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Policy Report

Anatomy of a Train Wreck

Causes of the Mortgage Meltdown

Stan J. Liebowitz

October 3, 2008

Executive Summary

Why did the mortgage market melt down so badly? Why were there so many defaults when the economy was not particularly weak? Why were the securities based upon these mortgages not considered anywhere as risky as they actually turned out to be? This report concludes that, in an attempt to increase home ownership, particularly by minorities and the less affluent, virtually every branch of the government undertook an attack on underwriting standards starting in the early 1990s. Regulators, academic specialists, GSEs, and housing activists universally praised the decline in mortgage-underwriting standards as an "innovation" in mortgage lending. This weakening of underwriting standards succeeded in increasing home ownership and also the price of housing, helping to lead to a housing price bubble. The price bubble, along with relaxed lending standards, allowed speculators to purchase homes without putting their own money at risk. The recent rise in foreclosures is not related empirically to the distinction between subprime and prime loans since both sustained the same percentage increase of foreclosures and at the same time. Nor is it consistent with the "nasty subprime lender" hypothesis currently considered to be the cause of the mortgage meltdown. Instead, the important factor is the distinction between adjustable-rate and fixed-rate mortgages. This evidence is consistent with speculators turning and running when housing prices stopped rising.

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Causes of the Mortgage Meltdown

Stan J. Liebowitz

The mortgage meltdown has been the largest economic story, perhaps the largest story of any kind, since mid 2007. In the coming years, many books will be written about how and why the mortgage mess came to pass.

The basic outlines of the event are uncontroversial and fairly easy to state. Through the early years of the twenty-first century, the housing market experienced a pricing boom—with prices soaring—of almost unprecedented scale. That came to an abrupt end in the second quarter of 2006, at which time a steep decline in home prices began. Not coincidentally, in the third quarter of 2006, mortgage defaults began to rise to what would be, in modern times, unprecedented levels, although it was not until mid 2007 that the mortgage stories began to make front-page news because the financial system, which had invested heavily in securitized mortgages, began to experience signs of possible collapse. The stock market swooned, GDP (gross domestic product) growth groaned to a halt, and politicians stepped in to propose various "fixes" to the problem.

The financial difficulties are continuing through the summer of 2008 as this report is being written. Drastic actions taken by the Federal Reserve in the spring of 2008—including its bartered fire sale of Bear Stearns, a global investment bank, to JPMorgan Chase, a financial services firm; its willingness to open its discount window to investment banks; and its acceptance of new types of securities as collateral—are all indicative of a massive effort to preempt a possible financial calamity. More recently, the political classes, led by the Treasury Department, have agreed that they would, if necessary, bail out Fannie Mae (the Federal National Mortgage Association, or FNMA) and Freddie Mac (the Federal Home Loan Mortgage Corporation), which guaranteed about half of the country's mortgages. Finally, Congress and the president have enacted legislation to put a potential bailout of those two organizations in statutory language, allowing the now-saved Fannie Mae and Freddie Mac to act as "saviors," a strange position for two essentially bankrupt organizations that wholeheartedly helped engineer the financial calamity they are now supposed to fix.

As we will see, a record-breaking level of mortgage foreclosures occurred when the economy was still robust and before housing prices had fallen very far. These increased foreclosures occurred at the same time and with virtually the same intensity for both the prime and the subprime mortgage markets, although this has not been commonly understood. The very steep home-price decline that followed has greatly exacerbated the foreclosure problems.

The increase in foreclosures caught the banking and finance industries by surprise and greatly lowered the value of securities based on these mortgages. The declining value of these securities, in turn, decimated the mortgage specialists such as Countrywide Financial and IndyMac Federal Bank, badly damaged major finance and banking firms such as Citicorp and Merrill Lynch, and brought the behemoth government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac to the brink of bankruptcy.

The point of this report is to help provide some understanding of how it is that the mortgage market melted down so badly. A seismic economic fracture, such as this one, does not have but a single cause. Nevertheless, a precondition for the market to self-destruct due to a record level of mortgage foreclosures is that a great many mortgage recipients must have been unable or unwilling to continue to pay their mortgages.

How did this come about? Why were there so many defaults when the economy was not particularly weak? Why were the securities based upon these mortgages not considered anywhere as risky as they actually turned out to be?

It is the thesis of this report that this large increase in defaults had been a potential problem waiting to happen for some time. The reason is that mortgage-underwriting standards had been undermined by virtually every branch of the government since the early 1990s. The government had been attempting to increase home ownership in the U.S., which had been stagnant for several decades. In particular, the government had tried to increase home ownership among poor and minority Americans. Although a seemingly noble goal, the tool chosen to achieve this goal was one that endangered the entire mortgage enterprise: intentional weakening of the traditional mortgage-lending standards.

After the government succeeded in weakening underwriting standards, mortgages seemed to require virtually no down payment, which is the main key to the problem, but few restrictions on the size of monthly payments relative to income, little examination of credit scores, little examination of employment history, and so forth also contributed. This was exactly the government's goal.

The weakening of mortgage-lending standards did succeed in increasing home ownership (discussed in more detail later). As home ownership rates increased there was self-congratulation all around. The community of regulators, academic specialists, and housing activists all reveled in the increase in home ownership and the increase in wealth brought about by home ownership. The decline in mortgage-underwriting standards was universally praised as an "innovation" in mortgage lending.

The increase in home ownership increased the price of housing, helping to create a housing "bubble." The bubble brought in a large number of speculators in the form of individuals owning one or two houses who hoped to quickly resell them at a profit. Estimates are that one quarter of all home sales were speculative sales of this nature.

Speculators wanted mortgages with the smallest down payment and the lowest interest rate. These would be adjustable-rate mortgages (ARMs), option ARMs, and so forth. Once housing prices stopped rising, these speculators tried to get out from under their investments made largely with other peoples' money, which is why foreclosures increased mainly for adjustable-rate mortgages and not for fixed-rate mortgages, regardless of whether mortgages were prime or subprime. The rest, as they say, is history.

In good times, strict underwriting standards seem unnecessary. But like levees against a flood, they serve a useful purpose. When markets turn sour, these standards help ensure that homeowners will not bail out of homes at the first sign of price declines, that they will have the financial wherewithal to survive economic downturns, and that even if homeowners can't make their payments, mortgage owners will be covered by the equity remaining in the home. Removing these protections greatly increased the risk in this market when a storm did approach.

Unfortunately, it seems likely that our governing bodies have learned little or nothing from this series of events. If the proper lessons are not learned, we are likely to have a reprise sometime in the future.

1. The Birth of "Flexible Underwriting Standards"

> After the warm and fuzzy glow of "flexible underwriting standards" has worn off, we may discover that they are nothing more than standards that led to bad loans. Certainly, a careful investigation of these underwriting standards is in order. If the "traditional" bank lending processes were rational, we are likely to find, with the adoption of flexible underwriting standards, that we are merely encouraging banks to make unsound loans. If this is the case, current policy will not have helped its intended beneficiaries if in future years they are dispossessed from their homes due to an inability to make their mortgage payments. It will be ironic and unfortunate if minority applicants wind up paying a very heavy price for a misguided policy based on badly mangled data. (Day and Liebowitz, 1998)

Home mortgages have been a political piñata for many decades. All politicians at all times seem to be in favor of home ownership. What could be more apple pie than owning a home? Indeed, there can be many positive effects on behavior brought about by home ownership.

But home ownership wouldn't seem to require much help from the federal government. If you let builders build, developers develop, and lenders lend, you will soon have people living in private homes, assuming that local governments adequately perform their function of enforcing private contracts. This view is verified by the fact that at the turn of the twentieth century, before the federal government became involved in the housing industry, home ownership in the U.S., according to the Census Bureau, stood at 47 percent (compared to 66 percent in 2000). That was before the enormous wealth increase of the twentieth century and before mortgage deductibility was enacted as a form of home-ownership subsidy, both factors that would be expected to increase the ownership of homes. Clearly, home ownership rates would have increased even without flexible underwriting policies.

Nevertheless, during the great depression of the 1930s, home building, like many other industries, experienced a profound decline. Mortgages were generally of a short duration, often only good for a year or two. Because banks were cash strapped and nervous about being paid, when a mortgage came due, instead of offering to refinance it, the banks often asked for payment in full. It was difficult or impossible for homeowners, even those with the financial ability to handle a mortgage, to pay the full amount of the mortgage all at once.

To help alleviate such problems, in 1934 the federal government created the Federal Housing Administration (FHA), which guaranteed mortgages against default, thus removing the risk from the bank. This was the first major intrusion in the mortgage market. In 1938 Fannie Mae was created to purchase FHA mortgages. Its purpose was later widened, and it now purchases and repackages a large share of all private mortgages in the country. In more recent decades, FHA mortgages have generally been used by lower-income home buyers since income and mortgage-size limitations have been built into the program.

The government became heavily involved in the mortgage market in a new way after concerns about mortgage discrimination arose in the 1970s. The government passed the Community Reinvestment

Act (CRA) in 1977, requiring banks to conduct business across the entirety of the geographic areas in which they operated, thus preventing them from doing business in a suburb, say, while neglecting a downtown area. Congress also passed the Home Mortgage Disclosure Act (HMDA) in 1975, which required that mortgage lenders provide detailed information about mortgage applications. Every year banks receive a score on their CRA compliance just as they receive a score on their financial viability, and banks strive to do well on both parts of their examination.

In 1991 the HMDA data was expanded, allowing for comparison of rejection rates by race. Various news organizations started publicizing simple examinations of HMDA data, showing that minorities were denied home mortgages at a rate far higher than that for whites. It was and still is common for newspapers in large cities, shortly after the yearly HMDA data are made public, to do exposés examining the differences by race in rejection rates on mortgage applications. There are even turnkey kits for newspaper reporters aspiring to demonstrate such results. Although such comparisons are completely unable to distinguish between the possibility of discrimination or differences in credit worthiness as explanations and are therefore fairly meaningless, these results were and are trumpeted far and wide in the media.

The last defense of banks trying to defend themselves against charges of engaging in biased mortgage lending appeared to fall when the Federal Reserve Bank of Boston (Boston Fed) conducted an apparently careful statistical analysis in 1992, which purported to demonstrate that even after controlling for important variables associated with creditworthiness, minorities were found to be denied mortgages at higher rates than whites.

In fact, the study was based on such horribly mangled data that the study's authors apparently never bothered to examine them. Every later article of which I am aware accepted that the data were badly mangled, even those authored by individuals who ultimately agreed with the conclusions of the Boston Fed study. The authors of the Boston Fed study, however, stuck to their guns even in the face of overwhelming evidence that the data used in their study was riddled with errors. Ex post, this was a wise decision for them, even if a less than honorable one.

The winds were behind the sails of the study.[1] Most politicians jumped to support the study. "This study is definitive," and "it changes the landscape," said a spokeswoman for the Office of the Comptroller of the Currency. "This comports completely with common sense," and "I don't think you need a lot more studies like this," said Richard F. Syron, president of the Boston Fed (and former head of Freddie Mac). One of the study's authors, Alicia Munnell, said, without any apparent concern for academic modesty, "The study eliminates all the other possible factors that could be influencing [mortgage] decisions."[2] When important functionaries make quotes like these, you know that the fix is in and that scientific enquiry is out.

My colleague, Ted Day, and I only decided to investigate the Boston Fed study because we knew that no single study, particularly a first study, should ever be considered definitive and that something smelled funny about the whole endeavor. Nevertheless, we were shocked at the poor quality of the data created by the Boston Fed. The Boston Fed collected data on approximately three thousand mortgages. Data problems were obvious to anyone who bothered to examine the numbers. Here is a quick summary of the data problems: (a) the loan data that 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.

When we attempted to conduct a statistical analysis removing the impact of these obvious data errors, we found that the evidence of discrimination vanished. Without discrimination there would be no reason to try to "fix" the mortgage market.

Nevertheless, our work largely evaporated down the memory hole as government regulators got busy putting the results of the Boston Fed study to use in creating policy. That policy, simply put, was to weaken underwriting standards. What happened next is nicely summed up in an enthusiastic Fannie Mae report authored by some leading academics (Listokin et al., 2002):

> Attempts to eliminate discrimination involve strengthened enforcement of existing laws . . . There have also been efforts to expand the availability of more affordable and flexible mortgages. The Community Reinvestment Act (CRA) provides a major incentive . . . Fannie Mae and Freddie Mac . . . have also been called upon to broaden access to mortgage credit and home ownership. The 1992 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 . . . Spurred in part by the FHEFSSA mandate, Fannie Mae announced a trillion-dollar commitment.
>
> The result has been a wider variety of innovative mortgage products. The GSEs have introduced a *new generation of affordable, flexible, and targeted mortgages, thereby fundamentally altering the terms upon which mortgage credit was offered in the United States from the 1960s through the 1980s.* Moreover, these secondary-market innovations have proceeded in tandem with shifts in the primary markets: depository institutions, spurred by the threat of CRA challenges and the lure of significant profit potential in underserved markets, have pioneered flexible mortgage products. For years, depositories held these products in portfolios when their underwriting guidelines exceeded benchmarks set by the GSEs. Current shifts in government policy, GSE acquisition criteria, and the primary market have fostered greater integration of capital and lending markets.
>
> These changes in lending herald what we refer to as *mortgage innovation.* (My emphasis)

One man's innovation can be another man's poison, in this case a poison that infected the entire industry. What you will not find, if you read the housing literature from 1990 until 2006, is any fear that perhaps these weaker lending standards that *every government agency* involved with housing tried to advance, that congress tried to advance, that the presidency tried to advance, that the GSEs tried to advance—and with which the penitent banks initially went along and eventually enthusiastically supported—might lead to high defaults, particularly if housing prices should stop rising.

2. Relaxed Lending Standards—Everyone's Doin' It

Within a few months of the appearance of the Boston Fed study, a new manual appeared from the Boston Fed. It was in the nature of a "Nondiscriminatory Mortgage Lending for Dummies"[3] booklet. The president of the Boston Fed wrote in the foreword:

> The Federal Reserve Bank of Boston wants to be helpful to lenders as they work to close the mortgage gap [higher rejection rate for minorities]. For this publication, we have gathered

> recommendations 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.

Early in the document, the Boston Fed gracefully reminds its readers of a few possible consequences of not paying attention:

> *Did You Know?* Failure to comply with the Equal Credit Opportunity Act or Regulation B can subject a financial institution to civil liability for actual and punitive damages in individual or class actions. Liability for punitive damages can be as much as $10,000 in individual actions and the lesser of $500,000 or 1 percent of the creditor's net worth in class actions.

The part of this document that is of greatest interest to us is the section on *underwriting standards.* This is where we find the seeds of today's mortgage meltdown. It starts out:

> Even the most determined lending institution will have difficulty cultivating business from minority customers if its underwriting standards contain arbitrary or unreasonable measures of creditworthiness.

You might think that it would be difficult for a bank to cultivate business with *any* mortgage applicants, or merely to stay in business, if it had arbitrary and unreasonable measures of creditworthiness. But then you would be failing to understand the double-speak that is actually the point of this quote. What the quote is really saying is that if a bank's underwriting standards do not allow a sufficiently high percentage of minority mortgage approvals, they must be arbitrary or unreasonable. "Arbitrary and unreasonable" include the standards that prevailed in the several decades prior to the 1990s.

The document continues:

> Management should be directed to review existing underwriting standards and practices to ensure that they are valid predictors of risk. Special care should be taken to ensure that standards are appropriate to the economic culture of urban, lower–income, and nontraditional consumers.

You might have thought that financial standards that indicate a high probability of success in making mortgage payments, such as steady employment, a record of savings, and keeping the loan payment small relative to income, might have been prudent standards for borrowers of all incomes and all races. In fact, you would be correct. But in the world of mortgage discrimination the goal is to increase mortgages for certain "nontraditional" customers, and in this case financial standards are to be twisted or discarded if necessary.

We can go through the document's critique of underwriting standards one at a time.

> *Credit History:* 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.

The first few sentences, to the extent that they just imply that paying bills in cash should not hurt loan applicants, are largely unobjectionable. But then banks are told that extenuating circumstances should be taken into account when evaluating prior credit problems. Although this does not appear unreasonable on its face, the fact is that people with credit problems invariably have excuses for their problems, and whether those are legitimate extenuating circumstances or not is the key question. The way this is worded, a bank with an applicant who provides an "extenuating" circumstance faces the charge of "discrimination" if the application is denied. Past bad debt, the document continues, if eventually made good, should be ignored, which sounds like a recipe for inviting, well, bad debt.

More troubling is the claim that "credit counseling" is a demonstration that applicants can manage debts successfully. This is an example of the most naive form of wishful thinking being used in place of actual thought (although one might claim that relaxing underwriting standards was also an instance). There is no evidence whatsoever that "credit counseling" helps applicants avoid mortgage defaults.[4] The focus on consumer education, which is a constant and persistent theme in this literature, seems to have more to do to with political payoffs to "community activists" who help provide the "education" than with providing any benefits to homeowners or lenders.

> *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.

Again, the first sentence seems reasonable enough. But then the tone shifts, and the document suggests that many lower-income households can handle high obligation ratios, not just those applicants who have demonstrated an ability to handle high housing expenses in the past. Clearly, the Boston Fed is suggesting that the 28/36 ratio (share of income that can be devoted to mortgage payments, gross or net) that had been historically used for most homeowners shouldn't apply to poor individuals even though logic would say that poor individuals, who are less likely to have savings (see the next paragraph) or other forms of discretionary income, are more likely, not less, to have trouble handling housing expense ratios above normal. The secondary market obliquely referred to in the last sentence of the quote is basically Fannie Mae, and that organization was willing to stretch the obligation ratios since it was an enthusiastic advocate of relaxed lending standards.

> *Down Payment and Closing Costs:* Accumulating enough savings to cover the various costs associated with a mortgage loan is often a significant barrier to home ownership 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.

This quote mixes legitimate and illegitimate sources of extra income in a dangerous way. Cash and gifts from relatives seem unobjectionable. But what this paragraph opens the door to is the "gift" from a builder wishing to sell his housing. Since these guidelines went into effect, it has become commonplace for builders of low-income homes to "gift" the down payment to the mortgage applicant, often using a nonprofit front organization to channel the funds. Since home builders are not charities, the price of the home is raised by an amount equal to the cash gift, with appraisers apparently willing to go along (shades of Tony Soprano).

> *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.

As with the other proposals, this one is a mixture of the reasonable and the outrageous. Second jobs, for example, can be held indefinitely and thus are reasonable sources of income. Unemployment benefits, on the other hand, are time limited, and it is a mistake to include temporary sources of income when the mortgage is not temporary. The fact that Fannie Mae and Freddie Mac accept these sources says more about these agencies' attempts to water down underwriting standards than it does to prove that such watered-down standards make sense.

What was the impact of this attack on traditional underwriting standards? As you might guess, when government regulators bark, banks jump. Banks began to loosen lending standards. And loosen and loosen and loosen, to the cheers of the politicians, regulators, and GSEs.

One of the banks that jumped most completely on to this bandwagon was Countrywide, which used its efforts to lower underwriting standards "on behalf" of minorities (and everyone else) to catapult itself to become the leading mortgage lender in the nation. Countrywide not only made more loans to minorities than any other lender, it also had the highest consumer satisfaction among large mortgage lenders, according to J.D. Power and Associates.[5]

Testimonials to Countrywide's virtue abound. In 2000, *La Opinión* (the nation's leading Spanish-language newspaper) named Countrywide "Corporation of the Year" for their outstanding work in the Latino community. Additionally, the chair of national housing at LULAC (League of United Latin American Citizens) said, "Through the generosity of ethical businesses like Countrywide, we can make significant strides towards bringing the pride of home ownership to our communities and enhancing the quality of life for more Latinos."[6]

According to a flattering report by the Fannie Mae foundation, Countrywide was a paragon of lending virtue.[7] Countrywide was nothing if not flexible, I mean innovative, in its underwriting practices. The report stated:

> Countrywide tends to follow the most flexible underwriting criteria permitted under GSE and FHA guidelines. Because Fannie Mae and Freddie Mac tend to give their best lenders access to the most flexible underwriting criteria, Countrywide benefits from its status as one of the largest originators of mortgage loans and one of the largest participants in the GSE programs.
>
> When necessary—in cases where applicants have no established credit history, for example—Countrywide uses nontraditional credit, a practice now accepted by the GSEs.

Countrywide had even outdone itself with respect to consumer education.

> In an interesting departure from local counseling assistance, Countrywide provides centralized home ownership counseling through the House America Counseling Center. Counseling staff members who are located in California field calls on a toll-free line. Bilingual (Spanish and English) counselors are available . . . the Counseling Center distributes materials to help potential homeowners achieve and maintain homeownership. These materials include the *Guide to Homeownership* and *A Feeling Called Home,* a video that is narrated by James Earl Jones.

Apparently, even the voice of Darth Vader couldn't keep defaults at bay. The document also reports on Countrywide's other great videos.

> Countrywide has developed a video titled *Living the Dream: A New Homeowner's Survival Guide,* which covers the basics of loan closing, mortgage insurance, budgeting, and home maintenance, as well as how to use credit wisely, make mortgage payments on time, cope with financial crises, and reap the rewards of building equity . . . The video was originally created for use in the House America program. However, following praise by industry leaders, including officials at Fannie Mae, Freddie Mac, GE Mortgage Insurance Corporation, and HUD, copies of the video have been provided to city and county libraries nationwide as an educational tool.

This hasn't stopped critics who are looking for villains in the mortgage meltdown from fingering Countrywide. Of course, Countrywide is really the poster child for flexible underwriting standards, but none of the usual critics want to criticize the standards themselves.

There is one part of the story that has not yet been discussed. We know where the idea of flexible underwriting standards came from and we know how relentlessly it was pushed by almost every government organization or quasi-government organization associated with the industry. But how did investors, who are supposed to be cool and rational, misperceive the risk so badly? One of the questions about the current crisis is, why were purchasers of mortgages (i.e., mortgage-backed securities) willing to treat them as AAA and, perhaps more surprisingly, why were the rating agencies willing to give them AAA ratings?

Although it is not clear that any answer to this question can be completely satisfactory, I believe that if we understand how universal the idea of "flexible underwriting standards" had become, how dangerous it was to suggest anything else (and risk being labeled a racist), and how strong this force is, even now, it becomes possible to understand how investors—who, just like other human beings, are prone to mistakes (the dot-com bubble is another recent example)—might be led by the same arguments that were being repeated by so many others.

To understand this, it is useful to examine the sales pitches that were made. I was able to find a 1998 sales pitch from Bear Stearns, a major underwriter of mortgage-backed securities, for loans that banks undertook to fulfill their CRA obligations, which means mortgages to low- and moderate-income individuals.[8]

This sales pitch is important because it shows us the thinking being used to sell these products in secondary markets. Underwriters of the mortgage-backed securities also likely made this pitch to the security-rating organizations. As will become apparent, this sales pitch for loans based on relaxed lending standards generally follows the script laid out by the Boston Fed and followed by the entire regulatory apparatus surrounding the housing industry. Faced with overwhelming acceptance of these facts by presumably knowledgeable experts, why wouldn't an investor believe it?

Further, the housing-price bubble that was caused in part by these relaxed underwriting standards tended to reduce defaults and obscure the impact of the standards while prices were rising because almost no one would default when they could, instead, easily sell the house at a profit. Rating agencies could suggest that these loans were no more risky than the old antiquated loans and provide empirical support for that conclusion, given the still-low default rates at the time, although to do so was shortsighted to the point of incompetence.

In fact, the rating agencies seemed overly concerned with the trees and lost sight of the forest. For example, a *Wall Street Journal* article (which is the basis for the following three quotes) reports on rating agencies' benign treatment of piggyback mortgages (taking out a second mortgage to cover the down payment required by the first mortgage).[9] In previous decades, mortgage applicants unable to come up with the full down payment, and therefore thought to be more at risk of default, were required to pay "mortgage insurance," which raised the interest rate on the loan. Piggyback loans allowed borrowers to avoid this mechanism, thus presumably making the loan riskier. Nevertheless, the article reports that rating agencies did not consider these loans more risky:

> Data provided by lenders showed that loans with piggybacks performed like standard mortgages. The finding was unexpected, wrote S&P credit analyst Michael Stock in a 2000 research note. He nonetheless concluded the loans weren't necessarily very risky.

The finding was unexpected because it contradicted what had generally been known about mortgages by a prior generation of mortgage lenders—that when applicants made smaller down payments, increasing the loan-to-value ratio, the probability of default increased. This new finding contradicted common sense. Further, these measurements were being made at the front end of a housing price bubble (figure 1 (Yearly Real [1983 Dollars] Home Prices, 1987–2008), later in this report shows that prices were rising smartly in 2000), likely biasing downward any default statistics. Relaxed lending standards also had a short enough track record that rating agencies could not know how they would perform in the long run or in adverse conditions, meaning that it isn't clear that sufficient information existed to even rate these securities. So how did the rating agencies defend their counterintuitive ratings?

> One money manager, James Kragenbring, says he had five to ten conversations with S&P and Moody's in late 2005 and 2006, discussing whether they should be tougher because of looser lending standards . . . Other analysts recall being told that ratings could also be revised if the market deteriorated. Said an S&P spokesman: "The market can go with its gut; we have to go with the facts."

Whether such a myopic view of the "facts" was responsible for all or most of the excessively high ratings I cannot say, but these ratings were consistent with the views of the relaxed lending standards crowd. The real facts, of course, eventually soured the view of the rating agencies:

> By 2006, S&P was making its own study of such loans' performance. It singled out 639,981 loans made in 2002 to see if its benign assumptions had held up. They hadn't. Loans with piggybacks were 43% more likely to default than other loans, S&P found.

In spite of their inaccurate ratings, the rating agencies, nevertheless, were making great profits from rating mortgage-backed securities, a quasi-sinecure created by the government that required many financial organizations (e.g., insurance companies and money market funds) to invest only in highly rated securities as certified by government-approved rating agencies (Nationally Recognized Statistical Rating Organizations, NRSROs, approved by the Securities and Exchange Commission). There were only three such approved rating agencies for most of the last decade (Standard & Poor's [S&P], Moody's, and Fitch). Given that government-approved rating agencies were protected from free competition, it might be expected that these agencies would not want to create political waves by rocking the mortgage boat, endangering a potential loss of their protected profits.

Seemingly everyone went along. And most felt morally upright doing so since they were helping increase home ownership, especially among the poor and minorities.

Returning to the sales pitch made by Bear Sterns in 1998 and quoted below, Bear Stearns claimed that LTV (the size of a *loan* relative *to* the *value* of the home) *had been* the key consideration for predicting defaults but suggested that it was not appropriate for affordable loans (an opinion seconded by the rating agencies a few years later, as we have seen).[10] The traditional logic was sound: if someone puts 20 percent down on a house, the traditional down payment level, they would be unlikely to default. Even if the homeowner has trouble making the payments, as long as prices do not fall by 20 percent the homeowner would prefer to sell the house and get some of their down payment back. Yet in the sales pitch we encounter a feeble attempt to explain why this should not be true for low-income borrowers.

> *Traditionally rating agencies view LTV as the single most important determinant of default . . .* While we do not dispute these assumptions, 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, the use of default models traditionally used for conforming loans have to be adjusted for CRA affordable loans.

Let's take a look at this logic. LTV has been the most important predictor of default. But when it comes to "affordable" housing, LTV is not to be taken as seriously. Why? The real reason is that if traditional LTVs were imposed on applicants for "affordable" loans, most of these applicants would be unable to come up with anything like a 20 percent down payment and the loan would be rejected. That is a politically unacceptable result. 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. This is a mere assertion, although to question it (or most of the other claims being made at the time) was to run the risk of being called a racist. But more important, as we know from the Boston Fed guidebook, the down payment is most likely going to come from someone other than the applicants themselves anyway ("accumulating enough savings to cover the various costs associated with a mortgage loan is often a significant barrier to home ownership by lower–income applicants"), so there is little reason poor applicants should treat it with particular extra care.

Also, as we will see later, mortgages from the poorer portion of the income distribution, for the last thirty years at least, have had much higher default rates than traditional mortgages, a result that is conveniently ignored in so much of this literature. Subprime mortgages have tended historically to be foreclosed at ten times the rate of prime mortgages, and FHA loans (limited to low- and moderate-income individuals) are foreclosed at about four times the rate of prime mortgages.

Continuing with the 4 percent down example, if the price of the affordable house goes down by more than 4 percent, then the homeowner would be underwater or upside down, depending on your preferred metaphor. If this is due to an overall decline in housing prices, it means that the homeowner could turn around and purchase a similar house for a lower price and lower monthly payments. There is no reason to think that poor people are less likely to be swayed by this logic than middle-class people (although, as we will see, Bear Stearns considers poor homeowners to be too ignorant to figure this out).

What other nuggets of wisdom are found in this Bear Stearns pitch?

> *Credit scores.* While credit scores can be an analytical tool with conforming loans, their effectiveness is limited with CRA loans. Unfortunately, CRA loans do not fit neatly into the standard credit score framework . . . Do we automatically exclude or severely discount . . . loans [with poor credit scores]? Absolutely not.

They agree with the Boston Fed manual that traditional credit scores are not useful for poor and moderate-income households. They don't really provide any reason for this belief except to say that credit scores are complicated constructs.

> *Payment history.* While some credit-score purists might take issue with our comments in the preceding section, payment history for CRA loans tracks consistently close to the risk curves of conforming loans . . . In many cases, purchasing a home puts the borrower in a more favorable financial position than renting. It is quite common for a first-time homebuyer using a CRA loan to have been shouldering a rent payment that consumed 40 percent to 50 percent of his or her gross income.
>
> When considering the credit score, LTV, and payment history, we put the greatest weight by far on the last variable . . . Payment history speaks for itself. 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.

Although the above quote might bring tears to your eyes, the tears should be from contemplating to the point of parody the poor economic logic being used by a leading financial firm. First, the claim that lower-income homeowners are somehow different in their devotion ("near sacred") to their home is a purely emotional claim with no evidence to support it. It also completely ignores the fact that foreclosure rates for loans to low-income individuals (FHA or subprime) are much higher than for ordinary mortgages, sacred obligation or not. Also, whether apartments or houses are better deals depends on the ratio of housing prices to apartment prices, which varies over time and by location. At the peak of the housing bubble, for example, apartment prices were much less expensive than amortized home payments, and the claims about the savings from home ownership made above would have been false in almost all locations.

Finally we have the "education" canard repeated again:

> Where do most payment problems occur? Usually, the problems stem from poor upfront planning and counseling. Hence, one of the key factors we look for in a CRA portfolio is whether the borrower completed a GSE-accredited homebuyer education program. The best of these programs help the individual plan for emergencies that can arise with homeownership.

Ironically, although education programs do not impact defaults, they do impact prepayments (meaning that the loan is paid off early). The Bear Stearns pitch is highly focused on prepayments. Lenders do not like prepayments because increased prepayments often means that interest rates have dropped, allowing homeowners to refinance at a lower rate. In that case the lender fails to lock in the gain from the original higher interest mortgage, which is paid off (prepaid) when it is refinanced.

> CRA-backed securities are attractive to mortgage investors because of their very stable prepayment behavior. Because pre-payments are unlikely to accelerate if interest rates decline, these securities consistently outperform their traditional mortgage-backed counterparts on a total-rate-of-return basis.

Why are affordable loans thought less likely to have prepayments? Bear Stearns suggests two reasons. First, they state that many such loans are heavily subsidized (usually by taxpayers unaware of their largesse), so the applicants would have no incentive to renegotiate. Second, such borrowers are considered too unworldly to take advantage of the lower rates ("The low-income borrower population is much more likely to have limited access to funds and/or have limited desire or ability to pay the out-of-pocket expenses associated with a refinancing transaction").

The Bear Stearns document goes on at great length about the prepayment advantages of affordable mortgages. And in a world where default is of no relevance, small disadvantages to the lender, like getting paid in full *early,* could appear to be a major problem. But to ignore the possibility of defaults, to ignore the possibility that housing prices might someday fall, and to not weigh these possibilities against the minor problem of getting paid in full early, is nothing short of gross incompetence. Getting paid early is nowhere as serious a problem as not getting paid at all, and you should not need a Ph.D. to figure that out.

Here is a final pearl from Bear Stearns: "If you are setting aside inordinately high loan loss reserves against your balance sheet, you should consider freeing up the capital for more productive purposes." They apparently took their own, deficient, advice. RIP Bear Stearns.

In closing this section, a word about mortgage innovations and the current crisis is in order. Much of the evidence related to mortgage innovation that was just presented has been focused on poor and middle-class borrowers. Indeed, the strongest incentive for eliminating traditional underwriting standards, as we have seen, came from attempts to help poor and minority borrowers. Nevertheless, newspapers tell us that upper-income individuals are being foreclosed in large numbers as well.

There are two points that need to be kept in mind. First, preliminary evidence (Mian and Sufi, 2008) indicates that the recent increase in defaults has been dominated by those areas populated by poor and moderate-income borrowers. Further, figure 9 (Share of Speculative and Subprime Loans by Census Tract Income), which will be seen later in this report, and the discussion surrounding it show that poor and moderate-income areas had the largest share of speculative home buying, and speculative home buying will be seen, later in this report, to be the leading explanation for home foreclosures. Thus the evidence is that the foreclosures are disproportionately a problem of the poor and moderate-income areas, which is entirely consistent with the weakened underwriting standards discussed above. The fact that foreclosures among poor and moderate homeowners are not receiving the greatest amount of newspaper attention doesn't mean that they are not at the epicenter of the foreclosure problem.

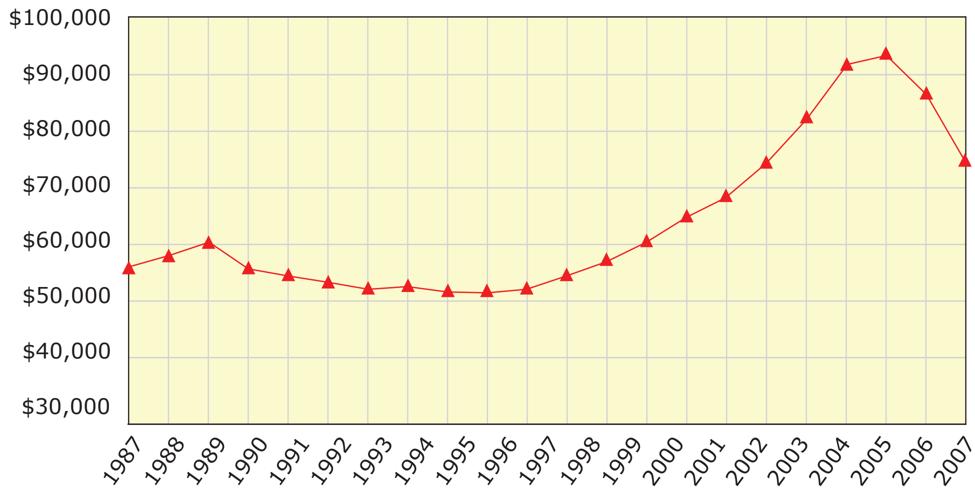
Second, although the original mortgage innovations were rationalized for low- and middle-income buyers, once this sloppy thinking had taken hold it is naive to believe that this decade-long attack on traditional underwriting standards would not also lead to more relaxed standards for higher-income borrowers as well. When everyone cheers for relaxed underwriting standards, the relaxation is not likely to be kept in narrow confines.

3. Empirics of the Current Crisis

The immediate cause of the rise in mortgage defaults is fairly obvious—it was the reversal in the remarkable price appreciation of homes that occurred from 1998 until the second quarter of 2006. Since then prices have sharply declined. The housing price bubble can be easily seen in figure 1, which shows inflation-adjusted housing prices since 1987.

Prices in the second quarter of 2008 are not yet available, but they appear likely to drop by more than 5 percent compared to the first quarter (since

Figure 1: Yearly Real (1983$) Home Prices
(Case Shiller National)



we have two months of data in the quarter), which would make the average real price in the second quarter of 2008 approximately $70,000 in 1983 dollars.

It is difficult to determine why bubbles come into existence. There are often many elements, including economic, psychological, reglatory, and political ones. One element in this case was an extremely large increase in the number of families qualifying for mortgages under the relaxed lending standards which then translated in higher ownership rates.

Figure 2 illustrates changes in home ownership rates beginning with 1970. Except for a small but temporary incease in the late 1970s, these rates had been basically flat until 1995, whereupon they began a steep ascent. Why did home ownership increase in the mid 1990s? it is almost certainly due to the relaxing of lending standards whose machinery, as we have seen, was starting to be put in place in 1993. This was also the conclusion of the Federal Reserve Bank of San Francisco in 2006:[11]

Figure 2: Yearly Home Ownership Rates (U.S. Census)

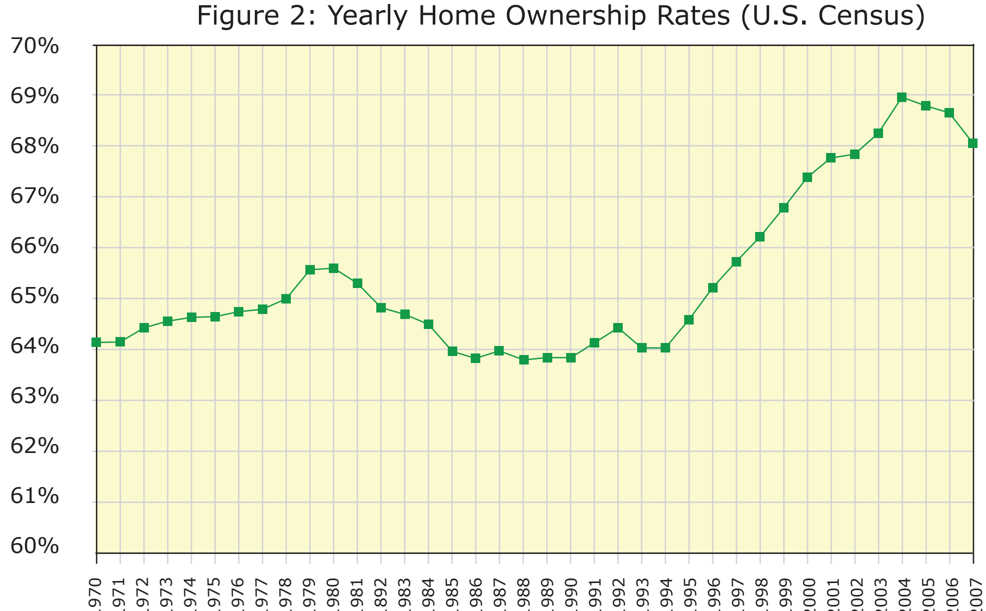
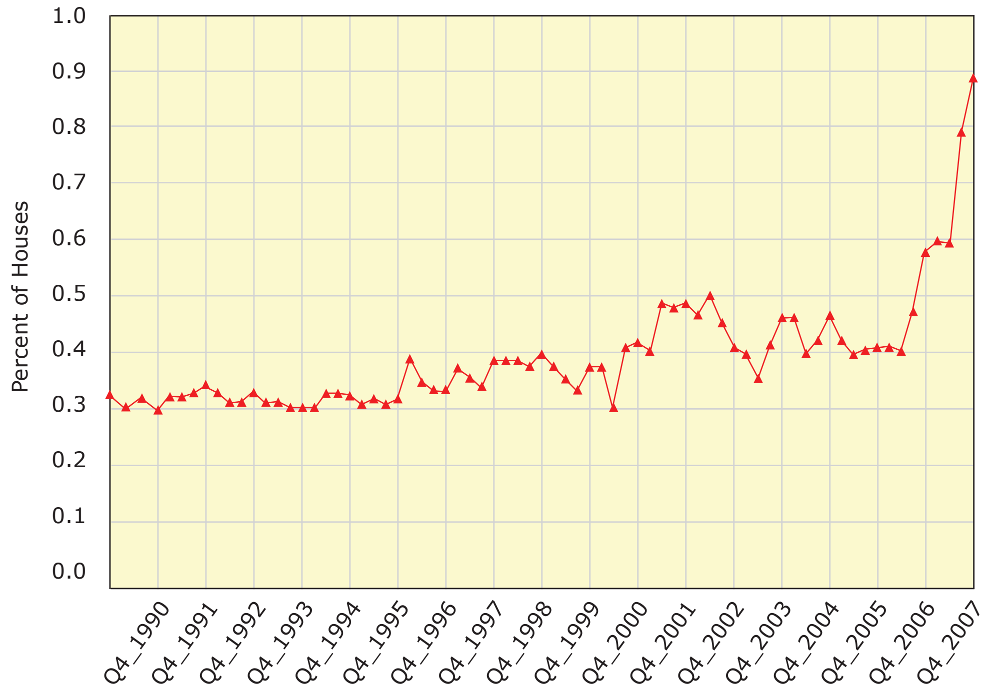


Figure 3: Foreclosures Started



> We examine several potential reasons for this surge in the homeeownership rate. We find that, while demographic changes have some role to play, it is likely that much of the increase is due to innovations in the mortgage inddustry that may have helped a large number of households buy homes more easily than they could have a decade ago. (My emphasis).

Those "innovations" are the same ones discussed at length above.

If relaxed lending standards allowed more households to qualify for financing, basic economics also says that housing prices would have risen as the demand for homes increased. Some portion of the housing price bubble, perhaps a large portion, must have been caused by the relaxed lending standards.

Of course it is not the rising portion of the bubble that causes unhappiness. In fact inflating bubbles are usually associated with joy, and the robust housing market was generally looked at benignly and considered good for the economy. The rising home prices would also keep the dark underbelly of relaxed lending standards from view since any homeowners having difficulties handling their mortgages, and there must have been many who would have run into trouble relatively quickly, could easily refinance or sell their home at a profit. Defaults would remain a rarity even for loans that should never have been made.

When housing prices started to fall, however, all the joy and happiness came to an end. The increase in home prices peaked in the second quarter of 2006 according to Case-Shiller statistics. It is probably not a total coincidence that foreclosures began to rise in the very next quarter, the third quarter of 2006, as can be seen in figure 3.[12]

The increase in foreclosures began rising virtually the minute housing prices stopped rising. It did not take much of a nominal decline in home prices to have a very large impact on foreclosures, which is important to note. Nominal housing prices dropped a mere 1.4 percent in the six months from the second quarter of 2006 to the fourth quarter of 2006. Yet foreclosure start rates (rates of loans entering the foreclosure process) increased by 43 percent, from

0.40 percent of homes to 0.57 percent of homes. At that moment in time, with virtually no price decline yet in evidence, foreclosure start rates were already at a record high, some 21 percent higher than they had ever been in the modern (post 1978) period. This increase in foreclosures was not due to an economic recession, since the economy was still humming along. This increase in foreclosures was not due to a large price drop in homes, because virtually none had yet occurred.

It is hard not to surmise that this sudden jump in foreclosure starts (from 170,000 to 248,000) came from homeowners who, having been able to purchase their home without putting any money down, intended to flip or refinance their home at a profit within a relatively short period of time. Once the home appreciation stopped, and these homeowners could no longer quickly flip or refinance their home at a profit, it is likely that some of them would have walked away, particularly in states like California, where lenders have no recourse and cannot go after an individual's assets. We know, from the several television shows on the subject (such as *Flip That House*), that there was considerable interest in short-term home ownership. Nevertheless, this is only a conjecture, although one that seems to explain the data, including more detailed data discussed later in this report, quite well.

Through 2007 and 2008, prices have continued to fall and foreclosures have continued to rise. It is generally agreed that the enormous increase in foreclosures was due in large part to the absurdly loose mortgage underwriting that had been allowed on many approved mortgages prior to the financial panic and the stricter underwriting standards that have since been put temporarily into place. Reporters have had a field day describing the various loans that had become popular: liar loans, where the applicant made up a figure for income without verification; zero-down loans, where the applicant did not have to provide any money in order to purchase a home; option ARMs, where the borrower was able to choose the payments they would make each month even if the size of the outstanding mortgage kept increasing; and other variations of these types of loans.[13]

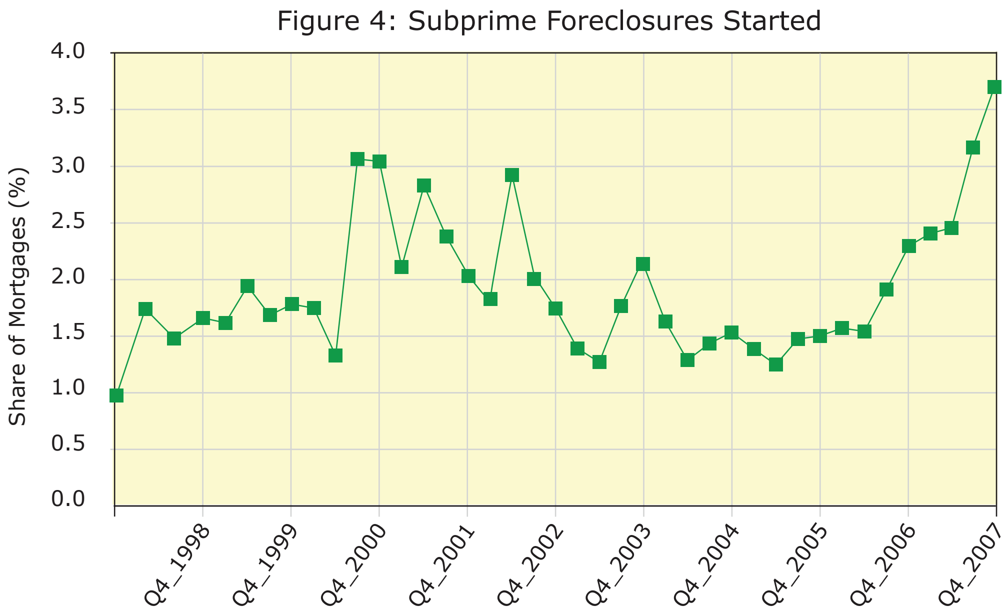
Of course, relaxed lending standards, or underwriting innovations as it is euphemistically put, were so successful that standards were loosened across the board so that even a prime loan applicant could avoid making virtually any down payment by taking out a piggyback second mortgage to cover the down payment required by the first mortgage (often both mortgages were made by the same lender).

In spite of the abundant evidence of all the various successful attempts to relax underwriting standards, almost no one wants to blame those relaxed standards for what has happened. Instead, almost all the blame is focused on subprime lenders who happen to specialize in loans that use relaxed lending standards. Unscrupulous subprime lenders, we are told, are the guilty parties responsible for financial calamity at both the macro level and the personal level. They are financial vampires, sucking the lifeblood from hypnotized mortgage applicants who have signed forms giving away their souls.[14] I refer to this as the subprime bogeyman story.

Forgotten in this story is the fact that the increase in subprime lenders helped to fuel the increase in home ownership, which was largely made up of poor and minority applicants. This is exactly what the purpose of the relaxed lending standards was supposed to be.

4. Problems with the Subprime Bogeyman Hypothesis

The bogeyman in the mortgage story is the unethical subprime mortgage broker who seduced unwary applicants out of their hard-earned, sacredly treated assets. This subprime bogeyman charged usurious rates for his mortgages and bamboozled his clients with artificially low teaser rates that allowed them to purchase homes that were unaffordable at realistic interest rates. This character has been pilloried by all manner of politician and pundit. Although a



convenient scapegoat, this character does not actually appear to be responsible for the main part of the mortgage meltdown. This is not to say that there are not lying and cheating mortgage brokers—there are. But every profession, including economics, has its share of liars and cheaters.

There is an important problem with the hypothesis that evil subprime lenders caused the mortgage meltdown. That problem is the fact that *subprime loans did not perform any worse than prime loans.* Let's take a look.

Figure 4 shows Foreclosures Started for subprime loans. Just as for overall mortgages, the increase began in the third quarter of 2006. But this wouldn't be surprising since subprime foreclosures are a large share of all foreclosures. However, while the overall

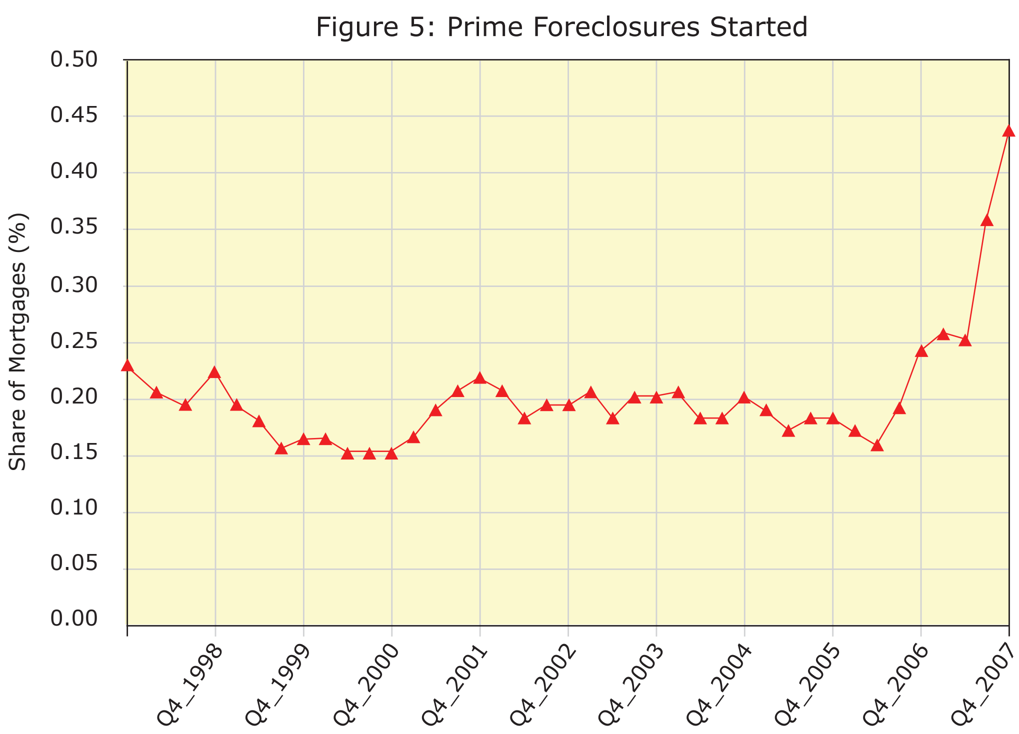


Figure 6: Fixed and Adjustable Subprime Foreclosures Started

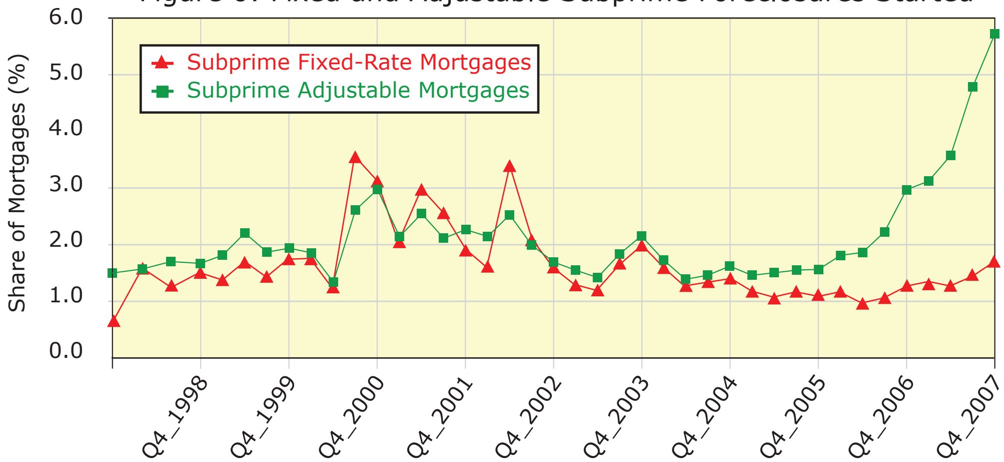
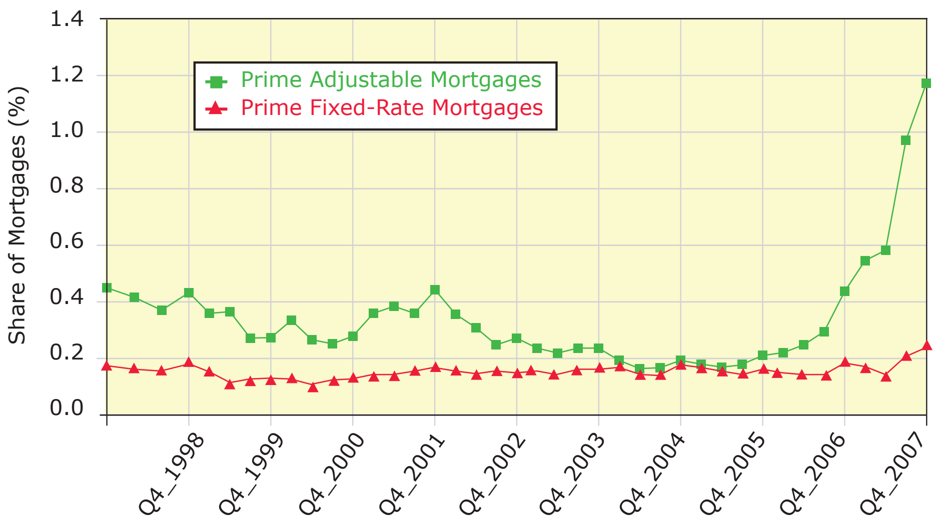


Figure 7: Fixed and Adjustable Prime Foreclosures Started



foreclosure rate was clearly in uncharted territory by the end of 2007, the foreclosure rate of subprime loans, by contrast, is only somewhat above the level that occurred in late 2000 and mid 2002.

It is interesting to compare this to the performance of prime loans, which the media claimed only started suffering from defaults after the problems in the subprime market "seeped" into the prime market.

Prime foreclosures began their increase at the same moment (third quarter of 2006) as subprime foreclosures, as can be seen in figure 5. Further, the prime foreclosure rate went into territory that was far above where it had been in the prior ten years, much more so than was the case for subprime loans. In percentage terms, the increase in foreclosures started from the second quarter of 2006 until the end of 2007 was 39 percent for subprime loans and 69 percent for prime loans.

There is no evidence to support a claim that somehow the subprime market had this unprecedented increase in foreclosures and that later the prime loans accidentally caught the contagion. Both markets were hit at the same time, and the force was at least as strong in the prime market. But this is not to say that foreclosures were not higher in the subprime market. They were. Historically, subprime default rates have been ten times as large as the default rates for prime loans, and that has largely continued through the mortgage meltdown (just compare the numbers on the vertical axes of the figures 4 and 5). That is one reason that subprime loans carry much higher interest rates than prime loans.

It has also been claimed that *adjustable-rate* subprime loans have been hit harder by foreclosures even than fixed-rate subprime loans. This is true. Figure 6 illustrates this fact.

The foreclosures on subprime adjustable-rate mortgages track closely with the foreclosures on subprime fixed-rate mortgages until 2005, at which point they begin to sharply diverge. Foreclosures on subprime *adjustable* loans began to increase in late 2005 and had increased by almost 300 percent by the end of 2007 (almost 200 percent from the second quarter of 2006). Fixed subprime loans, by contrast, also had defaults rise from mid 2006 until mid 2007 (by almost 80 percent), but the foreclosure rate at the end of 2007 was considerably lower than it had been in previous years, such as 2000–2002 or the end of 2003.

The prime adjustable-rate mortgage foreclosures, pre 2005, do not track quite as closely with the prime fixed-rate mortgage foreclosures, unlike the close tracking of the two types of subprime loans. Figure 7 shows the two series. Prime adjustable-rate mortgages routinely had higher default rates than prime fixed-rate mortgages for the first six years of data, and then the two briefly coalesce from 2004 through 2005 before diverging sharply again in 2006. As was the case for subprime loans, however, when prime foreclosure rates diverge, the *adjustable* prime foreclosure rate skyrockets.

Prime fixed-rate mortgage foreclosures went up by 54 percent from the second quarter of 2006 until the end of 2007, which is not a small number, but visually the increase doesn't appear to be much because it is so dwarfed by the adjustable-rate mortgages. Fixed-rate prime defaults are also at all-time highs by the end of 2007, but not by much. This result is completely overshadowed, however, by the increased default rates of adjustable-rate prime loans, which increase by almost 400 percent over the same period and which reached levels unlike anything in the previous decade. Again, adjustable-rate prime mortgages are hit as hard or harder than the adjustable-rate subprime mortgages.

The main facts standing in the way of the subprime bogeyman theory is that adjustable-rate prime mortgages had a larger percentage increase in default rates than did the subprime market and that overall there was very little difference between the prime market and the subprime market.

Since the subprime bogeyman, by definition, does not inhabit the prime mortgage territory, this theory is then at odds with the performance that has actually taken place in the mortgage markets. Why would mortgage defaults increase so greatly in the prime adjustable-rate market where there was no bogeyman at work? Prime mortgage brokers do not charge usurious rates. They presumably do not face witless clients across the desk that can be easily bamboozled.

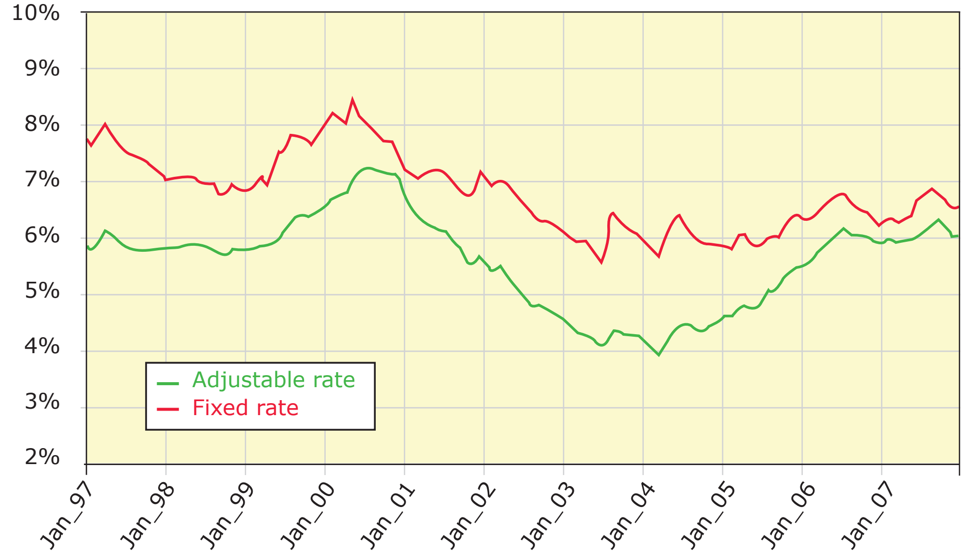
The subprime bogeyman story requires that only subprime mortgages perform badly relative to prime mortgages. They did not. Nevertheless, this story was so strongly believed that it probably explains why most news stories failed to properly note that the rise in prime defaults was occurring at exactly the same time as in the subprime market and instead intoned that the subprime market problem was "leaking" into the prime market.

5. Interpreting These Results

So, if there is no subprime bogeyman on whom the mortgage meltdown can be blamed, what's a politician to do?

Before answering that, it is worthwhile to think about why it might be that adjustable-rate mortgages performed so much worse than fixed-rate mortgages. The story that is popular about poor performing adjustable-rate subprime mortgages was that bogeyman mortgage brokers led the subprime customers to purchase homes they could not afford because

Figure 8: Fixed and Adjustable Mortgage Rates



their initial lower rates would help them qualify for such a house. What adjustable-rate mortgages do, of course, is to provide lower interest rates initially, at the risk of rates rising later, although they also may fall later.

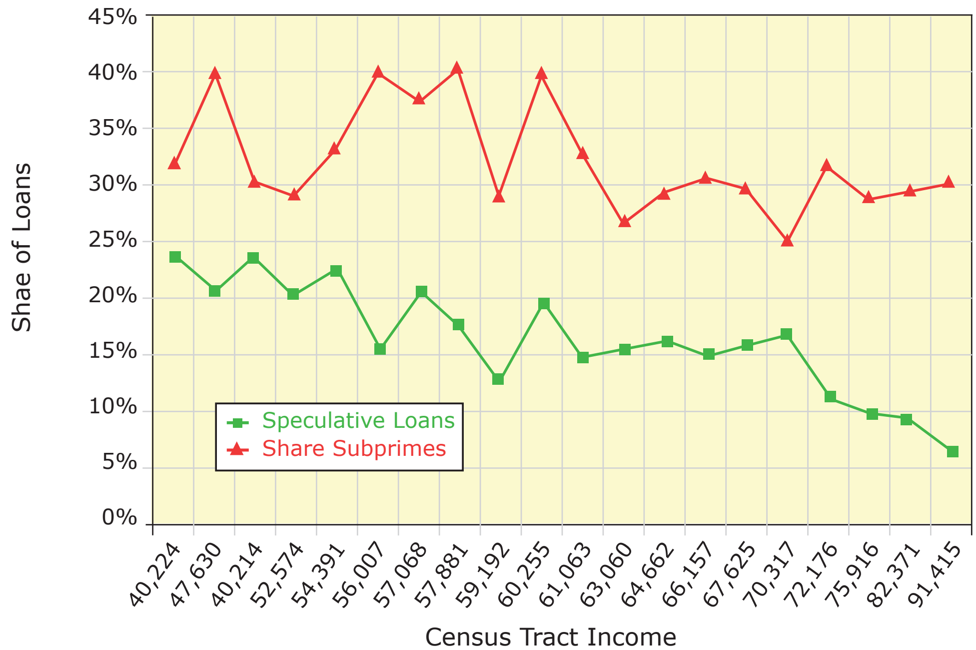
Figure 6 (Fixed-Rate and Adjustable-Rate Subprime Foreclosures Started) makes it clear, however, that adjustable-rate subprime mortgages did not have higher defaults in prior years than did fixed-rate subprime mortgages. This then shows another weakness in the bogeyman theory. Why would subprime customers be less susceptible to being bamboozled prior to 2005?

Actually, customers should have been more likely to be bamboozled prior to 2005. Figure 2 (Yearly Home Ownership Rates, 1970–2007) shows that new homeowners entered the market in great numbers from 1994 until 2005. Because this increase had come to an end by 2006, applicants truly unfamiliar with the mortgage process should have been less common in 2006 than had been the case in prior years. If these naïfs were steered to adjustable-rate mortgages, we should have seen the higher defaults for adjustable-rate mortgages prior to 2005.

Left out of the story so far is the impact of interest rates. After all, if interest rates increased then adjustable-rate mortgage (ARM) payments would ratchet up when they adjusted and some defaults would be likely to ensue. The timing of when the original rate adjusts in an ARM varies from one loan to another. The adjustment period for common adjustable-rate mortgages can change within a year, or after three or five years, or at any time for option-adjustable mortgages.

Figure 8 provides a short history of both adjustable and fixed rates for mortgages.[15] The first notable feature is that adjustable mortgages always have lower interest rates than fixed mortgages. This is for the simple reason that otherwise no borrower would ever prefer an adjustable-rate mortgage. Banks can offer adjustable mortgages at lower rates since such mortgages reduce their risk. Thirty-year mortgages are commitments to receive a fixed payment for thirty years. If high inflation (and high short-term interest rates) occurs in the intervening years, the bank would take a loss since the payments they receive from these mortgages do not rise with inflation. If interest rates fall, you might think that the bank would benefit in a symmetrical way, thus evening things out, but that is not the case since the mortgagee can refinance at a lower rate, depriving the bank of the gain. Since adjustable-rate mort-

Figure 9: Share of Speculative and Subprime Loans by Census Tract Income



gages change with the market, the bank is not stuck on the wrong side of an asymmetrical contract, and thus banks are willing to accept lower interest rates in return.

The other major feature of figure 8 is the drop in mortgage rates from mid 2000 until the beginning of 2004 followed by an increase in adjustable mortgage rates until mid 2006 (rates on fixed-rate mortgages remained relatively constant).

There is some evidence here that is consistent with a claim that higher interest rates in 2006 and 2007 might have led to defaults for mortgages adjusting in those years since the new interest rates would be higher than the old if the original rate were set in 2003 or 2004. Note, however, that a somewhat smaller but still substantial increase in interest rates occurred during 1999 and through mid 2000, yet it had a very unclear impact on defaults. For subprime loans, defaults on adjustable-rate mortgages rose substantially in 1999 and remained high in 2000. The problem with attributing this to the increase in interest rates is that defaults for fixed-rate subprime mortgages exhibited virtually identical behavior, indicating that something other than the higher interest rates was responsible for the increase in mortgage defaults. For prime mortgages in 1999 and 2000, defaults reached a nadir in 1999, and although they did increase in 2000, this just brought them back to 1998 levels when the interest rates were not increasing. Since increases in interest rates at that time did not lead to much of an increase in foreclosures, it seems unlikely that the very large recent increase in defaults is due to increased interest rates.

It is also worthwhile to remember that much of the world, such as Canada, operates with only adjustable-rate mortgages and you do not see massive defaults every time interest rates rise.

Which brings us back to the question: why did default rates rise so rapidly for adjustable-rate mortgages but nowhere as quickly for fixed-rate mortgages? Higher interest rates seem unlikely to account for more than a small part of the increase in defaults. Declines in house prices, or more precisely, the ending of the price rise should have impacted both fixed-rate and adjustable-rate mortgages equally, if the population of homeowners was similar for the two types of loans since either group is as likely as the other to be underwater when home prices fall.

One possibility for the remarkable increase in defaults on adjustable-rate mortgages is that adjustable-rate mortgages drew a very different type of home buyer than did fixed-rate mortgages. Fixed-rate mortgages, since they charge higher interest rates, make sense for people who plan to stay in their homes for several years and who do not want to risk the possibility of rates increasing. Adjustable-rate mortgages, on the other hand, are most attractive for people who intend to stay in a home for only a short period of time if at all. Such buyers get the lower interest rate without the worry about interest rates rising in the future, since they do not intend to own the home long enough for the rates to reset.

One type of home purchaser that would be particularly attracted to adjustable-rate mortgages is the speculative buyer. These would be people not expecting to stay in their house very long. One subtype in this genre is a *flipper,* as seen on several television shows. House flippers are people who intend to make some alterations to a house and then sell it at a profit. Another type of person looking for a short-term gain can be called an *ATMer.* These are individuals or families who like to use the appreciation of a house as a personal ATM. Often, members of this latter group try to move up to larger houses so that the appreciation would be greater (assuming there would be appreciation). Sometimes someone in this latter group will purchase a second house to rent out as they wait for it to appreciate. Because of the unprecedented rise in house prices on the upside of the housing bubble, house speculation was a very successful activity drawing many new individuals into it.

Flippers never intend to hold the houses that they work on for very long and do not live in the house. ATMers often do not plan to stay in a house very long and sometimes do not live in the house. Such buyers would prefer a mortgage with the lowest possible rate, even just a teaser rate, since they plan to be out of the house before the rate resets. Since it would never make sense for these types of house buyers to get fixed-rate loans, their foreclosures will show up in the adjustable mortgages, whether prime or subprime. That is consistent with the fact that prime and subprime adjustable-rate mortgages each experienced enormous increases in defaults the minute that housing prices stopped rising. The foreclosures could easily be due to speculators being unable to profit from the property and thus just defaulting instead.

How many such speculative home buyers are there? According to the National Association of Realtors, speculative home purchases amounted to 28 percent of all sales in 2005 and 22 percent in 2006.[16] These numbers are large enough that if only a minority of speculators defaulted when housing prices stopped increasing, it could have explained all or most of the entire increase in foreclosures started. Although it is unlikely that speculators are responsible for the entire increase in foreclosures, the fact that foreclosures are very high where speculation was rampant (Florida, Las Vegas, and California) further strengthens this hypothesis. The alternative bogeyman explanation does not seem to explain why foreclosures are so high in these locations.

The type of speculation described here might sound like a middle- or upper-class activity. In fact, the areas where this type of speculation seems most common are lower-income areas. The lower line in figure 9 reveals that areas with low incomes have a larger share of homes bought speculatively. The measure of speculation is the share of mortgages made to people not planning to make the house being purchased their primary residence. The data come from the 2006 HMDA. This particular measure of speculation is actually biased against such a finding because it includes vacation homes as short-term speculative purchases (which they are not since people buying vacation homes plan to own them a long time), and vacation homes tend to be in higher priced neighborhoods.

Indeed, speculation is more strongly negatively related to income in a census tract than is subprime mortgage origination (where subprime is defined as mortgages with above-normal interest rates), which is the upper line in figure 9. The point of this comparison is to show that speculation is more strongly related to an area's income than is subprime lending. Indeed, speculation occurs at more than twice the rate in low-income areas than in wealthier areas.

Although this evidence supports a view that the increase in foreclosures is mainly due to speculators, it is not a direct test. Whether speculators are responsible for most of the dramatic increase in defaults can be, in principle, more directly tested. Since speculators are less likely to live in the homes they purchase than are ordinary purchasers, a direct test would be to examine whether homes that are defaulting also have lower occupancy-by-owner rates than typical homes. In particular, how much of the increase in foreclosures would seem to be due to owners who did not occupy the house? This, unfortunately, would require data of finer granularity than found in typical data sets, and whether such data even exist is unknown to me.

A second and weaker approach would be to examine the share of homes that are purchased to be lived in for both fixed- and adjustable-rate mortgages and see whether the population of homes that are not occupied by the owner has a higher percentage of adjustable-rate mortgages than owner-occupied homes. This would be less definitive as a test, but it would at least examine whether my suggestion that speculative purchasers take primarily adjustable-rate mortgages is correct. Such data probably exist, but I do not have access to it.

6. Conclusions

We are experiencing one of the worst financial panics in the post-WWII era. Everyone knows that the increase in mortgage defaults has been the primary driver for these financial difficulties. The mortgages with outrageously lax underwriting standards that have been justifiably ridiculed in the press are not unusual outliers but unfortunately are representative of a great many mortgages that have been made in the last few years.

The question that is being asked is the correct question: how did it come about that our financial system allowed such loans to be made, condoned such loans, and even celebrated such loans? The answers that are being given are not yet the correct ones, however. The main answer that is being given, that unscrupulous lenders were taking advantage of poorly informed borrowers, does not fit the evidence nor does it dig deep enough.

The "mortgage innovations" that are largely the federal government's responsibility are almost completely ignored. These "innovations," heralded as such by regulators, politicians, GSEs, and academics, are the true culprits responsible for the mortgage meltdown. Without these innovations we would not have seen prime mortgages made with zero down payments, which is what happens when individuals use a second mortgage to cover the down payment of their first. Nor would we have seen "liar loans" where the applicant was allowed to make up an income number, unless the applicant was putting up an enormous down payment, which was the perfectly reasonable historical usage of no-doc loans (which require minimal financial documentation).

The political housing establishment, by which I mean the federal government and all the agencies involved with regulating housing and mortgages, is proud of its mortgage innovations because they increased home ownership. The housing establishment refuses, however, to take the blame for the flip side of its focus on increasing home ownership—first, the bubble in home prices caused by lowering underwriting standards and then the bursting of the bubble with the almost catastrophic consequences to the economy as a whole and the financial difficulties being faced by some of the very homeowners the housing establishment claims to be trying to benefit.

The evidence on foreclosures is consistent with an overall loosening of underwriting standards, as I described earlier, not with the subprime bogeyman story being put forward by the housing establishment and its pliant political supporters.

The key facts are that both subprime and prime loans had large increases in foreclosures at the same time. The subprime vulture hypothesis just does not fit the evidence. The main driver of foreclosures was adjustable-rate loans, both prime and subprime. Therefore, any understanding of the current crisis must account for this fact. The subprime bogeyman theory does not.

The hypothesis that currently seems to best fit with the evidence suggests that housing speculators were taking out many loans with the hope of a quick and profitable turnover. These housing speculators did not much care about the terms of their mortgages because they didn't expect to be making payments for very long. But it is clear why they would prefer adjustable-rate mortgages. The hypothesis also is consistent with speculators often lying about their income on their loan applications and taking out teaser rates so they would qualify for larger loans, so they could make a bigger bet on housing. Under this hypothesis borrowers are adults, not witless pawns.

When the housing bubble stopped growing, according to this hypothesis, these speculators turned and ran. The investors who lent money to these speculators are left holding the mortgage-debt bag. The size of the mortgage-debt bag was so massive that fear of being left holding it brought the financial system to its knees.

But let's not blame the speculators here. There is nothing wrong with speculation or speculators. At fault is a mortgage system run by flexible underwriting standards, which allowed these speculators to make bets on the housing market with other people's money. It was a system that invited the applicant to lie about income. It was a system that induced applicants to watch a video instead of providing solid evidence about their financial condition.

Even that would not be so bad if the people making the money available were aware of its use and knew that they would have recourse to getting their money back. But the money for the speculation was made available by lenders who believed the housing and regulatory establishment when this housing and regulatory establishment said that such loans were safe. Since the housing and regulatory establishment consisted of mighty government agencies and highly educated academics, it was not unreasonable for the lenders to assume that the claims made for flexible underwriting standards were correct. Unfortunately, the claims were not correct although most of the housing and regulatory establishment continue to argue otherwise.

Hindsight is the best sight, they say. Unfortunately, the housing establishment and our political leaders seem intent on not learning from the past. Hopefully this report can help move the debate in a direction that will allow for more productive learning.

Notes

1. Including academic winds. The article (Munnell et al, 1996) was published in the *American Economic Review*, and the editor presumably felt strongly enough about the political conclusions that he refused to run any comments on the article. Further, he allowed the Boston Fed authors to malign the work of one of their critics, David Horne, by alleging that he could not reproduce certain of his results, which Horne denied. I believe Horne.
2. All quotes were taken from Paulette Thomas, "Boston Fed Finds Racial Discrimination in Mortgage Lending Is Still Widespread," *Wall Street Journal* (October 9, 1992): A3.
3. It was actually called "{Closing the Gap:} A Guide to Equal Opportunity Lending." There were no authors listed, but Susan E. Rodburg and Richard C. Walker III were listed as project coordinators. Available at http://www.bos.frb.org/commdev/commaff/closingt.pdf.
4. This is true regardless of whether the counseling is at the individual level, based on classroom "education" or conducted over the telephone. See Spader and Quercia (2008).
5. Both of these stories are reported at http://www.minorityprofessionalnetwork.com/News/Countrywide.htm.
6. See http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/06–08–2005/0003824590&EDATE=.
7. "Case Study: Countrywide Home Loans, Inc." Fannie Mae Foundation (2000). http://www.fanniemaefoundation.org/programs/pdf/rep_newmortmkts_countrywide.pdf.
8. Dale Westhoff. "Packaging CRA Loans into Securities." Mortgage Banking (May 1 1998). http://www.allbusiness.com/personal-finance/real-estate-mortgage-loans/677967–1.html.
9. Lucchetti, Aaron, and Serena Ng. "Credit and Blame: How Rating Firms' Calls Fueled Subprime Mess—Benign View of Loans Helped Create Bonds, Led to More Lending." *Wall Street Journal* (August 15, 2007).
10. For a recent and careful analysis showing that LTV is the key factor leading to foreclosures, see Gerardi et al. (2007).
11. "The Rise in Homeownership." *Federal Reserve Bank of San Francisco Economic Letter Number 2006–30* (November 3, 2006). http://www.frbsf.org/publications/economics/letter/2006/e12006–30.html.
12. All statistics on foreclosures come from the Mortgage Banker Association. There are several measures of delinquency and default. The measure chosen for the charts here is "foreclosures started," which differs from foreclosure inventory, which was not chosen since the latter depends on more than just what is happening in the most recent quarter, meaning that how quickly or how slowly homes leave foreclosure also impacts the inventory.
13. An exquisite personal story illustrating these points involves one Dien Truong from Richmond, California, a thirty-five-year-old water deliveryman who refinanced his home with an option adjustable-rate mortgage for $628,000, from which he promptly removed $156,000 to purchase a second house. On his loan application he and his wife claimed to make more than twice as much income as they actually earned. His loan balance on the first mortgage, since he had opted to pay less than the interest payment on the mortgage, is now $690,000, and he cannot make his monthly payments. Says Mr. Truong, "I've been a good customer . . . This time my credit will be screwed up for good." See Simon, Ruth, "FirstFed Grapples with Payment-Option Mortgages." *Wall Street Journal* (August 6, 2008).
14. I apologize for mixing metaphors.
15. These data come from HSH Associates. It is a quite imperfect measure since it is an amalgam of slightly different mortgages (points and so forth) mixed together to come up with an average rate. The data can be found at http://www.hsh.com/mtghst.html.
16. See "Vacation-Home Sales Rise to Record, Investment Sales Plummet in 2006." National Association of Realtors. (April 30, 2007). http://www.realtor.org/press_room/news_releases/2007/phsi_apr07_vacation_home_sales_rise.

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