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# Government Policy and Moral Hazard in the 2007-2009 Financial Crisis

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**Government Policy and Moral Hazard in the 2007-2009 Financial Crisis**

By

Ariana G. Abrams

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Submitted in partial fulfillment  
of the requirements for  
Honors in the Departments of Economics and Political Science

UNION COLLEGE

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## Abstract

ABRAMS, ARIANA Government Policy and Moral Hazard in the 2007-2009 Financial Crisis. Departments of Economics and Political Science.

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The US government has invested over \$3 trillion in financial assistance programs and bailouts for ailing companies affected by the 2007-2009 financial crisis. This paper analyzes the different government policy efforts in response to the collapse of the U.S. financial sector and whether these efforts increased the risk of moral hazard for small, medium, and large banks.

Moral hazard occurs when a company has an incentive to take greater risks than it otherwise would, because the company gains all the benefits from excessive risk-taking, but does not bear all of the losses. I measure moral hazard through the debt-to-equity ratio, interest rate spreads, and risk ratings on new loan originations for a select group of small, medium, and large banks. This paper is different from previous studies because I analyze the issues of public transparency, accountability and policy clarity during and after the financial crisis. This analysis is done in the context of the dynamic relationship between democratically elected government bodies of Congress and the Presidency and politically appointed bodies of the Federal Reserve and the U.S. Treasury.

The results indicate that government policies preceding and during the financial crisis increased the risk of moral hazard on the part of large banks, but not for medium and small banks. In addition, the failure of government policy to establish a clear plan of action further exacerbated the issue of moral hazard. This suggests that ‘too-big-to-fail’ remains a systemic risk to the financial sector despite efforts to attenuate it.

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# **Chapter One**

## **Introduction**

The financial crisis of 2007-2009 marked the largest financial meltdown of the United States economy since the Great Depression. The level of financial instability required the Federal Reserve, the U.S. Department of the Treasury and Congress to provide an unprecedented bailout effort with extended lending facilities and asset purchases to prevent the drop of firms' security prices (D'Apice and Ferri 2010, 129). Critics of the government bailouts claim that additional assistance through Federal credit and public tax dollars increases the likelihood of moral hazard by allowing institutions to take greater risks. This paper analyzes the different policies of the Federal Reserve, the U.S. Treasury, Congress and the Presidency in response to the 2007-2009 financial crisis and whether these efforts increased the risk of moral hazard for small, medium and large banks.

Moral hazard is measured through the debt-to-equity ratio, interest rate spreads, and risk ratings on new loan originations for small, medium, and large banks. In addition to Federal lending facilities, this paper analyzes Congress' passage of TARP, which put American taxpayer dollars at risk of moral hazard. Given the greater degree of public transparency and accountability, one would expect democratically elected government bodies, rather than politically appointed bodies to be more sensitive to public opinion and enact legislation that reduces moral hazard.

The financial crisis began and persisted because brokers, investors, and regulators were focused on the short-term, microeconomic outlook of their actions, rather than the greater long-term macroeconomic picture. The greater understanding that we have of the macroeconomic



instances of moral hazard, the better we can prevent another systemic collapse of the US economy.

## **1.1 Moral Hazard**

Moral hazard generally occurs after a debt contract has been signed and a borrower engages in higher risk activities that can jeopardize loan repayment (D'Apice and Ferri 2010, 26). The borrower has an incentive to take excessive risks, with the possibility of larger profits and the safety net that the lender will incur some of the losses. In the 2007-2009 financial crisis, the financial sector's preceding uncontrolled growth into riskier investments, resulted in a severe economic downturn for major financial firms on Wall Street (Dowd, 2009). When a bank that poses a systemic risk, faces liquidity and other financial issues, the Federal Reserve, as the lender of last resort can facilitate additional lending to prevent the firm's failure. However, the Federal Reserve's additional lending facilities and bailouts of systemically important financial institutions can also create the implicit financial market (hereby referred to as the market) expectation that large banks can receive future bailouts. Therefore, past government bailouts can increase the future risk of moral hazard by incentivizing systemically important banks to take excessive investment risks.

Before the 2007-2009 financial crisis, the most recent concern over government bailouts and moral hazard occurred in 1984 with the Federal Reserve's \$9.5 billion bailout of Continental Illinois National Bank and Trust Company (Wright 2010, 39). The Fed's bailout sent a wave of opposition that the government's actions would set the precedent for bank risk taking and the future risk of moral hazard. The argument follows the claim that large financial firms have an

incentive to take greater risks, because of the implicit guarantee that the government would provide additional lending facilities to bail them out.

Moral hazard became an issue in the 2007-2009 financial crisis when commercial and investment banks, as well as insurance and mortgage corporations required government financial assistance in order to sustain liquidity<sup>1</sup>. In August 2007, the Federal Reserve began an unprecedented amount of government funding through a variety of lending facilities. But by September 2008, the Fed had exhausted its financial ability to fund depository and investment banks and in an act of desperation, the U.S. Treasury requested additional funding from Congress. This created a unique situation in U.S. history, whereby the insurers were U.S. taxpayers, and private companies had the opportunity to profit off of public funds.

## **1.2 Deregulation and Innovation: The Rise**

The seed for a financial crisis was planted when former-President Bill Clinton repealed the Glass-Steagall Act (1933) with the passage of the Gramm-Leach Bliley Act (1999) (Hendershott and Villani, 2012). Originally implemented after the Great Depression, Glass-Steagall (1933) separated the actions of commercial and investment banks. Commercial banks could accept deposits and provide loans, while investment banks could sell and guarantee securities. Former-Senator Byron Dorgan (D-ND) was one of eight Senate members to vote against the repeal of Glass-Steagall (1933), stating his concerns before the Senate floor that:

*“I worry very much that the fusing together of the idea of banking, which requires not just safety and soundness to be successful, but the perception of safety and soundness...to merge it with inherently risky speculative activity, is in my judgment unwise. I think we will in 10 years’ time look back and say, we should not have done that.”*

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<sup>1</sup> Ability for a firm to meet its short-term debt obligations (Acharya and Viswanathan 2010)

<sup>2</sup> Fannie Mae and Freddie Mac bought mortgages from banks, thrifts and mortgage companies resold these

The repeal of Glass-Steagall (1933) provided investment and commercial banks with increased profit opportunities, but also the ability to engage in greater investment risk. The deregulation of the investment and commercial banks was compounded with the influx of the mortgage-backed securities (MBS) market that allowed easier access to credit for potential-homeowners. America has always been the land of opportunity, and with the rise in available credit throughout the early 2000s, an individual's 'dream home' could now become a reality. Unfortunately, the rise in homeownership rates did not come without a serious cost to the United States and world economy.

The rise in home ownership rates was created in part by the taxpayer-backed government sponsored enterprises (GSE), Fannie Mae and Freddie Mac. The giant mortgage companies received special incentives from the government with lower interest rate payments and support through business cycles. With the confidence of government backing, Fannie Mae and Freddie Mac were two main companies loaning mortgage-backed securities (MBS)<sup>2</sup>. The value of securities that were backed by mortgage loans rose as the housing bubble inflated to record proportions (D'Apice and Ferri, 2010).

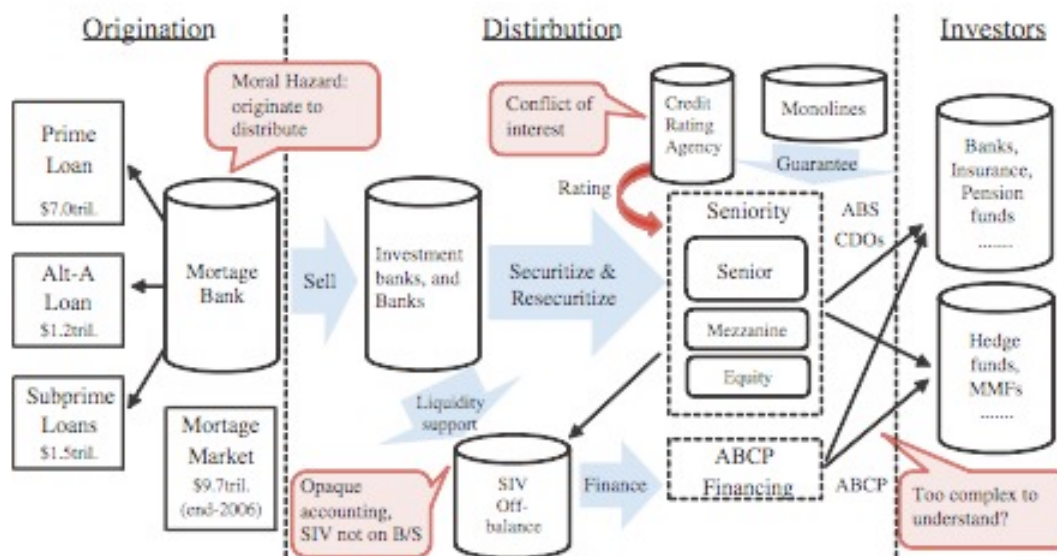
In addition to the rise of the mortgage-backed securities, new securitized financial instruments became widespread through the rise of the Originate-to-Distribute (OTD) business model depicted in Figure 1.1 on the following page. The figure illustrates the complex OTD process of reselling of an illiquid asset, such as a mortgage (i.e., prime, alt-A, or subprime loan), to a broker at an investment bank or other financial institution. The broker quickly sells the loan to a third party issuer that breaks up the illiquid asset into different tranches that can be sold as a

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<sup>2</sup> Fannie Mae and Freddie Mac bought mortgages from banks, thrifts and mortgage companies resold these mortgages through securitization, creating mortgage-backed securities. Securitization allowed firms to repackaged traditional loans into securities to sell to investors, thereby transferring the higher-risk onto a third-party.

security to investors<sup>3</sup>. While inherently riskier, securitization allowed commercial and investment banks to earn greater profits during economic booms. Under the OTD model, banks rationalized riskier investments, because assets were spread between numerous parties.

**Figure 1.1. Originate-to-Distribute Business Model**



Source: Ito, 2011. Based on a chart that originally appeared in the Bank of Japan, Financial Stability Report, March, 2008

Another important factor underlying the rise of bank balance sheets was the rise of the shadow banking system. Shadow banks are mostly investment banks, but also other financial intermediaries that provide credit facilities, but do not fall under the regulatory oversight of the Federal Reserve (Pozsar et. al, 2009). Examples of shadow banks include traditional hedge funds, structured investment vehicles (SIVs), money market mutual funds, and government sponsored entities. Shadow banks trade complex financial instruments like bond swaps, interest rate swaps, and credit default swaps and highly liquid assets like commercial paper and the repo

<sup>3</sup> Discussed further in Chapter Three, Section 3.6

market. Commercial banks are subject to Federal Reserve capital requirements to protect against excessive leverage. Banks were able to hedge some of their investment risks onto third-party balance sheets of shadow banks that were not subject to regulations. In effect, banks were able to take larger risks and did not have to provide capital requirements that were equivalent to their higher amount of leverage. Therefore, the shadow banking system increased the risk-taking in financial markets.

Despite the dramatic rise in housing prices and clear signs of a housing bubble the Federal Reserve, nor any other governmental body took the initiative to declare a systemic risk was at stake and growing.

### **1.3 The Great Fall**

The combination of loose regulatory standards from mortgage lenders, credit rating's agencies, and new financial instruments, provided the ingredients for one of the worst financial meltdowns to date. Financial innovation converted mortgages into securities, sold them nationally and internationally, and allowed for the distribution of risk between banks and investors. Subprime lenders who were subject to adjustable rate mortgages were severely impacted when mortgages interest rates increased dramatically (D'Apice and Ferri, 2010). The OTD-model provided incentives for brokers to sell as many securitized mortgages because the securities were 'diversified' between a number of agents and investors. However, when a homeowner defaulted on his/her mortgage, the diversified nature of securitized investment products also created a systemic breakdown of the numerous parties involved in securitized assets. Therefore, the collapse of the housing bubble also increased serious instability in the financial sector.

The first signs of financial distress became apparent on August 9, 2007 when the asset-backed commercial paper (ABCP) market was unable to rollover their outstanding volumes (D'Apice and Ferri 2010, 123). By November 2007 the losses from the collapse of the housing market became so severe that banks began performing write-downs<sup>4</sup>. In order to prevent deflation due to a loss in bank assets, the Federal Reserve began a number of lending facilities beginning with the Term Auction Facility (TAF) for commercial banks. However, investment banks also required lending facilities, which led to the creation of the Term Securities Lending Facility (TSLF) to provide \$200 billion worth of government bonds. Despite TSLF lending, investment banks required further funding, and the Fed created the Primary Credit Dealer Facility (PCDF) to extend the discount window to investment banks. The extension of Federal Reserve lending facilities and discount rate illustrated the serious liquidity issues taking place.

The first major government bailout occurred on March 16, 2008, when the Federal Reserve facilitated JP Morgan Chase's acquisition to buy Bear Stearns. Bear Stearns was highly leveraged in the CDO market and in dire need of liquidity when the mortgage market collapsed in 2007 (Friedman, 2011). While the Federal Reserve attempted to stabilize investment banks, the nations two largest government sponsored entities (GSE), Fannie Mae and Freddie Mac, were also running into financial woes. On July 13, 2008 the U.S. Treasury purchased shares of Fannie Mae and Freddie Mac, in order to prevent mortgage corporations' collapse. But Fannie Mae and Freddie Mac's share price continued to fall and on September 7<sup>th</sup>, 2008, the Federal Reserve and U.S. Treasury made the decision to nationalize the mortgage firms.

Presumably, just as the government had taken action for Bear Stearns, Fannie Mae and Freddie Mac, the financial sector expected that the Federal Reserve would continue to provide

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<sup>4</sup> A write down is an accounting technique to reduce the book-value of an asset because it is overvalued in comparison to the market-value of an asset.

financial support to major financial companies. However, on September 15, 2008 the failure of Lehman Brothers proved that the government would provide no such thing for every ailing firm--no matter the size. By allowing Lehman Brothers to fail, a sea of panic swept over the market with investors unsure and unconfident of the financial stability in the US, the securities market responded by posting one of the largest downturns (Friedman, 2011). Questions arose: What firm would be the next to fail? Would the government even provide a rescue package?

The systemic risk that one financial institution's failure places on the entire financial sector required the Federal Reserve, the US Department of the Treasury, and Congress to take action and provide a comprehensive plan to prevent the entire collapse of the US economy. This thesis will analyze the extent to which government increased the risk of moral hazard *ex ante*, during, and *ex post* the 2007-2009 financial crisis for small, medium, and large banks.

The next chapter provides an overview of the relevant literature on government policy and the increased risk of moral hazard. The third chapter quantifies moral hazard through the degree of debt-to-equity, interest rate spreads and risk of new loan originations for small, medium and large banks. Chapter four examines and compares the policies implemented by democratically elected government bodies, versus politically appointed government bodies. Chapter five concludes the study and discusses the limitations and possible policy implications.

## **Chapter Two**

### **Literature Review of Financial Sector Moral Hazard**

This section provides an overview and review of previous literature and the extent to which government policy increases the risk of moral hazard in the financial sector. Subsection 2.1 will outline Federal Reserve monetary policies and the impact on firm risk-taking prior to and during the financial crisis. Subsection 2.2 discusses the impact of the Troubled Asset Relief Program (TARP) headed by the U.S. Treasury. Subsection 2.3 will compare the public interest in democratically elected bodies of Congress and the Presidency versus politically appointed bodies of the Federal Reserve and the U.S. Treasury.

#### **2.1 The Federal Reserve and Moral Hazard**

##### *Federal Reserve Policy*

The role of the Federal Reserve has expanded tremendously since its inception. As the original lender of last resort, the Federal Reserve is responsible for the nation's monetary policy, regulating the banking sector's reserve requirements and capital ratios, and maintaining overall financial stability (Johnson and Kwak, 2010). A number of scholars examine the role of the Federal Reserve in the recent financial crisis and the extent to which it contributed to moral hazard (Dowd 2009; D'Apice and Ferri, 2010; Johnson and Kwak, 2010; Wright, 2010; Farhi and Tirole, 2012).

Safety nets provided by government policies can potentially increase the risk of moral hazard. The former-Chairman of the Federal Reserve, Alan Greenspan and current Chairman, Ben Bernanke, continually pursued an expansionary monetary by purchasing Treasury bonds, thereby, increasing the nation's money supply and creating a lower Federal Funds rate. The



Federal Reserve received a wide-range of criticism for the low interest rate or ‘loose monetary policy’ that it pursued in recent years. D’Apice and Ferri (2010) argue that during a financial crisis, interest rates generally rise in order to compensate for the increased level of riskiness of lending during a financial crisis. However, after the collapse of the housing bubble and the bankruptcy of Lehman Brothers in September 2008, the Fed continued an expansionary monetary policy.

Wright (2010) claims that a low interest rate creates moral hazard by encouraging investment in riskier assets and signaling to investors and institutions that the Federal Reserve will come to their aid if they run into financial woes. Johnson and Kwak (2010) add that a low Federal funds rate and the existence of the Federal Reserve’s insurance through the discount rate (i.e., lower interest rates) and short-term liquidity loans increases the risk of moral hazard. Johnson and Kwak (2010) explain that market knowledge of government safety nets provides banks with the incentive to raise their risk-taking, in order to increase shareholder returns. Farhi and Tirole (2012) claim that the Fed’s low interest rate policy is subject to time inconsistency and encourages banks to take greater risks by issuing more short term liabilities. The time inconsistency model claims that policies that were optimal for past situations are not always optimal for current issues; thereby stating that low interest rates prior to a financial crisis are not necessarily ideal to continue during a financial crisis. In essence, the loose monetary policy pursued by the Federal Reserve through the Federal Funds rate creates an incentive for investors to take higher risks and increases the likelihood of moral hazard. This paper will analyze the changes in monetary policy and the resulting effect on bank risk taking.

### *Excessive Leverage*

As stated earlier, moral hazard occurs when a company has an incentive to take greater risks, because the company will gain all of the benefits, but will not necessarily incur all of the losses. The debt-to-equity ratio is a measure of a company's total debt, divided by total equity. Banks are able to earn greater profits for their shareholders by leveraging their equity through debt, in the form of loans to consumers and businesses (United States Financial Crisis Inquiry Commission, 2011). Therefore, the debt-to-equity ratio is one measure of a bank's level of leverage and overall risk.

The rise in credit lending created an issue of excessive leverage on the part of many commercial and investment banks as well as insurance and mortgage corporations. Pomfret (2010) claims that easier access to credit created a higher degree of leverage and excessive risk taking as a common feature among financial crises since the 1970s. Johnson and Kwak (2010) point out that securitization, credit default swaps and flexible capital requirements made it possible for banks to increase their leverage power because the ratings for many of these instruments did not accurately reflect investment risk. In addition, Farhi and Tirole (2012) point out that government policy was narrowly focused on the solvency of individual institutions, rather than a larger macroeconomic approach on the overall transformation of banks that posed a systemic risk. This ad hoc approach did not help to contain the excessive leverage that financial institutions were running on. In effect, bailing out major financial firms that created the initial financial crisis in 2007 only increased the future risk of moral hazard.

## **2.2 The U.S. Department of the Treasury and Moral Hazard**

### *U.S. Treasury Policy*

In addition to the extended lending facilities provided by the Federal Reserve, Congress authorized the use of \$700 billion taxpayer dollars to the U.S. Department of the Treasury to stabilize the economy. The historic Troubled Asset Relief Program (TARP) was created under the Emergency Economic Stabilization Act (EESA) and signed into law on October 3, 2008 (Hazelwood and Black 2012). The goal of TARP was to restore liquidity and confidence in the financial sector through the government purchase of troubled assets (i.e., mortgage backed securities and asset-backed securities) on banks' balance sheets (United States Financial Crisis Inquiry Commission 2011).

While TARP was established on the basis of stability for the financial sector, critics of TARP claim that the legislation increased the risk of moral hazard. Wright (2010) argues that large banks dubbed as 'too big to fail' take greater risks in order to gain record profits and therefore create the issue of moral hazard. Wright (2010) outlines the role that Congress must play when the Federal Reserve runs out of resources to capitalize ailing banks. Wright (2010) claims that the tools that the government uses to deal with the financial crisis focus on the symptoms of moral hazard, but do not target the actual causes of excessive leverage on the parts of borrowers and lenders.

Ghosh and Mohamed (2010) focus on the underpinnings of the TARP program with the plan for the federal government to buy up to \$700 billion of illiquid mortgage-backed securities (MBS) and asset-backed securities (ABS) to help lending in the mortgage market. However, Ghosh and Mohamed (2010) point out that five weeks after the program's enactment the Treasury turned from directly buying toxic assets, to instead purchasing non-voting preferred

stock. In effect, TARP tax dollars no longer benefited taxpayers by reviving lending to homeowners or mitigating foreclosures, but rather supported the transfer of taxpayer wealth to the financial institutions. The authors claim that TARP's original goal was to channel more credit into the banking system, but instead became a rescue package for failing banks and automobile companies. This paper will explore the goal of TARP and the reason for the legislation's transition.

This paper is most similar to Black and Hazelwood's (2012) analysis that examines TARP and non-TARP small, medium, and large banks risk ratings of new loan originations in the commercial and industrial lending (C&I) from the Survey of Terms of Business Lending (STBL). The STBL gather data on new loan originations from bank holding companies and assesses new loan origination risk. Risk-takings are based on a 1-5 scaled from the loans relative credit risk, default risk, equity risk, value-at-risk, return on assets, balance sheet measures of bank risk, and supervisory ratings. Black and Hazelwood (2012) use a difference-in-difference approach and control for interest, commitment, maturity, the log of loan size, and whether the loan was secured or floating. The results reveal that after TARP capital injections, all banks decreased their level of lending. However, the overall risk rating of new loan originations for large TARP banks increased after TARP capital injections. Black and Hazelwood (2012) claim that increased risk-taking in the absence of increased lending of TARP funds is indicative of moral hazard. My analysis builds upon Black and Hazelwood's (2012) findings to determine bank risk-taking prior to the financial crisis.

### **2.3 Democratically Elected versus Politically Appointed**

This paper will also analyze the political underpinnings of the government assistance programs implemented during and after the financial crisis. It will compare the roles and relative public interest held between democratically elected politicians versus politically appointed leaders.

#### *Congress and the Presidency*

The two houses in Congress, the House of Representatives and the Senate, are comprised of democratically elected representatives. Legislative actions are subject to a higher degree of public transparency and accountability. Therefore, Congressional approval of TARP received a large degree of public attention and concern that the legislation protected taxpayer dollars and mitigated the risk of moral hazard.

Numerous scholars critiqued the legislative process and the effect that it has in implementing legislation. TARP was enacted on October 3<sup>rd</sup>, 2008, but Ghosh and Mohammed (2010) point out that Congress did not lay out official stipulations on the use of taxpayer funds until the end of 2008. The lag in policy implementation allowed for TARP funds to be accessed by automobile companies, like GM and Chrysler. Bayazitova and Shiydasani (2012) also shed light on the disorganized legislative process, where policymakers' added important rules for executive compensation restrictions with the use of taxpayer dollars months after original legislative passage. This provides insight on the degree to which the public interest was considered in policymaking and effectively mitigating the risk of moral hazard.

In addition to the ambiguity in legislative policies, the overarching goal of TARP was not clear. The United States Financial Crisis Inquiry Commission (2011) asserted that the goal for

the TARP program was to restore liquidity and confidence in the financial market through the government purchase of troubled assets on banks' balance sheets. However, TARP transitioned from purchasing troubled assets to the purchase of non-voting preferred shares. Pomfret (2010) claims that TARP was created to allow banks to reduce their leverage without decreasing the size of their loans to lenders, and thus maintaining the flow of consumer credit. But as Ito (2011) points out, the original purpose of TARP was designed poorly, because the direct purchase of 'troubled assets' would only work if a financial institution failed. Conversely, financial institutions were bailed out and therefore, would not accept asset purchases that were below their recovery level. Ito (2011) adds that the failure of Congress to establish a clear plan of action for TARP, allowed the Treasury to transition from purchasing troubled assets, to directly providing capital to ailing firms. This paper will analyze the legislative process, the wording of TARP, and overall how the legislation affected moral hazard.

### *Executive Branch*

Scholars also examine the executive branch and the role that it played in establishing crisis response policies. Stiglitz (2010) argues that both former-President George W. Bush and President Barack Obama failed to realize that the banker's self-interest and the public interest do not coincide. The Bush administration argued against government control of taxpayer bailouts, claiming that it would go against the ideology of a free market. However, the role of financial managers is to use capital to maximize profits for their shareholders. Maximizing profits at times may coincide with the public interest of lending to consumers and businesses. But as Stiglitz (2010) points out, large banks altered their focus from loaning to individuals and companies, to

securitizing and repackaging complex financial instruments and selling them to finance multi-million dollar companies.

Taking a step back, the President is the only official who is elected by the entire electorate and hence ought to be the most keen on upholding the national interest. If legislation signed by the President fails to uphold the public interest due to increased risk of moral hazard (i.e., excessive risk taking), then the Executive also holds a part of the responsibility to mitigate the risk of moral hazard.

### *The Federal Reserve and the U.S. Department of the Treasury*

A number of scholars note the lack of transparency that the Federal Reserve and U.S. Treasury assumed throughout the financial crisis. The decreased transparency of the Federal Reserve and the U.S. Treasury can be one possible factor for the increased risk of moral hazard. Ferguson and Johnson (2009) analyze the ‘Paulson Put’ where the U.S. Treasury Secretary, Henry Paulson, attempted to hide high-profile public financial bailouts through shadow banking mechanisms. Ferguson and Johnson (2009) describe how Paulson and Federal Reserve Chairman Ben Bernanke, both Republicans appointed to their positions by former-President George W. Bush, had an incentive to downplay the severity of the financial crisis until after the 2008 Presidential Election. Ferguson and Johnson (2009) claim that the Fed Chairman and Treasury Secretary created a two-track strategy for getting out of the crisis, specifically aimed at rescuing financial firms on Wall Street. The dual strategy was exhibited by the Fed’s extension of the discount window to investment banks with the Primary Dealer Credit Facility (PDCF) and continued effort to lower the Federal Funds rate. At the same time, Paulson encouraged the FDIC to spend down its reserves and took advantage of the GSE bailout of Fannie Mae and

Freddie Mac by increasing the amount of deposit insurance from the Treasury to the FDIC from \$100,000 to \$250,000. I plan to examine how the Federal Reserve's lending facilities and policies were characterized throughout the course of the financial crisis.

The Federal Reserve and U.S. Treasury's lack of transparency came to light through Bloomberg News' victory court case against the Clearing House Association LLC. Bloomberg News' Ivry, Keoun and Kuntz (2011) provide a revealing synopsis of the secret Federal Reserve bailout efforts that totaled over \$7.77 trillion government assistance. The Federal Reserve was forced to disclose which banks received government funds and the extent of federal lending. On top of the sheer magnitude of the bailout, the Fed's actions potentially increased moral hazard by providing easier lending facilities to large banks with zero-transparency to Congress or the public. The extension of the discount window (i.e., lower interest rate) to investment banks was one of 11 extended lending facilities that allowed government-funded banks to earn over \$13 billion in profits. In addition, the lack of transparency of Federal lending facilities occurred while Congress was drafting Troubled Asset Relief Program (TARP) legislation to stabilize ailing banks with over \$700 billion of taxpayer funds. The authors add that the TARP bailout and Fed lending complemented one another with the Fed's limitless lending facilities that prevented banks from total collapse, and further protected the Treasury's TARP investments. We will focus on the dynamic relationship between the Federal Reserve, the U.S. Treasury and Congress and the extent to which government policies increased the risk of moral hazard.

Government policy plays a key role in assisting ailing banks during financial crisis. This paper attempts to measure an ambiguous concept of excessive risk-taking to determine whether government policy increases the occurrence of moral hazard on the part of small, medium and large banks.



## Chapter Three

# Empirical Analysis of Moral Hazard

### 3.1 Overview of Analysis

After a thorough examination of the causes of the financial crisis, the United States Financial Crisis Inquiry Commission (2010) concluded that, “a combination of excessive borrowing, risky investments, and lack of transparency put the financial system on a collision course with crisis.” This chapter examines the amount of risk that different size banks operated with *ex ante*, during and *ex post* the 2007-2009 financial crisis.

Financial managers are concerned with maximizing firm profits in order to increase shareholders’ earnings. While maximum profits are positive in the investor’s eye, taking on excessive risk can be indicative of moral hazard. One measure of a firm’s overall risk is through the leverage ratio: the level of a firm’s overall debt issued, divided by shareholder equity<sup>5</sup>. During strong economic times, highly leveraged firms will experience a larger stream of revenue, but during an economic downturn, leverage exacerbates losses and can create severe liquidity issues if a firm does not have enough equity to finance short-term debt. This study compares the debt-to-equity ratio of firms that received government assistance programs from the Federal Reserve and U.S. Treasury versus firms that did not receive any government assistance. The results indicate that large government-funded banks operated on the largest degree of leverage in comparison to medium and small banks before the financial crisis. In combination with Black and Hazelwood’s (2012) findings, the greater degree of leverage *ex ante*, along with increased risk lending activities during government capital injections, is indicative of moral hazard.

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<sup>5</sup> See Appendix B for this study’s debt-to-equity calculation

The next subsection of this chapter focuses on the policies implemented by the Federal Reserve that allowed firms to take on greater risk. Subsection 3.3 analyzes the U.S. Department of the Treasury and the unprecedented bailout package that it provided by taxpayer dollars. The following subsection 3.4 outlines the empirical analysis to test for moral hazard with Black and Hazelwood's (2012) results and this study's analysis of debt-to-equity ratios for small, medium and large banks. Finally, subsection 3.5 concludes with a summary and analysis of this paper's results.

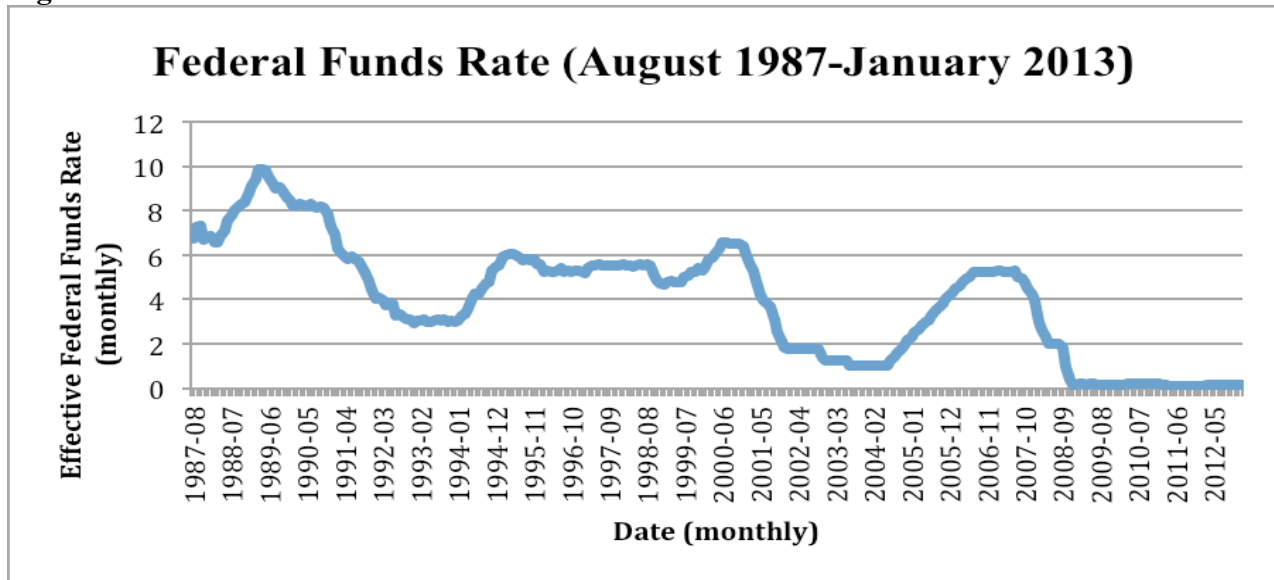
### **3.2 Federal Reserve Financial Crisis Policies**

#### *Federal Funds Rate*

Before separating the risk of various firms, it is important to understand the reasons that firms took on greater risk preceding economic downturn of the 2007-2009 financial crisis. One of the responsibilities of the Federal Reserve is to regulate the U.S. monetary policy through monetary and credit conditions as a way to maximize employment, maintain stable prices, and moderate long-term interest rates (Fox et al., 2005). The Federal Reserve regulates U.S. monetary policy through the supply of money in the economy, which affects the Federal Funds rate. The Federal funds rate represents the interest rate at which a depository institution lends available funds that are held at the Federal Reserve, to other depository institutions. The Fed has the power to influence the supply and demand for these balances through open market operations (OMO) with the purchase or sale of U.S. Treasury securities, managing bank reserve requirements and contractual clearing balances, and offering discount window lending to depository institutions (Fox et al., 2005). As noted in Chapter 2, a number of scholars argue that a low Federal Funds rate encourages investment into higher risk assets, because of the increased

profit opportunity (D'Apice and Ferri, 2010; Johnson and Kwak, 2010; Wright, 2010; Farhi and Tirole, 2012). Alan Greenspan, the former Chairman of the Federal Reserve (1987-2006), and other proponents of the 'Great Moderation' felt that decreased macroeconomic volatility (i.e., low unemployment and inflation) could allow for lower interest rates (D'Apice and Ferri 2010, 152). Under this same ideology, the financial markets research and technology had advanced to such a degree that the financial sector no longer needed a staunch level of regulation and oversight. Therefore, the claim that low interest rates encouraged investment into riskier assets did not hold as much force in the Chairman's eyes.

Figure 3.1 on the following page depicts the Federal funds rate from the beginning of Greenspan's tenure to the most recent date of data available in January 2013. As Figure 1 illustrates, throughout the 1990s and even into today, Greenspan and current Chairman, Ben Bernanke (2006-Present), maintained an expansionary monetary policy and in effect, driving down the Federal funds rate. From August 2000 until April 2004, the Federal Reserve reduced the Federal funds rate, from 6.5 percent to 1 percent. An interesting comparison is that the housing boom also began during this same time period, with a rise in real estate prices due to the increased availability of credit. Specifically, subprime mortgage lending more than doubled from 10.1% in 2000 to 20.9% in 2004, in part because of the lower cost of lending (United States Financial Crisis Inquiry Commission 2010, 70).

**Figure 3.1****Effective Federal Funds Rate**

Source: Federal Reserve Bank of New York. Accessed 11/04/2012

The interest rate spread refers to the difference between the interest rate that a bank borrows funds from the Fed and the interest rate that the bank loans to individuals and businesses. A lower Federal funds rate can allow a bank to earn a larger interest rate spread on loans sold to consumers and businesses. However, Stiglitz (2010) argues that by allowing big banks to access cheaper capital, it creates an incentive for these banks to capitalize on the greater interest rate spread in the form of riskier investments. In addition, Stiglitz (2010) claims that as the lender of last resort, the Federal Reserve creates an implicit guarantee that they will bear some of the losses. The lower the interest rate in which banks are able to borrow money from the Federal Reserve, the greater the interest rate spread and the larger the profit opportunity.

According to the data in Figure 3.1, from July 2004 to June 2006 the Federal Funds rate increased from 1.26 percent to 5.24 percent. The higher interest rate reflected the increased risk associated with the larger risk capital inflow that mortgage companies, insurance companies, and financial intermediaries were obtaining from selling home loans, auto loans, and other securitized investment products. But the interest rate from July 2006 until June 2007 remained

relatively stagnant at 5.25 percent, and then began to plummet in August 2007 and remained near zero percent throughout the entire financial crisis period. During the heightened period from March to September 2008, contrary to historical monetary policy that reflected a higher cost of lending due to the increased risk, the Federal Reserve maintained an aggressive expansionary monetary policy. While the Federal Funds rate alone does not indicate whether moral hazard occurred during the financial crisis, it provides the necessary background why firms would have a greater incentive to engage in higher-risk investment activities preceding the financial crisis.

### *Expanded Federal Lending*

In order to maintain the stability of the financial system, the Fed provides a discount window and securities lending. The discount window is a lower interest rate for banks regulated under the Federal Reserve to borrow money at depository institutions, and securities lending is a temporary source of lending of Treasury and agency securities to primary dealers. While Federal control of the nation's monetary policy and credit assistance to depository institutions helps to create a stable financial sector, a number of scholars claim that it can also be a precursor to moral hazard (Dowd, 2009; Johnson and Kwak, 2011).

During the collapse of the housing market, financial intermediaries that were highly invested in securitized mortgages, auto loans and other credit loans, faced a liquidity crisis in meeting their short-term debt obligations, due to the high rate of borrowers defaulting on their loans. The discount window and securities lending was a way that the Fed could provide the necessary liquidity to depository institutions to meet their short-term obligations. Along with depository banks, investment banks were also severely impacted by loss of capital. However, under the Federal Reserve Act (1913) investment banks do not have access to Federal lending

programs or discount rates, because they do not adhere to Federal Reserve regulations.

Investment banks are regulated by the Securities and Exchange Commission (SEC) and the Financial Industry Regulatory Authority (FINRA), but these two regulatory bodies do not provide additional lending facilities (United States Financial Crisis Inquiry Commission 2011). In addition, the magnitude of liquidity issues prevented many investment banks from receiving private sector funding.

In the traditional sense of business practices, if an institution failed, shareholders would lose everything, and the bondholders would become the shareholders (Stiglitz 2010, 121). However, the systemic risk that one institution's failure placed upon the stability of the entire financial sector created a predicament for the Federal Reserve. To prevent major banks from failing, the Federal Reserve focused on providing short-term liquidity to both depository and investment banks through the extension of credit and the purchase of securities. This response to the financial crisis dramatically expanded the Federal Reserve's balance sheet to unsurpassed historical levels.

Table 3.1 on the following page illustrates the range of programs and lending initiatives that were established to prevent the failure of commercial and investment banks. The rate of MBS defaults first affected the asset-backed commercial paper (ABCP) market and caused banks to draw on their U.S. credit lines. The Term Discount Window Program and Term Auction Facility were the first of several Federal lending programs extended to depository institutions in 2007. By March 2008 the Federal Reserve responded to investment banks' liquidity issues with short-term loans provided by the Primary Dealer Credit Facility (PDCF). Although the investment banks did not have to follow Federal Reserve regulatory guidelines preceding the

financial crisis, during the beginning stages investment banks were able to receive the safety net from the Federal Reserve lending.

**Table 3.1 Extended Federal Reserve Lending Programs**

<b>Date</b>	<b>Program</b>	<b>Purpose</b>	<b>Federal Expenditure</b>
08/17/07	<i>Term Discount Window Program</i>	Extended the terms of discount lending from overnight to 90 days	
12-12-07	<i>Term Auction Facility</i>	Credit to depository institutions through an auction mechanism	\$109.5 Billion
12-12-07	<i>Foreign Exchange Dollar Swaps</i>	Exchanges to provide liquidity to foreign financial institutions in the short-term market	\$29.1 Billion
03/11/08	<i>Term Securities Lending Facility</i>	Provided one-month Treasury securities to primary dealers	\$250 Billion
03/16/08	<i>Primary Dealer Credit Facility</i>	Extended credit to primary dealers at the primary rate with a reduction of 25 basis points to 3.25 percent, and increasing the maturity of credit loans to 90 days	N/A
09/19/08	<i>Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility</i>	Provided funding to depository institutions for asset-backed commercial paper (ABCP)	Unlimited Commitment
09/21/08	<i>Transitional Credit Extensions</i>	U.S. and London broker-dealer subsidiaries of Goldman Sachs, Morgan Stanley, and Merrill Lynch	N/A
10/07/08	<i>Commercial Paper Funding Facility</i>	Provided liquidity to the commercial paper market with 3-month unsecured and asset backed paper	\$14.3 Billion
10/21/08	<i>Money Market Investor Funding Facility</i>	Provided liquidity to US money market funds and other money market investors to encourage investment in money market instruments	\$600 Billion committed
11/25/08	<i>Term Asset-Backed Securities Loan Facility</i>	Issued collateralized ABS through consumer and business loans	\$43.8 Billion
07/01/09	<i>Term Securities Lending Facility Options Program</i>	Extension of TSLF- Offered an option to primary dealers to withdraw short-term TSLF loans in exchange for eligible collateral	N/A

Source: Board of Governors of the Federal Reserve System website; D'Apice and Ferri, 2010; Goldman, 2009

In addition to lending facilities, investment banks received substantial bailout packages from the Federal Reserve depicted on the following page in Table 3.2. The expansive list of bailed out firms from investment banks Bear Sterns, Citigroup, mortgage lenders Fannie Mae and Freddie Mac, and insurance giant AIG deserve further investigation into the relative risk-taking behavior that different institutions engaged in.

**Table 3.2 Federal Reserve Bailouts**

<b>Date</b>	<b>Institution</b>	<b>Total</b>
03/14/08	Bear Stearns Fed facilitated buyout by JPMorgan Chase	\$26.3 Billion
07/11/08	FRBNY authorized to lend and Treasury extends credit lines to Fannie Mae and Freddie Mac	N/A
09/16/08	AIG	\$85 Billion
11/23/08	Citigroup- loan-loss backstop	\$220.4 Billion Committed
11/25/08	Funding to Fannie Mae and Freddie Mac to reduce home loan rates	\$149.7 Billion
01/12/09	Bank of America- loan loss backstop	\$97 Billion Committed

Source: Board of Governors of the Federal Reserve System website & David Goldman, CNNMoney.com

The compilation of Federal Reserve policies in Table 3.1 and Table 3.2 illustrate the extended lending facilities further supported the market's expectation of the Federal Reserve as a safety net. Given the tremendous amount of government financial assistance, the future risk of moral hazard was a serious concern for the financial sector.

### 3.3 The U.S. Department of the Treasury and Congress

By September 2008, the failure of Lehman Brothers had caused the financial markets to go into tailspin. The lending facilities and bailout packages provided by the Federal Reserve were intended to maintain stability of the financial sector. However, banking activities are highly intertwined through the process of buying and selling assets at different banks; therefore, the failure of one bank causes a large number of defaults at other banks. The uncertainty in the marketplace caused what is referred to as a 'flight to quality', where investors buy up risk-free Treasury bills<sup>6</sup> (United States Financial Crisis Inquiry Commission 2011, 74). In effect, the value of securities declined drastically, thereby creating a new wave of financial distress in the marketplace.

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<sup>6</sup> U.S. Treasury bills are considered 'risk-free' because they are backed by the U.S. Government, which has never defaulted on a loan payment.



The level of financial distress reached such a level that the U.S. Secretary of the Treasury, Henry Paulson put together a 3-page proposal for Congress, that requested \$700 Billion of taxpayer funds to buy up toxic assets from ailing financial firms. The Troubled Asset Relief Program (TARP) represented one of the largest taxpayer funded bailouts in U.S. history. Table 3.3 on the following page illustrates the total cost of TARP. The program was initially implemented to allow the U.S. Treasury to buy illiquid assets off bank balance sheets to continue the flow of credit between banks and consumers/businesses. However, five weeks into the program the Treasury shifted its focus from buying troubled assets to simply providing liquidity to qualified institutions. Similar to Federal Reserve's extended lending programs, TARP beneficiaries included both commercial and investment banks, insurance and mortgage companies, and even automobile dealers. The Capital Purchase Program (CPP) was extended first program to major financial institutions that required immediate liquidity funding<sup>7</sup>. CPP was later extended to other banks that qualified for funding.

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<sup>7</sup> Bank of America, Bank of New York Mellon Co, Citigroup Inc, Goldman Sachs Group, Inc, JPMorgan Chase & Co., Morgan Stanley, State Street Corporation and Wells Fargo & Company were the first nine recipients of TARP and received \$125 billion of the first \$250 billion TARP funds.

**Table 3.3 Total Cost of the Troubled Asset Relief Program**

Date	Programs	Purpose	Cost
10/28/08	<i>Capital Purchase Program</i>	Program to provide capital to healthy financial institutions that did not require government subsidization	<b>\$204.7 Billion</b>
11/10/08	<i>American International Group Program</i>	Purchase of preferred-stocks in AIG and reduce the Fed's loan from \$85 billion to \$60 billion	<b>\$69.8 Billion</b>
11/23/08	<i>Targeted Investment Program</i>	Provided funding or additional funding to financial institutions that were considered systemically significant	<b>\$40 Billion</b>
12/19/08	<i>Automotive Industry Financing Program</i>	Provided funding to GM, Chrysler, GMAC, and Chrysler Financial	<b>\$77.6 Billion</b>
02/09/09	<i>Consumer and Business Lending Initiative</i>	Purchase of toxic assets to protect private lending and losses from MBS [formally TALF]	<b>\$20 Billion</b>
02/10/09	<i>Public-Private Investment Program</i>	Combination of taxpayer and private investment funds to purchase toxic assets off the balance sheets of ailing financial institutions	<b>\$26.7 Billion</b>
02/27/09	<i>Asset Guarantee Program</i>	Program of funds provided to Citigroup and Bank of America	<b>\$5 Billion</b>
03/04/09	<i>Making Home Affordable</i>	Foreclosure prevention program through refinancing	<b>\$27.4 Billion</b>
03/19/09	<i>Auto Suppliers Support Program</i>	TARP funds supplied to GM Supplier Receivables, Chrysler Receivables	<b>\$3.5 Billion</b>
<b>Total Treasury Committed:</b>	<b>\$700 billion</b>		
<b>Total Treasury Invested:</b>	<b>\$356.2 billion</b>		

Source: Kiel, Paul and Dan Nguyen. 2013. *Bailout Tracker: Tracking Every Dollar and Every Recipient*. ProPublica.

The compilation of lending programs and bailout packaged between the Federal Reserve and the Treasury led the question of whether or not firms that received government safety nets engaged in higher risk investments. The analysis of risk taking before, during, and after the 2007-2009 financial crisis can provide the relevant insight and comparison of banks that received government assistance banks and non-government assistance banks.

### 3.4 Empirical Analysis

This section will test the claim that government assistance programs and bailouts increase firm risk taking, therefore creating moral hazard. I begin with a synopsis of Black and Hazelwood's (2012) findings as evidence that moral hazard increased during the 2007-2009 financial crisis. In order to analyze whether firms took greater risk before the financial crisis, I analyze the preceding 2003-2007 period and measure the degree of leverage that different size banks and other financial institutions operated on through the debt-to-equity ratio. The inclusion of *ex ante* and *ex post* risk-taking measurements creates a comprehensive analysis of whether government policy increased moral hazard.

#### *Black and Hazelwood (2012)*

One of the biggest challenges in measuring moral hazard is finding exact instances to pinpoint when moral hazard occurred (if at all) during the financial crisis. Black and Hazelwood (2012) are able to determine the instance of moral hazard in the 2007-2009 financial crisis with the claim that increased risk-taking, in the absence of increased lending, is indicative of moral hazard. To measure a bank's risk-taking, Black and Hazelwood (2012) gathered data from November 2007 to August 2010 of the Survey of Terms of Business Lending (STBL), which reports different loan characteristics of commercial and industrial loans (C&I) in the middle month of each quarter. C&I loans are important for the banking industry and the business sector to provide credit for business practices. The survey is used as a metric to assess short-term business credit markets as well as the relative risk of loans. The ability for financial intermediaries to meet their short-term obligations was an issue during the financial crisis, and

further investigation into the level of bank risk-taking can provide the necessary insight whether government lending increased bank risk-taking.

In addition to the STBL, the authors gathered data from the National Information Center (NIC) that lists ‘topholder’ banks (generally bank holding companies), as the ultimate owner of a bank involved in internal capital market transactions. Black and Hazelwood (2012) separate banks into three categories according to their total assets as follows: (1) Large (over \$10 Billion), (2) Medium (between \$2.5 Billion and \$10 Billion), and (3) Small (less than \$2.5 Billion). The combination of TARP recipients, STBL reports, and NIC banks allow Black and Hazelwood (2012) to narrow the analyzed subjects down to 13 large non-TARP banks and 17 large TARP banks; 7 medium non-TARP banks and 13 medium TARP banks; 24 non-TARP banks and 7 small TARP banks. To measure moral hazard, Black and Hazelwood (2012) focus on the risk rating of new loan originations, interest rate spreads, and total loan level originations for small, medium, and large TARP and non-TARP recipients.

Black and Hazelwood’s (2012) study is especially useful because as a staff economist at the Division of International Finance and an analyst in the Division of Research and Statistics at the Board of Governors of the Federal Reserve System in Washington, D.C., the authors have access to firm specific STBL data that is not publically disclosed. With the additional information of each firm’s response to the STBL, Black and Hazelwood (2012) are able to separate loan risk-level ratings for TARP and non-TARP banks.

The STBL reports the risk rating of new loan originations illustrated in Appendix 1 from minimal risk loans (1) to acceptable risk loans (4). In addition to the risk-rating of C&I loans, Black and Hazelwood (2012) run a difference-in-difference regression analysis, controlling for

the interest, commitment, maturity, the log of loan size, and a dummy variable on whether or not the loan's interest rate is secured or floating.

By separating banks according to their total assets and relative bank risk taking, Black and Hazelwood (2012) emphasized the risk rating and interest rate spread of loan originations as well as the total C&I loans outstanding. Overall, large TARP banks originated higher risk, higher interest, larger, and longer maturity loans in comparison to non-TARP banks. Conversely, large non-TARP banks originated lower risk, but higher interest rate spread C&I loans. Black and Hazelwood (2012) note that the interest rate spreads on loan originations by large TARP banks rose over 50 basis points compared to non-TARP banks.

Further, taking account of the total bank size as a ratio of total assets and capitalization, TARP banks were originally larger compared to non-TARP banks and grew after TARP capital injections. This result relates to the issue of systemic risk preceding the financial crisis, in that the failure of one systemically important financial institution, risked the collapse of the entire financial sector. Black and Hazelwood's (2012) results indicate that the issue of systemic risk was even greater *after* TARP capital injections.

The data also reveals that large TARP banks significantly reduced their total C&I loans for the first year following TARP capital injections, and then began to modestly increase lending, but with higher risk-rated loans. Black and Hazelwood (2012) claim that the pressure from the public to increase lending, and therefore take on greater risk during a financial crisis, caused TARP banks to lend more than they otherwise would have during an economic downturn. However, Black and Hazelwood (2012) maintain that the risk shifting to higher risk loans, without increased overall loan lending of large TARP banks is indicative to moral hazard.

Medium-size TARP and non-TARP banks overall took on less risk than large banks. In fact, after TARP capital injections, medium TARP banks took on less risk than non-TARP medium banks. Interest rate spreads did not significantly increase between TARP and non-TARP medium banks. But overall, the risk ratings of new loan originations at medium TARP banks are higher than non-TARP banks.

Small TARP banks began lending more after the after capital injections in comparison to small non-TARP banks. Further, the event study reveals that small TARP banks decreased their C&I loan level risk-taking more than non-TARP small banks before TARP capital injections. But after capital infusions risk-taking levels equalized between TARP and non-TARP banks. This provides insight that small banks may have been able to convert additional capital provided by the government into more loans.

Black and Hazelwood (2012) also test for the relative degree of risk-taking based on the dollar amount of TARP capital infusions for the three different size banks. Using the same difference-in-difference equation and replacing the TARP recipient variable with the log dollar amount of capital infusion, Black and Hazelwood (2012) are able to test for a bank's relative risk-taking. The results indicate that for large banks, greater capital infusions led to greater risk-taking on future loan originations. Conversely, for small banks, greater infusions led to lower risk ratings on future loan originations.

In summary, Black and Hazelwood's (2012) results indicate that after TARP capital injections, large TARP banks decreased their overall level of new C&I loan originations and increased their overall loan risk. Black and Hazelwood (2012) claim that increased risk taking in the absence of increased lending is indicative of moral hazard. In their concluding remarks, Black and Hazelwood (2012) claim that one issue with TARP is that the purpose of the program

was not entirely clear in the beginning. Compounding the issue was the public discourse that TARP funds should be converted into loans. However, Black and Hazelwood (2012) note that increased lending during an economic downturn are two contradictory responses, which raise the overall level of bank risk-taking. Black and Hazelwood (2012) bring tremendous insight to my analysis on government policy and bank risk-taking during the 2007-2009 financial crisis. My research in the next section attempts to build upon Black and Hazelwood's (2012) study by analyzing firm risk through the debt-to-equity ratio and the periods *ex ante* and *ex post* the financial crisis.

### **3.5 Debt-to-Equity Ratio**

The groundwork to allow financial institutions to take greater risks was established with the lower cost of capital, a new influx of complex financial instruments, and government safety nets that would provide the necessary security if the market went into a downturn. I use a similar methodology of empirical analysis to Black and Hazelwood's (2012) breakdown of large, medium, and small bank risk-taking for TARP and non-TARP bank recipients. I add to Black and Hazelwood's (2012) study by analyzing the preceding years of the collapse of the housing market to determine whether different size banks adjusted their risk-taking during the financial crisis. I also separate banks based on whether or not the firm received Federal lending facilities and/or TARP funds, as banks that are 'government-funded', versus banks that did not receive government funding as 'non-funded'. Data acquired through the Survey of Terms of Business Lending is voluntary and individual responses under the Freedom of Information Act [5 U.S. § 552(b)(4)] are confidential. Therefore, I am unable to separate the risk rating of business loans for financial intermediaries that required government assistance and those financial firms that

were not provided with government financing. While I am not able to gather firm-specific data from SBTL, I can gather data from the National Information Center (NIC) that identifies Bank Holding Company Performance Report (BHCPR) for the holding company in each Peer Group. The Peer Groups are separated by total assets under management and I analyze the first three Peer Groups in the first quarter in 2008 with Peer 1 (\$10 billion and over), Peer 2 (\$3 Billion to \$10 Billion), and Peer 3 (\$1 Billion to \$3 Billion). From the 2009 third quarter BHCPR, Peer group 1 includes 77 banks, Peer group 2 includes 95 banks, while Peer Group 3 includes 295 banks. I narrowed the banks for this analysis based upon the availability of data from YCharts and compiled the debt-to-equity ratio for 12 large banks government-funded (GF) banks, 5 large non-GF banks, 20 medium GF banks, 12 medium non-GF banks, 12 small GF banks, and 12 small non-GF banks. The calculation for the debt-to-equity ratio for the banks analyzed is as follows:

$$\text{Debt-to-Equity} = (\text{Long-Term Debt} + \text{Current Portion of Long-Term Debt}) / (\text{Total Shareholder Equity})^8$$

Unlike Black and Hazelwood (2012) who focused on the financial crisis period from November 2007 to August 2010, I extend my analysis to a ten-year time period from March 2003 to September 2012. By including a time period prior to the financial crisis, this study will examine whether different size banks took greater leverage risks with the backstop of government safety nets.

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<sup>8</sup> Shareholder equity is calculated at book value and debt is calculated by the sum of long-term debt and current portion of long-term debt, rather than total debt.



### *The role of leverage:*

Leverage allows financial intermediaries to generate revenue by issuing debt and accumulating interest on the loans. Recall that a firm's leverage ratio is the amount of total debt divided by total equity. Leverage is impacted by the value of a firm's securities. For example, a firm that has a set leverage ratio of 10 may have \$100 worth of assets financed by \$10 of equity and \$90 of debt (mortgages, auto loans, credit loans, etc.). If the price of a security rose by 1%, it would cause firm's equity to rise to \$11 and the overall assets to rise to \$110, creating a new leverage ratio of 9.18 (D'Apice and Ferri 2010, 155). As noted earlier, the firm wishes to keep a leverage ratio of 10, and must offer more loans to stabilize the ratio back to 10. Conversely, during an economic downturn, the price of a security generally falls and financial intermediaries must attempt to sell securities to pay off issued bonds to obtain the leverage ratio of 10 once again. But finding a buyer for a security during an economic downturn can be more difficult and create a liquidity shortage for a financial intermediary to finance its short-term debts. In addition, the greater degree that a firm is leveraged, the higher the amount of relative profits or losses a firm will incur. Therefore, the leverage ratio provides a relevant risk metric to analyze the level of risk that large, medium, and small banks operated on over a ten-year analysis period from March 2003 to September 2012.

Some scholars argue that the housing crisis initially began in 2003 with the expansion of structured financial products through securitization--the reselling of illiquid assets as a security to investors (D'Apice and Ferri, 2010). Securitization became more pronounced through the complex 'originate to distribute' (OTD) business model, where illiquid assets (i.e., commercial and residential mortgages, auto loans, and credit card loans) are sold to an arranger (i.e., broker), who then sells the loan to a third party issuer: a conduit, Structured Investment Vehicle (SIV) or

Special Purpose Vehicle (SPV) that separates the financial instrument into different ‘tranches’ equitable to its relative risk and return. The issuer then issues the newly asset-backed securities (ABS) in the form of asset-backed commercial paper (ABCP), mortgage-backed securities (MBS), and collateralized debt obligations (CDOs) that can re-securitize MBS into collateralized mortgage obligations (CMO), collateralized loan obligations (CLO), and credit default swaps (D’Apice and Ferri, 2010).

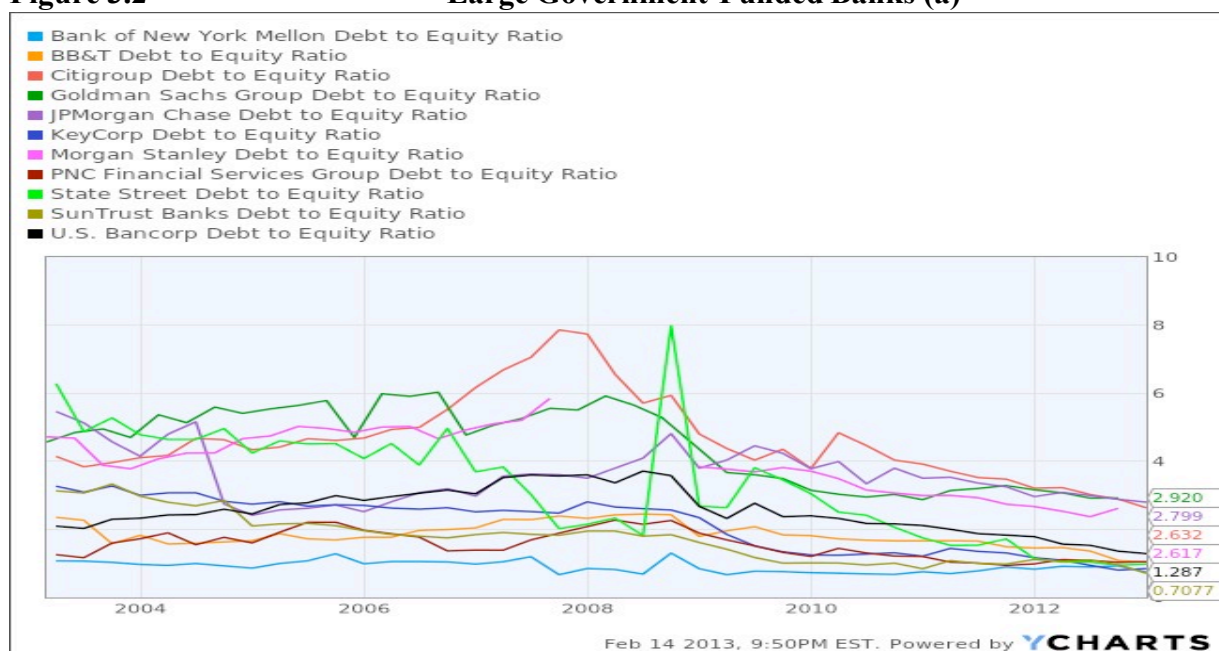
The process of securitization is an important factor that contributed to the high degree of leverage that a number of financial firms took on preceding the financial crisis of 2007-2009. More specifically, securitization allows traditional banks to remove riskier loans from their balance sheets because the loan is being sold to a third party (Financial Crisis Inquiry Commission, 2011). During the era of deregulation, proponents claimed that securitization spread the risk of a financial instrument over a number of parties. However, the recent financial crisis revealed that no matter how diversified and spread out a higher-risk securitized asset may be organized, the magnitude of defaults on securitized loans created a ripple effect that is detrimental to the financial sector.

#### *Large Government-Funded and Non-Funded Banks:*

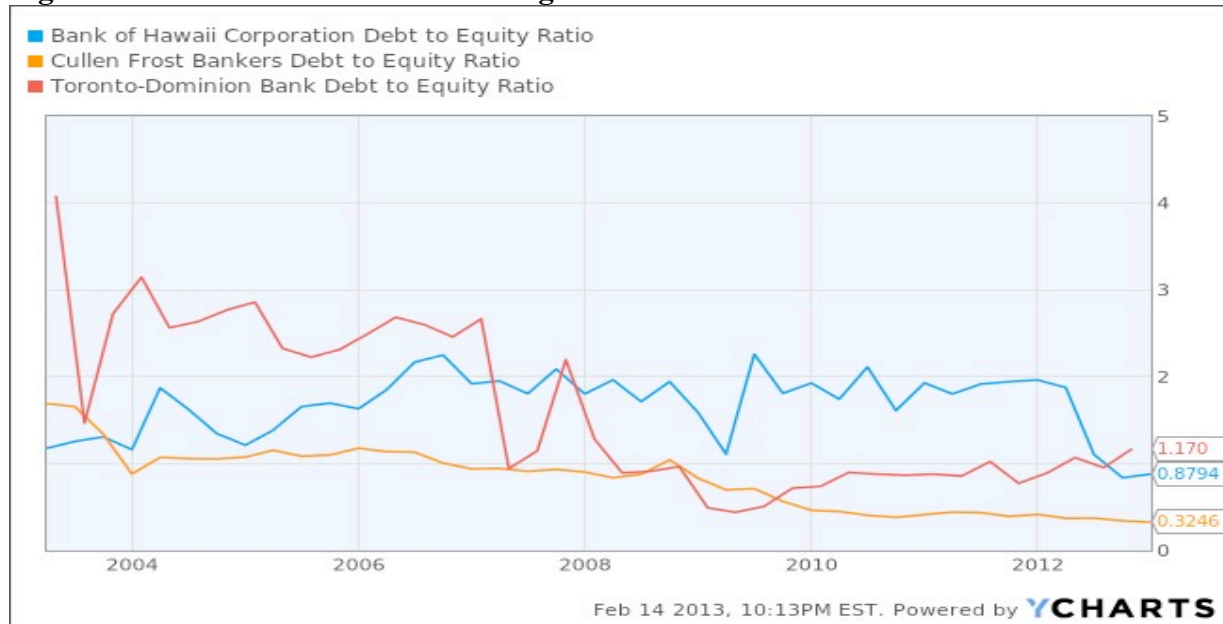
Figure 3.2 on the following page depicts the leverage ratio of large banks that received government funding from the Federal Reserve and/or U.S. Treasury. Previous research indicates that during strong economic times financial firms will increase their leverage, but during economic downturns, financial firms will deleverage their operating status in order to meet their short-term debt obligations (Acharya and Viswanathan, 2011). This relationship is apparent among large banks that received government assistance. Figure 3.2 illustrates the higher degree

of leverage of large government-funded banks preceding the financial crisis and the succeeding economic downturn and resulting deleveraging of large government-funded banks. The procyclical relationship also illustrates the limited ability of the debt-to-equity ratio to analyze moral hazard during severe economic downturns. However, by incorporating Black and Hazelwood's (2012) results, further analysis reveals that large government-funded banks engaged in higher risk lending after TARP capital injections. In addition, large banks overall were lending less during this time period. The combination of Black and Hazelwood's (2012) provides the conclusion that the greater degree of leverage *ex ante*, along with increased risk lending activities after government capital injections is indicative of moral hazard.

**Figure 3.2 Large Government-Funded Banks (a)**



**Figure 3.3** **Large Non-Funded Banks**



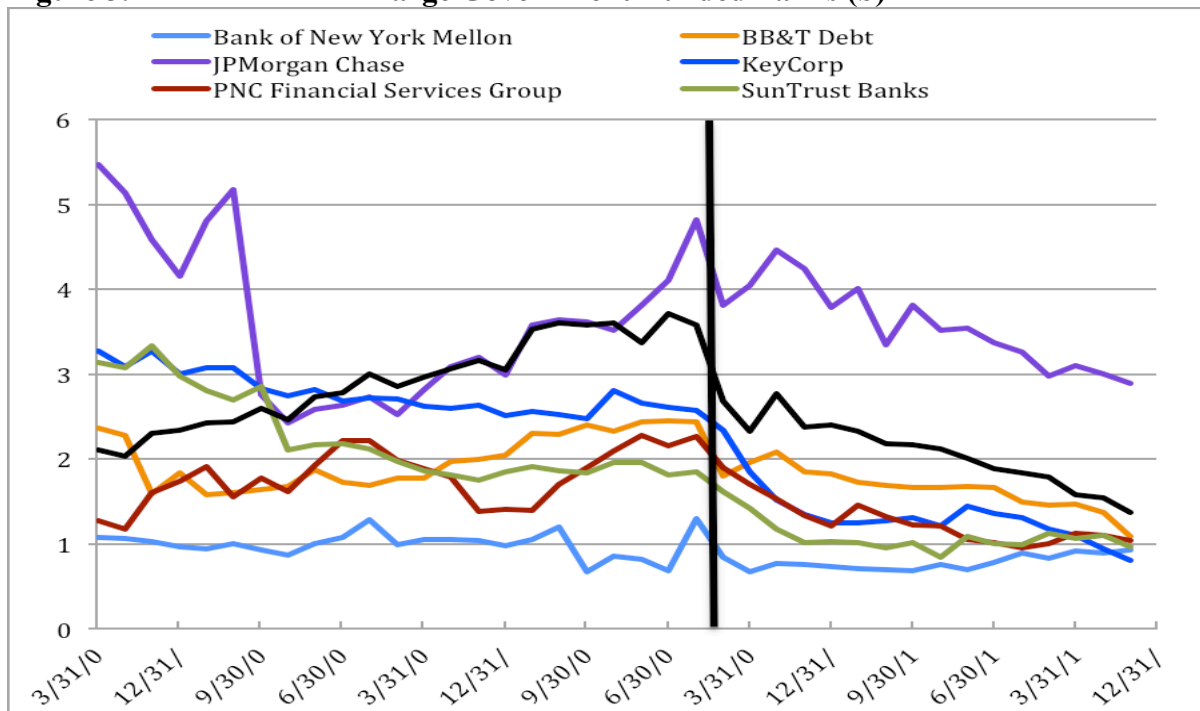
As previously noted in Table 3.2 (on page 25.), on March 14, 2008, the Federal Reserve provided JPMorgan Chase with \$25 billion to facilitate the company's buyout of Bear Sterns, and in response large government leverage ratios continued to rise. In July 2008, the U.S. government announced plans to help support two major mortgage lenders, Fannie Mae and Freddie Mac. As depicted in Figure 3.2, despite the clear signs that economic turmoil, the leverage ratio of large government-funded bank's continued to rise. Conversely, illustrated above in Figure 3.3, large non-government-funded banks began to deleverage during the 2006-2008 period. As Figure 3.2 and Figure 3.3 represent, the leverage ratio for the majority of large government-funded banks analyzed, continued to rise until September 2008, with the failure of Lehman Brothers and the market downturn.

Figure 3.2 reveals the pro-cyclical leverage that large government-funded banks engaged in throughout the time period analyzed. However, a number of anomalies are apparent in the figure that can cause a distorted view for proper analysis. Specifically, Citigroup was highly invested in credit default swaps (CDS), which one reason for the firm's larger debt-to-equity ratio.

Further, Goldman Sachs Group and Morgan Stanley became bank holding companies in 2008 in order to receive Federal lending facilities, and therefore were not subject to the same leverage and reserve requirements that bank holding companies must adhere to under the Federal Reserve.

Figure 3.4 below illustrates the debt-to-equity ratio of large government-funded banks, with the exclusion of Citigroup, Goldman Sachs Group, and Morgan Stanley. In Figure 3.4, JPMorgan appears to be operating on a substantially higher debt-to-equity ratio compared to the other banks in the figure. JPMorgan was the seventh-largest beneficiary of Federal lending facilities and the eighth-largest recipient of TARP-funds (Keoun et al., 2011; Kiel and Nguyen, 2013). The results bring insight that firms that operated on a greater degree of leverage, and therefore overall risk, also received greater government financial support.

**Figure 3.4 Large Government-Funded Banks (b)**



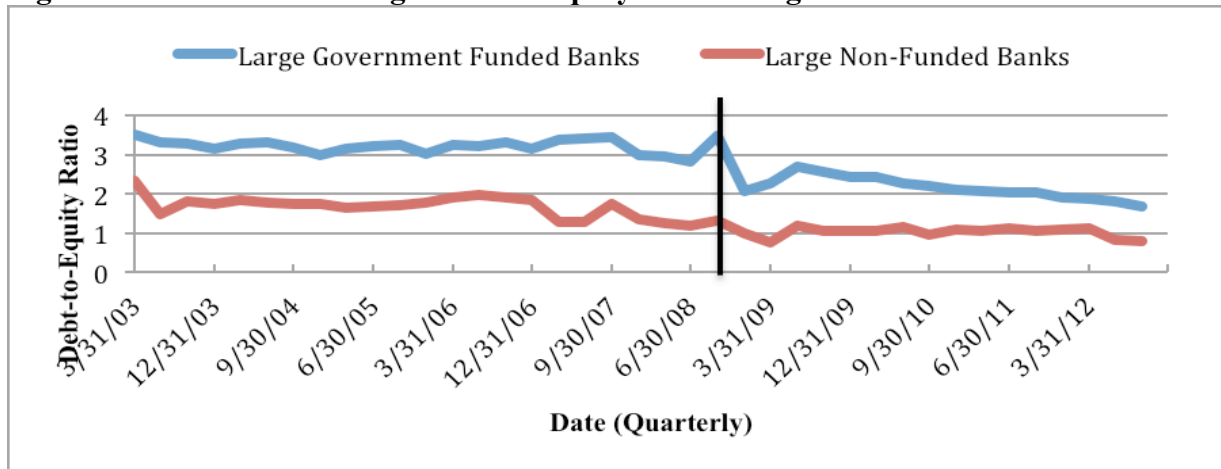
Source: Figure 3.2, excluding State Street, Citigroup, Goldman Sachs and Morgan Stanley. The vertical line at 09/15/08 represents the failure of Lehman Brothers.

Until the failure of Lehman Brothers, the Federal Reserve had worked to ensure that ailing financial firms would be able to meet their short-term obligations. Alan Greenspan is quoted in Jackson Hole, Wyoming stating “[e]ven if banks find that borrowing from the discount window is not immediately necessary, the knowledge that liquidity is available should help alleviate concerns about funding.” (Keoun, 2011). As Table 3.1 illustrated on page 24, the Federal Reserve extended a number of lending facilities to both commercial and investment banks. Therefore, until the failure of Lehman Brothers, large banks exhibited the market’s expectations that the government would provide necessary lending to firms that held a systemic risk.

The increased leverage ratio, and therefore greater risk preceding the failure of Lehman Brothers is indicative of moral hazard. In fact, the failure of Lehman Brothers provides insight to the argument of moral hazard. To reiterate, moral hazard occurs when a company has an incentive to take greater risks than it otherwise would, because the company gains all the benefits from excessive risk-taking, but does not bear all of the losses. Until the failure of Lehman Brothers, large government-funded banks were operating on greater risk in comparison to large-government banks that did not require additional government funds.

Figure 3.5 on the following page illustrates the average debt-to-equity ratio for large government-funded and non-funded banks from March 2003-September 2012. The spread in leverage remained relatively constant between government-funded and non-funded banks from March 2003 until December 2006. The data reveals an interesting comparison between large government-funded and non-funded banks in January 2007, where large government-funded banks increased their debt-to-equity ratio until August 2007, but during the same time period large non-funded banks significantly reduced their debt-to-equity ratio.

**Figure 3.5**                      **Average Debt-to-Equity Ratio: Large Banks**



Source: Figure 3.2 and 3.3

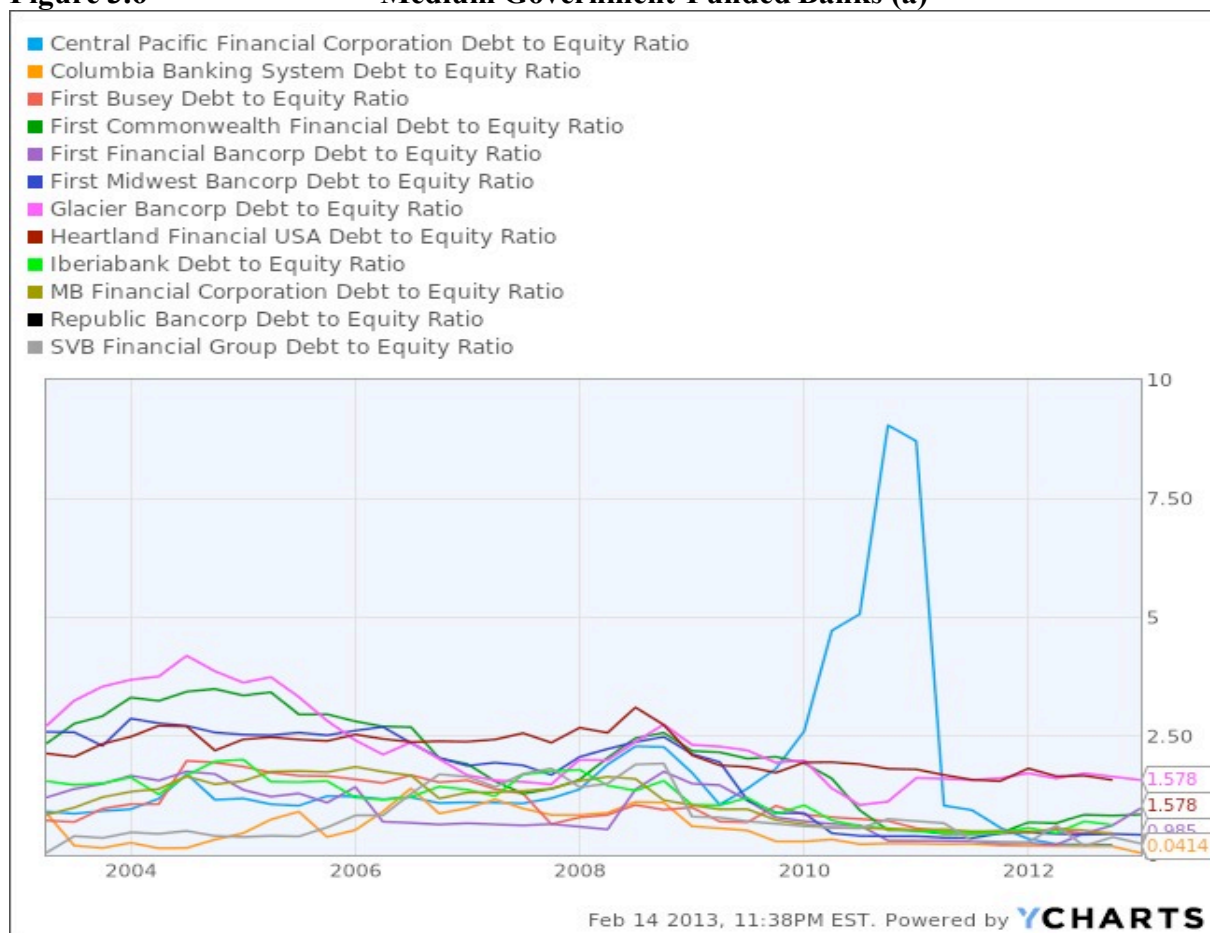
The compilation of data for large government-funded and non-funded banks reveals that large government-funded banks operated on a greater degree of leverage throughout the period before the financial crisis, and continued to leverage their operations until the failure of Lehman Brothers. While the leverage ratio for these firms has decreased relative to the period preceding the financial crisis, large government-funded banks are still operating on a greater degree of risk compared to large non-funded banks and therefore still pose a systemic risk to the financial sector.

#### *Medium Government-Funded and Non-Funded Banks:*

The debt-to-equity ratio for medium government-funded and non-funded banks contrasted the findings of large banks in the previous section. Figure 3.6 on the following page illustrates that prior to 2007, medium government-funded banks were deleveraging their portfolios and therefore taking on less risk. As depicted in Figure 3.6 on the following page, the leverage ratio for medium government-funded banks fell drastically from June 2004 to December 2007. This relates to Black and Hazelwood's (2012) findings that between 2007-2010 medium TARP banks

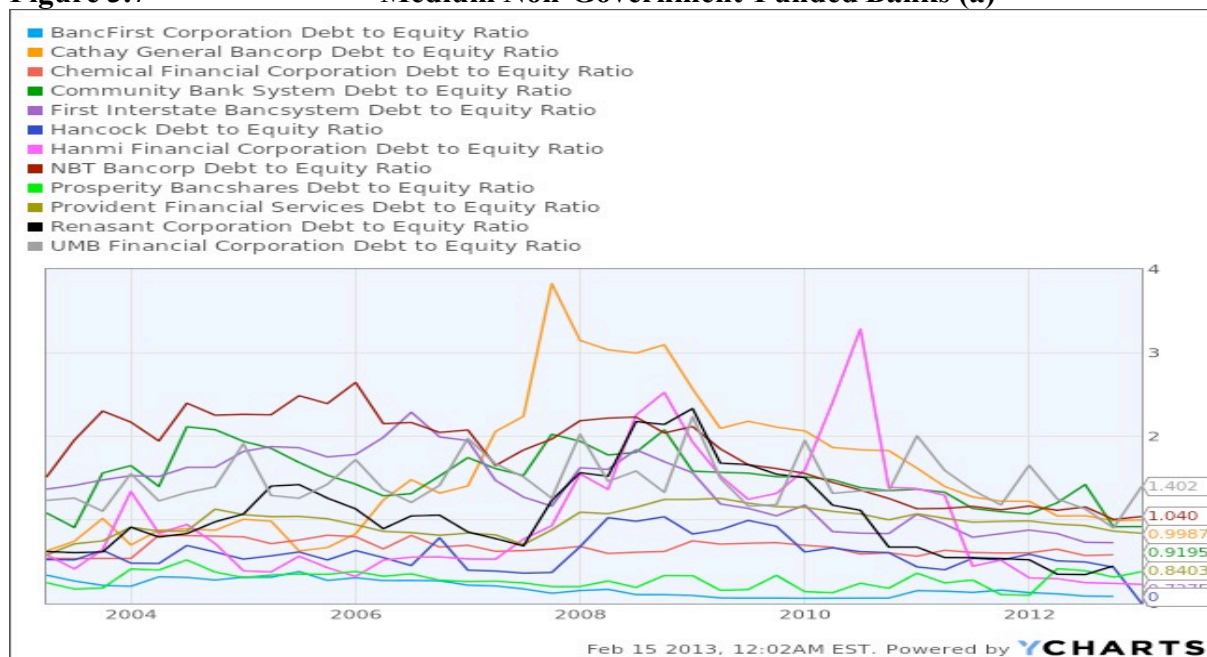
reduced their overall risk-taking more than non-TARP banks. Further, in comparing medium government-funded banks to medium non-government-funded banks in Figure 3.7, medium government-funded banks overall were less leveraged prior to 2007. However, also similar to large government-funded banks, medium government-funded banks increased their leverage ratio from December 2007 until June 2008. The fall in equity prices was one reason for the fall in equity prices and the rise in systemic risk on the part of medium size banks.

**Figure 3.6 Medium Government-Funded Banks (a)**





**Figure 3.7 Medium Non-Government-Funded Banks (a)**

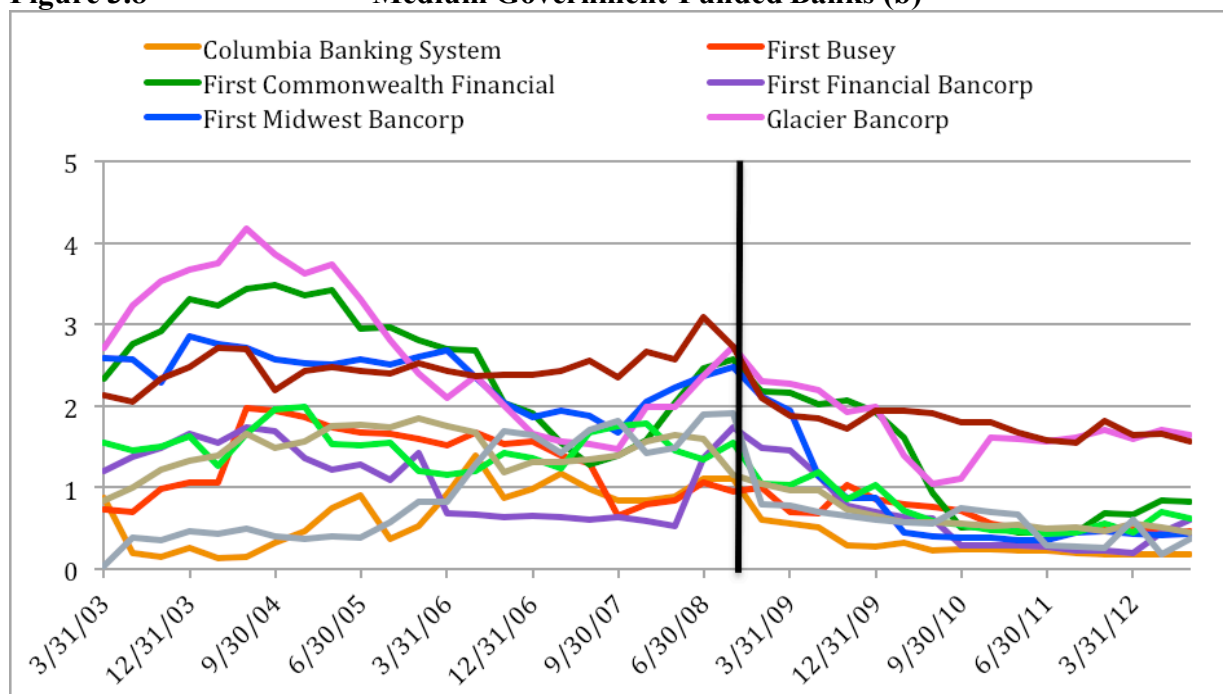


Similar to anomalies in the previous section's dataset, the volatile changes in debt-to-equity ratio obstruct the data necessary for detailed analysis of less-leveraged financial firms. Figure 3.8 and 3.9 on the page 43 and 44 depict the debt-to-equity ratios for medium firms, excluding firms that were excessively leveraged. Figures 3.8 and 3.9 provide an interesting result in that medium government-funded banks were operating on a similar degree of leverage in comparison to their non-government-funded counterparts. Figure 3.10 on page 44 illustrates that unlike the case of large government-funded and non-funded banks, the degree of leverage between medium government-funded banks and non-government-funded banks decreased preceding the collapse of Lehman Brothers and remained relatively similar following the crash. Further in comparing medium government-funded banks to medium non-government-funded banks, medium government-funded banks overall were less leveraged prior to 2007. However, also similar to large government-funded banks, medium government-funded banks increased their leverage ratio from December 2007 until June 2008. This result also leads to the conclusion that medium

government-funded banks engaged in greater risk taking preceding the failure of Lehman Brothers.

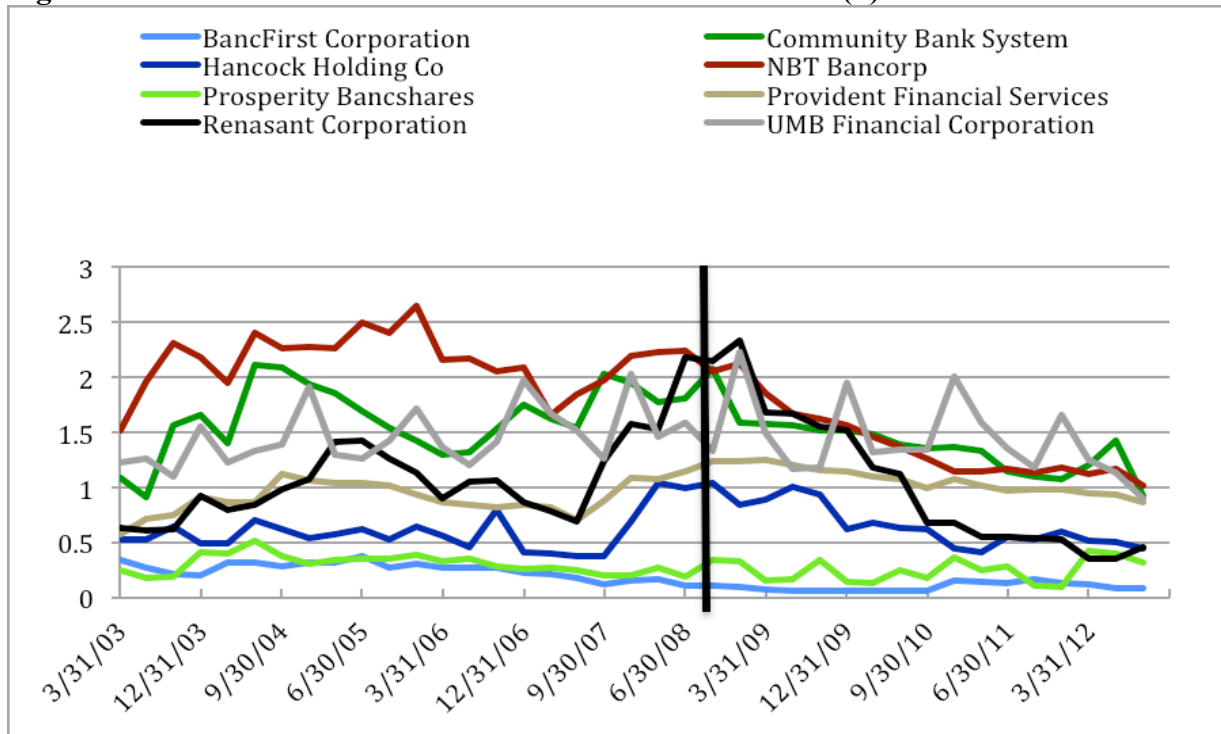
Overall, medium non-government-funded banks decreased their leverage ratio between December 2007 and March 2008 and then increased their leverage ratio from March 2008 to June 2008. In comparing government-funded and non-government-funded medium banks, it appears that non-government-funded banks did not exhibit a common pattern of leveraging and deleveraging their portfolios. For example, the failure of Lehman Brothers in September 2008 caused a varied effect of firms decreasing and increasing their leverage ratios. While non-government-funded banks deleveraged their portfolios after the failure of Lehman Brothers, the degree to which non-government-funded banks decreased their leverage was much smaller than medium government-funded banks.

**Figure 3.8 Medium Government-Funded Banks (b)**



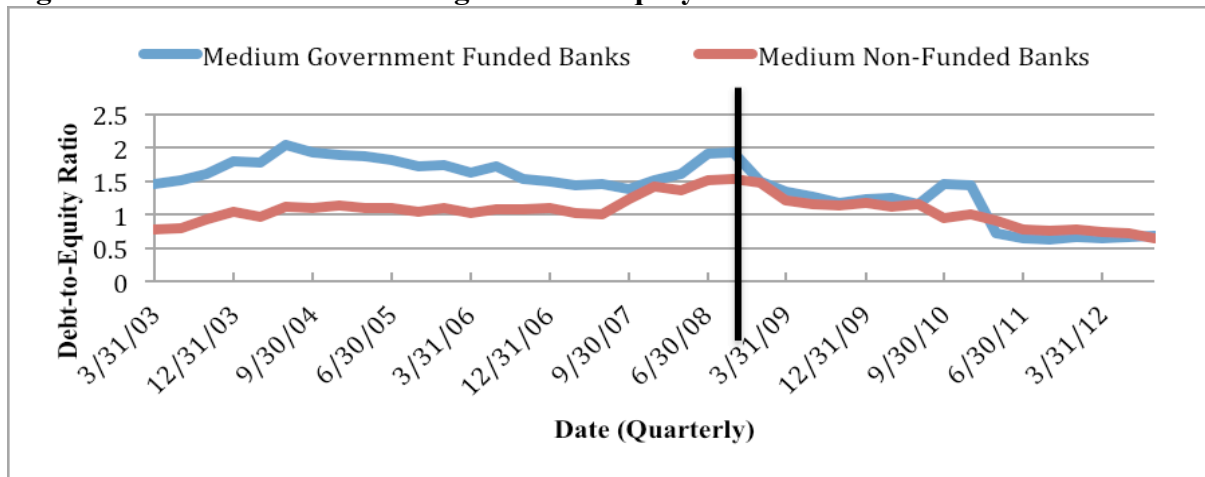
Source: Figure 3.6 excluding Central Pacific Financial Corp, Heartland Financial, Iberiabank, MB Bancorp, Republic Bancorp and SVB Financial. The vertical line at 09/15/08 represents the failure of Lehman Brothers.

**Figure 3.9 Medium Non-Funded Banks (b)**



Source: Figure 3.7 excluding Cathay General Bancorp, Chemical Financial, First Interstate, Renasant Corp and UMB Financial. The vertical line at 09/15/08 represents the failure of Lehman Brothers.

**Figure 3.10 Average Debt-to-Equity Ratio: Medium Banks**

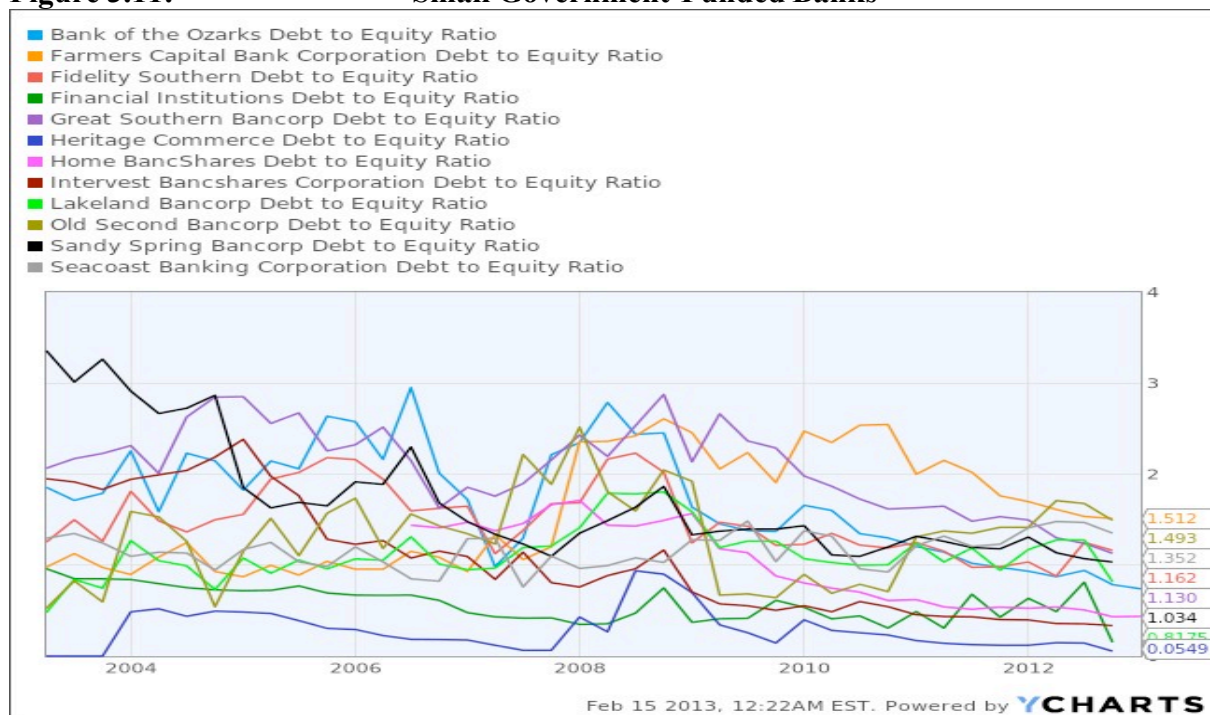


Source: Figure 3.6 and 3.7

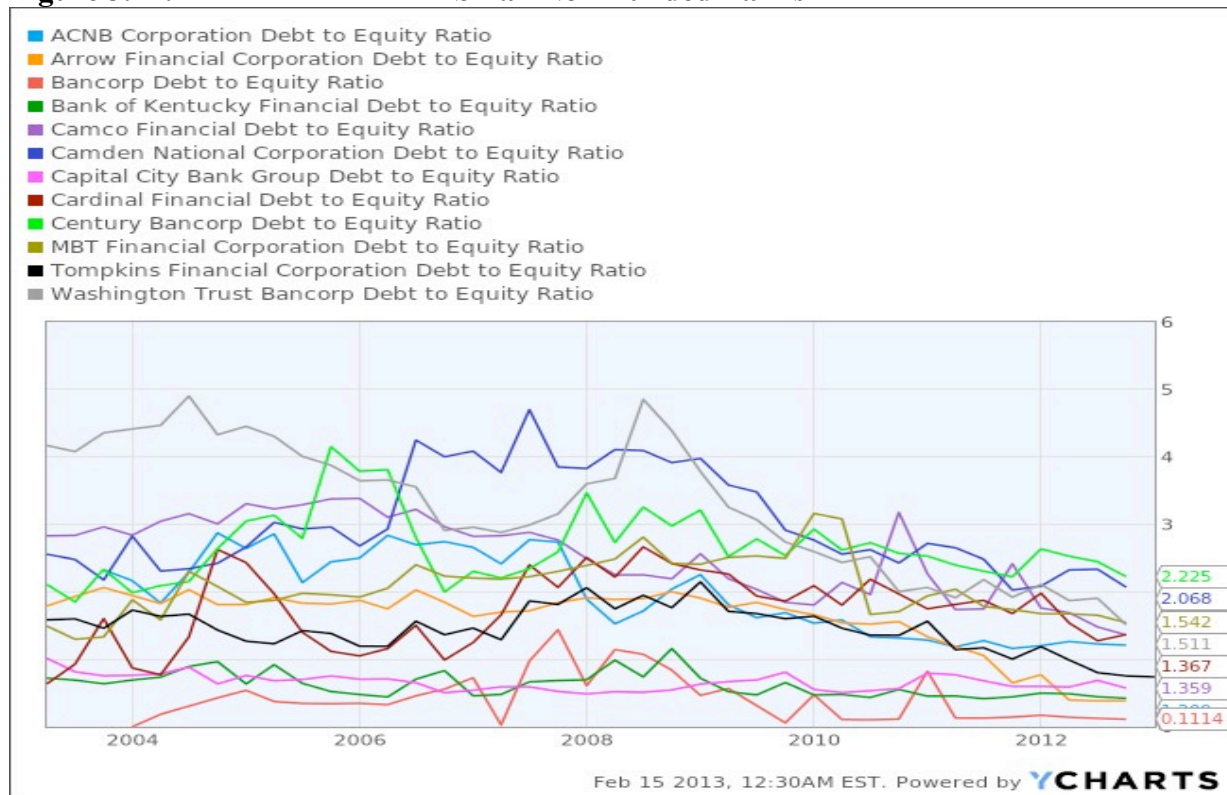
### *Small Government-Funded and Non-Funded Banks:*

Small government-funded and non-funded banks operated on smaller debt-to-equity ratios in comparison to large and medium banks. Figures 3.11 and 3.12 illustrate the debt-to-equity ratio over the ten-year analysis period for small banks. The leverage ratio for small government-funded banks exhibited a similar pattern to medium government-funded banks, in that small government-funded banks decreased their leverage ratios until March 2007. However, Figure 3.11 reveals that small government-funded banks increased their leverage ratios from March 2007, throughout during the height of the financial crisis, until the failure of Lehman Brothers in September 2008. Therefore, similar to medium government-funded banks, small government-funded banks made efforts to reduce their risk taking prior to the financial crisis and do not exhibit actions of moral hazard.

**Figure 3.11: Small Government-Funded Banks**

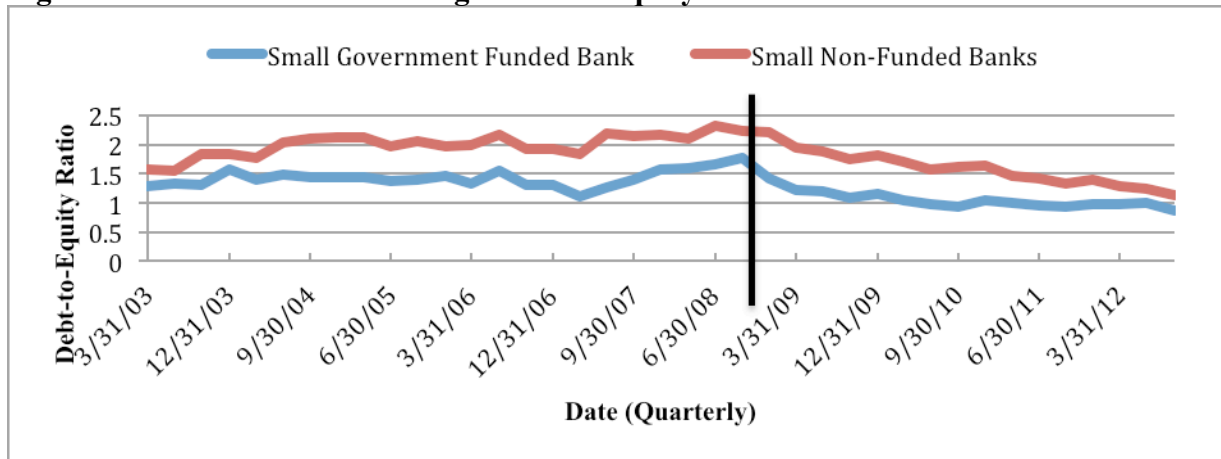


**Figure 3.12:** Small Non-Funded Banks



Following the dramatic collapse of the stock market in September 2008, the leverage ratio for small government-funded firms began to fall. According to Black and Hazelwood' (2012) results, small TARP bank originated more loans than non-TARP small banks, but these loans were also less risky. This provides an interesting comparison to my leverage results in that the leverage ratio for government-funded small banks fell to levels below the preceding financial crisis period. Meanwhile, leverage ratios for small non-government-funded banks remained relatively stable throughout the ten-year period being analyzed. Therefore, small government-funded banks shifted their risk taking strategy to less risky investments, while non-government-funded banks did not alter their risk taking strategy.

**Figure 3.13: Average Debt-to-Equity Ratio: Small Banks**



Source: Figures 3.11 and 3.12. Excluding Farmers Capital Bank Corporation and Financial Institutions

#### *Analysis of Results:*

In summary, large government-funded banks illustrated the greatest amount of risk-taking compared to medium and small government-funded and non-funded banks before the financial crisis. In compilation of Black and Hazelwood's (2012) findings, large government-funded banks, continued to take greater risks, exhibited by the higher risk-rated C&I loans after TARP capital injections. The greater amount of risk compounded with the losses incurred by the government, reveals that moral hazard on the part of large government-funded banks occurred.

The failure of Lehman Brothers and the resulting TARP legislation signifies a significant decrease in large and medium bank holding company leverage ratios. Conversely, small banks exhibited a moderate change in leverage ratios, with small non-funded banks even operating on a greater leverage ratio than small government-funded banks. This result indicates the importance of Black and Hazelwood's (2012) study to determine the loan-level risk different size banks were loaning during the crisis and government capital injection period.

In addition, this study's results indicate that large banks operated on a large debt-to-equity ratio and therefore held a greater systemic risk to the financial sector. The magnitude of large

banks and interconnected investments relates to the ‘too-big-to-fail’ phenomenon of the financial crisis, whereby large banks that pose a systemic risk to the overall economy cannot be allowed to fail. The greater leverage ratio by large financial firms is due in part because of the lower risk premiums that larger banks receive because of the marketplaces’ perspective that these institutions are in fact too-big-to-fail (Evanoff and Moeller, 2012). The ‘too-big-to-fail’ phenomenon feeds into the market’s perceived risk of a firm’s failure of default, in that the firm holds too large of a position in the financial sector to allow the bank to fail. The results of a recent study by Bloomberg News found that large ‘TBTF’ banks are earning a 0.8 percentage point taxpayer subsidy that amounts to \$83 billion a year<sup>9</sup> (Ueda and Weder di Mauro, 2013). Further, the top five banks, JPMorgan, Bank of America Corp, Citigroup Inc, Wells Fargo Co. and Goldman Sachs Group Inc account for \$64 billion of the total subsidy. In this sense, large banks are encouraged by the market to make riskier investments, provided that the government is there as a safety net.

The next chapter will discuss the role that different government bodies hold in mitigating excessive risk-taking and the reforms adopted to prevent the risk of moral hazard and systemic collapse.

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<sup>9</sup> Bloomberg calculated bank subsidies by multiplying large banks borrowing discount rate of 0.8 by a bank’s total liabilities (including bonds and customer deposits).



## **Chapter Four**

### **Government Role and Moral Hazard**

This chapter focuses on the role that different government bodies played in implementing policies that provided the incentive for firms to take greater risks. The initial goal of the Federal Reserve was to provide the proper stability to an economy plagued with financial panics. But in the most recent financial crisis, the nation's lender of last resort was unable to meet the liquidity needs of ailing financial institutions. Banks became so large, requiring such a degree of financial assistance, that the main institutional body endowed with this power was unable to do so. The manner and effectiveness of the government's response to a financial crisis can affect the degree of economic recession. Elizabeth Warren, former-Chair of the Congressional Oversight Panel, claims (and I agree), that the most effective government response to a financial crisis ensures strong accountability and transparency measures and lays out a clear plan of action (September Oversight Report). However, the government response during the financial crisis of 2007-2009 not only revealed a weakness of the financial sector, but also a weakness of federal government response to mitigate excessive risk-taking and economic recession. If the government fails to uphold proper emergency response policies, it can incentivize firms to take greater risks than otherwise, provided that they have the government as a safety net.

This begs the question: has the U.S. financial system outgrown its regulatory system? Many scholars on the surface may agree, but digging deeper I believe that there is more to the story. I believe that at another level of analysis, we are able to examine the Federal Reserve, the U.S. Department of the Treasury, Congress and the Presidency by the manner in which each government body is structured and the policies implemented, as one reason for the greater degree



of risks and losses on the part of financial institutions. Specifically, I compare members of Congress and the President, who are chosen by their electorates, versus the Secretary of the Treasury and the Chairman of the Federal Reserve, who are politically appointed. In the case of TARP, American taxpayers carried many of the losses due to moral hazard; therefore, there is a clear issue of ‘public interest’ in how the government regulates during financial crisis<sup>10</sup>.

My starting hypothesis is that given a greater amount of transparency and reliance on public support, democratically elected government bodies, rather than politically appointed government bodies should be more sensitive to public opinions and enact legislation that reduces the risk of moral hazard. In order to investigate the role that different government bodies held in mitigating greater risks during the financial crisis a chronological analysis of events and relevant government response are examined in this chapter. First, it is important to lay out the role that each governing body holds in financial regulation and how these roles are interconnected with other government bodies. This is followed by, an analysis of the roles of politically appointed and democratically elected government entities in the enactment of Troubled Asset Relief Program (TARP). The next section will compare the TARP legislation enacted during the financial crisis, versus the Dodd-Frank (2010) legislative reforms enacted after the financial crisis. The following sections will analyze the relative effectiveness of government policy in reducing the risk of moral hazard.

#### **4.1 Interrelations of U.S. Treasury and the Federal Reserve**

The U.S. Treasury and the Federal Reserve are two main government bodies responsible for proper oversight of financial markets. The Chairman of the Federal Reserve and the

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<sup>10</sup> Federal lending facilities and programs are not directly related to the public interest because the Federal Reserve is a private entity. Conversely, TARP was a taxpayer funded bailout and concerns the public interest.

Secretary of the U.S. Department of the Treasury are both politically appointed government bodies that work together to establish effective oversight and proper policies to maintain economic stability.

### *Role of the U.S. Treasury*

The U.S. Treasury Secretary is appointed by the President and confirmed by the Senate to serve in the Executive Branch Cabinet. The U.S. Department of the Treasury, is responsible for printing currency, managing Federal finances and the public debt, collecting taxes and enforcing the Federal finance and tax laws. In addition, the U.S. Treasury advises the President on domestic and international financial, monetary, economic, trade and tax policy (U.S. Department of the Treasury). The mission of the U.S. Treasury Department is stated as follows:

*“Maintain a strong economy and create economic and job opportunities by promoting the conditions that enable economic growth and stability at home and abroad, strengthen national security by combating threats and protecting the integrity of the financial system, and manage the U.S. Government’s finances and resources effectively.”*

The Treasury has a large number of bureaus including the Internal Revenue Service (IRS), the Office of the Comptroller of the Currency (OCC), the U.S. Mint, the Inspector General, and the Treasury Inspector General for Tax Administration (TIGTA). The Treasury is able to utilize these additional bureaus to ensure economic stability.

### *Role of the Federal Reserve*

The leadership within the Federal Reserve is organized in a similar fashion to the U.S. Treasury. The Chairman of the Federal Reserve, along with the seven other Board of Governors members, are appointed by the President and confirmed by the Senate, to serve 14-year terms

(The Federal Reserve Board, 2003). According to the *Federal Reserve: Functions and Purposes* “Congress chartered the Federal Reserve Banks for a public purpose. The Reserve Banks are the operating arms of the central banking system, and they combine both public and private elements in their makeup and organization” (Fox et al. 2005). The Federal Reserve holds a similar mission by influencing the U.S. monetary system and credit conditions to create maximum employment, stable prices, and moderate long-term interest rates (Fox et. al 2005). The Federal Reserve controls U.S. monetary policies, regulates the banking sector to ensure protection of consumers, provides financial services to depository institutions, the U.S. government, and foreign official institutions, and operates the nation’s payments system (Fox et. al 2005).

The Fed is considered an independent central bank because its actions do not have to be ratified by the President or anyone else in the executive. While the Federal Reserve has a greater degree of power, members of the Board frequently testify before Congressional committees on the economy, monetary policy, banking supervision and regulation, consumer credit protection, financial markets, and other matters. The Chairman of the Board of Governors testifies before the Senate Committee on Banking, Housing, and Urban Affairs; addressing the efforts, activities, and objectives and plans of the Board of the Governors & FOMC and the Board has regular contact with members of the President’s Council of Economic Advisors (Fox et al. 2005). The Congressional oversight of the Federal Reserve works to facilitate greater transparency between the two main government bodies.

#### **4.2 Initial Response to Crisis: The U.S. Treasury and the Federal Reserve**

The first signs of financial calamity were apparent in August 9, 2007 when institutions highly invested in the asset-backed commercial paper (ABCP) money markets were unable to

rollover their outstanding volumes (D'Apice and Ferri, 2010). The Federal Reserve Board announced the following day that the Fed “will provide reserves as necessary...in current circumstances, depository institutions may experience unusual funding needs because of dislocations in money and credit markets. As always, the discount window is available as a source of funding” (Federal Reserve Bank of St. Louis, 2011). We now know that this was just one small bump in the road, or maybe even a call for help that the financial markets were headed down a road toward disaster. But what is also important to note is the regulatory response to these signals and the overall response to the financial crisis.

The Treasury and the Federal Reserve first attempted to combat the economic downturn by reducing the Federal Funds rate to allow banks to lend at a lower rate. The mission of the U.S. Treasury and the Federal Reserve both are focused on providing economic growth and stability through employment objectives and proper financial oversight. Therefore, the greater public interest appears to be in mind through both government bodies objectives. But within each of these missions it seems that there is a trickle down ideology: A directly supports B, but should also indirectly support C. For example, with the overarching goal to reduce the severity of the financial crisis, first, the U.S. Treasury printed Treasury bonds that the Federal Reserve bought in order to increase the supply of money in the economy, thereby reducing the interest rate that banks were charged to borrow money. The direct result (B) of this policy was to reduce the interest rate, but the indirect result (C) was intended to continue the flow of credit between lenders and consumers/businesses. However, the issue is that the Treasury and the Federal Reserve only have the power to influence monetary policy, but these two government bodies do not have the authority to mandate bank-lending levels.

As noted in the previous chapter, any lending during a financial crisis is subject to a greater degree of risk. Consequentially, encouraging banks to continue to lend is counter-intuitive to the objective of creating a stable economy if banks are incurring higher-risk lending. Further, the Federal Reserve has the authority to set up minimum reserve requirements, but as Black and Hazelwood (2012) illustrated, the lending of C&I loans plummeted after the failure of Lehman Brothers during the financial crisis. Rather than having to discourage banks from lending too much, in October 2008 the Federal Reserve and Treasury were faced with the predicament in how to encourage banks to lend to *more* consumers and businesses. The lack of bank lending worsened the financial crisis with businesses unable to borrow and forced to cut their costs. This provides an interesting comparative, in that the U.S. Treasury and the Federal Reserve have the authority to encourage or discourage lending, but the government bodies do not have *direct* control to accomplish these objectives.

One issue with the Federal Reserve and U.S. Treasury's emergency response was the ad-hoc approach toward stemming the financial crisis. The Financial Crisis Inquiry Commission concluded that the Federal Reserve and the U.S. Treasury were ill prepared for a major financial crisis and had underestimated the nation's financial distress (United States Financial Crisis Inquiry Commission, 2010). For example, in the case of Bear Sterns, in March 2008 the major investment bank notified the Federal Reserve that the company was at risk of insolvency and would not have access to the private sector for additional lending. The Federal Reserve Board authorized the Federal Reserve Bank of New York to facilitate JPMorgan's acquisition of Bear Sterns, where shareholders were not entirely wiped out and bondholders were fully protected. However, in the case of Fannie Mae in July 2008, shareholders lost everything and bondholders were fully protected (Stiglitz, 2010). Nonetheless, the issue of moral hazard for the Federal

Reserve and the U.S. Treasury was concerning because the regulators were providing the market's expectation of a government safety net.

#### **4.3 Increased Financial Severity: The Fed, Treasury, and Congress**

Until September 2008, the Federal Reserve and the U.S. Treasury had not allowed a single systemically important financial institution to fail; therefore, providing the implicit guarantee that large financial institutions would have the federal government as a safety net. When Lehman Brothers faced liquidity issues, on September 12<sup>th</sup>, 2008 the President of the Federal Bank of New York (FRBNY) at the time, Timothy Geithner brought together 12 major financial institutions to discuss a private-sector rescue of the investment bank giant. The firms committed \$40 billion to rescue Lehman's real estate assets and the overall firm, but as we all know, a private-sector rescue never occurred (United States Financial Crisis Inquiry Commission, 2011). Lehman Brothers filed for Chapter 11 bankruptcy on September 15, 2008 creating a wave of financial panic.

Initially, the Federal Reserve justified their decision to not bailout Lehman Brothers, because of the future risk of moral hazard in the market, the potential negative political reaction, the lack of a private firm acquisition, and impact on management in the financial system who had expected another Federally funded bailout (United States Financial Crisis Inquiry Commission, 2011). After Lehman's failure, the Federal Reserve justified their decision by claiming that they did not have the legal authority to bail out the investment bank. No matter the Fed's reasoning, at the time of Lehman Brothers' failure, it was the fourth largest investment bank in the U.S. and held a systemic risk to the financial sector.

Lehman's failure furthered the necessity of additional lending facilities to American Insurance Group (AIG), a large insurance company that was also having difficulty turning over its short-term debts. AIG posed a systemic risk to the financial sector due to its large investment in credit default swaps (CDS) and mortgage backed securities (MBS) among other securitized investment products. Therefore, at the same time of Lehman's failure, the Federal Reserve and the U.S. Treasury had to make a critical decision if it was going to allow another systemically important financial institution (SIFI) to fail.

AIG turned to the Federal Reserve to discuss additional lending through the discount window and possibly other additional financing. Members at a meeting preceding the failure of Lehman Brothers noted that the head of the Federal Reserve Bank of New York, Timothy Geithner, made his stand on a government bailout very clear: government funds would not be available and the private sector had to find a solution (Congressional Oversight Panel June 2010). The markets were left wondering if the Fed and Treasury would stand by the argument that ailing companies would have to seek additional financial through the private sector. When questioned at a press conference whether or not the Fed was providing a bridge loan to AIG from the U.S. Treasury, Secretary Henry Paulson responded, "What is going on right now in New York has nothing to do with any bridge loan from the government. What's going on in New York is a private-sector effort" (Congressional Panel June 2010). At this point, it appeared that the Federal Reserve and U.S. Treasury were concerned with mitigating the risk of moral hazard by preventing a government bailout.

Despite the Fed's efforts to pursue a private sector bailout of AIG, the severity of the company's liquidity issues turned many possible lenders away. A participant at the AIG rescue effort at FRBNY noted that there was a sense among bankers that AIG's issues were too large

for the private-sector banks to solve, especially given the limited time frame available. The vice chairman of the Board of Governors of the Federal Reserve System explained the failure of a private sector bailout stating that “effort was unsuccessful in deteriorating economic and financial environment in which firms were not willing to expose themselves to risks” (December Oversight Report, 2010). While the Fed had worked to facilitate a private-funded bailout for AIG, the risks were deemed too large.

If the Federal Reserve allowed AIG fail, major financial firms would be subject to even greater risks because most major banks had exposure to AIG investments in some form. Over the past eight years AIG had progressively increased its investments in CDS markets, which in turn left many other banks at risk if AIG was unable to continue the flow of credit (United States Financial Crisis Inquiry Commission 2011, 344). The failure of a private-sector bailout left the Federal Reserve as the only funding resource available. After the chaotic financial sector and overall nation’s response to the failure of Lehman Brothers, the Fed could not risk letting another systemically significant financial institution fail and set aside \$85 billion to bailout AIG.

While the U.S. Treasury and Fed worked together to continue the flow of credit and a stable economy, the lower Federal Funds rate and extended Federal lending programs were not enough to calm the storm that occurred with the failure of Lehman. The level of financial instability and risk of major financial firms required the Fed to expand its balance sheet to support ailing financial firms. The ‘necessity’ of Federal Reserve financial assistance reached such a level that Treasury Secretary, Hank Paulson requested additional funding from Congress to assist ailing financial institutions.

The actions of Congress and the response of the U.S. President during a financial crisis provides insight to the nation’s ability to quell a financial crisis, as well as the holes in regulatory



bodies that need to be mended. While the Secretary of the U.S. Treasury Department and the Board of Governors of the Federal Reserve are focused on the nation's monetary and financial policy, democratically elected bodies Congress and the President are focused on a much larger number of policies and industries. In order to understand the Congressional perspective of a financial crisis it is important to backtrack and lay out the structure of Congressional elections, terms, and responsibilities.

### *Role of Congress*

Members of Congress are elected by their representative states, where House of Representatives serve 2-year terms and Senator serve 6-year terms. House members and Senator serve on a number of committees in Congress from Agriculture to Small Business where they vote, sponsor bills, and can offer amendments. Leaders are elected within the House and Senate include a speaker, a majority and minority leader, assistant leaders, whips, and party caucus. The structure of Congress allows congressmen and congresswoman to rely on the support of their constituents to remain in office. Along with public disclosure of each House and Senate member's vote on a bill, the expansive media coverage on Congressional activities holds the democratically elected body to greater degree transparency and accountability for their legislative policies.

In terms of financial and banking regulations, Congress can pass legislation with new reforms and regulations that alter the risk-taking activities of banks. The House Committee on Financial Services and the Senate Committee on Banking, Housing, & Urban Affairs are responsible for the passage of various legislative reforms that affect banking and financial

activities. During the recent financial crisis, these two committees were responsible for the passage of the financial and banking reforms.

The original TARP program requested that Congress provide the Treasury with taxpayer funds without specific Congressional oversight or judicial review (Stiglitz, 2010). Not only was the requested amount unprecedented, but the U.S. Treasury Secretary Henry Paulson failed to establish a clear plan of action in how the funds would be used to stabilize the economy. Congress voted on TARP the same way all legislation is passed through Congress. Given the limited amount of Congressional oversight and program details, the House of Representatives rejected the TARP bill (Appendix C). The securities markets responded negatively to the House's rejection with the Dow falling 777 points in one day.<sup>11</sup> The overall economic calamity resulted in an auction held by the Bush administration, that essentially asked each congressperson how much they required in gifts to their constituents in order to sway their vote (Stiglitz, 2010). The thirty-two Democrats and twenty-six Republicans received a total of \$110 billion in earmarks, as special tax provisions for their constituents under the revised bill. Among these provisions included an excise tax for wooden arrows for children in Oregon, a seven-year cost recovery period for NASCAR racetracks, and increased funding for U.S. wool fabric makers and clothing manufacturers (Anderson et al. 2008). While pork barrel benefits specific Congressmen and their constituents, debate over localized spending during the time of a historic financial crisis clearly does not have the overall public interest in mind.

Appendix C provides a chronological illustration of the legislative process of TARP along with the policy's passage and implementation of the program. The passage of TARP highlights the contradicting objectives of time-consuming legislative processes, and the time-sensitive issues during a financial crisis. The legislative process takes a considerable amount of time in

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<sup>11</sup> *Wall Street Journal*. Historical Prices. <http://quotes.wsj.com/DJI/index-historical-prices>

Washington, where lobbyists and other interest parties can bring their relative interests to Congress to suggest legislative reforms. Members of Congress in the House of Representatives and/or Senate can sponsor a bill, and if brought onto the a committee's agenda is voted on to be brought to the floor. If the bill passes through committee it is scheduled on the floor calendar then moves to the floor of the House of Representatives, where it must pass a simple majority, (fifty percent or more of the House members must vote yes). If the bill passes, it moves on to the Senate's relevant committee to be voted on, but if the bill does not receive a simple majority it fails and can either be reformed with necessary changes to be voted on again, or 'die' in Congress. Bills voted on in the Senate must also receive a simple majority to pass. But an important component of the Senate is that members have the power to filibuster, that allows them to debate a bill on the Senate floor for an indeterminate period of time, therefore delaying vote. Senate members opposed to the delayed voting have the power to stop a filibuster through a cloture, requiring 60 or more Senate votes. While a number of other details are involved in the legislative voting process, this offers a picture of the slow legislative process that Congress must go through in order to pass a law. However, while legislation is slow, markets are constantly changing and react instantaneously to policies measures that affect securities markets. During the financial crisis, the U.S. Department of the Treasury and the Federal Reserve were forced to turn to Congress for additional lending facilities to prevent a complete economic collapse of the U.S. economy.

#### 4.4 Financial Crisis Legislation: TARP

The goal of TARP was unclear to Americans from the beginning. The media did a great job portraying that Congress had committed \$700 billion of *taxpayer* funds, but the intended use of these funds was not illustrated clearly. Because major institutions were using taxpayer funds, a common assumption was that this would allow for the continual flow of credit between consumers and lenders. But the freezing of credit and lack of bank lending following the collapse of Lehman created anger and distrust from the public on the part of the U.S. financial sector. In order to analyze the goals and effectiveness of TARP, it is important to establish the original language of the program. The mission of the Emergency Economic Stabilization Act (EESA) of 2008 (Kennedy 2008) follows:

*“To provide authority for the Federal Government to purchase and insure certain types of troubled assets for the purposes of providing stability to and preventing disruption in the economy and financial system and protecting taxpayers, to amend the Internal Revenue Code of 1986 to provide incentives for energy production and conservation, to extend certain expiring provisions, to provide individual income tax relief, and for other purposes”*

The purpose of EESA illustrates the overarching goal to stabilize the economy, but not at the expense of the taxpayer, thereby keeping the public interest in mind. The Troubled Asset Relief Program (TARP) was established under the EESA and the purpose of the Act is as follows (Kennedy 2008):

*“The Secretary is authorized to establish the Troubled Asset Relief Program (or ‘TARP’) to purchase, and to make and fund commitments to purchase, troubled assets from any financial institution, on such terms and conditions as are determined by the Secretary, and in accordance with this Act and the policies and procedures developed and published by the Secretary.”*

In terms of TARP, as long as the economy was stabilized and taxpayer funds were not used for other purposes, than the interest of the public would be met. Upon the passage of TARP

Congress stated that the purpose of EESA was to “immediately provide authority and facilities that the Secretary of the Treasury can use to restore liquidity and stability to the financial system of the United States” (December Oversight Report, 2010). TARP was originally intended to buy toxic assets off the balance sheets of ailing financial firms, but just five weeks after the legislation’s passage the objective shifted from buying illiquid assets to purchasing non-voting preferred stock in banks and institutions and therefore directly investing taxpayer dollars (Ghosh and Mohamed 2010). Paulson defended his shift in policy during an interview with CNBC in November 2008 stating:

*“We were always focused on one thing, capital in the banks and illiquid assets in the banks. And this was a good idea when we went to Congress, it’s still a good idea, but we changed strategy when the facts changed. Because let me explain the strategy: purchasing illiquid assets adds capital, price discovery, encourages more private capital to come in. But by the time that the process with Congress was completed, it was clear that we were facing a much more severe situation than we had envisioned earlier on”* (CNBC.com Interview 2008).

Secretary Paulson’s reasoning correlates to the issue discussed in the previous section, in that the timing of legislation and the timing of changes in the securities markets are not correlated. While Congress was in deliberations over TARP, the securities markets were declining drastically. The U.S. Treasury responded to the economic severity with direct capital injections in an attempt to restore confidence and prevent further decline in the securities markets.

By directly purchasing ‘troubled’ assets, TARP would work to free up the frozen credit markets—a policy that aligned with the public interest. The alteration of the TARP program to purchase non-voting preferred shares provided financial institutions with additional capital. However, the U.S. Treasury, Federal Reserve, nor Congress had the authority to determine where TARP dollars were spent—a policy that was out of line with the public interest.

The new policy of the Treasury to purchase non-voting shares in financial institutions angered many members of Congress who felt they had been manipulated into voting for TARP legislation that would do more to benefit Wall Street than ailing homeowners. After the Treasury announced the changes in TARP legislation, the head of the TARP Program Neel Kashkari testified before Congress to explain the change in Treasury policy. A clash of interests was apparent when Representative Dennis Kucinich (D-OH) exclaimed, “I don’t think anyone questions Mr. Kashkari that you’re working hard. Our question is who you’re working for?” (House Oversight Committee, 2008). As stated earlier, in order for government policy to effectively address financial crisis concerns, clear accountability and transparency of policies must be properly established. The interaction between a politically appointed Treasury official, Mr. Kashkari and democratically elected politician Representative Kucinich, reveals the differing interests and lack of trust between the two government bodies.

The issue of trust between Congress and the U.S. Treasury/Federal Reserve was increased in 2010 when Bloomberg LP won a court case against the Clearing House Association LLC that revealed Federal Reserve bailout efforts totaled to over \$7.77 trillion in government assistance. Federal Reserve lending programs were announced to the public, but the exact magnitude of lending programs was not disclosed until Bloomberg’s successful lawsuit.

While Congress was debating whether or not to provide additional taxpayer dollars to ailing financial institutions, Congressmen had zero knowledge of magnitude of Federal lending programs. Former-House Representative member Barney Frank (D-MA) commented, “We were aware emergency efforts were going on. We didn’t know the specifics” (Ivry, Keoun and Kuntz 2011). Senator Sherrod Brown (D-OH) was also surprised by the numbers and stated, “when you see the dollars the banks got, it’s hard to make the case these were successful institutions... There

are lawmakers in both parties who would change their votes now” (Ivry, Keoun and Kuntz, 2011). Other members in Congress were not as surprised by the Fed’s actions—for example Senator Jeb Hensarling, an outspoken critic of the TARP legislation voted against EESA explaining that “I was concerned that the program might create a level of moral hazard that could create even greater economic turmoil down the road. I fear that many of my fears may actually prove well founded.” Nonetheless, the failure of transparency and accountability between the Federal Reserve/U.S. Treasury and Congress, allowed the financial sector to access a taxpayer-funded bailout.

Fed Chairman Ben Bernanke defended his decision to not disclose spending details, claiming that if financial firms were forced to disclose the amount of Federal lending that they received, it would create a negative stigma of accessing government funds. Transparency is important in mitigating the potential of moral hazard because it creates greater accountability for governmental policies. A lack of transparency and revelation of this failure later only worsened the accountability of the Federal Reserve and the Treasury in the eyes of Congress.

#### **4.5 Issue in Lending:**

The primary purpose of TARP was to stabilize the economy, but unfortunately for many consumers and businesses this stability did not include increased bank lending. In November 2008 former-Treasury Secretary Henry Paulson stated in a CNBC interview “the major purpose of the TARP was to stabilize the financial system, first and foremost to prevent a collapse. Number two to get lending going. I think that the system has been stabilized” (CNBC 2008). Paulson’s statement suggested that the next phase of TARP would be to get the banks to lend again. Unfortunately, as Black and Hazelwood (2012) illustrate, the level of lending to

consumers and businesses plummeted following the financial crisis. Many financial firms are less apt to lend during a financial crisis because of the greater risk that borrowers will default on their loans. In addition, as the previous section pointed out, the change in TARP's implementation shifted to a capital injection program without adequate oversight of taxpayer funds. Therefore, TARP's secondary objective was confronted with the financial market's unwillingness to extend lending during the financial crisis.

In December 2010, Paulson's successor and now former-Secretary of the Treasury, Timothy Geithner testified before the Congressional Oversight Panel to discuss the progress of TARP. When the Panel asked about the effectiveness of TARP to spur lending, Secretary Geithner responded, "We have authority, still, to continue this set of housing programs to make sure they reach as many people as they can. Beyond that, TARP's contribution will be very limited. The principal thing we can do to help small banks manage through this is to make sure that we're doing as much as we can to reopen access for small businesses to credit" (December Oversight Report, 2010). Geithner's statements draw attention to the limited ability that the U.S. Treasury had to increase bank lending due to the shifted policy of capitalization. The Panel concluded that after 14 months of TARP's enactment, the availability of credit remained low, toxic assets were still on the balance sheets of many large banks, job losses continued, and the government's intervention had signaled to investors the government's implicit guarantee to major financial institutions (December Oversight Report, 2010). The Panel's conclusions reveal that TARP's change in implementation was not in the best interest.

On top of the lack of lending that consumers and businesses were receiving, the Treasury had paid significantly more for troubled assets due to the complexity of certain financial instruments (i.e., MBS) and the lack of developing a proper pricing mechanism. On February 6,



2009 the Panel reported that for every \$100 spent for 8 healthy banks, the total return was \$78, resulting in a \$22 loss. In the two transactions made for riskier banks, for every \$100 the Treasury spent, the total return was \$41, resulting in a \$59 loss (September Oversight Report, 2009). Therefore, not only were businesses and consumers suffering from the lack of credit available in the marketplace, but many financial firms were able to receive a profit from the taxpayer-funded bailout.

#### **4.6 Presidential Change**

Another interesting facet is the change in political leadership that occurred during the height of the great recession in 2009. In November 2008 Barack Obama won the Presidential ticket, representing a shift from a Republican to a Democratic presidency. Obama's campaign slogan of 'change' created a sense of hope in future governmental policies that would be better aligned with the public interest. President-elect Barack Obama spoke at Toledo, Ohio before his election and noted that in order to come ahead of the financial crisis "it will take new leadership in Washington. It will take a real change in the policies and politics of the last eight years. And that's why I'm running for President of the United States of America." (Obama, 2008) But looking back now five years later, what changes were truly set in place under the Obama administration?

As a democratically elected official, the President relies on public support for (re)election. At the time President Obama took office in January 2009, the country's financial sector was still fighting one of its worst financial recessions. Despite the evidence of misaligned regulatory policy and corporate ethics, President Obama avoided making serious criticisms of specific members in the financial sector. Stiglitz (2010) claims that one reason behind this tactic was to

avoid causing conflict in the nation at a time when the country needed unity the most. While I expected the President to be more outspoken about the injustices occurring within the financial sector, the overall need for national unity to get through a national crisis can be one justification for the lack of criticism.

Instead of altering economic leadership, the Obama administration kept the same individuals who had failed to uphold the public interest. For example, former-head of the Federal Reserve Bank of New York, Timothy Geithner who was highly involved in the bailout of Wall Street financial firms, was appointed as President Obama's Treasury Secretary. Federal Reserve Chairman, Ben Bernanke was also reappointed by President Obama and commended by the President for the efforts he made to stem the financial crisis (Stiglitz, 2010). President Obama also appointed Larry Summers as his Chief Economic Advisor (2009-2010), who had served as Bill Clinton's Secretary of the Treasury (1999-2001) and was one of the proponents for the repeal of Glass-Steagall (1933). As a presidential candidate who campaigned on the slogan of 'Change', President Obama failed to uphold his campaign promises, as reflected in the lack of change in major leadership positions who had previously failed to keep the public interest in mind with their financial policies.

#### **4.7 Dodd-Frank Act (2010)**

##### *Goal of the Dodd-Frank Act (2010)*

Congress passed the Dodd-Frank Wall Street Reform and Protection Act on July 21, 2010 with the main goals of providing proper financial regulatory reforms, putting an end to too-big-to-fail and preventing another taxpayer-funded bailout (Evanoff and Moeller, 2012; Van Der Weide, 2012). In order to properly implement all the stated goals, the 2,319-page Act requires

over 250 new regulatory rules. However, the Dodd-Frank Act does not specify how these reforms are to be laid out, thereby giving the Federal Reserve and other financial regulators significant flexibility in policy implementations. Congress mandated certain deadlines for reforms and other studies to be set up by, but due to the complexity and expansiveness of legislation, a number of pieces of the Act have yet to be fully executed. The public interest appears to be in mind through Congress' states goals in Dodd-Frank, but the delay of policy implementation limits the overall success of legislative reform.

### *Dodd-Frank Reforms*

Dodd-Frank was a change in the tide of deregulatory reforms that had been passed for decades before the financial crisis. The high amount of speculation preceding the financial crisis, illustrated in the leverage ratio of systemically important financial institutions (SIFIs)<sup>12</sup>, posed a severe risk to financial stability. In accordance to the issue of moral hazard, this study's results illustrate that large banks exhibited moral hazard prior to and during the 2007-2009 financial crisis. Dodd-Frank addresses the problem of moral hazard by setting up an orderly liquidation process for SIFIs headed by the FDIC. Thus far, the Act requires SIFIs to develop, maintain, and periodically submit plans to the FDIC. In terms of proper regulation, the Federal Reserve is developing enhanced standards of capital, leverage, and liquidity requirements, along with credit limits, stress tests, and remediate framework for bank holding companies and nonbank financial firms that the council specifies as SIFIs. As the resolution authority, the FDIC has the power to determine which banks, not insured by the institution, pose a systemic threat to the financial sector.

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<sup>12</sup> The Dodd-Frank Act defines systemically important financial institutions (SIFI) as bank holding companies that have total consolidated assets equal to \$50 billion or more (Gruenberg, 2012)

In September 2010, the Fed Chairman Ben Bernanke testified before the Financial Crisis Inquiry Commission and commented on the issue of large banks stating:

*“[T]oo-big-to-fail generates a severe moral hazard. If creditor believe that an institution will not be allowed to fail, they will not demand as much compensation for risks as they otherwise would, thus weakening market discipline; nor will they invest as many resources in monitoring the firm’s risk-taking. As a result, too-big-to-fail firms will tend to take more risk than desirable, in the expectation that they will receive assistance if their bets go bad...The buildup of risk in too-big-to-fail firms increases the possibility of a financial crisis and worsens the crisis when it occurs” (Bernanke, 2010).*

Clearly, from the Chairman’s statements, the Federal Reserve is aware of the increased risk of moral hazard that large institutions place on the stability of the financial sector. Given the current knowledge, the issue today is developing *specific* regulatory standards. The FDIC is working to set up specific standards that will reduce the probability of the largest banks from defaulting, and in the case that an institution does fail, to minimize the risk placed upon the entire financial sector.

In the case that an SIFI does fail, Dodd-Frank places specific restrictions on the resolution process. The management and board of directors who were responsible for the failure of the firms must be removed from the organization and equity holders will not receive payment until other creditors, including the FDIC, have been paid in full. In addition, the FDIC will not take an equity position within the failing firm. In this sense, the Dodd-Frank Act is working to institute proper reforms to eliminate the future risk of too-big-to-fail and moral hazard and is in line with the public’s interest.

#### *Issues of Implementation SIFI Reforms*

The regulators in charge of implementing the necessary reforms laid out within the Dodd-Frank Act were indebted with one of the largest financial reorganizations to date. However, the issue of proper implementation lies in the sheer magnitude of legislation. After almost three

years since the Act's passage, the beginning stages of policy implementation are still being hashed out in the Federal Reserve. Regulators are certainly working hard to try to create innovative policies in order to properly implement the stated goals of the legislation; but the complexity of the Act and the overall financial sector creates a significant challenge in developing a clear plan of action for reform.

Mark Van Der Weide (2012), a senior associate director in the Division of Banking Supervision and Regulation at the Fed explains the difficulty in developing a variety of standards to properly regulate various SIFI. Van Der Weide (2012) explains that one of the pressing issues is developing a regulatory framework that is proportional to the systemic risk posed by different sized-SIFIs. For example, the systemic risk that Zions Bancorp poses on the financial sector (with assets under management just above \$50 billion) versus financial giants like Citigroup or Goldman Sachs is extraordinary. The varying degrees of systemic risk make developing the necessary capital, leverage, and liquidity requirements, stress tests, living wills, and remediation framework a much more tedious process, thereby limiting the overall success of Dodd Frank's SIFI resolution implementation.

In addition, many of the same individuals in top financial regulatory roles, who allowed the financial sector to take on excessive risk, are in leadership roles of implementing Dodd-Frank reform policies. Among these individuals, Ben Bernanke serves and Timothy Geithner<sup>13</sup> served on the council of Financial Oversight Board (FOB) to implement Dodd-Frank. Chairman Bernanke acknowledges his lack of oversight in controlling systemic risks, yet after the fact Bernanke holds a main role in determining which banks hold a systemic risk. The irony of this

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<sup>13</sup> Timothy Geithner served as Secretary of the U.S. Department of the Treasury from January 26<sup>th</sup>, 2009-January 25<sup>th</sup>, 2013. Jacob Lew became the 76<sup>th</sup> Treasury Secretary on February 28<sup>th</sup>, 2013.

situation is only overshadowed by the threat that our nation's largest banking issues have yet to be resolved.

#### **4.8 Summary of Analysis**

The Federal Reserve, U.S. Department of the Treasury, Congress, and the President each held a significant role in developing proper policies to combat the 2007-2009 financial crisis. I hypothesized that democratically elected representatives would enact policies that supported the greater public interest, thereby mitigating the risk of moral hazard. However, a number of factors prevented Congress from upholding the public interest. First, the preceding years of deregulatory legislation passed by Congress allowed the banks to take greater investment risks with fewer regulations and adequate consumer protection. Second, the timing of legislation during crisis periods, and the time-sensitive nature of security markets are conflicting situations. Third, the failure of proper transparency between of the Federal Reserve and the U.S. Treasury to Congress and the Presidency limited the effectiveness of policymaking during the crisis. The end result of TARP was a good deal for banks to profit from a low cost to borrow from the Treasury, but a horrible deal for the American taxpayers. Therefore, the structure of the legislative body combined with inadequate transparency from the Federal Reserve and the U.S. Treasury, caused the failure of democratically elected bodies to uphold the public interest and mitigate the risk of moral hazard during financial crisis.

In the case of resolution legislation, the Dodd-Frank Act (2010) attempts to mend the mistakes from the past by instituting additional regulatory reforms that end too-big-to-fail issues and another financial crisis. Unlike the previous TARP legislation, Congress, the U.S. Treasury, and the Federal Reserve are working in accordance with one another to increase transparency

between the government bodies to ensure the proper implementation for future reforms.

However, the Act's extensive agenda limits the speed of policy implementation, thereby failing to reduce the systemic risks and upholding the public interest.

# Chapter Five

## Conclusion

### *Summary of Study*

Government policy was an influential factor in the extent to which large banks exhibited moral hazard. In analyzing the relative debt-to-equity ratios, large banks displayed moral hazard at the onset of the financial crisis through considerable greater risk-taking, compared to medium and small banks. However, studies indicate that leverage ratios are procyclical, therefore the debt-to-equity ratio can only determine instances of moral hazard during economic booms, but during an economic downturn, further risk analysis is needed. Black and Hazelwood (2012) provide the additional insight to determine different size bank's risk-taking during the financial crisis.

Chapter One illustrates the magnitude of government lending facilities and programs initiated by the Federal Reserve and the U.S. Treasury. At the early stages of the financial crisis, the Federal Reserve exhibited an ad-hoc approach to the crisis by setting up lending facilities to increase credit lines to depository banks, and eventually to investment banks for financial support. The lending facilities provided the U.S. Treasury and the Federal Reserve sent the message to the financial sector that the government would assist large banks if they required additional funding assistance.

The expansive amount of government assistance had a varied effect on a bank's risk-taking decision depending (generally) on bank size. In Black and Hazelwood's (2012) analysis of small, medium and large TARP and non-TARP banks, all banks reduced their overall lending of C&I loans, but large banks originated higher risk-rated and larger interest rate spreads on new loans compared to medium and small banks. Black and Hazelwood (2012) conclude that the



lower level of lending combined with higher risk new loan originations is indicative of moral hazard.

I use a similar analytical framework as Black and Hazelwood (2012) by separating banks according to size, but also extending the analysis on whether or not the firm received Federal lending facilities and/or TARP funds and measuring risk through the debt-to-equity ratio between March 2003 until September 2012. The results indicate that overall, large banks operated on a considerably greater debt-to-equity ratio in comparison to medium and small banks *before* the financial crisis. The greater amount of risk, in combination with the large degree of losses incurred by the government through bailout efforts, reveals that government policy increases the risk of moral hazard on the part of large government-funded banks. In addition, today large government-funded banks are still operating on the greatest degree of debt-to-equity and therefore still pose a systemic risk to the overall financial sector.

Chapter Four examined the use of taxpayer dollars to bailout major financial firms and the role of democratically elected politicians of Congress and the U.S. President versus politically appointed leaders in the U.S. Treasury and Federal Reserve to mitigate the risk of moral hazard. I originally hypothesized that because Congress and the President are subject to a greater degree of transparency and accountability, their political decisions would reflect the greater public interest while orchestrating legislation during emergency time periods. However, while the legislative process is time-consuming (and for good reasons), financial markets are time- sensitive and highly responsive. Congressmen may have had the overall public interest in mind by enacting TARP, but the *structure* of the legislative system prevented reforms from effectively preventing the risk of moral hazard. The Dodd-Frank Act (2010) attempts to remedy the

mistakes from the past, but the complexities of the too-big-to-fail banks are creating a slow process of implementation due to the necessary legislative innovation and magnitude of reforms.

### *Limitations of Study*

Moral hazard is a nebulous concept; therefore, exact measurements of moral hazard instances are subject to ambiguity. There are numerous methods to measure a financial firm's relative risk through liquidity ratios, value-at-risk, capital risk, default risk, and return on assets. Therefore, there are shortcomings to simply measuring risk by a firm's debt-to-equity ratio.

In addition, the Survey of Terms of Business Lending (STBL) only publically discloses data based upon bank-size. Black and Hazelwood (2012) were able to gather firm specific data from the STBL because of the extended resources that the authors had as a financial analyst at the Board of Governors of the Federal Reserve and staff economist at the Division of International Finance. Therefore, future studies that have access to firm-level data from the STBL should add to Black and Hazelwood's (2012) study by analyzing bank loan-level risk-taking *ex ante* and *ex post* the authors' time period of 2007-2010.

This paper focuses on domestic banks that were affected by the financial crisis, but this was a *global* financial calamity. Therefore, future studies can further explore debt-to-equity ratios in other countries that were severely impacted by the crisis.

### *Policy Implications*

The issue of too-big-to-fail has not been solved; in fact, the issue is even greater today than it was in 2007. Financial instability created an influx of mergers and acquisitions of major financial firms that claimed they risked failure if they did not form together. The Dodd-Frank

Act (2010) sets out to confront this issue with specific regulatory reforms, but the Federal Reserve and underlying bureaus endowed with the power to set in place the reforms, claim to still be setting up the framework for a number of regulatory reforms—two years since the legislation’s passage.

The failure of the Federal Reserve to set in place meaningful regulations to limit the future risk of too-big-to-fail institutions further signifies that the risk of moral hazard is still with us today, similar to what as it was five years ago. As discussed in Chapter 4, many of the financial managers of large banks that engaged in excessive leverage are still working for the same firms that they managed to near failure. In addition, leaders in the Federal Reserve and the U.S. Treasury who allowed financial firms to operate on excessive levels of leverage were reappointed to their positions. Representatives in Congress who had voted for years of deregulatory reforms in the financial sector were reelected. How is the financial sector expected to bring about real reforms if the same individuals are directing the circus?

The clear-cut solution to this problem, one might argue, is to allow highly leveraged firms to fail, therefore discrediting the marketplace’s assumptions. I disagree with this solution, and as we saw in the case of Lehman Brothers, allowing one systemically significant institution to fail creates a new wave of problems for the government to address. Instead, I believe the proactive approach is similar to how former-President Theodore Roosevelt dealt with the railroad monopolies in the early 1900s: address the problem head-on, no matter how unpopular the policy may be. Our nation needs one leader who is not afraid to challenge the current thought process in Congress and in Wall Street. Banks are simply too big and need an orderly resolution to downsize. In order for this to occur, individuals must be placed in power who do not have prior-vested interests in Wall Street.

The current state of our financial sector is going against the market ideologies of capitalism. Opponents of market capitalism may point to the 2007-2009 financial crisis was an example of the failure of capitalism. I disagree and argue that the financial crisis is an example of government policy failing to uphold the principles of capitalism.

The fact that our government is allowing our financial sector to grow so large, with fewer and fewer firms, will put our nation back on the path toward financial ruin. Little bumps along the road with boom and bust cycles are normal. But the economic calamity that struck the global economy from December 2007-June 2009 was no normal downturn. Our government has the power to enact real legislative reforms to change the tide of too big to fail and the future risk of moral hazard. The question is, who will be willing to stand up to the financial giant that we created?

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# Appendices

## Appendix A

## STBL Loan Risk Ratings

Loan Risk	Description
Minimal Risk = 1	Loans have a ‘virtually no chance’ of loss because the borrower has been with the institution for a number of years, has a solid credit history sufficient cash flow, high quality management with ‘unquestionable character’, a debt rating of AA or higher, a number of alternative finance sources, and the collateral is equal or higher than the value of the loan. (Guarantor would receive this rating if borrowing from institution)
Low risk = 2	Loans are ‘very unlikely’ to result in a loss because the borrower has an excellent credit history, sufficient cash flow, a BBB or higher public debt rating, high quality management with ‘unquestionable character’, good access to alternatives sources to finance, and collateral likely to recover full amount of the loan if default occurred. (Guarantor would receive this rating if borrowing from inst.)
Moderate risk = 3	Loans have ‘little chance’ of resulting in a loss because the borrower has a ‘good’ credit history, a cash flow that is subject to cyclical conditions, limited access to capital markets, a limited amount of alternative resources, good management in important conditions, and collateral likely to recover the full amount of the loan if default occurred. (Guarantor would receive this rating if borrowing from inst.)
Acceptable risk = 4	Acceptable risk = 4: Loans have a ‘limited chance’ of resulting in a loss because the borrower has a ‘fair’ credit history without any recent problems, adequate cash flow to meet debt repayments, but may not be enough to meet significant debt financing activities, no access to capital markets, limited access to alternative resources, presence of weak management, sufficient collateral, but may be difficult to liquidate. (Guarantor would receive this rating if borrowing from inst.)
Special Mention = 5	Examination category as “substandard”, “doubtful”, or “loss”. Generally workout loans.

Source: Survey of Terms of Business Lending



**Appendix B****Chronology of TARP**

<b>Date</b>	<b>Event</b>
09/20/08	US Treasury submits draft legislation for Congress to authorize the purchase of troubled assets
09/29/08	HR rejects legislation requesting the purchase of troubled assets from financial institutions
10/03/08	Congress passes/Bush signed the Emergency Economic Stabilization Act of 2008-- \$700 billion TARP
10/14/08	Treasury announced TARP will purchase equity in financial institutions through \$250 billion of capital; 9 large financial organizations announce their intention to subscribe for \$125 billion
10/28/08	Treasury purchases \$125 billion in preferred stock under the <i>Capital Purchase Program</i> (CPP): <b>[\$204.7 billion]</b>
11/10/08	<i>American International Group</i> (AIG): <b>[\$69.8 billion]</b> : Purchase of preferred stocks in AIG and reduce the Fed's loan from \$85 billion to \$60 billion
11/12/08	Treasury Secretary Henry Paulson announced that the Treasury will no longer purchase illiquid mortgage-rated assets from financial institutions
11/14/08	Treasury purchases \$33.5 billion in preferred stock in 21 banks under CPP
11/18/08	Executives of Ford, GM, & Chrysler testify before Congress requesting for access to TARP funds
11/21/08	Treasury purchases \$3 billion in preferred stock in 23 banks under CPP
11/23/08	Treasury along with Fed and FDIC announce agreement with Citigroup to provide guarantees, liquidity access and capital; -\$306 billion from FDIC; Fed non-recourse loan; Treasury provide \$20 billion
12/05/08	Treasury purchases \$4 billion in preferred stock under CPP
12/12/08	Treasury purchases \$6.25 billion in preferred stock under CPP
12/19/08	Treasury authorizes \$13.4 billion for GM and \$4 billion for Chrysler from TARP
12/23/08	Treasury purchase \$15.1 billion in preferred stock under CPP
12/29/08	Treasury purchases \$5 billion in equity from GMAC to assist auto industry; agrees to lend up to \$1 billion to GM
12/31/08	Treasury purchases \$1.91 billion in preferred stock under CPP
01/09/09	Treasury purchases \$4.8 billion in preferred stock under CPP
01/16/09	Treasury purchases \$1.4 billion in preferred stock from 39 US banks
01/16/09	Finalized agreement with Treasury, Fed and FDIC of their guarantee agreement with Citigroup
01/23/09	Treasury purchases \$326 million in preferred stock under CPP
01/30/09	Treasury purchases \$1.15 billion in preferred stock
02/10/09	Treasury creation of the Public-Private Investment Fund to acquire troubled-loans and other assets from financial institutions
02/13/09	Treasury purchases \$429 million in preferred stock under CPP
02/24/09	Treasury purchases \$365.4 million in preferred stock under CPP
02/25/09	Fed, FDIC, and Comptroller of the Currency and Office of Thrift Supervision announce plans for 'stress tests' for banks

02/27/09	US Treasury announcement that its willing to convert \$25 billion of Citigroup preferred stock under CPP into common equity
03/06/09	Treasury purchases \$284.7 million in preferred stock under CPP
03/13/09	Treasury purchases \$1.45 billion in preferred stock under CPP
03/19/09	<i>Auto Suppliers Support Program</i> : [ <b>\$3.5 billion</b> ] TARP funds supplied to GM Supplier Receivables, Chrysler Receivables
03/20/09	Treasury purchases \$80.8 million in preferred stock under CPP
03/25/09	US Treasury proposes legislation that would grant the US government the authority to put certain financial institutions into conservatorship or receivership to reduce systemic risk from the potential insolvency of a significant financial firm
03/27/09	Treasury purchase \$193 million in preferred stock under CPP
04/03/09	Treasury purchases \$54.8 million in preferred shares under CPP
04/10/09	The U.S. Treasury purchases a total of \$22.8 million in preferred stock from 5 U.S. banks under the Capital Purchase Program
04/17/09	The U.S. Treasury purchases a total of \$40.9 million in preferred stock from 6 U.S. banks under the Capital Purchase Program.

Source: Federal Reserve Bank of St. Louis, “The Financial Crisis: A Timeline of Events and Policy Actions”