MORTGAGE MARKETS AND THE 2008 FINANCIAL CRISIS

by

Allison Sterling

Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Finance
Texas Christian University
Fort Worth, Texas

May 2, 2014

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Project Approved:

Supervising Professor: Dr. Mauricio Rodriguez, Ph.D.

Department of Finance

Dr. Joseph Lipscomb, Ph.D.

Department of Finance

Dr. William Wempe, Ph.D.

Department of Accounting

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INTRODUCTION

In the years following the 2008 Financial Crisis, there has been great speculation about the root causes of the largest downturn in the United States economy since the Great Depression. While some scholars view the causes of the crisis holistically, others place the liability specifically on the government, the Federal Reserve, ratings agencies, or Wall Street.

The United States government has been criticized for the creation of government-sponsored enterprises that encourage lending to people with weak credit (Marshall, 2012). There is also an ongoing debate about the extent of the government's responsibility in limiting financial risk versus implementing a "Too Big to Fail Policy" (Bullard, 2009). Allison (2012) credits the Federal Reserve with making poor monetary decisions that led to the housing bubble. Rating agencies were accused of sacrificing proper risk assessment of securities for collecting fees from the financial institutions offering the securities (Lewis, 2011b). Unregulated, private sector institutions lowered their underwriting standards and generated high volumes of subprime mortgages. Many Wall Street firms also lowered their underwriting standards, originating a high volume of loans to individuals with poor credit scores (Wilcox, 2009). Financial institution's securitization linked mortgage markets to the stock market, creating larger systematic risk (Aalbers, 2009). The questionable ethics of Wall Street banks and their relationships with incompetent rating agencies contributed to the deepening of the crisis (Aalbers, 2009).

Despite the multitude of viewpoints, most of the existing literature related to the 2008 Financial Crisis assigns absolute fault to the government, the Federal Reserve, rating agencies or Wall Street. The purpose of this paper is to organize existing literature to better understand the causes, symptoms, and results of the recent financial crisis. This paper begins by giving an overview of the 2008 financial crisis. It then highlights literature explaining the U.S. government's historical and continuous role in the financial crisis. The paper focuses on literature that describes the effects of the Federal Reserve's control of interest rates before, during, and after the crisis. The wrong incentives of rating agencies and the unknowledgeable employees are described by a multitude of sources. Literature related to Wall Street details the low ethics of bankers and the systematic risk posed by financial institutions before the crisis. Finally, this paper covers literature that has a holistic view of the financial crisis. The review and analysis of this literature will answer the following research objectives: What were the primary parties involved in the crisis? What were these parties' individual contributions? Which party was predominantly responsible for the crisis?

The following propositions address the research objectives:

i. The government's implementation of social policy and creation of government-sponsored enterprises encouraged risky lending to low income individuals that fueled the housing bubble.

ii. The Federal Reserve implemented a low interest rate policy that allowed for cheap borrowing, ultimately driving the mortgage markets leading up to the crisis.

iii. Rating agencies overrated subprime mortgage-backed securities which led to investors purchasing a high volume of these toxic securities.

iv. Wall Street's questionable ethics resulted in large financial institutions participation in risky and irresponsible practices, ultimately leading to financial system instability.

HISTORY OF THE 2008 FINANCIAL CRISIS

Existing literature provides a multitude of definitions of the 2008 Financial Crisis. Holt further summarizes the financial crisis best as a recession caused by "the credit crisis resulting from the bursting of the housing bubble" (p. 120). In December of 2007, the United States economy entered into a recession caused by the burst of the housing bubble and corresponding credit crisis (Holt 2009). The housing bubble resulted from the housing market's rapid growth and rise in prices attributed to mass investment and market participation. It was considered a bubble because prices were irrationally higher than the value of the underlying assets.

Holt (2009) describes the four major causes of the housing bubble in the early 2000s as "low mortgage interest rates, low short-term interest rates, relaxed standards for mortgage loans, and irrational exuberance" (p. 120). The low mortgage interest rates were caused by a large influx of foreign savings into the United States. Investors in other countries looked to put their money into low-risk investments that provided stable returns. The mortgage rates remained low as Wall Street created innovative investment vehicles that linked the influx of foreign money to the mortgage markets. In an attempt to recover from a recession in 2001, the Federal Reserve pushed interest rates down "eleven times from 6.50% to 1.75%" (p. 123). The low short-term interest rates promoted the use of adjustable rate mortgages (ARMs), which provided home buyers with temporarily affordable interest payments. ARMs are mortgages in which the interest rate fluctuates with the rate of the market throughout the duration of the loan. The frequent use of ARMs resulted in a spike in housing prices. The low interest rates also encouraged financial institutions to use excessive leverage, or borrowing "cheap" money to finance mortgage-backed securities. Leverage allowed more buyers to purchase housing, and thus, resulted in the rise of housing prices. Relaxed mortgage lending standards caused financial institutions responsible for lending to look the other way at borrowers with low credit scores. Holt explains that the relaxed lending standards were encouraged by government policies related to lending to low-income households, as well as government-sponsored enterprises, which purchased mortgages from institutions that originated loans. Finally, Holt cites irrational exuberance, defined as "a heightened state of speculative fervor," as a factor that led to the housing bubble (p. 125). Primary contributors to the housing bubble, such as lenders, investment bankers, rating agencies, and foreign investors, all assumed that housing prices would continue to rise. This assumption led to an inflow on money into the mortgage markets, which caused home prices to continue to rise.

According to Holt, in the second quarter of 2006, home prices reached their peak and began to fall shortly after; as home prices fell, mortgage default rates rose because homeowners were unable to make interest payments on their houses. The high volume of foreclosures caused the decimation of the value of mortgage-backed securities, which are financial assets backed by mortgages. The linkage of the mortgage markets to the overall financial system deepened the severity of the burst of the housing bubble because there was "increasing perceived credit risk throughout the economy" (Holt, 2009, p. 127). Mortgage lenders, investment banks, foreign investors and insurance companies incurred the greatest losses (p. 127). This became evident through the hallmark collapse of Lehman Brothers, one of the largest investment banks in the United States.

Despite the massive losses suffered by many during the 2008 Financial Crisis, there were a handful of wise investors who foresaw the underlying instability of the markets before the meltdown. In the midst of the irrational exuberance, a select group of money managers discovered that much of the subprime mortgage-backed securities being traded consisted of low quality, high-risk mortgages and were certain that the subprime mortgages would default. The investors saw an opportunity to profit from the upcoming disaster by purchasing credit default swaps on subprime mortgage bonds. A credit default swap was "an insurance policy, typically on a corporate bond, with semiannual payments and fixed term" (Lewis, 2011b, p. 29). In other words, a credit default swap on a subprime mortgage bond was a bet that a subprime mortgage would default. This allowed the investor to have unlimited upside and a downside limited to his or her initial investment. When the markets began to fall and people defaulted on their mortgages that were tied up in the mortgage-backed securities, investors in credit default swaps made large sums of money. While the financial crisis destroyed the wealth of some, others made their life's fortune by betting against the mortgage markets.

THE ROLE OF THE UNITED STATES GOVERNMENT

Social Policy

Current literature argues that social policy set in place by the government as early as 1994 led to low mortgage lending standards, a major contributor to the housing bubble. The Clinton Administration began making plans to increase homeownership across the United States. President Clinton implemented "The National Homeownership Strategy:

Partners in the American Dream," a plan that proposed creative ways to promote homeownership (Coy, 2008). One of the ideas included in the plan was to allow homebuyers to use savings from their IRAs and 401(k)'s as down payments. Such great lengths to promote homeownership led to weak lending standards that "pushed prices up by increasing demand, and later led to waves of defaults by people who never should have bought a home in the first place" (Coy, 2008, p.1). Sassen (2009) further explains that "the high incidence of homeownership in the U.S. contributes to explaining why the banking and financial industries in this country have generated a whole series of innovations so as to expand their markets" (p.415). Sassen believes that the homeownership policy drove the banks and financial institutions to capitalize on the social policy in place. Financial institutions captured the target market of low- and middle-income households, ignoring basic financial principles to allow for homeownership.

Furthermore, prior to the Clinton Administration, there was racial discrimination in the banking business in terms of lending practices (Allison, 2012). Clinton created the idea of "fair lending," which theoretically meant there was no bias toward minorities in determining creditworthiness. However, such regulation evolved into "forced lending to low-income minorities" (Allison, 2012). Many banks would lend money to minorities with terrible credit simply because they did not want to be accused of discrimination. Sassen (2009) presents information that suggests "race and income level matter: African Americans and low-income neighborhoods show a disproportionately high incidence of subprime mortgages in all mortgages from 2000 to 2007" (p.417). Table 1 features data related to subprime lending by racial demographics in New York City from 2002 to 2006.

Table 1: Subprime Lending by Race in New York City, 2002-06 (%)

	2002	2003	2004	2005	2006
White	4.6	6.2	7.2	11.2	9.1
Black	13.4	20.5	35.2	47.1	40.7
Hispanic	11.9	18.1	27.6	39.3	28.6
Asian	4.2	6.2	9.4	18.3	13.6

*Source: Sassen (2009)

As demonstrated by Table 1, subprime lending rates to minorities were significantly higher than those of the white race. Lewis (2011b) explains that the "growing interface between high finance and lower-middle class America was assumed to be good for lower-middle-class America" which resulted in the creation of subprime loans (p. 9). The push for homeownership in the early 1990's by the government set the stage for the 2008 Financial Crisis.

Government-Sponsored Enterprises

The government drove the growth of the mortgage markets with the creation of government-sponsored entities, which purchased loans from originators, allowing lenders to originate high volumes of risky loans without keeping them on their books. Freddie Mac and Fannie Mae's "$2.5 billion line of credit and implicit government guarantee" helped the entities perform their desired role as lenders which led to the origination of risky mortgages that ultimately caused the market to collapse (Marshall, 2012, p.157). Eisenbeis (2007) highlights that "credit risk, or losses resulting from nonpayment by mortgage borrowers, is the most important risk facing Fannie Mae and Freddie Mac" (p.82). Because the many of the mortgages purchased by Fannie Mae and Freddie Mac were subprime, the government-sponsored enterprises carried a large amount of credit risk on their books. When interest rates rose, a multitude of mortgage borrowers were unable to afford their house payments, leading to defaults of mortgages that were on the government-sponsored enterprises' books. Marshall (2012) believes that government-sponsored entities were playing the role of "mortgage lender of last resort" because the banks could not or would not "satisfactorily fulfill their role as lenders" (p. 559). This role implies that government-sponsored entities were the institutions promoting lending to borrowers with bad creditworthiness because other financial institutions did not want to bear that risk. Despite their alignment with government policy, these government-sponsored enterprises deepened one of the root causes of the crisis: lending to people with bad credit and/or having insufficient income to service the mortgages they obtained.

Too Big To Fail Policy

A federal government-related topic to the Financial Crisis is the "Too Big to Fail" policy for bailing out large banks and financial institutions. The idea behind "Too Big to Fail" is that the government bails out a large financial firm that gets into trouble with the intent to avoid wider turmoil in the economy. This topic is based on government responsibilities to stabilize the economy and promote the interests of the general public. Regarding its "Too Big to Fail" policy, the government has an obligation to limit the financial risk posed by financial institutions so that their failure does not harm financial markets and the overall economy (Bullard, 2009). However, it is a popular sentiment that this sense of need for security increased large financial firms' motivation to have high leverage and to originate risky loans. Lewis (2011b) cites an incident in 2002 when the government failed to act with Household Finance Corporation, a company that lied to its customers regarding the effective interest rates on loans. When questioned by a concerned citizen about the practices of Household Finance Corporation, the attorney general of Washington replied "They're a powerful company. If they're gone, who would make subprime loans in the state of Washington?" (p.18). The federal government believed that the origination of subprime loans was critical to the success of the economy in Washington, and thus allowed the company to continue with its illegal practices. Lewis attributes this action as a "federal issue" that caused the crisis to worsen.

<u>Federal Regulation of Mortgage Markets</u>

Literature supports the argument that the government's regulation of mortgage markets leading up to the crisis was a dominant contributor to the financial crisis. According to Manuel Aalbers (2009), mortgage markets, which are the result of government regulation, were the primary causes of the crisis. Aalbers explains that mortgage markets are the "outcome of an institutionalization process," which requires regulation and stabilization. Regulation and stabilization, in turn, are political processes. The mortgage markets penetrated the overall economy because of securitization, which "connects the mortgage market to the stock market" (Aalbers, 2009). Aalbers believed that such financial developments that were subject to government instruction impacted the economy considerably.

Holt (2009) contends that "governmental policies have long encouraged home ownership, e.g., the tax-deductibility of mortgage interest and real estate taxes" (p. 124). For years, the government has rewarded home buyers by allowing them to deduct the amount of interest paid on their mortgages from their income tax. Government policy has created incentives for buyers to mortgage their homes. In fact, in 1997, the government altered the tax to allow for "homeowners to exclude from taxation a gain of up to $500,000 from the sale of a home" (p. 124). Such tax policies encouraged activity in the mortgage markets and incentivized the public to reap the benefits of being a home owner. The government's push for home ownership was a primary contributor to rising housing prices, and ultimately the housing bubble.

THE ROLE OF THE FEDERAL RESERVE

Low Interest Rate Policy

The Federal Reserve's ability to control interest rates was an important factor in shaping the mortgage markets. To counter the effects of the September 11, 2001 terrorist attacks and the recession of 2000-2001, the Federal Reserve lowered interest rates to stimulate spending. Tanneeru (2009) believed the lower interest rates made it easier to borrow money, encouraging home buying; although the expansion of the mortgage markets temporarily helped the economy, the spike in home buying ultimately contributed to the housing bubble.

According to Allison (2012), the Federal Reserve's creation of incentives by "keeping interest rates too low for too long" led to the financial crisis (p.271). In the early 2000s, the Federal Reserve set interest rates below the inflation rate, raising the incentive to expand residential construction and driving home sales. The expansion of the residential housing market added to the housing bubble. Moreover, Bernanke "inverted the yield curve," which meant that he raised short-term interest rates to be higher than the market-driven, long-term interest rates (p.271). Since banks borrowed money short-term and loaned money long-term, the high interest rates caused some bank margins to be negative and ultimately encouraged banks to take more risks to make higher returns. These higher risk activities included making bad loans. According to

Allison (2012), markets “never invert yield curves,” which implies that the yield curve inversion was entirely the Federal Reserve’s policy (p.272).

As Holt mentioned, the Federal Reserve lowered the interest rates “eleven times, from 6.50 percent to 1.75 percent” (p. 123). Holt explains that the short-term interest rates led to the housing bubble by encouraging buyers to use adjustable rate mortgages (ARMs) and promoting the use of leverage. ARMs served as a substitute for fixed rate mortgages. Buyers found ARMs attractive because they could pay off interest on their homes based on the low short-term interest rates instead of the higher long-term interest rates offered by a fixed rate mortgage. ARMs opened up the housing market to buyers with lower income and lower credit because they temporarily made housing affordable. However, when the rates began to rise, users of ARMs could no longer afford the adjusted interest rate and defaulted on their mortgages. ARMs initially led to more investing in the housing market but contributed to the downfall when rates began to rise.

Moreover, Holt (2009) illuminates short-term rates’ effect on using leverage, which is defined as “investing with borrowed money” (p. 123). Since interest rates were low, home buyers took advantage of using “cheap” money to afford their dream homes. The excessive leverage and borrowing caused significant activity in the mortgage markets because it made purchasing a home with “cheap money” attractive. Even though leverage was a primary driver of the mortgage markets, it also magnified losses when housing prices began to fall and the housing bubble burst. The Federal Reserve’s low interest rate policy led to reckless activity that drove the mortgage markets.

Negligent Attention to Financial System

In addition to keeping interest rates too low, analysts blame the Federal Reserve for its negligent attention to the financial system leading up to the crisis. Chan (2011) explains that former Federal Reserve Chairman Alan Greenspan advocated for deregulation and notes his "pivotal failure to stem the flow of toxic mortgages" (p.2). The Federal Reserve encouraged deregulation which meant that there was less oversight of the financial markets. The Federal Reserve's decreased oversight led to its unawareness of the instability in the markets and its ultimate inability to intervene. Greenspan is also credited with failure of his duty to stop the spread of subprime mortgages throughout the financial markets. Furthermore, Ben Bernanke, the successor Federal Reserve Chairman to Greenspan, "was still arguing that housing prices 'largely reflect strong economic fundamentals' and were no cause for concern" near the peak of the housing bubble (Capozza, Van Order, 2011, p.141). The Federal Reserve did not discern that housing prices were irrationally inflated due to the overactive mortgage markets. Such naïve belief proves that the Federal Reserve neglected to investigate the sudden boom in housing prices. The Federal Reserve's inattention to the financial markets leading up the crisis led to its inability to help stabilize the economy, and thus, contributed to the severity of the crisis.

THE ROLE OF RATING AGENCIES

A common theme in literature related to the Financial Crisis is that rating agencies overrated mortgage-backed securities which mislead investors when assessing the risk of potential investments. In his novel *The Big Short: Inside the Doomsday Machine*, Michael Lewis attributes the faulty ratings of securities to the agencies' immoral incentives to make money and to the incompetent people who worked at the agencies. Lewis (2011b) contends that the agencies' only concern was "maximizing the number of deals they rated for Wall Street investment banks and the fees they collected from them" and further describes them as "morally bankrupt and living in fear of becoming actually bankrupt" (pp.157,176). Rating agencies, such as Moody's, did not take the time to truly asses the underlying risk in the securities banks were creating because rating high volumes of securities was the key to making money. Since the investment banks paid the rating agencies, the agencies had an incentive to rate the securities highly to generate continuous business from these banks. Moreover, Lewis describes the employees of rating agencies as people who "barely belong in the industry" and "appeared to know enough to justify their jobs, and nothing more" (p.156-157). Given the extremely complex nature of the mortgage-backed securities, it was critical that rating agencies hired employees who understood the parts of a mortgage-backed security, let alone the financial services industry. Since rating agency employees were unknowledgeable, they were unable to accurately assess the risk of the securities. Investment bankers were able to take advantage of the fact that ignorant people were rating their volatile securities. Lewis explains that "the entire industry had been floated on the backs of the rating agencies" (p.156). Rating agencies had a severe impact on the mortgage markets because they overrated the vast majority of mortgage-backed securities, causing investors to purchase large amounts of securities assessing more risk than anticipated from the ratings.

Wall Street institutions' relationships with rating agencies caused distorted communication to investors about the riskiness of securities. Rating agencies were less critical of the residential mortgage-backed securities because they were paid by the firms who issued these securities (Aalbers, 2009). This development was a significant cause in the information lag, as investors poured money into risky securities that they viewed as good investments due to their high ratings. However, Aalbers also recognizes that rating agencies simply did not understand the complexity of the securities, and thus, did not understand the associated risk.

Despite the negative literature related to rating agencies leading up to the financial crisis, Holt (2009) believes that the rating agencies' ratings were accurate during a time of irrational exuberance. Leading up to the crisis, people made decisions according to their irrational belief that housing prices would continue to rise. Holt explains that rating agencies gave AAA ratings to subprime securities and that the ratings "would prove to be accurate if home prices kept rising" (p. 126). He implies that rating agencies did not wrongfully assess the securities, but did not factor in a different scenario in the market. Holt attributes the rating agencies faulty assessment of mortgage-backed securities to irrational exuberance.

THE ROLE OF WALL STREET

Low Underwriting Standards

A widespread sentiment among analysts is that Wall Street banks loosened underwriting standards, which caused the origination of high volumes of risky loans. In his article "Underwriting, Mortgage Lending, and House Prices: 1996-2008," James Wilcox asserts that the laxity of underwriting standards in the mid-2000's and the abrupt tightening of underwriting standards at the beginning of 2007 was a large contributor to the rise and fall of the mortgage volumes and housing prices. Wilcox's data suggests that the easing of underwriting was far greater in unregulated loan originators and institutions than those regulated by the Federal Reserve. This implies that loose underwriting primarily took place in private sector institutions. Denning (2011) contends that the private lenders' underwriting standards plummeted because of their "lend-to-sell-to-securitizers" model, which caused them to hold mortgages for a short time period. Because the private lenders planned to quickly sell off the mortgages, they did not need the borrowers to have high credit ratings. In addition, since the private lenders were unregulated, unlike other banks, they did not have to abide by bank regulations. Denning explains that private lenders issued "more than 84 percent of the subprime mortgages in 2006" and "made more than 12 million subprime mortgages with a value of nearly $2 trillion." Wall Street played an indirect role in the laxity of underwriting standards because of its demand for mortgages, which could be securitized and made into mortgage-backed securities.

Furthermore, the low underwriting standards fueled investor speculation and participation in the market. Investors viewed the low underwriting standards as a way to acquire large loans, many of which they could not repay unless the market continued to rise, to invest in houses to resell for a higher price later. Lowenstein (2010) describes the borrowing frenzy as investors "willingly grabbing all the unsound mortgages they could get" (p.1). This caused a spike in demand for banks loans, leading to continuous origination. Despite the seemingly great opportunity, investors failed to take into account the possibility that the market could fall. When the market fell, many investors foreclosed on their mortgages and were unable to pay back the banks. Lowenstein argues that the root cause of the crisis "wasn't that customers borrowed too much; it's that banks lent too much" (p.1).

Securitization

In addition to the weak underwriting standards, the process of securitization by Wall Sreet institutions resulted in the financialization of the mortgage markets (Aalbers, 2009). Securitization was the process by which Wall Street institutions purchased mortgages, many of which were subprime, and made them into securities that could be traded on exchanges. Since these subprime mortgages were sold on exchanges as securities, the process of securitization connected the mortgage markets to the stock market. Aalbers maintains that this gateway provided a linkage, which caused the mortgage crisis in the United States to become a global financial crisis. Wall Street essentially spread issues in market subsections throughout the greater financial system.

Questionable Ethics

Before the crisis, it is believed that Wall Street firms had low ethical standards and viewed the increase in lending merely as an opportunity to make more money and to consciously make reckless decisions. In his article "How Wall Street Stoked the Mortgage Meltdown," Michael Hudson asserts that Wall Street firms such as Lehman Brothers helped magnify the Financial Crisis by "throwing so much money at the market that lenders had a growing incentive to push through shaky loans and mislead borrowers" (Hudson, 2007). Former Lehman employees mentioned in interviews that managers did anything "to make the deal work" by falsifying information to make borrowers' credit score look better (Hudson, 2007). Sassen (2009) explains that "what counts is not the creditworthiness of the borrower but crossing a threshold in terms of numbers of mortgages sold to, often pushed onto, households" (p.412). In order to create these securities in which they bundled mortgages, financial institutions needed to originate a multitude of loans. Such low ethical standards led to illegal activities in order to originate more risky loans.

Lewis (2011b) recognizes the lacking ethics of Wall Street firms in relation to the mortgage markets. He explains that "any business where you can sell a product and make money without having to worry how the product performs is going to attract sleazy people" (p.9). Wall Street firms could originate high risk loans and merely sell them off without any connection back to the firm. This supports the sentiment that firms did not have any "skin in the game."

<u>Excessive Leverage</u>

In order to finance investments with mortgage-backed securities, Wall Street financial institutions used excessive leverage, which generated higher returns but created more risk and instability in firms. Patterson (2010) describes Wall Street's strategy with regard to leverage as "just borrow as much cash as possible, amp up the trade, and you basically have a printing press for money" (p. 96). Wall Street firms continuously poured money into the market without considering the possibility of being unable to repay the debt. In fact, Hoffman's (2013) data suggests that "during the height of the crisis, investors are not de-risking their portfolios" (p.67). Even when investors saw the market prices fall, many did not attempt to lower the volatility of their portfolios because they wanted the high returns associated with taking on more risk. When the markets fell, the losses were magnified, forcing many banks and financial institutions into bankruptcy.

Patterson cites that Morgan Stanley was "borrowing $32 for every $1 it actually owned" (p. 203).

When recalling the collapse of the Icelandic economy in his novel *Boomerang: Travels in the New Third World*, Michael Lewis (2011a) explains that the strongest American financial lesson Iceland learned was "the importance of buying as many assets as possible with borrowed money, as asset prices only rose" (p. 15). Lewis recognizes that Wall Street got in trouble by practicing excessive borrowing without ownership. He also alludes to Wall Street's ignorance of the financial markets and its irrationally high conviction in the belief that subprime mortgage-backed securities would pay off. While the United States' usage of debt has clearly become an issue, amassing to 350% of its GDP, Michael Lewis cleverly states that "Iceland instantly became the only nation on earth that American could point to and say, 'Well, at least we didn't do *that'"* (p. 3). Iceland accumulated debt of 850% of its total GDP (Lewis 2011a). The practice of leveraging trades played a critical role in the collapse of global economies during the crisis.

Excessive leverage was not limited just to banks and financial institutions; leverage led to defaults and large losses on the individual level as well. Many investors received titanic bank loans to purchase houses that would be impossible to pay back without a continuous rise in the market. When the market fell, investors defaulted on their mortgages and foreclosed on their homes. Lowenstein (2010) explains that "foreclosures by consumers heavily weighted on the economy" and were worsened due to individual's excessive debt levels. Lowenstein says that leverage "acts like an accelerator, magnifying and spreading losses, chain-reaction style" (p.2). Lowenstein suggests that the high debt levels made what was already a bad situation much worse. The subsequent foreclosures caused further turmoil in the markets.

Reliance on Quantitative Models

In his book *The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It*, Scott Patterson attributes the credit crisis to a group of Wall Street hedge fund managers and traders known as "the quants." The quants are described as brilliant people, most of which attended Ivy League universities, who used their deep understanding of mathematics and quantum physics to create financial models that "guaranteed" large returns in the market. The quants experienced great success in the early 1980's and 1990's and continued experimenting with highly complex quantitative models leading up to the crisis. Patterson explains that quants and traders "were modeling cash flows on tranches of credit default swaps tied to CDOs that were bundles of mortgage-backed securities" based on a model that "created an illusion of order where none existed" (p. 195-196). Because of the complexity of mortgage-backed securities, the quants' models did not consider all of the risks in the market. Patterson states that the same "math and science that had propelled the quants to the pinnacle of Wall Street couldn't capture what was happening" (p. 215). The quants' once infallible models began to fail leading up to the crisis because they could not adjust for what was happening in the market. Relying on these models, hedge fund managers invested heavily in subprime mortgage-backed securities, which resulted in significant losses when foreclosure rates rose. Former President George W. Bush summarized the power of the quants best when he said: "Wall Street got drunk. It got drunk, and now it's got a hangover. The question is, how long will it sober up and not try to do all these fancy financial instruments?" (p.262)

THE HOLISTIC VIEW

While literature attributes blame to specific parties, Manav Tanneeru attributes the crisis to a timing issue of the various factors previously discussed. He refers to the cause of the economic crisis as "the perfect storm" (p. 1). The Federal Reserve's slashing of interest rates due to 9/11, combined with an inflow of cash from global investors into the United States, contributed to the housing bubble. The housing bubble was caused by banks' lending money to homebuyers with terrible credit scores. During this time, Wall Street began to see mortgage-backed securities as popular investments. Investors put their money into mortgage-backed securities, which had unknown risks. In 2007, the bubble burst as people lost their jobs, interest rates increased, and housing prices went down. Banks and institutions that were over-leveraged were faced with paying back their debt. The failures and acquisitions of these financial institutions created the financial crisis.

Furthermore, Thomas, Hennessey, and Douglas (2011) believe "the crisis was the product of 10 factors" that "only when taken together can [they] offer a sufficient explanation of what happened." In the 1990's, there was "excess liquidity, combined with rising house prices and an ineffectively regulated primary mortgage market, [which] led to an increase in nontraditional mortgages." Investors with excess cash viewed the housing market as a good investment due to the rising prices of homes. The purchasing of homes drove the creation of complex mortgages that borrowers did not fully comprehend and would only be able to pay off if the markets continued to rise. On a larger scale, financial institutions "amassed enormous concentrations of highly correlated housing risk" and held "too little capital relative to the risks and funded these exposures with short-term debt." Banks and other financial institutions invested heavily in subprime mortgage-backed securities that would all lose value in the event of a downturn in the market; they did not diversify their risk. Additionally, these financial institutions relied on short-term debt financing and did not keep excess cash in their reserves. The financial institutions irresponsible and naïve practices forced them into bankruptcy when the market fell. Finally, the "rapid succession of 10 firm failures, mergers and restructurings in September 2008 caused a financial shock and panic" (Thomas, Hennessey, Douglas, 2011, p.1-3). When learning about the collapse of major financial institutions, the average consumer lost confidence in the financial markets and feared investing. This shock caused low spending and ultimately shrank the market. Collectively, the previously mentioned points led to the financial crisis.

CONCLUSION

Although the government, the Federal Reserve, rating agencies and Wall Street individually played significant roles in the development of the financial crisis, the holistic viewpoint contains the most validity. It is both unreasonable and inaccurate to conclude that a single culprit caused the largest downturn in the U.S. economy since the Great Depression.

The government acted as the facilitator. The government's social policy that encouraged forced lending to minorities with low to non-existent credit led to banks and Wall Street institutions creating complex, risky mortgages. The government-sponsored enterprises' purchasing of risky mortgages led to high volumes of origination because unregulated financial institutions and private lenders were not required to keep the mortgages on their books, and thus, took on the associated risk. However, the government's policy and enterprises alone could not have caused a crisis without Wall Street and the private sector's actions of capitalizing off that policy to make short-term profit. Further, the government's "Too Big to Fail" policy was a reactive policy to the collapse of Wall Street institutions with the intent to reduce the turmoil caused by the failing financial sector.

The Federal Reserve's primary contribution to the financial crisis was its low interest rate policy. The low interest rates that were originally intended to stimulate spending after the September 11, 2001 terrorist attacks created an incentive for mass investment in the housing market. Although the low-interest policy encouraged borrowing, the low interest rates alone could not have led to the titanic financial crisis of 2008 without investors who took advantage of them.

Rating agencies overrated subprime mortgage-backed securities, causing investors to pour money into these risky investment vehicles. Although the faulty ratings led to high investment volume in subprime mortgages, the rating agencies alone did not cause the crisis because the subprime mortgages required purchasing by outside parties. Ratings are useless without speculators who trust them.

Wall Street responded to the government's push to increase homeownership by originating a high volume of mortgages to borrowers with weak credit. Wall Street institutions demonstrated their questionable ethical standards when they sold off the mortgage-backed securities which had uncertain supporting mortgages. The banks recklessly borrowed money to make short-term profit off the mortgage-backed securities, which magnified the destruction when the market fell. Despite Wall Street's significant role in spreading the financial risk throughout the economy, it would have been unable to implement such practices without the low interest rate environment created by the Federal Reserve, the government mandate to lend to low income minorities, and the rating agencies' inaccurate ratings.

The systematic review and analysis of existing literature covered in this paper supports the previously listed propositions related to the role of the government, Federal Reserve, rating agencies and Wall Street in the 2008 Financial Crisis. While the literature supports the individual roles of these parties in the crisis, this research concludes that the role of these parties, only when looked at holistically, caused the financial crisis.

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ABSTRACT

Through the analysis and organization of existing literature related to the 2008 Financial Crisis, I identity the primary parties (government, Federal Reserve, rating agencies, and Wall Street) and their individual contributions to the crisis. This paper is an attempt to identify the party with the greatest contribution to the crisis. Although many authors attribute absolute fault to one of the previously mentioned parties, I conclude that the crisis must be viewed holistically and that it is irrational to blame a single party.