Interaction of Multiple Failures: A Linear Path to Our Financial Crisis

Farrell Gean
Pepperdine University

Virginia Gean
California Lutheran University

Aaron Devenport
Price Waterhouse Coopers

In 2008 a slow and subsequent reversal of growth in the housing market resulted in a massive downturn on Wall Street and ultimately a global recession. This article examines the leading causes of the financial crisis, including poor lending practices by banks, biased credit ratings by the leading rating agencies, the lack of effective government regulation on the industry, housing speculators, and the Federal Reserve's monetary policy. The interaction of these different roles all of which reflect a "something for nothing mentality" is presented as a linear path to a global financial crisis.

INTRODUCTION

In his book *Normal Accidents*, Charles Perrow examines failures of man-made systems (power plants, airplanes, etc.). He makes the point that it is human nature to find someone to blame for an accident. We want to know the "cause." However, Perrow argues that the cause of an accident in a man-made system is to be found in the complexity of the system. An accident that results in a catastrophe is a series of small events that viewed by themselves seem trivial. It is the interaction of multiple failures that can explain the accident. Patient accident reconstruction often reveals the banality and triviality behind most catastrophes. In other words, great events have small beginnings".

The causes of the mortgage market meltdown and the subsequent financial crisis that occurred not only in the United States but on an international scale represent a complex interrelationship of roles. These roles involve a myriad of variables, such as the role that the federal government played through FHA and Government Sponsored Entities (GSE), the Community Reinvestment Act (CRA), the Home Mortgage Disclosure Act (HMDA) and the easing of monetary policy by Fed Chair Alan Greenspan of low interest rates beginning in 2000. These legislative acts played a direct role in the loosening of lending practices and underwriting practices of mortgages and simultaneously the rating agencies played a significant role in this financial collapse as they graded the mortgage backed securities to be at the highest value, a Triple AAA Rating. These securities were marketed throughout the world as being top grade, and therefore affecting the health of those other countries who invested in them. In fact these securities probably should have been rated to junk bond status. These credit reporting agencies admit to incorrectly grading these securities and are now trying to salvage their reputations in the financial world.

These difficult roles collectively formed a situation for the perfect storm of catastrophic proportions to take place in the mortgage and the financial world. Banks and mortgage lenders soon followed suit with loosening their mortgage lending practices to individuals and easy money was rampant. Home ownership among Americans increased to an all time historic high, which also led to increased speculation among real estate investors. Needless to say massive amounts of real estate speculation spread throughout the United States, as easy money was available through policies of no money down for equity or no income documentation of income necessary to acquire funding to purchase real estate. While real estate continued to climb in value, this cycle was sustainable. This further fueled the perfect storm as the real estate bubble was steadily climbing to a cataclysmic end. However as soon as the value of real estate began to decrease in value due to increasing levels of housing inventory the bubble would soon burst.

During the time of relaxed loan underwriting practices, the following events would occur. After the initial mortgage was extended to an individual homeowner(s), these mortgages would be combined and re-bundled together to create an asset class called Collateralized Debt Obligations or also known as CDOs and Mortgage Backed Securities. This asset class was marketed on an International basis through financial companies such as Behr Sterns, and Lehman Brothers with a Triple AAA status that had been provided by the credit checking agencies, such as Standard and Poor and Moody's. Also General Electric's financial capital division suffered a severe loss due to the purchase of these toxic mortgage assets, when they had to mark them down as losses. General Electric missed their earnings target for one of the first times in their history, and would lower their dividend by 30% in 2008 for liquidity purposes, which further bludgeoned their stock price. In 2008, Behr Stearns, and Lehman Brothers suffered a more severe blow as they marked down their balance sheets which left them no longer liquid enough to survive as a business. On September 15, 2008, Lehman Brothers filed Chapter 11 holding over $600 Billion in Assets and Bear Stearns was sold to JP Morgan Chase. From this huge fallout, the US Government moved in to encourage Bank of America to purchase such companies as Merrill Lynch, and Countrywide to prevent their collapse. The United States Government stepped in to assist in brokering deals along with the guidance of New York Fed Chairman Paulson to prevent the further deterioration of the financial market. The US Stock Market also suffered a tremendous loss due to the shock that was occurring in the financial markets.

The perfect financial storm that had hit the United States was coming to a climax, and would soon become a global catastrophe as Perrow so clearly described it in *Normal Accidents,* which was "the interaction of multiple failures that can explain the accident. Patient accident reconstruction often reveals the banality and triviality behind most catastrophes. In other words, great events have small beginnings".

ROLE OF FEDERAL LEGISLATION

FHA and Government Sponsored Entities GSEs

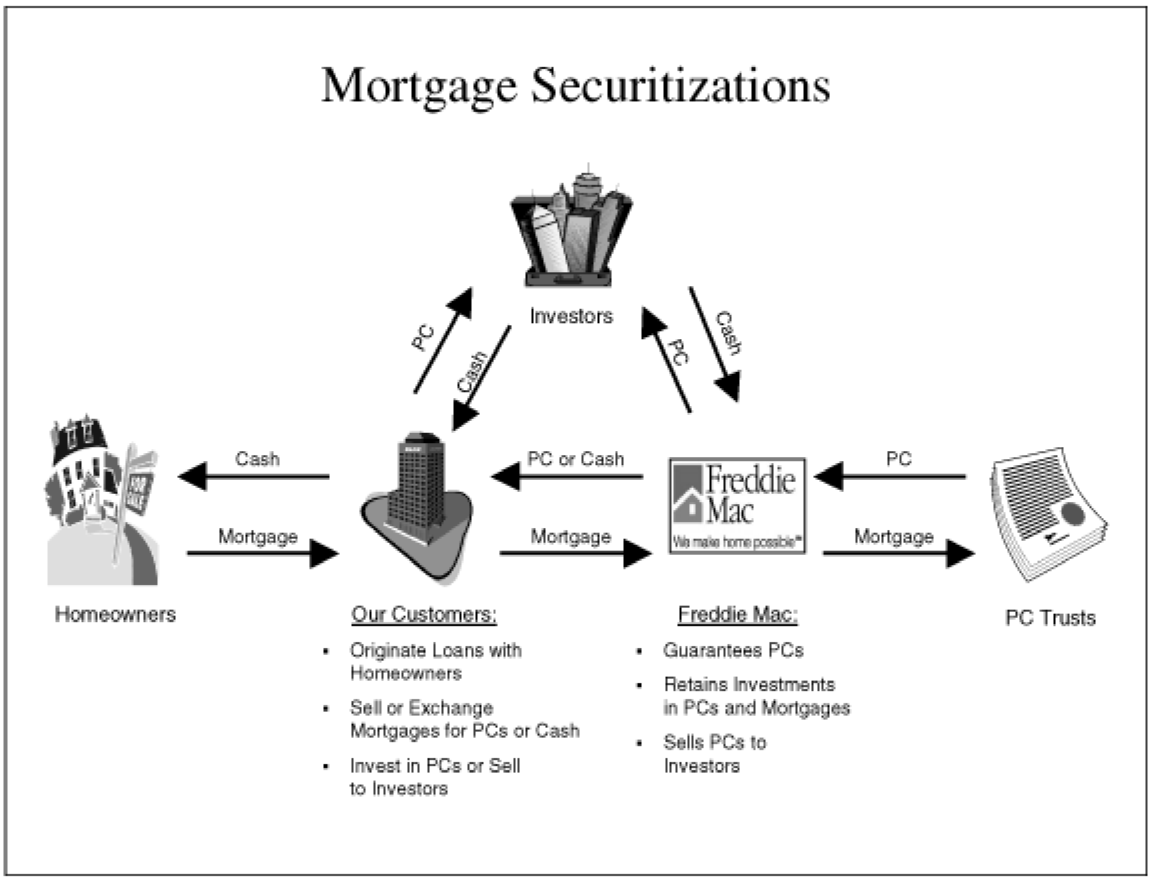
To more clearly understand the linear path of our financial crisis, one needs to look back in history to the Great Depression of the 1930's in the United States, where home ownership was based on very different banking and mortgage loan guidelines. This would be logical since many parallels have been drawn from the 2008 financial crisis to the Great Depression in America. Many would argue that due to the decreases the wealth effect based on residential valuation and, increasing rates of foreclosure, that the 2008 period was a more perilous time than that of the Great Depression. During the 1920's mortgage debt increased at an accelerated pace largely due to several financial innovations: high leverage, affordable home mortgage loans, private mortgage insurance and forms of securitization. However with this advanced innovation came increased liquidation during the early 1930's. This was a very similar path toward financial crisis as the collapse of 2008.

The innovations of this era during the 1920's were publicly managed but not publicly financed. To stabilize the market, the United States Government created the Federal Housing Administration (FHA) in 1934 in order to insure mortgage loans. By doing so, it was an instrument to assist in stabilizing the home mortgage industry. Furthermore in1938 Fannie Mae, the Federal National Mortgage Association was created to add liquidity and stimulate the weakened housing market by purchasing FHA mortgages on the secondary market, pooling these mortgages into securities and then selling them to outside investors.

Over the subsequent decades, the US Government continued to assist in the areas of finance, mortgage, and home ownership. In 1968, Fannie Mae became a stockholder owned corporation, chartered by Congress. This entity became known as a government-sponsored enterprise (GSE), and since Fannie Mae was backed by the US government, it was able to borrow at low rates in the capital markets. In the next decade of the 1970's, during the Civil Rights movement, the government again stepped in and Freddie Mac, Federal Home Loan Mortgage Corporation was established to enlarge the secondary home mortgage market. Again, as was the case in Fannie Mae, Freddie Mac was a stockholder owned corporation backed by the federal government as a government sponsored enterprise (GSE).

The following diagram is provided to aide in the understanding of the mortgage securitization process which is provided in the 2008 Freddie Mac's 10K report.

FIGURE 1
MORTGAGE SECURITIZATIONS



"We guarantee the payment of principal and interest of PCs created in this process in exchange for a combination of monthly management and guarantee fees and initial upfront cash payments referred to as delivery fees. Our guarantee increases the marketability of the PCs, providing liquidity to the mortgage market. Various other participants also play significant roles in the residential mortgage market. Mortgage brokers advise prospective borrowers about mortgage products and lending rates, and they connect borrowers with lenders. Mortgage servicers administer mortgage loans by collecting payments of principal and interest from borrowers as well as amounts related to property taxes and insurance. They remit the principal and interest payments to us, less a servicing fee, and we pass these payments through to mortgage investors, less a fee we charge to provide our guarantee (*i.e.*, the management and guarantee fee). In addition, private mortgage insurance companies and other financial institutions sometimes provide third-party insurance for mortgage loans or pools of loans. Our charter generally requires third-party insurance or other credit protections on some loans that we purchase. Most mortgage insurers increased premiums and tightened underwriting standards during 2008. These actions may impair our ability to purchase loans made to borrowers who do not make a down payment at least equal to 20% of the value of the property at the time of loan origination".

CRA and HMDA

As the government continued to intervene with the financial markets for mortgage support with Fannie Mae and Freddie Mac being established through the 1970's, home ownership became an increasingly obtainable asset for American families. In Figures 2 and 3, the graphs indicate a higher percentage of homeownership during the late 1960's. With the increasing need for Americans to obtain home ownership, politicians soon began to wager a campaign to stop what they called redlining. In 1977, Congress passed the Community Reinvestment Act (CRA) which would reduce discriminatory credit practices in the lending process against minorities and those living in low-income neighborhoods.

"The Community Reinvestment Act is intended to encourage depository institutions to help meet the credit needs of the communities in which they operate, including low-and moderate-income neighborhoods, consistent with safe and sound operations."

"The Home Mortgage Disclosure Act (HMDA) legislation was passed in 1975, to further aide in discriminatory lending practices. The Home Mortgage Disclosure Act (HMDA) was implemented by the Federal Reserve Board's Regulation to assist in:

- determining whether financial institutions are serving the housing needs of their communities;
- public officials in distributing public-sector investments so as to attract private investment to areas where it is needed;
- and in identifying possible discriminatory lending patterns.

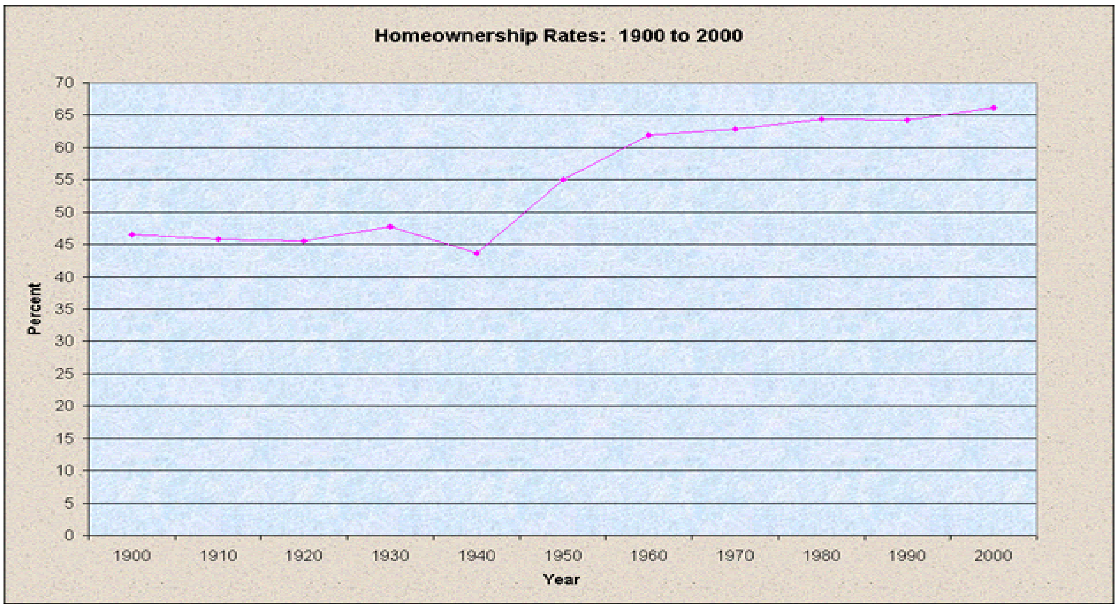
This regulation applies to certain financial institutions, including banks, savings associations, credit unions, and other mortgage lending institutions".

"In 1989, the Federal Reserve Board revised Regulation C, to incorporate amendments contained in the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA). The FIRREA amendments accomplished the following: expanded the coverage of HMDA to include mortgage lenders not affiliated with depository institutions or holding companies; required reporting of data regarding the disposition of applications for mortgage and home improvement loans in addition to data regarding loan originations and purchases; and required most lenders to identify the race, sex, and income of loan applicants and borrowers. Lenders were also required to identify the class of purchaser for mortgage loans sold and were permitted to explain the basis for their lending decisions. To facilitate the collection of this information, Regulation C requires a loan/application register (LAR) to be submitted by each institution. The LAR allows institutions to log loan applications, loans originated, and loans purchased".

This expansion of legislation for the Home Mortgage Act of 1989 was primarily used to include mortgage rejection rates by race. This legislation ignited a new and growing debate regarding how race, low income, and those from poor neighborhoods were seemingly discriminated against and kept from being to purchase homes. Many research documents, statistics and data were used to help give validity to this argument, and one of the most important sources of data to help support the findings that certain races were being discriminated against can be found in the Federal Reserve Bank of Boston publication, of 1992, entitled, *Closing the Gap: A Guide to Equal Opportunity Lending*.

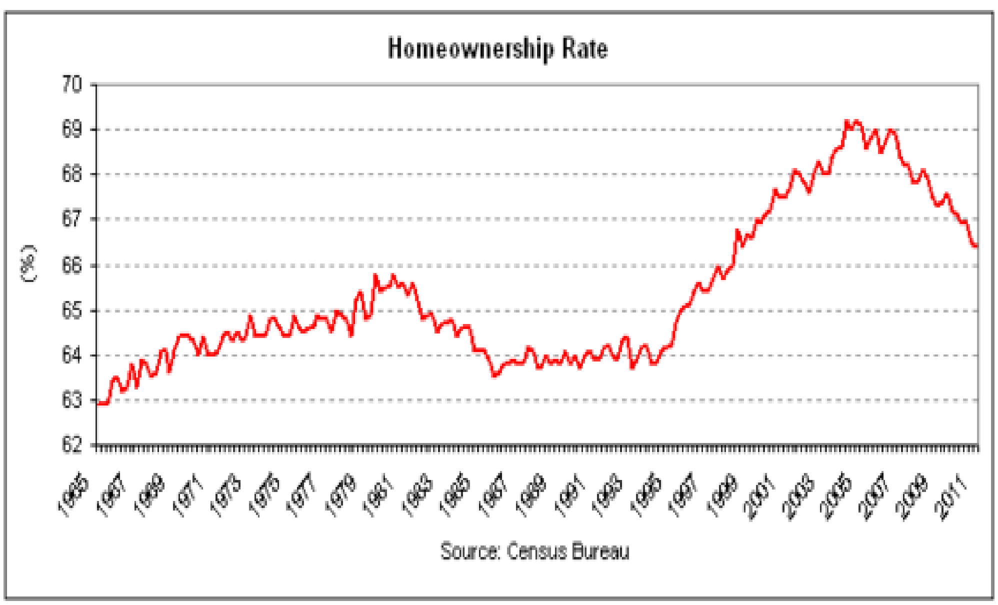
The data that was chronicled in this 1992 Fed study was interpreted poorly. Even though there were many who disapproved of this new legislation and its direction, the public outcry and the politicians were on the side of equality of all individuals to be able to purchase housing, even if the individual did not have the income to sustain their payments to their creditors. Thus the ordinary lending standards that had been in place for decades which included such items as down payments, income verification, and employment records became displaced and these standards were side stepped for the purpose of equality of homeownership in all races. These two acts, the Community Reinvestment Act and the Home Mortgage Disclosure Act, although noble in cause was a major contributing factor of the US financial collapse due to the relaxed lending guidelines that were legislated by Congress.

FIGURE 2
HOMEOWNERSHIP RATES: 1900 TO 2000



Provided by the United States Census Bureau-Census of Housing

FIGURE 3
HOMEOWNERSHIP RATES: 1965 TO 2011



Provided by the United States Census Bureau-Census of Housing

Federal Reserve Bank of Boston Study

With the advent of legislation passed by Congress as recent as 1989, there was an increasing demand for academia to present to the financial markets evidence to support this type of legislation which called for relaxed lending and underwriting practices. In the Boston study of 1992 the directive of the study was quite clear as is indicated in the foreword statement on page 5:

"Fair Lending is Good Business. Access to credit, free from considerations of race or national origin, is essential to the economic health of both lenders and borrowers.

Working together, progress has been made over the past few years since patterns of racial disparity in mortgage lending were first documented. While few people believe that purposeful discrimination is prevalent, ending those patterns has become a top priority of both public and private sector participants in the home mortgage market. But clearly, more needs to be done.

The Federal Reserve Bank of Boston wants to be helpful to lenders as they work to close the mortgage gap. For this publication, we have gathered recommendation on "best practice" from lending institutions and consumer groups. With their help, we have developed a comprehensive program for lenders who seek to ensure that all loan applicants are treated fairly and to expand their markets to reach a more diverse customer base.

I am confident that, together, we can make equal credit opportunity the reality that everybody wants". Signed: Richard F. Syron, President and Chief Executive Officer of the Federal Reserve Bank of Boston"

The findings of the Federal Reserve Bank of Boston that were published cited the following statistics that existed in 1992: The United States currently has a population of 250 million, and the percentages of race break down into the following: White-76%, Black-12%, Hispanic-9%, Asian-3%, and Native American-1%. The publication goes onto to state that "unintentional discrimination may be observed when a lender's underwriting policies contain arbitrary or outdated criteria that effectively disqualify many urban or low-income minority applicants". The publication also states that "while the banking industry is not expected to cure the nation's social and racial ills, lenders do have a specific legal responsibility to ensure that negative perceptions, attitudes, and prejudices do not systematically affect the fair and even-handed distribution of credit in our society. Fair lending must be an integral part of a financial institution's business plan".

"Overt discrimination in mortgage lending is rarely seen today. Discrimination is more likely to be subtle, reflected in the FAILURE TO MARKET LOAN PRODUCTS TO POTENTIAL MINORITY CUSTOMERS…"

Data was given to support these findings of discrimination against minorities in home acquisition and loan underwriting. The Federal Reserve Bank of Boston provided statistical analysis in 1992, claiming that minorities were denied mortgages at a higher rate than whites due to race bias among lending institutions. Many journals, including the Wall Street Journal had articles written to support these claims. The articles stated that "the HMDA data allow a comparison of mortgage denial rates by race. These comparisons inevitably reveal that minorities (defined as Blacks and Hispanics) are denied mortgages far more frequently than are white applicants." However many academicians involved in this research were not certain of the accuracy of this statistical findings of racial bias.

Theodore Day and Stan Leibowitz presented their arguments against such racial bias in mortgage lending. Here is a summary of their comprehensive empirical study of the HMDA data that was provided by the Federal Bank of Boston. They concluded that HMDA is flawed due to the following errors:

"Data problems were obvious to anyone who bothered to examine the numbers (a) the loan data that the Boston Fed created had information that implied, if it were to be believed, that hundreds of loans had interest rates that were much too high or much too low (about fifty loans had negative interest rates according to the data); (b) over five hundred applications could not be matched to the original HMDA data upon which the Boston Fed data was supposedly based; (c) forty-four loans were supposedly rejected by the lender but then sold in the secondary market, which is impossible; (d) two separate measures of income differed by more than 50 percent for over fifty observations; (e) over five hundred loans that should have needed mortgage insurance to be approved were approved even though there was no record of mortgage insurance; and (f) several mortgages were supposedly approved to individuals with a net worth in the negative millions of dollars."

Once the data that was flawed was taken out of the equation, the evidence which showed mortgage bias against minorities had disappeared. Therefore, there was no need to repair or change the normal lending practice standards.

Even though there was much research and evaluation done to negate the findings of the Fed's statistical analysis of racial bias in mortgage lending, the political and proverbial bandwagon of supporting this information had already left the station. The politicians and the lending institutions then continued to set out to promote equality mortgage opportunities for all Americans in both the majority and minority sectors in order to encourage a universal opportunity of home ownership. "In 1992, the Federal Housing Enterprises Financial Safety and Soundness Act (FHEFSSA) mandated that the GSEs increase their acquisition of primary-market loans made to lower income borrowers". This mandate created a broadening and relaxing of lending standards and procedures. This further propelled the mortgage market propped up by Fannie Mae and Freddie Mac to create more innovative, flexible and affordable mortgage products.

"The Federal Reserve Bank of Boston underscored the importance of following the guidelines for fair lending procedures published in the 1992 study and the serious nature of not complying. Stiff penalties would result if the lending institutions did not comply with such punitive damages of $10,000 in individual actions and up to $500,000 or 1% of the creditor's net worth in class action suits. The publication listed the following summary of fair lending laws:

"Enacted by Congress in 1975 and amended during the period from 1988 to 1991, the Home Mortgage Disclosure Act (HMDA) is intended to provide the public with loan data that can be used to determine whether financial institutions are serving the housing credit needs of their communities, to assist public officials in distributing public sector investments, and to assist in identifying possible discriminatory lending patterns. Financial institutions are required by Regulation C, which implements HMDA, to report data regarding loan applications, as well as information concerning their loan originations and purchases. HMDA requires most lenders to report the race, sex, and income of mortgage applicants and borrowers.

The Equal Credit Opportunity Act (ECOA) was enacted in 1974 to promote the availability of credit to all creditworthy applicants without regard to race, color, religion, national origin, sex, marital status, age, receipt of public assistance funds, or the exercise of any right under the Consumer Credit Protection Act. Regulation B, issued under the ECOA, prohibits creditor practices that discriminate on the basis of any of these factors. The federal agencies that regulate financial institutions have authority to enforce Regulation B administratively. Civil suits for unlawful credit discrimination may be brought within two years of the date of the occurrence of the alleged violation. Damages include actual damages and punitive damages of up to $10,000 in individual actions. Punitive damages are limited to the lesser of $500,000 or 1 percent of the creditor's net worth in class actions.

A 1968 civil rights law, the Fair Housing Act prohibits discrimination in the sale or rental of a dwelling on the basis of race, color, religion, handicap, sex, familial status, or national origin. Under the Fair Housing Act, it is unlawful for any person who engages in the business of making or purchasing residential real estate loans, or in the selling, brokering, or appraising of residential real property, to discriminate on the basis of the factors listed above. Enforcement of the Fair Housing Act may be obtained administratively through the U.S. Department of Housing and Urban Development, or by civil action commenced within two years of the alleged discriminatory housing practice.

The Community Reinvestment Act (CRA) was enacted in 1977 to require each federal financial supervisory agency to encourage financial institutions to help meet the credit needs of their delineated communities, including low– and moderate–income neighborhoods within those communities, consistent with safe and sound banking practices. Each of the four supervisory agencies (the Board of Governors of the Federal Reserve System, the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Office of Thrift Supervision) has issued regulations to implement the CRA. The CRA regulations of each agency require the board of directors of each institution to adopt, and at least annually review, a

CRA statement. The statement must include a map depicting the area served by the institution, a list of all types of loans the institution is prepared to extend within its community, and a copy of its CRA Notice. In addition, an institution must maintain a public file containing its most recent CRA evaluation, any CRA statements in effect for the most recent two–year period, and any written comments received on its CRA performance for the same period."

The Federal Reserve Bank of Boston published underwriting standards and practices that were described for lending institutions in the areas of property standards and minimum loan amounts, obligation ratios, down payment and closing costs, credit history, property appraisal, neighborhood analysis, employment history, and sources of income. As it is stated in the publication, the underwriting standards and practices are as follows:

"Underwriting Standards: Property Standards and Minimum Loan Amounts: These standards should be checked for arbitrary rules as to the age, location, condition, or size of the property. Such standards could negatively affect applicants who wish to purchase two– to four–family homes, older properties, or homes in less expensive areas".

"Obligation Ratios: Special consideration could be given to applicants with relatively high obligation ratios who have demonstrated an ability to cover high housing expenses in the past. Many lower–income households are accustomed to allocating a large percentage of their income toward rent. While it is important to ensure that the borrower is not assuming an unreasonable level of debt, it should be noted that the secondary market is willing to consider ratios above the standard 28/36".

"Down Payment and Closing Costs: Accumulating enough savings to cover the various costs associated with a mortgage loan is often a significant barrier to homeownership by lower–income applicants. Lenders may wish to allow gifts, grants, or loans from relatives, nonprofit organizations, or municipal agencies to cover part of these costs. Cash–on–hand could also be an acceptable means of payment if borrowers can document its source and demonstrate that they normally pay their bills in cash".

"Credit History: Policies regarding applicants with no credit history or problem credit history should be reviewed. Lack of credit history should not be seen as a negative factor. Certain cultures encourage people to "pay as you go" and avoid debt. Willingness to pay debt promptly can be determined through review of utility, rent, telephone, insurance, and medical bill payments. In reviewing past credit problems, lenders should be willing to consider extenuating circumstances. For lower–income applicants in particular, unforeseen expenses can have a disproportionate effect on an otherwise positive credit record. In these instances, paying off past bad debts or establishing a regular repayment schedule with creditors may demonstrate a willingness and ability to resolve debts. Successful participation in credit counseling or buyer education programs is another way that applicants can demonstrate an ability to manage their debts responsibly".

"Property Appraisal/Neighborhood Analysis: Terms like "desirable area," "homogeneous neighborhood," and "remaining economic life" are highly subjective and allow room for racial bias and bias against urban areas. The same holds true when lenders evaluate properties based on their market appeal or compatibility with the rest of the neighborhood. (See the section on Third Party Involvement in the Loan Process.) It should be noted that the Federal Home Loan Mortgage Corporation (Freddie Mac) has stated that neighborhoods undergoing revitalization should be assessed on their potential as well as their existing condition. Also, the Federal National Mortgage Association (Fannie Mae) will accept block–by–block underwriting analyses in urban neighborhoods being rehabilitated".

"Employment History: It is important to distinguish between length of employment and employment stability. Many lower–income people work in sectors of the economy where job changes are frequent.

Lenders should focus on the applicant's ability to maintain or increase his or her income level, and not solely on the length of stay in a particular job".

"Sources of Income: In addition to primary employment income, Fannie Mae and Freddie Mac will accept the following as valid income sources: overtime and part–time work, second jobs (including seasonal work), retirement and Social Security income, alimony, child support, Veterans Administration (VA) benefits, welfare payments, and unemployment benefits".

The aforementioned underwriting standards and procedures as set forth by the Federal Reserve Bank of Boston have multiple flaws that would lead to greater risk of mortgage loan defaults. For example, the property standards, minimum loan amounts and property appraisal should take into consideration the comps in the area, and should consider the age, location, condition and size of the property. Not to consider these variables would be negligent and lead to greater risk of default by the homeowner. Under obligation ratios, for an individual to carry a higher ratio than 36% for mortgage payments would also lead to a greater tendency for default. Credit history is another indicator of an individual's capability to pay bills on time, and to not take that into consideration with FICO scores, etc., and only look at the pay as you go through cash, is again an example of flagrant negligence when looking at the capability for an individual to pay their mortgage payments. Sources of income would not include such items as unemployment benefits which would certainly be an improper source of income. Also, in Down Payment and Closing costs to allow gifts, grants or municipal agencies to cover part of these costs is also a flawed concept.

With the federal government backing these relaxed lending practices and standards, and promoting these standards, many lending institutions began to weaken their lending standards as well. Banks and mortgage lending agencies soon followed suit, such as Countrywide, Washington Mutual, and Wachovia. Countrywide soon became the poster child of these relaxed lending policies, and they were praised and awarded by the government and the media and became the leading mortgage lender in the United States. The company had the full support of both Fannie Mae and Freddie Mac leading to becoming one of the largest participants in the GSE program.

In a report by Fannie Mae, Countrywide was "a paragon of lending virtue". The Fannie Mae report also stated that Countrywide used nontraditional methods for the lending standards and practices. For example in the case that an individual had not established credit, Countrywide would be able to work with them and successfully grant them a mortgage loan. This technique of using nontraditional methods was encouraged by the GSEs. In 2000, Mortgagestats.com ranked Countrywide Home Loans to a Number 1 status in lending to minorities. " Countrywide led in overall minority lending with a total of $10 billion and also ranked number one in lending to Hispanics and African Americans for the same time period". Countrywide has been committed to the availability of affordable homeownership to all Americans since our inception more than 30 years ago," said Angelo Mozilo, chairman of Countrywide Home Loans. "Overall the company's market share among all minorities (African American, Asian, Hispanic, Native American/Alaskan increased to 5.26 percent to 86,000 loans in 2000".

ROLE OF RATING AGENCIES AND INVESTMENT BANKS

Rating Agencies

The emphasis of this paper now shifts to the role that rating agencies and the investment banks played in promoting these innovative mortgage products. With the GSE policies firmly in place with relaxed lending policies, the impact of both rating agencies and investment banks played a critical role in the spread of these mortgage assets throughout the world.

The three credit rating agencies that were heavily involved in the financial collapse were: Moody's, S&P, and Fitch. Moody's was founded in 1909 by John Moody who built a company that used credit ratings in order to grade corporate bonds and debt. He used a sliding scale of a 21 point scale. Soon several other credit grading agencies were created such as S&P and Fitch. They fulfilled a similar role of grading corporate bonds. With the collapse of the Penn Central Railroad in 1970, the government stepped into set up a more official rating agency, which was comprised of three for profit companies, which would create a conflict of interest. This conflict of interest would occur, since the credit rating agencies would have a bias for the companies that they were grading.

Perhaps the writer Lewis described most clearly the role rating agencies played along the path to global financial crisis in his book, *Panic: The Story of Modern Financial Insanity*. "He maintained that the SEC created a new category of officially designated rating agencies by grandfathering in the big three with the approval and backing of the US government. In effect, the government outsourced its regulatory function to three for-profit companies."

This helped to create a business model with a huge conflict of interest. As one financial analyst puts it, "Rather than selling opinions to investors, the rating agencies were now selling "licenses" to borrowers. Indeed, whether their opinions were accurate no longer mattered so much. Just as a police officer stopping a motorist will want to see his license but not inquire how well he did on his road test, it was the rating – not its accuracy – that mattered to Wall Street,"

With the groundwork laid for a big three oligopoly in the rating landscape, the development of structured finance became an incredible business opportunity for both the rating agencies and Wall Street. The entire creation of mortgage securities was centered on the rating given to a specific security. The challenge to investment banks was to design securities that were just able to meet the specific criteria to obtain the highly coveted "AAA" investment grade rating, the highest rating that could possibly be obtained by the rating firms.

This bias would have a tremendous impact on the grades of the mortgage backed securities, and there would be a tremendous demand for these toxic mortgage assets to be labeled as AAA grade. This grading would be the highest obtainable grade and was needed to help promote and sell these securities around the world. Often companies would shop around the credit rating to different agencies to find the credit rating that they wanted. The credit agencies had huge gains in rating these mortgage securities, since their ratings were based on fees and due to the complex nature of rating the Collateralized Debt Obligations (CDO) and Mortgage Backed Securities (MBS), resulting in high profit for these agencies.

In summary, "it was the lenders that made the lenient loans, it was home buyers who sought out easy mortgages, and it was Wall Street underwriters that turned them into securities. But credit-rating firms played a critical role in this process. S&P, Mood's Investors Service and Fitch Ratings gave top ratings to many securities built on the questionable loans, making the securities seem as safe as a Treasury bond". From 2002 to 2006, "Moody's Investors Service took in approximately $3 billion for rating securities from loans and other debt pools".

The complex nature of these securities is largely based on the ways that they were bundled. "In assembling a security such as a mortgage bond, an underwriter first pulls together thousands of loans that will serve as collateral. Before marketing the security, the underwriter slices it into perhaps 10 tranches with varying levels of risk and return". With so many generations of loans and bundling, the analysis for understanding the rate of default on these securities became extraordinarily complex. However, due to the demand of top rated mortgage backed securities and collateralized debt obligations, the ratings were more often than not top rated as A to AAA, when actually they should have been rated to junk bond status based on loan to value.

Loan to Value (LTV) had originally been the single most important determinant of default and the credit valuation of debt. However these agencies turned a blind eye to any issues of possible default. "Wall Street found that they could turn them into high-yielding securities. And there were plenty of buyers for such securities: With interest rates low, many investors were in search of higher-yielding instruments". Thus these securities were marketed around the globe to investors wanting to jump on the proverbial bandwagon, and as long as real estate continued to increase in value, these securities continued to be sold. Many of the investment banks of Wall Street such as Lehman Brothers, and Bear Stearns were responsible for selling these risky investments. Even General Electric (GE) Capital became involved in the marketing of these debt instruments.

"Many money managers lacked the resources to analyze different pools of assets and relied on ratings companies to do so, says Edward Grebeck, chief executive of a debt-strategy firm called Tempus Advisors. A lot of institutional investors bought these securities substantially based on their ratings, in part because this market has become so complex". The growth of this market reached a fever pitch, as the credit agencies added subprime mortgages to their toxic mix of these securities, creating higher risk of default on the part of homeowners. "And underwriters' appetite for the loans, in turn, made it easier for lenders to originate them". "Trends then converged to create explosive mortgage-market growth. Falling interest rates-as the Federal Reserve sought to prop up the economy after the tech-bubble of the 90's burst-made home financing less expensive. New technologies let bankers construct bonds from the payments of thousands of different mortgages. The fastest growing segment was subprime loans. Lender brought out loans in which borrowers didn't have to document their income, or could at first pay only interest and no principal-or could use a piggyback to, in effect, borrow the whole cost of the home" without any down payment or equity required. Therefore, individuals did not need to provide income verification or credit requirements in order to obtain loans, and upon the real estate market climaxing to ever increased valuations in 2007, there soon came a landslide of foreclosures where individuals could not afford their monthly mortgage payments and soon abandoned their homes that they had little or no equity.

A former Moody's expert in securitization states: "Every agency has a model available to bankers that allows them to run the numbers until they get something they like and send it in for a rating". Subprime analyst Chris Flanagan at JP Morgan states, "Gaming is the whole thing". This eventually led to ratings shopping – banks only pay if the respective rating agency delivers a desirable rating. This took any chance at independence completely out of the picture. Highly respected CEO Jamie Dimon sums it up best, "There was a large failure of common sense" by rating agencies and also by banks like his. "Very complex securities shouldn't have been rated as if they were easy-to-value bonds".

To understand the complexity in these structured securities, consider some of the more simple ones. Wall Street largely owned CDOs (collateralized debt obligations), or securities that invested in mortgage backed securities, once removed from the actual debt. Some investment banks even structured CDOs squared, securities invested in CDOs, which invested in MBSs (mortgage backed securities), twice removed from the actual debt. The shear logistics of trying to rate these structured securities was nearly impossible.

Obviously much of the failure at rating agencies can be attributed to the aforementioned issues; however the statistical models that the rating agencies use to determine their rating are wrought with imperfections. Apparently, consumers were at fault for not living up to the past. As one financial journalist writes, "The real problem is that agencies' mathematical formulas look backward while life is lived forward. That is unlikely to change". Mark Adelson, a former managing director in Moody's structured finance division remarks, it was "like observing 100 years of weather in Antarctica to forecast the weather in Hawaii". Although all of the rating agencies have made public statements with regards to changes in their historical models, none of the current reforms being proposed will eliminate the conflict of interest in the issuer-pays model.

Investment Banks

With the rating agencies triple "A" stamp of approval firmly established, there was nothing to hold back the financial wizards of Wall Street. Soon nearly every firm was packaging mortgage back securities, and selling them to investors. One of the most exclusive firms involved in this business was Bear Stearns, the fallen investment bank that was gobbled up by JP Morgan in March of 2008. In the following Bear Stearns sales pitch given in 1998, the salesman takes a rather unorthodox view in evaluating the credit quality of subprime debt:

Gerardi et al point out that "Traditionally rating agencies view loan relative to value (LTV) as the single most important determinant of default. LTVs have to be analyzed within the context of the affordable- loan situation. Three or 4 percent equity on a $50,000 house is significant to a family of limited financial resources. In relative terms, $1,500 to $2,000 could easily mean three to four months of advance rent payments in their previous housing situation. Obviously, there are more delinquencies with the higher LTV loans than the lower, but there is no tight linear correlation between the LTV levels. Delinquency rates increase along with the LTV levels, but not proportionately. As a result, default models traditionally used for conforming loans have to be adjusted for CRA affordable loans".

"The logic being put forward by Bear Stearns appears to be that 3–4 percent (as a down payment) of a small mortgage is more important to poor people than 3–4 percent of a bigger mortgage for wealthier applicants". Thus, if home prices fall by more than 3-4% (the entire equity in the home), Bear Stearns is assuming that the poor and moderate income individuals will not leave their home even though they are underwater in their mortgage. This is absurd considering the nonrecourse nature of home loans.

Individuals can quite easily default on their underwater mortgage and find another home at a much cheaper market price. This leaves the bank or investor stuck with a home that is worth far less than the mortgage. However, Bear Stearns did not see it this way and neither did most of its investors. The common pitch made by Bear Stearns if questioned in its strategy was as follows: "To many lower-income homeowners and CRA borrowers, being able to own a home is a near-sacred obligation. A family will do almost anything to meet that monthly mortgage payment". This flawed economic logic may bring tears to your eyes and appeal to an investor's emotional side, however the fact that a leading financial firm would use this reasoning as an investment strategy is completely absurd.

In June of 2008, "Bear Stearns announced problems at two of its hedge funds that would cascade into losses of $1.4 billion of their investor's money. Yields on every form of debt started to shoot skyward". Thus companies such as Lehman Brothers filed Chapter 11 in 2008, Bear Stearns was purchased by JPMorgan Chase in the same year due to their collapse, while Merrill Lynch was purchased by Bank of America at the encouragement of the United States Government. The financial collapse was starting to occur not only in the United States but also on a Global Basis.

ROLE OF HOUSING SPECULATORS

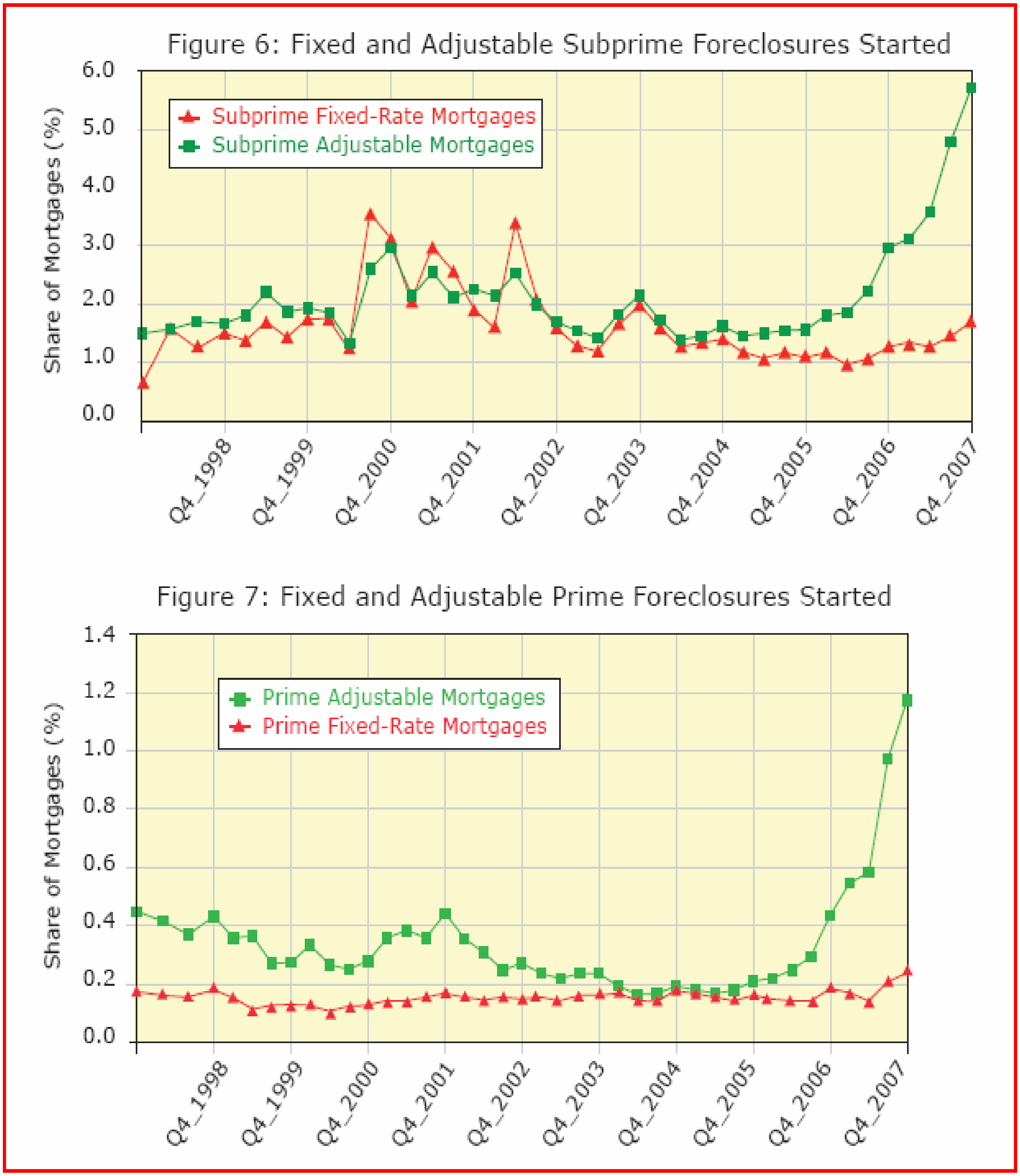
As credit and money became readily available, speculation in the real estate market also reached a feverish pitch. Many speculators would purchase homes with a variable loan, which was set for 1, 3, or 5 years and then the loan would reset to a variable rate usually linked to a Treasury bill or LIBOR, the London Interbank Offered Rate, which are benchmark interest rates for many adjustable rate mortgages. These adjustable rates called ARMs were attract ive to these speculative buyers, since their strategy was to purchase homes, usually renovate them and then sell them, within a short period of time and make an enormous profit. Often times, the speculators would purchase multiple homes using their primary home as an ATM machine and using their primary home as collateral for the additional homes that were purchased for speculation. These individuals would become known as flippers. It became a very popular career, for many and much was shown through the media as these individuals became wealthy. All of this was fine as long as the real estate market continued to increase in valuation. However as soon 2006, the market started to become flooded with increased inventory, due to foreclosures. The cycle had started when individuals who had no equity in their homes, and at the same time, when their ARMs had reset began to walk away from their properties, due to an inadequate cash flow. This inadequate cash flow and the inability for these individuals to pay their mortgages started a huge tide of financial upheaval in the market.

For those individuals who would be staying in their homes longer, the more traditional fixed rate mortgage would be used which was longer in term usually a 15-30 year term. This fixed home mortgage interest rate would obviously be higher, but the traditional home buyer would find this better suited for their long term housing needs.

Note in the top graph of Figure 4, that the subprime adjustable mortgages which were used by the speculative investors began foreclosing at an accelerated rate on Q4 of 2006 at 3%. On the same graph, the subprime fixed rate mortgages did not share in the accelerated foreclosures as did the subprime adjustable mortgages, with a foreclosure rate on Q4 of 2006 at 1.2%. In Q4 of 2007 the subprime adjustable mortgages took another accelerated peak of foreclosures of close to 6%, while the subprime fixed mortgages hovered around 1.8%, a percentage that was far lower than the subprime adjustable mortgage.

On the lower graph from Figure 4, a more stable diagram appears from the prime fixed-rate mortgages in relationship to foreclosures, which was in Q4 of 2006, was .2%. In Q4 of 2007, the prime fixed mortgages remained fairly constant at .24%, while the adjustable prime was at 1.2%. Contrast that with the prime adjustable mortgages at the same period which was .42%. Percentages which were much lower than the graph at the top of Figure 4-of the sub-prime mortgage foreclosures started.

FIGURE 4
FIXED AND ADJUSTABLE SUBPRIME AND PRIME FORECLOSURES STARTED



The evidence of this graph clearly shows that those individuals which took advantage of the adjustable subprime loans had a greater risk of default and foreclosure. This segment of the market, such as speculators, or those individuals with little income clearly could not sustain their mortgage payments as their loans reset to higher interest rates. Also, with building real estate inventory and more homes coming to the marketplace, these individuals were not able to sell their homes. The increase of house inventory also resulted in reduced home price and market valuations. Thus, many homeowners and speculators walked away on their real estate assets, especially since there was little or no equity. Many were upside down on their mortgages, leading a massive amount of people to walk away from their loan obligations. This in turn also lead to a downward spiral of the financial markets and unemployment started to increase, as industries such as construction and home renovation was severely damaged.

Federal Reserve Monetary Policy

With the clear underpinnings of the crisis understood, we must try to understand how it was possible for so many individuals to obtain tons of capital at incredibly low interest rates. Enter the Federal Reserve. The Federal Reserve's monetary policy has been the topic of great debate over years and many highly intelligent individuals have weighed in on the issue, including both the prior Federal Reserve chairman Alan Greenspan and the current Fed chairman Ben Bernanke.

First a description of the commonly held argument that the Fed's low interest "easy money" policies between 2002-2005 helped to fuel the crisis is presented and then the arguments offered by the two Federal Reserve chairmen will be examined.

The Federal Reserve's monetary policy problems over the past decade can best be described by David Milpass in his Wall Street Journal article "Did the Fed Cause the Housing Bubble?" "The blame for the current crisis extends well beyond the Fed -- to banks, regulators, bond raters, mortgage fraud, the Bush administration's weak-dollar policy and Lehman bankruptcy decisions, and Congress's reckless housing policies through Fannie Mae and Freddie Mac and the Community Reinvestment Act.

But the Fed provided the key fuel with its 1% interest rate choice in 2003 and 2004 and "measured" (meaning inadequate) rate hikes in 2004-2006. It ignored inflationary dollar weakness, higher interest rate choices abroad, the Taylor Rule, and the booming performance of the U.S. and global economies.

Even by the Fed's own backward-looking inflation metrics, the core consumption deflator exceeded the Fed's 2% limit for 18 quarters in a row beginning with the second quarter of 2004, while 12-month Consumer Price Index (CPI) inflation hit 4.7% in September 2005 and 5.4% in July 2008. This happened despite the Fed's constant assurances that inflation would moderate (unlikely given the crashing dollar.)"

Now to allow both Fed chairman a chance to defend themselves, Greenspan and Bernanke's op-ed responses to the harsh criticisms are presented. A common theme in both individuals' stance on the financial crisis contends that a massive inflow of foreign savings into the US and other developed nations fueled the credit boom and the ensuing financial crisis. This inflow of foreign savings is likely a plausible argument and could have helped fuel the crisis, but not likely the root cause of the global meltdown.

Greenspan is quoted as stating: "As I noted in December 2007, the presumptive cause of the world-wide decline in long-term rates was the tectonic shift in the early 1990s by much of the developing world from heavy emphasis on central planning to increasingly dynamic, export-led market competition. The result was a surge in growth in China and a large number of other emerging market economies that led to an excess of global intended savings relative to intended capital investment. That ex ante excess of savings propelled global long-term interest rates progressively lower between early 2000 and 2005."

Bernanke makes a similar argument in his speech to the Morehouse College graduates on April 14, 2009: "Indeed, the net inflow of foreign saving to the United States, which was about 1-1/2 percent of our national output in 1995, reached about 6 percent of national output in 2006, an amount equal to about $825 billion in today's dollars. Saving inflows from abroad can be beneficial if the country that receives those inflows invests them well. Unfortunately, that was not always the case in the United States and some other countries. Financial institutions reacted to the surplus of available funds by competing aggressively for borrowers, and, in the years leading up to the crisis, credit to both households and businesses became relatively cheap and easy to obtain."

In addition to Greenspan's argument noted above, he defends the Fed's "easy money" monetary policies from 2002-2005 and states that the Fed only has control over short term interest rates, not long term interest rates in which the 30 year fixed rate mortgage tends to abide by. Greenspan goes on to cite some interesting statistical data, and most individuals would probably be led to believe his argument because of his fairly untarnished record. However, with some simple data and a couple of graphs, Greenspan's argument can quite easily be thrown to the trash heap.

As you look at the graphs below, pay attention to the "Fed Funds" rate and the ARM rate for the period between 2001 and 2006. The data clearly shows that the Federal Funds rate and the ARM rate track each other very closely for this particular period. This is not difficult to comprehend given that ARMs are based on short term interest rates for periods of 1, 3, or 5 years. Allen Greenspan obviously forgot to factor in these short term mortgages and their increased influence in the mortgage market when he drastically lowered the federal funds rate in the beginning of 2001. Although Greenspan and Bernanke seem to be committed to their story, they are more likely in severe denial of "unknowingly" contributing to both the financial and global economic meltdown through their drastic short-term interest rate policy that began in 2001.

FIGURE 5
FIXED AND ADJUSTABLE MORTGAGE RATES

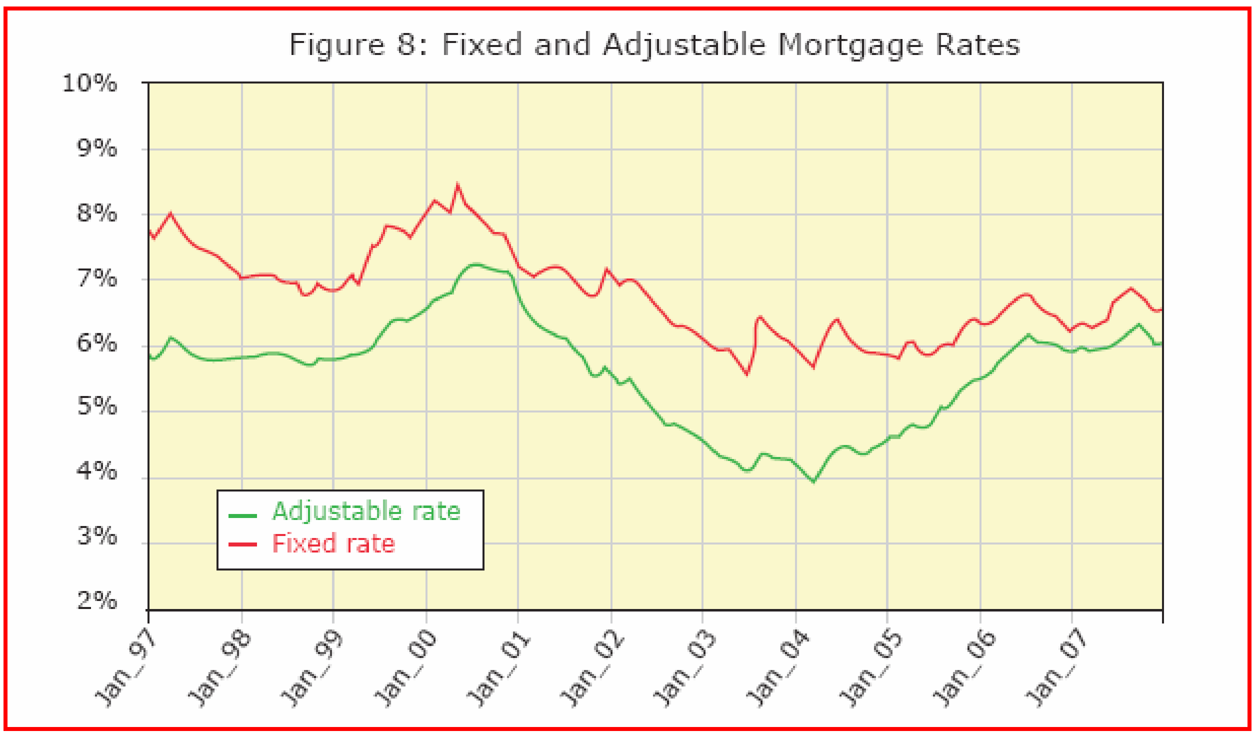
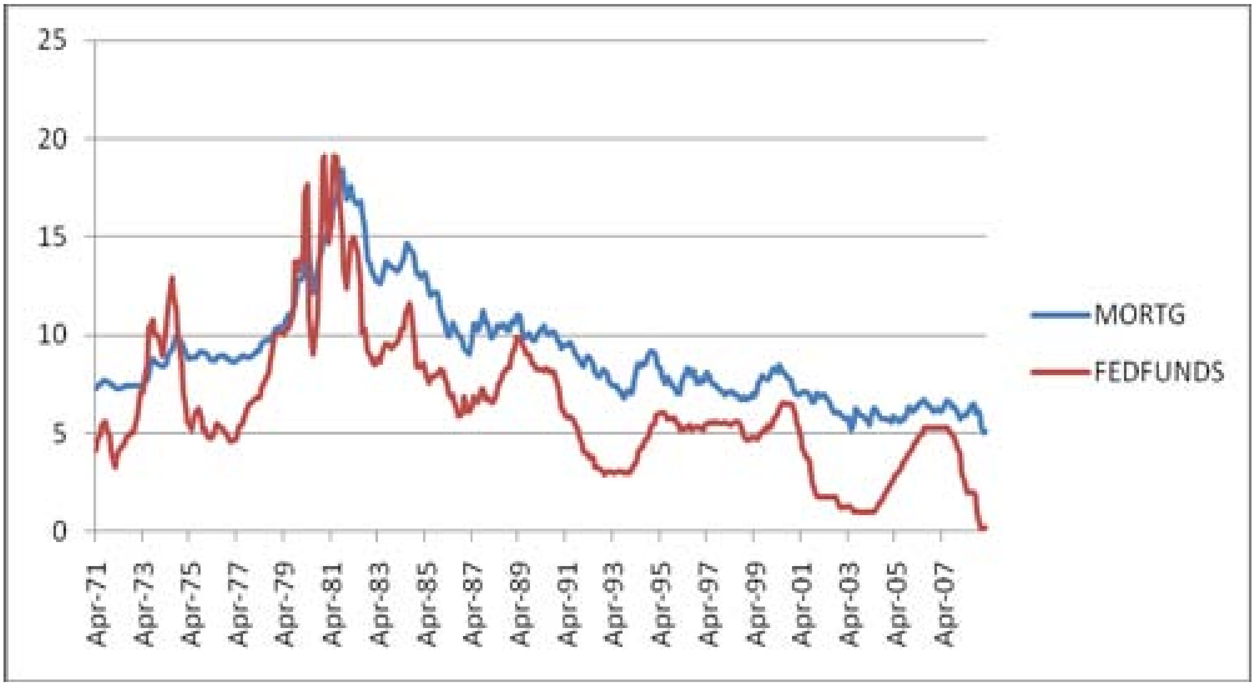


FIGURE 6
MORTGAGE AND FEDFUNDS RATES



Source: Murphy, Robert P. *Greenspan's Bogus Defense*

It is clear that a perfect storm had to ensue in order for the current crisis to occur. A build up of government support in the housing market for multiple decades began snowballing in the early 90's because of strong political support for the GSEs and their housing mandates. This snowball fell off a cliff when the Fed began dropping interest rates in 2001. In 2006, the snowball smashed into the ground and caused a financial crisis that continues to rip through our global economy. Now, everyone is asking the question: "How did this happen?" Unfortunately, no one is giving the right answer.

"Seemingly everyone went along. And most felt morally upright doing so since they were helping increase home ownership, especially among the poor and minorities". The reckless loosening of lending standards helped achieve political goals, however, the plan backfired with the Fed's "easy money" policy in the early 2000's.

The metaphorical language of James Grant, editor of Grant's Interest Rate Observer, sums the Fed policy up quite nicely: "Imagine a man at the top of a stepladder. He is up on his toes reaching for something. Call that something "yield." Call the stepladder "leverage." Now kick the ladder away. The man falls, pieces of debt crashing to the floor around him. The Fed, watching this preventable accident unfold, rushes to the scene too late. Not only did Bernanke et al. not see it coming, but they actually egged the man higher. You will recall the ultra-low interest rates of the early 2000s. The Fed imposed them to speed recovery from an earlier accident, this one involving a man up on a stepladder reaching for technology stocks."

Obviously there were many culprits and individuals to place blame on for our crisis, and no mention has been made about the reckless subprime mortgage lenders as well as the appraisers who helped to push the housing bubble further into the stratosphere. However, one recurring theme that you may have noticed in the aforementioned research is the intervention of politicians and the federal government in the capital markets. Many individuals have protested capitalism in recent months, stating the current crisis as proof that "capitalism does not work!" Unfortunately, it is our anti-capitalist policies that have failed us and protesters should be more upset that modern capitalist systems tend to take on the form of socialism at the first sign of a downturn in the business cycle.

The government's continued intervention in the current capital markets is going to have drastic implications for the future of our global economy and may delay any possible recovery. The future of our economy looks bleak; however the future of capitalism looks even bleaker. As our central government continues to keep interest rates artificially low, the rise in value of equity investments is also artificial and subject to a big correction if inflation raises its ugly head.

REFERENCES

Acharya V, Shin HS, Yorulmazer T. (2011). Crisis Resolution and Bank Liquidity. *Review of Financial Studies* , 24, (2) 166-205.

AIMA. (2008). AIMA's Roadmap to Hedge Funds. 143. Retrieved from http://www.aima.org/en/knowledge_centre/education/aimas-roadmap-to-hedge-funds.cfm.

Brunetti C, di Filippo M, Harris JH. (2011). Effects of Central Bank Intervention on the Interbank Market During the Subprime Crisis. *Review of Financial Studies*, 24, (20), 53-83.

Campello M, Giambona E, Graham JR, Harvey CR. (2011). Liquidity Management and Corporate Investment During a Financial Crisis. *Review of Financial Studies*, 24, (19), 44-79.

Day, Theodore, Liebowitz, Stan. (1998.). Mortgage Lending to Minorities: Where's the Bias?. *Economic Inquiry*, January, 1-27.

Demyanyk Y, Van Hemert O. (2011). Understanding the Subprime Mortgage Crisis. *Review of Financial Studies,* 24, (18), 48-80.

Fannie Mae Foundation. (2000). Case Study: Countrywide Home Loans, Inc. Retrieved from http://www.fanniemaefoundation.org/programs/pdf

Fishback PV, Flores-Lagunes A, Horrace WC, Kantor S, Treber J. (2011). The Influence of the Home Owners' Loan Corporation on Housing Markets During the 1930s. *Review of Financial Studies*, 24, (1) 782-813.

Federal Reserve Bank of Boston. (1992).*Closing the Gap: A Guide to Equal Opportunity Lending* , 5-27.

Freddie Mac's Annual 10K Report. (2008). 5.

Gerardi, Kristopher, Shapiro, Adam, and Willen, Paul. (2007). Subprime Outcomes: Risky Mortages, Homeownership Experiences, and Foreclosures. *Federal Reserve Bank of Boston*.

Ghent AC. (2011). Securitization and Mortgage Renegotiation: Evidence from the Great Depression. *Review of Financial Studies*, 24, (18), 14-47.

Gropp R, Hakenes H, Schnabel I. (2011). Competition, Risk-shifting, and Public Bail-out Policies. *Review of Financial Studies*, 24, (20), 84-120.

Lewis, M. (2009). *Panic: The Story of Modern Financial Insanity.* New York, New York: W. Norton & Company, Inc. 321 – 329.

Liebowitz, Stan J. (2008). Anatomy of a Train Wreck: Causes of the Mortgage Meltdown. *Independent Policy Report,* 6-14.

Listokin, David, Elvin K. Wyly, Brian Schmitt, and Ioan Voicu. (2002). The Potential and Limitations of Mortgage Innovation in Fostering Homeownership in the United States. *Fannie Mae Foundation*. 5-6.

Lucchetti, Aaron and Ng, Seren. (2007). How Rating Firms' Calls Fueled Subprime Mess. *Wall Street Journal,* August 15.

Maddaloni A, Peydró J-L. (2011). Bank Risk-taking, Securitization, Supervision, and Low-interest Rates: Evidence from the Euro Area and the U.S. Lending Standards. *Review of Financial Studies*, 24, (21), 21-65.

Milpass, David, "Did the Fed Cause the Housing Bubble?", *Wall Street Journal.*

Mortgage Bankers Association of America. (1992). *HMDA Task Force Report,* September.

Mortgagestats.com. (2000). *Ranks Countrywide Home Loans No. 1 in Lending to Minorities.*

Murphy, Robert. *Greenspan's Bogus Defense*. Retrieved from http://mises.org/daily/3394/

Purnanandam A. (2001). Originate-to-distribute Model and the Subprime Mortgage Crisis. *Review of Financial Studies*, 24, (1), 881-915.

Santos JAC. (2011). Bank Corporate Loan Pricing Following the Subprime Crisis. *Review of Financial Studies,* 24, (19), 16-43.

Simon, Ruth. (2008). First Fed Grapples with Payment-Option Mortgages. *Wall Street Journal* , August 6.

Snowden, Kenneth, The Anatomy of a Residential Mortgage Crisis: A Look Back to the 1930's. Working Paper 16244, Retrieved from http://www.nber.org/papers/w16244 National Bureau of Economic Research.

Spader, Jonathan S., and Roberto G. Quercia. (2008). Does Homeownership Counseling Affect the Prepayment and Default Behavior of Affordable Mortgage Borrowers?. *Journal of Policy Analysis and Management,* 27, (2), 304-325.

The United State Department of Justice. (1994). *Authority of the Federal Financial Supervisory Agencies under the Community Reinvestment Act*, Retrieved from http://www.usdoj.gov/olc/cra.html>.

Thomas, Paulette (1992). Boston Fed Finds Racial Discrimination in Mortgage Lending Is Still Widespread. *Wall Street Journal* , October 9, A3.

Tong H, Wei S-J. (2011). The Composition Matters: Capital Inflows and Liquidity Crunch During a Global Economic Crisis. *Review of Financial Studies,* 24, (20), 23-52.

U.S. Census Bureau. (2010). Mortgage Originations and Delinquency and Foreclosure Rates. Retrieved from http://www.census.gov/compendia/statab/2011/tables/11s1193.xls.