks to lend to borrowers that they would have previously denied, a study conducted in 1997 revealed that loans originated under the CRA performed consistently with the other loans in the bank's portfolio. This would indicate that CRA lending did not contribute to an increase in the riskiness of a bank.[126]

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[124] Bhutta, Neil. "The Community Reinvestment Act and Mortgage Lending to Lower Income Borrowers and Neighborhoods". Journal of Law and Economics, Vol. 54, No. 4. November 2011.
[125] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[126] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Of particular note in an investigation regarding the Financial Crisis is the Commodities Futures Modernization Act of 2000. It is perhaps most memorable for the narrative surrounding its passage as it represents in part a federal regulator's attempt to prevent, or at least minimize, the Financial Crisis before it occurred. The Commodities Futures Modernization Act, or CFMA, has been blamed by some as the most direct and significant cause of the Financial Crisis. The consequence of the CFMA was the removal of centuries-old legal constraints that had been placed on speculative trading in over-the-counter derivatives.[127]

If there is one government regulator that deserves praise for their role relating to the Financial Crisis, it is Brooksley Born. Chairperson of the Commodity Futures Trading Commission, the CFTC, Born was in a unique position to influence the unfolding of the Financial Crisis. During her tenure at the CFTC, Born lobbied both Congress and the President to give the CFTC the power to regulate over-the-counter derivatives markets. Under her authority, the CFTC released a concept release which outlined its intention of exercising regulatory authority over derivatives. Concerned that such regulation would result in OTC derivatives being treated as illegal off-exchanged futures, the OTC derivatives industry lobbied Congress in attempt to prevent the regulatory effort.[128] They were ultimately successful and Congress enacted legislation that curtailed the regulatory ability of the CFTC. Brooksley Born resigned her post as chairperson as a result. The CFTC was formally prohibited from regulating the OTC derivatives market with the

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[127] Stout, Lynn A. "Derivatives and the Legal Origins of the 2008 Credit Crisis". Harvard Business Law Review. Vol. 1, pp. 1-38. June 29, 2011.

[128] Stout, Lynn A. "Derivatives and the Legal Origins of the 2008 Credit Crisis". Harvard Business Law Review. Vol. 1, pp. 1-38. June 29, 2011.

passage of the CFMA as it rejected the CFTC's desire to have functional regulation of the OTC market.

The CFMA deregulated the over-the-counter derivatives, OTC, market and reduced the supervisory role of both the Commodity Futures Trading Commission and the Securities and Exchange Commission in those markets. Free of government oversight and regulation, the OTC market for derivatives experienced rapid expansion. At the end of 2000, the year in which the CFMA was passed, the notional amount of OTC derivatives outstanding was $95.2 trillion with a gross market value of $3.2 trillion. When the OTC market peaked in 2008, the notional amount of OTC derivatives had risen to an astounding $672.6 trillion with a gross market value of $20.3 trillion.[129]

With the passage of the CFMA came the legalization of speculative OTC trading in derivatives for the first time in U.S. history. OTC derivatives trades are not inherently harmful to an economy. If derivatives trades are used to hedge risk rather than to engage in speculation, derivatives transactions can actually reduce economic risks. The derivatives transactions made in the run up to the crisis as a result of CFMA's passage, however, were of a speculative nature as opposed to a hedging one. This should be evident based on the fact that the derivatives market was four times larger than the underlying economy. For example, a $1 million insurance policy on a house valued at $250,000 can hardly be considered hedging risk.[130] Speculative transactions are inherently risky. Speculators engage in risky market transaction on the hopes of profiting

[129] The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[130] Stout, Lynn A. "Derivatives and the Legal Origins of the 2008 Credit Crisis". Harvard Business Law Review. Vol. 1, pp. 1-38. June 29, 2011.

on fluctuations in the market. These transactions are especially risky, and can result in bankruptcy, in financial crises.[131]

While bad mortgages are the original cause of the crisis, exotic and opaque derivatives turned a problem in a relatively small segment of the financial industry into a worldwide economic meltdown. The CFMA ensured that this dangerous derivative market would remain totally unregulated. Free of regulation, the problem worsened as the derivative market experienced rapid expansion. These derivatives were a principal source of leverage in the run up to the crisis that caused so many firms to experience losses that resulted in insolvency. By stripping regulators of their regulatory authority, the CFMA provided the fuel that turned the spark of subprime mortgage defaults into the inferno of the financial crisis.

Fannie Mae and Freddie Mac –

In the debate over the causes of the Financial Crisis two names have been mentioned frequently, Fannie Mae and Freddie Mac. Fannie Mae and Freddie Mac, officially the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation respectively, are the government sponsored enterprises, or GSEs, that purchase mortgages, trade in mortgage-backed securities, and guarantee nearly half of the mortgages in the U.S. housing market. These two organizations were created by the Federal government to address the inability and unwillingness of the private sector to

[131] Mahdavi Damghani, Babak (2013). "The Non-Misleading Value of Inferred Correlation: An Introduction to the Cointelation Model". Wilmott 2013 (1): 50–61

ensure a reliable supply of mortgage credit.[132] Fannie and Freddie became well known to the American public as a result of the $151 billion bailout by the U.S. Treasury.[133] Fannie Mae and Freddie Mac are the embodiment of the government's desire to increase homeownership rates in the United States, pursuant to the American Dream. As such, their mission could be interpreted in part as supporting the housing bubble. While the activities undertaken by Fannie Mae and Freddie Mac did contribute to the housing bubble and the subsequent financial crisis, they were not themselves a primary cause of the Financial Crisis.

The rise of Fannie Mae and Freddie Mac fundamentally altered the nature of the mortgage market in the twentieth century. For the majority of the twentieth century, mortgages were originated by financial institutions such as banks, thrifts, credit unions, and savings and loans. These institutions would originate fixed-rate loans and hold them on their books until they reached maturity. This model of hold-to-maturity was drastically altered by the creation of the GSEs and subsequent secondary mortgage market. The banks and other mortgage originators were now able to sell the mortgages they had originated to the GSEs. This freed up the funds of the financial institutions and they were able to make additional mortgage loans as a result. By allowing the banks and other financial institutions to make additional mortgage loans, the GSEs had a positive influence on the mortgage market and drastically increased homeownership rates.

Despite the potential creation of a housing bubble resulting from the actions of the GSEs, the actual cause of this housing bubble was only partially related to the GSEs.

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[132] Peterson, Christopher L. "Fannie Mae, Freddie Mac, and the Home Mortgage Foreclosure Crisis." Loyola University New Orleans Journal of Public Interest Law, Vol. 10, pp. 149-170. April 1, 2009

[133] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Subprime mortgages and alt-A mortgages, were the primary contributors to the housing bubble and were the primary reason for the bubble's collapse. Alt-A mortgages refers to the category of mortgages in between prime and subprime. Private companies as opposed to Fannie Mae and Freddie Mac were the primary marketers, originators, securitizers, and servicers of subprime and alt-A loans.[134]

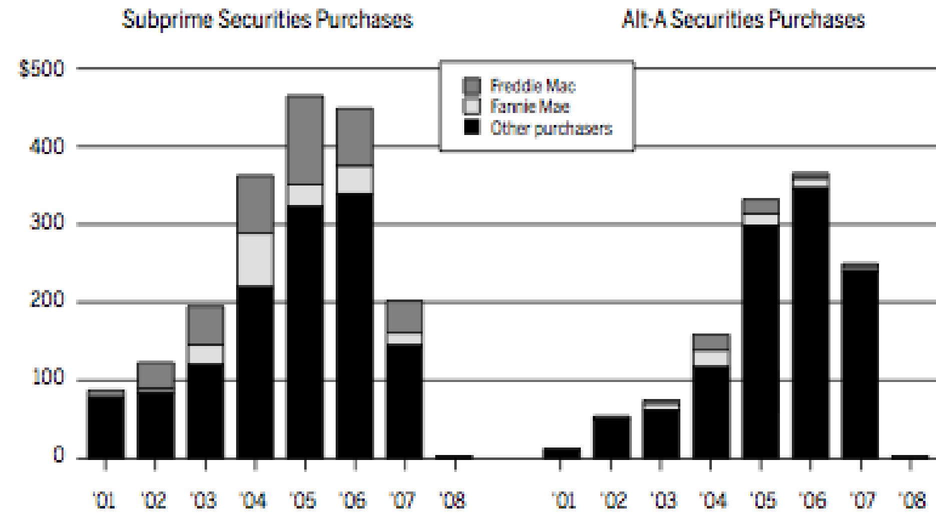
That the GSEs were significant participants in the subprime mortgage market is clear. The following graph demonstrates the extent of Fannie Mae's and Freddie Mac's participation in the subprime market. While the GSEs participation in the mortgage market was significant, the private sector dwarves both Fannie Mae and Freddie Mac in purchases of non-prime mortgage loans.

[134] Peterson, Christopher L. "Fannie Mae, Freddie Mac, and the Home Mortgage Foreclosure Crisis." Loyola University New Orleans Journal of Public Interest Law, Vol. 10, pp. 149-170. April 1, 2009

Buyers of Non-GSE Mortgage-Backed Securities

The GSEs purchased subprime and Alt-A nonagency securities during the 2000s. These purchases peaked in 2004.

IN BILLIONS OF DOLLARS



SOURCES: Inside Mortgage Finance, Fannie Mae, Freddie Mac [135]

That the GSEs were not responsible for the Financial Crisis is evinced in part by the observation that the loans made by Fannie Mae and Freddie Mac were of higher quality that those made by the private sector. It was determined that loans made by the GSEs had a delinquency rate of only 6.2% in 2008 whereas private label loans had a delinquency rate of 28.3% in the same year.[136] The GSEs did contribute to the housing bubble, however, via their participation in the expansion of risky mortgage lending and declining mortgage standards. The participation of the GSEs in the mortgage market

[135] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.
[136] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

increased demand for nonprime loans.[137] In an attempt to meet this demand, mortgage originators and other mortgage suppliers were compelled to lend to borrowers who would eventually be unable to repay their loans.

The relatively higher quality of the loans made by the GSEs over its private market competitors should not be taken as an absolution of Fannie Mae's and Freddie Mac's involvement in the Financial Crisis. Excessive risks were taken that could have been avoided had the GSEs not been swept up in the frenzy that fueled the housing bubble. As with many participants in the financial industry, the GSEs were themselves significantly overleveraged. The combined leverage ratio of Fannie Mae and Freddie Mac was an astonishing 75:1 by the end of 2007.[138] While operating at a higher level of leverage resulted in higher returns for shareholders and additional funding for executive compensation in the short-run, the inadequate capital held by the GSEs resulted in their inability to absorb the losses experienced when the bubble ultimately burst.

Part of the problem associated with the GSEs revolves around their dual nature of part public institution and part private business. This led to a mission for the GSEs of supporting the mortgage market as well as maximizing returns for shareholders. As typical corporations, Fannie Mae and Freddie Mac would issue stock to investors and were managed by executives all focused on the pursuit of profit. Where the GSEs diverge from typical corporations is in the informal, but readily apparent post-crisis, federal

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[137] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

[138] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

guarantee granted to the bonds and mortgage-backed securities issued by the companies.[139]

In their capacity as a public institution, the GSEs supplement additional governmental subsidies that encourage homeownership. These additional subsidies take the form of tax-deductible mortgage interest payments and the lack of taxation on the implicit income from housing capital. The subsidy provided by Fannie Mae and Freddie Mac can be thought of as a direct subsidy to mortgage interest rates financed through taxation. [140] This subsidy was found to have the effect of significantly increasing the fraction of households that have positive mortgage debt as well as increasing the level of leverage. This provides an explanation of the effect of the GSEs on the housing market in which the GSEs may have caused over-investment in mortgages and additional household leverage. This in turn may have worsened the fallout from the housing market crash.[141]

As private businesses, Fannie Mae and Freddie Mac are driven by the pursuit of profit. It was their pursuit of profit along with their desire for greater market share and higher bonuses that drove Fannie Mae and Freddie Mac to increase their exposure to risky loans and securities during the housing bubble. The mortgage exposure of the GSEs is believed to have been $5 trillion collectively in the run up to the Financial Crisis.[142] As mentioned previously the leverage ratios of Fannie and Freddie were 75:1 before the

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[139] Peterson, Christopher L. “Fannie Mae, Freddie Mac, and the Home Mortgage Foreclosure Crisis.” Loyola University New Orleans Journal of Public Interest Law, Vol. 10, pp. 149-170. April 1, 2009.
[140] Jeske, Karsten; Dirk Krueger and Kurt Mitman. “Housing and the Macroeconomy: The Role of Bailout Guarantees for Government Sponsored Enterprises”. NBER Working Paper No. 17537. October 2011
[141] Jeske, Karsten; Dirk Krueger and Kurt Mitman. “Housing and the Macroeconomy: The Role of Bailout Guarantees for Government Sponsored Enterprises”. NBER Working Paper No. 17537. October 2011
[142] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

housing market collapse. The incentive for higher levels of leverage being higher short-term profits tied to executive compensation and shareholder returns. Without the pursuit of short-term profit resulting from the private business motivations of Fannie and Freddie, it is reasonable to assume that greater precautions would have been taken to avoid excessive risk-taking.

It is reasonable to agree with the analysis of the Financial Crisis Inquiry Commission that Fannie Mae and Freddie Mac, "contributed to, but were not a primary cause of, the financial crisis."[143] By freeing up capital through purchases of mortgage debt, the GSEs did allow for additional lending to occur, thus fueling the housing bubble. The market for securities, however, is mostly a private affair with the investment banks of Wall Street taking the primary role of mortgage-product purchaser. Additionally, the erosion of lending standards was less pronounced in the mortgage product purchased by the GSEs than their private market counterparts. While the high levels of leverage at which the GSEs operated ultimately contributed to their collapse and subsequent bailout, they were merely mimicking the private market which was also severely overleveraged. The debate over the role of Fannie Mae and Freddie Mac is still ongoing. That they contributed to the Financial Crisis is true. That they were a primary cause of the Financial Crisis is not.

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[143] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

Conclusion

The financial crisis of 2007-2008 is widely considered to be the worst financial crisis since the Great Depression. As subprime mortgage defaults rose in 2007, a number of major subprime lenders were forced to declare bankruptcy. In March of 2008, the investment bank Bear Stearns was rescued by the Federal Reserve with a $30 billion guarantee to enable its acquisition by J.P. Morgan. In September of the same year, the fourth largest investment bank at the time, Lehman Brothers was forced to file for bankruptcy. At the same time, the third largest investment bank, Merrill Lynch, was sold to Bank of America, preventing Merrill Lynch's bankruptcy. The federal government was also forced to provide an $85 billion bailout for the insurance giant AIG. Additionally, Congress enacted the Troubled Asset Relief Program (TARP), a program designed to purchase toxic assets from troubled financial institutions in the hope of strengthening the financial sector. [144] These actions, while effective in preventing the total collapse of the financial system, came at great expense to the American taxpayer. The party was over for the financial industry as the housing bubble burst and overleveraged institutions fell like dominoes.

In a perfect storm of economic, financial, and regulatory factors, the financial crisis emerged to wreak havoc on the unsuspecting American economy. In an environment of steady economic growth, complacent regulators and optimistic evaluators

[144] Harrington, Scott E. "The Financial Crisis, Systemic Risk, and the Future of Insurance Regulation". The Journal of Risk and Insurance, Vol. 76, No. 4 (December 2009)

of financial products failed to see the interdependent nature of a financial system reliant on an ever growing housing bubble. Greed played a significant role in the crisis, evident in both the excessive leveraging of financial firms to generate impressive short term profits from which bonus payments were derived as well as in unscrupulous mortgage originators who profited from fee generated income even as they pumped faulty mortgages throughout the financial system.

The consequences of the financial crisis can still be felt as of the writing of this paper. The failure of the financial system plunged the U.S. economy into the worst recession in generations. The evaporation of credit in financial markets spread throughout the real economy and effected economic agents only tangentially related to the financial industry. Approximately $17 trillion worth of household wealth evaporated and unemployment peaked at 10.1% in 2009.[145] As the housing bubble burst and housing prices dropped dramatically, families that viewed their homes as a source of retirement funding saw their wealth significantly reduced. In response to the dwindling wealth of households, families sharply reduced spending, worsening the economic fallout of the financial crisis. The reduction in readily available credit also resulted in greater difficulty for business to meet their payroll. Businesses were forced to lay off employees at near historic levels. Without jobs, homeowners were unable to make their monthly mortgage payments, furthering the housing market collapse.

The causes of the financial crisis are complicated and often interdependent. The immediate cause of the financial crisis was the bursting of the housing bubble in the

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[145] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

United States. The bursting of the housing bubble, however, should not alone have been able to create the near destruction of the financial system. A long list of factors contributed to the transformation of the bursting of the housing bubble into a full blown financial crisis. Complicated financial instruments whose value was derived from the performance of the mortgage market brought impressive returns to investors during years in which housing prices continued to rise. These instruments had a magnifying effect on the performance of the housing market. As the positive performance of the housing market was taken for granted, investors rapidly purchased the financial instruments hawked by Wall Street. When it became clear the housing market was in a bubble primed to burst at any moment, the financial industry became distressed. As delinquencies and defaults in the subprime mortgage market rose, multiple financial institutions experienced billion dollar losses. The housing market collapsed and the financial instruments that had made many Wall Street insiders rich amplified the effect to disastrous results.

Failures in the incentive structure of the credit rating agencies led to the misrepresentation of the risks involved in certain investments. By adopting a business model in which the source of revenue comes from the issuer of the bonds, the incentive of the credit rating agencies revolves around pleasing the bond issuer rather than providing accurate ratings. Relying on credit ratings to determine the riskiness of their investments, investors were overconfident in the quality and security of their investments. This overconfidence led to investors overextending themselves. When the housing market inevitably crashed, the worthiness of these investments was severely downgraded. Caught up in the housing boom, the credit rating agencies had every reason to provide optimistic ratings. In being beholden to bond issuers, the credit rating agencies also had

little reason to provide accurate ratings. This combination led to an abundance of highly rated financial products in which investors misplaced their trust and capital. The most revealing folly of the credit rating agencies was in their rating of mortgage-backed collateralized debt obligations, or CDOs. CDOs take the riskiest portion of mortgage-backed securities, rated triple-B by the rating agencies, and package them into an investment that would receive a triple-A rating. In a type of modern alchemy, a combination of risky assets was transformed into one deemed as safe as U.S. treasury bonds. Investors would trust these ratings implicitly and would feel secure in placing their wealth in these highly rated, yet ultimately worthless, investments.

Mortgage companies bear much of the blame in causing the financial crisis as well. In both inflating and experiencing the bursting of the housing bubble, mortgage companies were a central component of the financial crisis. By operating on an originate-to-distribute model, mortgage companies made mortgage loans to investors without any incentive to ensure the quality of those mortgages. As logically follows, these mortgages were of a less than ideal quality. With increased demand from Wall Street for mortgage contracts to underlay their financial products, subprime lenders scraped the bottom of the barrel to find additional borrowers. The mortgages made to these borrowers provided the financial industry with marketable mortgage-backed securities that investors paid hand over fist for. The premise on which the mortgage industry based their business was the continuing rise of housing prices. No one would ever default on a mortgage if housing prices continuously rose. Anyone who found themselves unable to make their monthly mortgage payments could simply sell their home and net a profit off of the difference

between the prices they paid for their mortgage and the increased value their property had achieved as a result of the housing bubble's continuation.

Garnering the majority of the blame in the public perception of the financial crisis, the banking industry was perhaps the greatest single contributor to the financial crisis. By developing complicated financial products, the banking industry was able to sell risky assets in the form of securities to unsuspecting investors. By lobbying the credit rating agencies, Wall Street banks were able to pass off their low quality financial products as safe and secure investments. While the fortunes of the investors was tied to the performance of these securities, the fortunes of Wall Street bankers was already assured through the fee-income generated simply through selling the assets. This motivation for short-term profit can also explain the preponderance of overleveraged financial institutions in the lead up to the crisis. With borrowing money to magnify gains in the short-term came the downside of magnifying losses as well. When the housing market eventually collapsed, these magnified losses caused many financial institutions to go bankrupt. This of course had no effect of the wealth that Wall Street employees had been able to squirrel away during the boom years.

While the majority of the blame for the financial crisis resides in the private sector, the government is by no means blameless. Investors entrusted their hard-earned savings to a financial system that they assumed was being effectively regulated. The government pursued an agenda of increasing homeownership without realizing that their actions might contribute to the formation of a housing bubble. A combination of government action and inaction led to a financial catastrophe that was the duty of the government to defend against.

The Federal Reserve adopted many policies and practices that contributed to the conditions that made the financial crisis all but inevitable. The Federal Reserve failed in its mission of ensuring a safe and sound economy by allowing many financial institutions to go effectively unregulated. While there was some debate over the authority of the Federal Reserve to intervene in certain aspects of the financial industry, it is likely that had they realized the implications of inaction the Federal Reserve would have demanded the authority to act. By keeping interest rates at historically low levels, the Federal Reserve encouraged borrowing and facilitated an abundance of credit in the economy. This credit was a key ingredient in the build-up of excessive leverage that forced many banks into distress when moderate market downturns wiped out the capital of those institutions. Low interest rates also encouraged borrowers to obtain mortgages that were appealing in the short run, but proved unaffordable in the long run. The past policies of the Federal Reserve also may have led Wall Street bankers to believe that the federal government would be there to step in if the financial system was ever at risk of collapse. This moral hazard would have alleviated the concerns of Wall Street regarding the systemic implications of their investment decisions. Firms were able to focus on generating as much profit in the short-term without having to worry about the long-term effects of their business activities.

Government legislation over the past century has also contributed to a climate in which the financial crisis was a likely result. The general unwinding of regulation occurred against a backdrop of nearly uninterrupted economic growth spanning half a century. This growth was mistaken in part as having been the result of that deregulation. The philosophy of the financial industry and the overseers of the U.S. economy was one

that mistakenly believed that a free market was one in which the government played no role. This philosophy fails to acknowledge the now apparent truth that government regulation is in fact a necessary part of free markets, protecting the unsuspecting consumer from abuse by those in power. The clearest example of the government's deregulatory philosophy can be found in the passage of the Commodities Futures Modernization Act which prevented financial regulation of exotic financial instruments. By refusing to classify over-the-counter derivatives as either securities or futures, the legislature prevented any meaningful regulation of a market that grew to a peak notional amount of $673 trillion.[146] While objections were made to the lack of regulation by the Commodity Futures Trading Commission chairperson Brooksley Born, these objections were quickly overruled by other members of the regulatory apparatus. Through the vehement opposition Brooksley Born experienced as a result of her attempt to regulate derivatives markets, the government's anti-regulatory agenda was made clear.

The extent to which the financial industry is able to lobby Congress and impose its will on the regulatory system is readily apparent in the rolling back of the Glass Steagall Act through the passage of the Gramm-Leach-Bliley Act. While the effect of Glass Steagall of separating commercial banking and investment banking activities on the origin of the financial crisis is still a matter of debate, the financial industry was clearly against the restrictions imposed by the Glass-Steagall Act. In 1999, the same year that the Gramm-Leach-Bliley Act was signed into law, the financial industry spent $187 million

[146] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

on lobbying at the federal level.[147] While the provisions in the Glass-Steagall Act had been steadily reduced over the course of the past half century, the Gramm-Leach-Bliley Act abolished all restrictions on combining commercial and investment banking activities. Firms were thus able to form bank holding companies that provided all types of financial services. There was a preponderance of banking consolidation as a consequence of the passage of Gramm-Leach-Bliley that resulted in many financial firms deemed too big to fail.

Not content to merely reduce regulation in the financial industry, the federal government also sought to influence financial markets to promote its expansive housing policy. This influence came in the form of the Community Reinvestment Act which was designed with the intention of compelling banks to lend to individuals and neighborhoods that would have been avoided by the banks otherwise. While it would be reasonable to assume that inducing banks to lend to borrowers that they would prefer not to would contribute to a higher frequency of default and delinquency of mortgages, this proved not to be the case. Mortgages made under the guidelines of the Community Reinvestment Act were determined to have performed consistently with the other loans made in the portfolios of the banks examined.

A prime example of government involvement in the economy resulting in financial calamity can be found in the actions of the two government sponsored enterprises Fannie Mae and Freddie Mac. Another example of government intervention in the economy, Fannie Mae and Freddie Mac were designed to purchase mortgage loans

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[147] "The Financial Crisis Inquiry Report". National Commission on the Causes of the Financial and Economic Crisis in the United States. GPO. February 25, 2011.

from banks, freeing up additional capital for those banks to turn onto additional mortgages. This secondary market for mortgages allowed more mortgages to be made, more homes to be purchased, and the housing bubble to inflate further. Garnering attention for their placement into government conservatorship in the wake of the financial crisis, the GSEs have received a significant portion of the blame for the financial crisis. Despite this warranted attention, the GSEs acted more responsibly in their mortgage lending than other private mortgage securitizers. The mortgages backed by the GSEs had a lower rate of default and delinquency than their private sector counterparts. While the overleveraging present in the GSEs ultimately proved disastrous, an abundance of credit in the economy encouraged excessive borrowing on the part of many financial actors. The contribution of the GSEs in spawning the financial crisis is nearly inconsequential when compared to that of the private financial sector.

The backdrop for the financial crisis was an out of control housing bubble that was inevitably going to burst. It is generally agreed upon that the primary causes of the financial crisis was a credit crisis resulting from the collapse of the housing bubble.[148] Complicit in the creation of this bubble are a wide variety of factors including the Federal Reserve, Wall Street, mortgage brokers and even simple home buyers. No single factor was responsible for the financial crisis. It was only through a combination of factors, some decades in the making, that the collapse of the financial system was made possible.

In pursuit of the American Dream, the goal of home ownership came to dominate the economic life of many Americans. In support of this goal, the federal government

[148] Holt, Jeff. "A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper" The Journal of Business Inquiry 2009, 8, 1, 120-129

established many policies designed to enable home purchases that would have otherwise been impossible. Fannie Mae and Freddie Mac purchased trillions of dollars' worth of mortgages with the goal of freeing up capital for banks to make additional mortgage loans. Through legislation such as the many manifestations of the Community Reinvestment Act, the federal government sought to ensure homeownership for those that would have been denied a mortgage loan. The Federal Reserve, while not necessarily with the explicit intention of increasing home ownership, sought to increase the availability of credit in the economy. By keeping interest rates at historically low levels, the Fed enabled many individuals and families to take out mortgages on homes well beyond their means as a result of the availability of cheap credit.

Taking advantage of the availability of cheap credit, mortgage companies were able to pump out loans to borrowers trying to realize their American Dream. The quality of these loans was of little concern to the mortgage companies as these mortgages were immediately sold to Wall Street banks. The fee-income generated from these sales was the only incentive for these mortgage companies, and the quantity of loans, not the quality, was the only factor in determining the amount of income the mortgage companies would rake in. The shoddy mortgages were then transformed into financial instruments such as mortgage-backed securities and collateralized debt obligations that were ensured high ratings as a result of the perverse incentives of the credit rating agencies. As investors gobbled up these financial products, additional funding was made available to lend to even more borrowers. A cycle had been created in which the mortgages of today financed the mortgages of tomorrow. Wall Street and mortgage companies sat in the middle of this cycle, earning income off of the fees generated

through each successful sale of mortgage products. With a vested interest in keeping this cycle of lending intact, the mortgage industry sought out any potential homebuyer they could find and the quality of borrowers diminished over time. Once lenders ran out of prime borrowers they turned to subprime borrowers to generate their mortgage products. With mortgages being made to financially unworthy customers and homes being purchased by those that could not afford to pay for them, the housing bubble reached colossal proportions. The inevitable burst of the housing bubble sent the economy into ruin and evaporated the wealth of millions of Americans. Around the world, financial firms collapsed and it is likely that a complete collapse of the financial system was averted only through government intervention. The effects of the financial crisis will be long lasting and nearly a decade after the inception of the crisis the consequences can still be felt.

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