

The Rich Stay Richer: The Effects of the Financial Crisis on Household Well-being, 2007-2009*

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Abstract

The 2007-2009 financial crisis initially appeared to have destroyed a huge amount of wealth in the U.S. Housing prices dropped about 21% across the country and as much as 50% in some places and the stock market dropped by nearly 50% as well. This paper examines how the financial crisis differentially affected households at different parts of the income and wealth distributions. Our results show that all households lost about the same percentage of their wealth in that period. But because households in the top 10% of the wealth distribution owned many different kinds of assets, their wealth soon recovered. The bottom 80% of the wealth distribution had more of their wealth tied up in housing. We show that financial distress, indexed by foreclosures, being behind in mortgage payments, and changes in house prices were particularly concentrated in households in the bottom 80% of the wealth distribution. These households lost a large part of their wealth and have not yet recovered. Households that were most deeply affected were those who entered the housing market late and took out subprime loans. African-American and Latino households were particularly susceptible as they were bought houses late in the price bubble often with subprime loans.

Introduction

Income and wealth inequality have increased for the past 30 years in the U.S. economy (Atkinson, Picketty and Saenz, 2012). In the past decade, both income and wealth inequality have reached levels not seen since the early part of the 20th century (Picketty, 2014). This paper takes up the issue of how the Great Recession of 2007-2010 affected household wealth. For the bottom 80% of the wealth distribution, the largest part of their wealth was contained in the equity in their houses. Since the 2007-2009 recession was almost entirely a product of the collapse of the house price bubble, our question is which households in the wealth distribution were the most vulnerable to this downturn and how did they fare in the course of the crash?

House prices fell almost 21% nationwide and in some housing markets, they fell almost 50% (Fligstein and Goldstein, 2010). During the recession, the stock market lost over 50% of its value as well, but by the end of 2009 had recovered substantially and the loss stood at about 23% (see Figure 2). At first glance, one would suggest that this decrease in asset values should have produced the largest decline for the wealthiest households. After all, they had the most to lose as they own the most expensive houses and are much more likely to have large investments in the stock market.

Surprisingly, the empirical literature has drawn a very different conclusion. The share of overall income going to the top 10% rose significantly after 2009 and the share of wealth going to the top 10% of rose significantly between 2007-2010. Results from the Survey of Consumer Finances and the Panel Study of Income Dynamics have shown that lower income and lower wealth families suffered greater losses in wealth as a percentage of their overall wealth (Wolff, 2012; Bricker, et. al., 2012; Grinstein-Weiss and Key, 2013; Bosworth, 2012; see the papers in Grusky, 2012) during the Great Recession. Unlike, the top 10% of the wealth distribution, they

have not recovered that wealth. African American and Latino households were the most severely affected by the housing crash (Rugh and Massey, 2010; Wolff, 2012). On average, they lost almost half of their net worth (Bricker, et. al, 2012) and of course, they had much lower rates of home ownership and wealth to begin with.

What the literature fails to understand, is why the less well-off and racial and ethnic minorities were more likely to have been targeted for these mortgages by banks and other financial institutions. There has been little attempt to connect the actions of financial institutions to who the losers were. We show how the supply side of the market developed from 2001 to 2007 as financial institutions expanded their offerings of nonconventional mortgages affected the demand side, those households who took out nonconventional mortgages.¹ From 2001 until 2004, most of the action in the housing market was a refinancing boom whereby huge numbers of American households were able to get new conventional mortgages at much lower interest rates. Many of these households also took equity out of their homes to fund home improvements and living expenses (Fligstein and Goldstein, forthcoming; Davis, 2010). But beginning in 2004, a large number of the mortgages that could be refinanced had been refinanced. This left financial institutions that were in the mortgage business faced with the need to either cut back their businesses or find new markets to serve. Fligstein and Goldstein (2010) provide evidence that banks went out aggressively into the nonconventional mortgage market to make up for the slow growth in their business. This kept the housing market hot and prices continued to rise across the country.

The growth of the nonconventional market had the unintended effect of providing credit for households who had less access to credit. This meant that less well-off households, middle

¹ Nonconventional mortgages include jumbo loans, home equity loans, Alt-A, adjustable rate mortgages, interest only mortgages, and subprime loans. We will describe the differences in these loans later in the paper.

class households living in expensive areas, minority households were the most likely to buy their homes at or near the peak of the price bubble and with nonconventional and frequently subprime mortgages that typically had higher interest rates and thus, higher payments. African-American and Hispanic households have been documented to have been disproportionately amongst those who came late to the housing market and who were the most likely to have been given subprime mortgages. (Niedt and Martin, 2013; Hyra, et. al. 2014; Kuebler and Rugh, 2013; Rugh and Massey, 2013). When the housing crash came, these households had less capital to begin with and found their houses worth less than their mortgages (a condition that is described as “being underwater”).

Many of them fell behind in their house payments and they were the most frequent households to experience foreclosure (Mian and Sufi, 2009; Gerardi, et. al., 2008). This meant that many of them lost their homes, their equity, and much of their wealth (Wolff, 2012). This was particularly true for African American and Hispanic households (Wolff, 2012; Kuebler and Rugh, 2013). They never recovered because the main asset they had that might accumulate value, their house, was gone. Wealthier households were able to keep up their house payments, hold onto their houses, and as house values have gone up, they have seen their wealth restored. At the top of the wealth distribution, the top 10%, much wealth was also tied up in the stock market. When that market began to recover in the middle of 2009 and has continued to go up subsequently, their assets increased. Thus, the more well off saw their share of wealth rise and the less well off, many of whom had lost their houses, floundered.

This paper has the following structure. First, we review the literature on what we know about household income and wealth and its changes before and after the Great Recession. Then we provide more detail for how households in the bottom part of the income and wealth

distributions came into the mortgage market from 2001-2007. This will allow us to produce a set of hypotheses about how the Great Recession differentially affected the wealth of various groups. Finally, we use the Survey of Consumer Finances Panel Study from 2007-2009 to examine in some detail what happened to the finances of households at various parts of the income distribution. We model who is likely to be foreclosed, fall behind in their payments, and find themselves owing more than their homes are worth. We also look at who lost the most equity in their homes. We show this is consistent with our story about how poorer and minority households were late to the housing bubble party. We end by discussing the implications of our results for thinking about wealth and income inequality going forward.

What do we know?

It is useful to review some of what we know about what happened to income and wealth inequality before and after the Great Recession. Figure 1 presents data on changes in income inequality in the past 30 years. The top 10% of the income distribution took about 33% of income in the U.S. in 1980. That share rose steadily to 48% in 2013. Most of the increase was accounted for by the top 1% of the income distribution whose share increased from 8% to 20% (Atkinson, et.al. 2014). During the period of the housing bubble, 2001-2007, the income share of the top 10% increased about 2% but almost all of that went to the top 1% of the income distribution (Atkinson, et. al., 2014). While the share of income going to the top 10% stopped rising from 2007-2009, it has risen thereafter and now stands at about 48%. One can conclude that the rich measured in income (mostly the top 1% of the income distribution) got richer during the housing bubble and its collapse only briefly slowed their continued growth in income.

Indeed, after the Great Recession, the share going to the top 10% increased 3% for a gain of over \$400 billion compared to everyone else.²

(Figure 1 about here)

The story with the wealth distribution is even more extreme (Wolff, 2012). In 1983, the top 10% of the wealth distribution had 68.2% of the wealth with the top 1% holding 33.8% of the wealth (2012: Table 2). In 2007, the share of the 1% had risen to 34.6% and the share of the top 10% was 73.1%. In 2007, the total net worth in the U.S. was \$20,998.2 trillion (U.S. Bureau of Economic Analysis, 2014). Thus 1% of that wealth was about \$210 billion. By 2010, the top 10% of the wealth distribution held 76.7% of the wealth and the share of the top 1% had risen to 35.4%. This shows that the main effect of the financial crisis was to increase the concentration of wealth substantially. This 3.6% translates into roughly a \$735 billion gain for the top 10% of the wealth distribution from 2007 to 2010 the peak years of the crisis.

What is interesting for our purposes is why this increase occurred and what exactly happened during the financial crisis to skew wealth so much in such a short period of time. Obviously, the composition of assets by different parts of the wealth distribution and their varying susceptibility to downturns in the housing market must be a big part of the story. Using the Survey of Consumer Finances, Wolff shows that in 1998, 29% of all of the wealth in the country was in personal residences with an additional 10% in other real estate (2012: Table 5) for a total of 39% of all wealth being in real estate. In 2007, right before the crash, 32.8% of all wealth was in residential real estate with another 11.3% in other real estate for a total of 44.1% of wealth. In 9 years, real estate increased its share of all wealth in the U.S. by 5.1%. In 2010, after the crash, residential real estate still accounted for 31.3% of wealth, other real estate 11.8%,

² At the end of 2007, personal income totaled 13.72 trillion and a 1% change would be \$137.2 billion (U.S. Bureau of Economic Analysis, 2014).

for a total of 43.1%. Even after the crash, real estate continued to be the single largest source of wealth in the U.S.

In 2010, Wolff shows that real estate makes up 9.4% of the wealth of the top 1% of the income distribution, 30.1% for the next 19% of the distribution, and 66.6% for the 20-80% of the wealth distribution (2012: Table 6). For the wealthiest 1% of Americans, 50.3% of their wealth is in their businesses and another 33.2% is in pensions and stocks. For the next 19%, 25.6% is in businesses and 35.4% is in pensions and stock. For the middle of the wealth distribution, the 20-80% percentile, only 8.9% is in businesses and 17.3% in pensions and the stocks. Because houses were the main source of wealth for most of the population, the dramatic drop in housing prices could have had a much more serious effect on total wealth of the middle and lower middle classes in America than the upper middle class (80-99%) and the 1%.

(Figure 2 about here)

But it is here that the story suggests that this was not the main mechanism by which wealth inequality worsened. Figure 2 presents data from the Case-Schiller index of house prices. It shows that housing prices began to increase on a year to year basis in 1996 and peaked in 2005. They dropped slowly at first and then more dramatically in 2007-2009. But, house prices have subsequently recovered and since 2009, and they have increased on a year to year basis. To get a sense of what happened, Figure 3 shows that median house prices peaked in 2005 when they median prices for existing homes increased from \$160,000 to almost \$260,000 while new home prices increased from \$140,000 to \$230,000 from 2000, an increase of over 70% in five years.

(Figure 3 about here)

From 2005-2009, existing home prices dropped from almost \$260,000 to \$210,000 and prices for new homes decreased from \$230,000 to \$170,000, a decrease of around 25%. Since 2009, prices have increased. Existing homes now sell for a median price of \$275,800, above their highest level during the bubble. New homes are selling for \$201,700, not far from their peak. A similar story can be told about the other major source of assets for most Americans, shares in stocks or mutual funds that are either invested by individuals or through pension funds. Figure 4 shows the Dow Jones Industrial Average reached its peak in October of 2007, when it hit 14,164. It dropped over the next two years and it bottomed out at 6,547 in August 2009. By the end of 2009, the stock market had risen to 10,750 and by the end of 2010, 11,750. Recently it has risen to over 16,750. The stock market dropped over 52% from 2007 until 2009. But it finished 2009 at only 23% down from its peak. By June of 2013, it had recovered all it had lost and climbed above its 2007 peak.

(Figure 4 about here)

This suggests that if people were able to hold onto their assets, they should have been able to weather the recession and by now have recovered much of their household wealth. Thus, the increase in wealth of the top 10% of the wealth distribution during the recession cannot be explained by the differential effects of the bursting of the bubble. Why did the bottom 90% of the wealth distribution not recover their shares of national wealth and indeed lost ground to the top 10% even as asset values began to recover? It is this puzzle that we seek to explore in the rest of the paper.

Much of the explanation lies in the fact that the greatest destruction of wealth for the bottom 90% of the wealth distribution was through foreclosures. Because so much of their wealth was tied up in housing, the loss of a house meant the loss of most of their wealth (Wolff,

2012). These households were never able to recover their previous wealth levels when house prices began to rise in 2009. This means that the top 10% did so much as gain wealth as the bottom 90% saw their wealth destroyed.

(Figure 5 about here)

We can observe this process by considering what happened to home ownership rates during the Great Recession. The home ownership rate in 1995 was about 64% (U.S. Census Bureau, 2014). At the peak of the real estate bubble in 2005, it had risen to 69.1%. The unwinding of the housing bubble has pushed this back down to 64.8%. While some of this decrease can be accounted for by people cashing out and selling their homes and moving into apartments, most of it was related to foreclosures. Figure 5 shows the number of foreclosures per year from 2005 until 2012. We can see that over 13 million households were foreclosed in the 2007 to 2012 period. In the peak years of the foreclosures, 2009-2010, almost 3 million households were foreclosed in each year.

The Banks and the Housing Bubble 1995-2009

The literature in sociology on foreclosures has focused mostly on the characteristics of those who were foreclosed (Rugh and Massey, 2010; Hyra, et. al, 2013; Niedt and Martin, 2013; Kuebler and Rugh, 2013). This literature has argued that the less well-off, and particularly racial and ethnic minorities, were targeted for subprime loans. What the literature fails to understand is why this happened. In order to make sense of who was the most susceptible to being at risk of getting a subprime mortgage, our argument draws on the literature in economic sociology that

examines the role of financial institutions in creating and taking advantage of the house price increases to sell more mortgages.

Between 1995 and 2003, financial institutions were either refinancing mortgages held by people who wanted a lower interest rate or offering mostly conventional mortgages. But in 2003, that market dried up. To keep their mortgage machines going, financial institutions needed to find a new market for their products. They decided to enter into the nonconventional mortgage market with a vengeance. This solution was pioneered by Countrywide Financial, the largest mortgage originator in the country (Fligstein and Goldstein, 2010). In order to find buyers for these mortgages, financial institutions had to systematically seek out communities that by definition had not shared in the housing boom up until that moment (Goetzmann, et. al., 2009; Demyanyk and Van Hemert, 2009)

This meant three things. First, people with less money, worse credit, and less of a chance to accumulate wealth were given the opportunity to borrow large sums of money. This allowed them to buy houses and this is part of what increased the rate of home ownership in the U.S.³ Second, the households that were buying these homes were coming in at the tail end of the rapid price increases that we described in Figure 3. This meant that they were likely to have to go deep into debt to take on the mortgage. Finally, because many of these customers were deemed higher risk, the terms of these mortgages made them more expensive. When house prices began to turn down, the households who came last to the house price increase “party” were the most vulnerable to its ending. They saw their house values drop, frequently below what they owed on the mortgage. They were locked into relatively high interest rate products that they were unable

³ We note that many of the households who entered the market after 2003 had middle class incomes but could not afford to buy houses in high priced areas. Nonconventional mortgages allowed them to enter the housing market. This was especially true in California(Fligstein and Goldstein, 2010).

to refinance. Predictably, people in this position found themselves falling behind in their house payments, and more likely to end up in foreclosure. The overall effect was to destroy whatever equity they had in their homes and thus, they ended up with less wealth. It is useful to elaborate on this argument in more detail.

The market for mortgages in the U.S. increased from \$458 billion in 1990 to nearly \$4 trillion at its peak in 2003. Most of these mortgages were packaged into mortgage backed securities (hereafter, MBS). Figure 6 presents data on total loan originations from 1990-2008. It also breaks down the loan types into various products. The American mortgage market was about \$500 billion in 1990. During the 1990s, it went up to nearly \$1 trillion in 1993, peaked in 1998 at around \$1.5 trillion. In 2000, it stood at \$1 trillion a year. The real surge in the mortgage market began in 2001, the year of the “dotcom” stock market crash. The Federal Reserve dropped interest rates dramatically and this set off a refinancing and house purchasing boom. From 2000-2004, residential originations the U.S. climbed from about \$1 trillion to almost \$4 trillion. About 70% of this rise was accounted for by people refinancing their conventional mortgages at lower interest rates (Fligstein and Goldstein, 2010).

(Figure 6 about here)

After 2003, the major banks' strategies pointed increasingly toward subprime and other non-conventional mortgage segments. Figure 6 highlights the remarkable degree and rapidity with which firms gravitated toward nonprime lending. It is useful to discuss the various kinds of mortgages in order to fully understand the implications of this transformation of the mortgage market. At the bottom of the graph are home loans originated by the Federal Housing Administration (FHA) and the Veteran’s Administration (VA). These were never a large part of

the total originated loans although they did increase slightly after 2001. The largest parts of the market were conventional or “conforming” mortgages. These are fixed interest rate mortgages for people who put down 20% for their house. The loans were mostly securitized into MBS (Fligstein and Goldstein, 2010). We can see that the bulk of the mortgage market from 1990 until 2003 consisted of these two categories of loans.

But beginning in 2003, we begin to see rapid compositional shift toward non-conventional loans. Jumbo loans are used to purchase real estate in expensive markets where households lack the 20% down payment and are charge extra interest for the loan. Home equity loans (hereafter HEL) refer to loans made against the value of the equity in a house. Alt-A and subprime mortgages (sometimes called “B/C” mortgages to denote their lower credit quality) were sold to people with impaired credit history, or people who lacked the ability to make a large down payment, or people who did not have verification of their income. Alt-A is not strictly defined but is category that encompasses borrowers with credit scores to qualify for conventional mortgages but who lack some other qualification.

The term subprime has a set of formal definitions. To qualify for a prime or conventional mortgage, a person needed 20% down payment and a credit score of 660 or above (the average score is 710 on a scale from 450-900). Mortgagees who did not have these qualifications were not eligible for prime or conventional mortgages. Here are some of the conditions that could qualify a mortgagee as subprime: two or more delinquencies in the last 12 months; one or more 60 day delinquencies in the last 24 months; judgment, foreclosure, or repossession in the prior 24 months; bankruptcy in the past 5 years; a credit score less than 660; and debt service to income ratio of 50% or greater (i.e. the monthly payment was more than 40% of the gross income of the household) (Fligstein and Goldstein 2010).

In 2004, for the first time, these four categories of loans exceeded the prime or conventional market. By 2006, fully 70% of all loans that were made were unconventional mortgages. There were two main reasons banks pursued these riskier nonconventional loans so aggressively. The first is, as we have noted, that there were fewer and fewer loans left to make to the saturated conventional market. The second is that subprime origination and securitization turned out to be enormously profitable. According to a study by the consulting firm Mercer Oliver Wyman, nonconventional lending accounted for approximately half of originations in 2005, but over 85% of profits (National Mortgage News 2005). A good deal of research suggests that the cheap interest rates across the country and strong demand from investors who wanted to buy MBS encouraged banks to pump as much credit into housing markets as they could (Mian and Sufi, 2008; Herbert and Apgar, 2010; Fligstein and Goldstein, 2010). Financial institutions could borrow money at around 1-2% and loan it at 5-7%. They then turned around and created securities from mortgages where they earned fees for producing and selling these securities.

After 2003, banks focused their lending on people with less than stellar credit or who lived in areas with expensive housing (Rugh and Massey, 2013; Hyra, et. al., 2013; Niedt and Martin, 2013). They explicitly were looking for less served markets that were near markets where housing was scarce, population was growing, and prices were rising. MBS issuers could attain safer credit ratings for securities by including in them a larger proportion of these less “safe” mortgages from zip codes with high price appreciation since these areas were thought to be less prone to default. Subprime securitization helped inflate prices in already pricey markets. Eleven of the top thirteen subprime metropolitan statistical areas by this metric were located in the boom states of Arizona, California, Florida, and Nevada. Housing markets in these states effectively became linked through the common strategies banks adopted towards them. It is not

surprising then that Arizona, Florida, Nevada, and parts of California turned out to be ground zero of the subprime lending boom, the housing price bubble, and the subsequent foreclosure crisis.

The cause of the meltdown was slowing house appreciation which led to rising mortgage defaults, which in turn led to far larger than expected losses on mortgage-backed securities (Mayer, Pence and Sherlund 2009; Demyanyk and Van Hemert, 2009). Subprime mortgages were at the epicenter of the rising defaults in 2007 because their basic design was predicated on house prices continuing to increase. The rationale for subprime loans was that borrowers with impaired credit could get a loan at a relatively high rate for a few years, build their credit with steady payments, and then refinance at a better rate.

One correlate of this shift was the increasing use of adjustable-rate mortgages (hereafter, ARMs) (Mayer, Pence and Sherlund 2009, p.31). ARMs became popular because lenders could sell more loans by charging less interest initially. Lenders were willing to bet that house prices would continue going up in the short-term, offsetting other credit risks and justifying a somewhat lower initial interest rate. Borrowers could then refinance using accumulated home equity before the mortgage reset to the higher adjustable rate. This incentive to refinance every two years is why approximately two-thirds of subprime originations from 2000-2006 were refinances rather than new purchases.

Once housing prices stopped appreciating, however, the design of subprime loans made them especially prone to default. Borrowers who had been promised they would be able to refinance in two years suddenly found it much more difficult to do so once the downturn spurred lenders to rapidly contract subprime credit availability. Instead of the lower payments that had

been anticipated, borrowers instead faced a reset shock as their monthly payments ballooned to the higher adjustable rate (Demyanyk and Van Hemert 2009). Thus the fact that defaulting subprime loans sparked the financial crisis was due not only to the heightened risk profile of subprime borrowers, but the fact that subprime ARM loans even more than others were built on rising housing prices which could not last.

The final piece of this puzzle was the relatively high rates of these loans that went into minority communities. It is well known that the home ownership rates for African American and Hispanic households have historically trailed White households even holding constant levels of income and education (Conley, 1995; Belsky, 2013; Flippen, 2001; Oliver and Shapiro, 1997; see the review in Pager and Shepard, 2008; Krivo and Kaufman, 2004). In looking for new customers, financial institutions began to realize that people who lived in highly segregated areas were less likely to own their homes and thus be good candidates for mortgages. Moreover, the housing price bubble in many urban areas had created such high house prices that these price increases began to affect lower income neighborhoods. Since those who lived in these neighborhoods tended to have less money to put down, it made them good candidates for nonconventional mortgages, including subprime mortgages. Financial institutions began to target these neighborhoods. As a result, African American and Hispanic households saw large increases in their rate of home ownership (Kuebler and Rugh, 2013). But, when house prices began to drop and subprime mortgages left many households owing more than their homes were worth, many African American and Hispanic households were lost their houses.

Hypotheses

To sum up, It should by now be obvious as to how the changing nature of the mortgage market led to the destruction of wealth for the 20-80% of American households and had particularly large effects on African American and Hispanic households. After 2003, the financial industry needed to keep mortgages flowing in order to continue to make money off of selling mortgages and packing them into MBS. As the market for conventional mortgages dried up, financial institutions pursued mortgages in communities that had previously not been able to buy houses. They systematically looked for places where prices were rising and home ownership rates were low. This brought a flood of people into the markets who were offered the opportunity to build wealth by buying a house. When prices began to fall, the people most vulnerable to losing their homes were those who had bought their houses at the end of the house price boom and nonconventional mortgages predominated.

In order to demonstrate this argument empirically, we consider four dependent variables that index the vulnerability of those with less income and who were more likely to be minorities: whether or not a household was late on payments, whether or not a household found itself owing more on the home than it was worth, whether or not a household experienced a foreclosure, and the amount of loss of equity due to the price downturn. These are all measures of households experiencing difficulties in holding onto their houses.

Hypothesis 1: We expect that households with less income and who are headed by a African American, or Latino to find themselves being late on their home payments, owing more than their home is worth, to be more likely to experience a foreclosure, and to suffer more loss of wealth.

Hypothesis 2: We expect that the effects of these variables will be mediated by whether or not the mortgages were subprime, were purchased during the peak of the housing price bubble, or reflected taking out home equity loans during the bubble. We expect that these factors will explain who is behind in their payments, who owe more than their house is worth, who experiences foreclosure, and who has lost the most equity in their home.

Data and Methods

In order to evaluate these hypotheses, we need to analyze data over time that documents the socioeconomic characteristics of households, but also detail on their financial situations, in particular, detail on mortgages and how they fared during the Great Recession. The U.S. Federal Reserve Bank conducts a survey called the Survey of Consumer Finance (hereafter, SCF) every three years as a cross-sectional survey. The 2007 wave provided detailed information on all aspects of household finances. For example, the survey collected details for up to three mortgages (in addition to home-equity lines of credit) on a primary residence, with questions on all aspects of the mortgage terms.

Because of the financial crisis, the Federal Reserve decided to follow-up with the same respondents in 2009 in order to gather data on how the Great Recession would differentially affect households. The 2009 SCF follow-up interview focused on a smaller set of variables that were most useful for understanding the nature of the changes experienced by families during the financial crisis. To maximize comparability of data between the original and follow-up interviews, the 2009 questionnaire maintained as much as possible the ordering and systematic framing of concepts in the 2007 questionnaire. As a consequence of the panel questionnaire

design, it is possible to construct parallel estimates for all of the most important aspects of wealth in both 2007 and 2009.

The SCF employs a dual-frame sample design, including a multi-stage area-probability sample. The list sample is selected from statistical records that are derived from individual income tax returns by the Statistics of Income (SOI) Division of the Internal Revenue Service. The list sample oversamples households that have high income in order to insure that there is data on the behavior of people in the top 10% of the wealth distribution. The 2009 wave was interviewed from July 1, 2009 until January 1, 2010. Almost 89 percent of the eligible 2007 SCF participants had been re-interviewed, and the panel response rate based on the eligible cases was at least 87 percent in every sample group (U.S. Federal Reserve, 2010.)

The upside of using the SCF is that it is the gold standard used to study the financial situations of households. The re-interview of the 2007 respondents affords researcher with an important opportunity to track out the effects of the Great Recession at the household level. The downside of the SCF is that it was started in mid-2009 at the bottom of both the stock and housing markets and completed in 2009 as both markets began to recover. As we have shown, foreclosures are very high for 2010-2012. Thus, by using the 2007-2009 panel we have truncated the possibility that households in the bottom 90% of the income distribution would have experienced even more financial distress with their houses and are more likely to fall behind in their house payments and have their houses foreclosed. This suggests that our results are probably conservative with regards to testing our hypotheses.

The statistics presented here are weighted with weights provided by the Federal Reserve to address two sampling issues. First, the weights account for nonresponse to the survey to adjust for any nonrandom patterns in the response rates (Kennickell, 2010). Second, using the

weights allows for figures to be representative of the U.S. population. Weighting is particularly important for presenting a more accurate depiction of the broader trends in the U.S. because the survey oversamples the rich. For the regression analyses, the sample is limited to those who owned homes in 2007. Renters and other non-homeowners do not hold the relevant assets for our analysis given our focus on the timing of homeownership and characteristics of mortgage loans. This reduces the sample from a total of 3,857 respondents to 2,758 for the regression analyses.

To explore why the Great Recession disproportionately affected less well-off households, we analyze four dependent variables: foreclosure, behind in mortgage payments, underwater, percent change in home value, and percent change in net worth. The foreclosure measure is based on a question about experiencing foreclosure that was added to the 2009 panel survey. This measure is a binary variable, equal to 1 if the respondent or their spouse or partner experienced foreclosure against a property they owned and 0 if they had not. The variable behind in mortgage payments was calculated based on survey questions about making late payment on land contract or mortgage loans. Based on responses to these questions, we constructed a behind in payments for responses to the 2007 survey question. To calculate whether respondents were ever underwater in the mortgage payments, we subtracted the respondent reported housing value from the current amount owed on mortgage. Mortgages flagged as underwater have a larger housing debt still owed than the value of the home at the time of the survey, as indicated by a value of 1. The final dependent variable is the percent change in home value and was calculated as the value in 2009 less the value in 2007 divided by the value in 2007.

Using these four dependent variables, we control for two types of independent variables: socio-demographic and homeownership characteristics. The socio-demographic characteristics include respondent's age, race and ethnicity, educational attainment, net worth in 2007, total household income in 2007, and unemployed status in 2007. Age is included as a continuous variable as reported in 2007. Race and ethnicity were coded together in four binary variables for white, non-Hispanic; black, non-Hispanic; Hispanic; and other race, non-Hispanic. For educational attainment, we coded for college educated or more in a binary variable. The net worth variable calculates all assets less debt for each respondent based on the Federal Reserve's standard calculation.⁴ Assets include finances invested in checking accounts, mutual funds, stocks, retirement funds, life insurance, vehicles, businesses, and real estate, while debt includes mortgage loans, credit card balances, and any other lines of credit. Net worth does not include any income variables, which are accounted for separately in total household income with wages or salaries and other household income.⁵ Finally, unemployment is a binary variable based on the respondents' reports of employment in 2007.

The regression analyses use logistic regression for all binary dependent variables (foreclosed, behind in mortgage payments, underwater). The coefficients reported for these tables are odds ratios. Linear regression results are reported for the change in home value in net worth).

Results

⁴ See the code provided by the Federal Reserve at:
<http://www.federalreserve.gov/econresdata/scf/files/fedstables.macro.txt>

⁵ Other household income includes non-taxable investments, dividends, worker's compensation, child support, TANF, and food stamps.

It is useful to begin with some descriptive statistics that allow us to understand how inequality, homeownership, and the Great Recession produced different kinds of outcomes for different kinds of people. Table 1 presents data on home ownership for households in different positions in the income and wealth distributions in 2007. One can observe the strong relationship between income and wealth and home ownership. At the bottom of the income distribution 38.28% of households own their homes, while at the top nearly 100% do. In the SCF, even at the middle of the income distribution (51-75%), almost 91% of the households own their own homes. Wealth is even more strongly connected to home ownership. At the top of the wealth distribution (81-100%) almost 98% of the households own their own homes. Even in the 21-40% of the wealth distribution almost 82% of households own their own homes. As we reported earlier, for the 20-80% of the wealth distribution, home ownership makes up the largest share of their wealth.

(Table 1 about here)

Tables 2 presents means and medians on various variables of interest for the entire SCF while Table 3 presents the same statistics for the part of the SCF that owns their own home. We can see that the mean loss in net worth was \$190,464 for the home owning sample and \$140, 411 for entire sample. The median loss for the homeowners sample was \$40,340 while the median loss for the total sample was \$18,611. These statistics show that there are clearly outliers in the data. Since the SCF oversamples very wealthy people, these outliers affect the means on these variables significantly. The medians give us a better feel for the losses due to homeownership in the SCF. For the home owning sample, drops in house value accounted for over 60% of the total wealth loss for households at the median loss level. This is powerful data that shows that for most people, the main effect of the Great Recession on their overall wealth was the drop in

housing prices. As one would expect, in comparing Tables 2 and 3, the home owning sample is older than the whole sample and clearly Whiter, more college educated, less likely to be unemployed in 2007 and have higher household incomes and net worth in 2007.

(Table 2 about here)

It is useful to consider some of the other characteristics of homeowners as they are relevant to our data analysis. The average home owner had owned their house for 14 years (with the median 9). About 38% of the sample had purchased their houses between 2001-2007, and fully 60.4% had refinanced their houses during this period. 3.6% experienced foreclosures. These statistics match up with other national data. Almost 23% had been behind in their payments, almost 10% were in the position that they owned more on their house than the mortgage, and a little over 6% had subprime mortgages. These statistics show that a small but significant portion of households were experiencing some form of distress because of the Great Recession.

(Table 3 about here)

Table 4 explores the relationship between where a household stands in the income distribution and characteristics of their home ownership. It is useful to separate out the experiences of those in the bottom 25% of the income distribution, from those in the 26-75%, and those in the 76-100%. By doing this, we get some surprising results. Those in the bottom 25% tended to have bought their house before 2001 and therefore were less frequent participants in the housing boom from 2001-2007. This meant that they were also less likely to owe more on their mortgage than their homes were worth. They were also less likely to refinance than other groups. But, they were more vulnerable in falling behind in their payments and being susceptible to foreclosures. Life in the bottom 25% of the income distribution shows risk aversion but also precariousness.

(Table 4 about here)

Those in the middle of the income distribution were more likely to have bought their house in 2001-2007 than those at the bottom. They were also the groups that most frequently refinanced their home during 2001-2007. Not surprisingly, these groups found themselves more likely to owe more on their mortgages than their homes were worth. They also experienced relatively high rates of foreclosure. The evidence implies that middle income households were the most aggressive participants in the house boom both as buyers and as refinancers.⁶ This left them the most susceptible to the house price downturn. Finally, the upper middle class (and the top income earners) refinanced their homes less frequently, were less likely to be behind in their mortgage payments, were less likely to owe more on their mortgages than their homes were worth, and were less likely to experience foreclosure. The overall conclusion one can draw is that the lowest income households were vulnerable to their low incomes and the housing price declines. But the middle class, by virtue of participating more in buying and refinancing during the 2001-2007 period experienced nearly as much economic distress and found themselves more likely to owe more on their mortgages than their houses were worth. The upper middle class and top of the income distribution experienced the lowest levels of financial distress as a result of the housing bubble collapse.

(Table 5 about here)

Table 5 presents evidence on the same variables as Table 4 for homeowners but this time across the wealth distribution. The reader needs to remember that wealth is more significantly concentrated than income and while roughly correlated with income does not follow entirely the same patterns. It is useful to remind readers that the top 20% of the wealth distribution owns

⁶ Fligstein and Goldstein, forthcoming show that middle class households were the most likely to have a more relaxed attitude towards risk and debt and take on more debt during this period.

84% of the wealth (Wolff, 2012). Thus, the patterns in Table 4 reflect the vulnerability of those in the lowest wealth groups to shocks to their finances. So, home owners in the bottom 40% of the wealth distribution tended to buy their home in 2001-2007, while those in the top 20% tended to have owned their homes much longer. If we put this together with the fact that middle income people were the most likely to purchase their homes in this period, we can see that these households were the ones taking the gamble that house prices would continue to rise in order to support their mortgages.

Refinancing homes was done at a very high rate for those in the bottom 20% of the wealth distribution (almost 91%) and the 21-40% compared to the top 20%. Again, for households in the middle of the income distribution who frequently refinanced to support their lifestyles, this made them vulnerable to a housing downturn. The lowest 20% of the wealth distribution had a very high rate of being behind in their house payments, finding themselves owing more on their homes than they were worth, and experiencing foreclosures. 46% of homeowners in the bottom 20% of the wealth distribution found themselves owing more than their homes were worth while only 3% in the top 20% were in that position. Not surprisingly, the rate of foreclosure for this group was 3 to 5 times as high as three top two income groups. These results suggest that those who came late to the housing market (2001-2007) tended to have less wealth, tended to need to refinance more often to keep their homes, and were the most vulnerable to the downturn in house prices. In essence, those who tried to come to own the American dream in the 2001-2007 house bubble, many of whom were in the middle of the income distribution, ended up owing more than their homes were worth and finding themselves the victims of foreclosures.

Hypothesis 1 and 2 are tested in Table 6. Table 6 presents two kinds of results: the first three columns are logit models where the dependent variable is dichotomous. The last column is an ordinary least squares regression analysis of the percent change in home value from 2007-2009. All of the independent variables are measured in 2007. We note that because the survey questions were asked in 2007, there is no chance of recall bias in the measures. The dependent variables refer to events that did or did not occur between 2007 and 2009.

Hypothesis 1 considers the degree to which household characteristics affect the dependent variables. It is useful to consider all of the dependent variables in order to observe consistent parameters across models. Households with older heads were less likely to experience foreclosure. Households with Black members and with a head who was unemployed are more likely to have been foreclosed on in 2007-2009. Surprisingly, there were no effects of being a Hispanic household or the level of wealth and income in 2007 on experiencing a foreclosure.

In the equation predicting whether or not a household was behind in its payments, older households again were less likely to experience foreclosure as were households with a head who had a college degree or more. Households with Black or Hispanic heads or an unemployed head were more likely to fall behind in their mortgage payments. Again, there were no effects of income or wealth on falling behind in your mortgage payment.

Older households were less likely to owe more than their house was worth. Black and Hispanic households were more likely to owe more as were those in the "Other race group." Households with higher incomes were more likely to be "underwater", although this effect is small. Finally, households with Black members and an unemployed head of household were more likely to have lost more value in their homes. College educate headed households were more likely to gain value in their homes. Income and wealth did not affect this outcome.

(Table 6 about here)

These results offer some support for Hypothesis 1. The strongest support is for the idea that households with Black members were more likely to experience foreclosure, be behind in their payments, be underwater, and have lost money on their houses. Hispanic households were more likely to be behind in their mortgage payments and owe more than their house was worth. Having an unemployed household head in 2007 was a cause of financial distress and led to foreclosure more often and being behind in house payments. College educated heads of households were less likely to be behind in their house payments and less likely to have lost money on their homes. This perhaps indexes the fact that they may have had better financial knowledge and avoided taking on too much debt. The most surprising result is the lack of effects for income and wealth on these measures.

Hypothesis 6 argued that the reason we would expect Black and Hispanic households and households with lower income and wealth to be experiencing more financial distress if they entered the housing market between 2001-2007, refinanced their mortgages, or got subprime loans. This meant they bought houses at their price peak and had bad mortgage terms. In the full model predicting foreclosure, the effects of race and unemployment disappear and are replaced by the variable indexing the years since the mortgage was purchased in line with hypothesis 2. The older the mortgage, the less likely the house was to be foreclosed in line with our theoretical discussion. Having a college educated head predicts a household will be less likely to be foreclosed.

In the full model for whether or not a household is behind in its payments, the effects of being in a Black or Hispanic headed household drop by half although they remain statistically significant. However, the effects of being unemployed disappear. The strongest effect in the

model is whether or not a household got a subprime loan. There is a small effect of household income here where higher income households are more behind in their payments.

In terms of being underwater, the strongest predictors are whether or not the household has a subprime loan and whether or not the house was bought between 2001-2007. The income effect disappears as well. There are still sizeable race effects suggesting that these variables are not mediated by mortgage conditions providing evidence that hypothesis 2 is not entirely correct.

Finally, the effect of having a Black head of household and the effect of being unemployed disappear in the equation predicting percent change in home value. The largest negative effect on home value is whether or not a home was purchased in 2001-2007. This is in line with Hypothesis 2.

There is strong evidence that the timing of the entry into the market and getting a subprime mortgage are one of the main mechanisms by which household characteristics were translated into outcomes in support of hypothesis 2. These measures generally reduced the size of the other coefficients or made them disappear altogether. The main negative result here was that there continued to be race and ethnic differences in these outcomes in some of the equations even after controlling for the type of mortgage and the timing of the mortgage.

In order to get a sense of the ways in which White, Black, Hispanic, and other groups fared, we ran a regression on the percent change in home value by each ethnic group. Table 7 presents these results. For Whites, the two statistically significant variables that predict whether or not a household had a negative change in house price were the use of a subprime loan and whether or not the house was purchased between 2001-2007. For Whites, the timing of the mortgage appears to have been the big story in losing wealth.

(Table 7 about here)

For Blacks, there were a number of characteristics of households and mortgages that predicted housing losses. College educated heads experienced losses on their houses as did households with unemployed heads in 2007. Blacks who refinanced, and who purchased their homes recently, were also more likely to have larger losses. Hispanic households with college educated heads saw appreciation in their home value. Also, if Hispanic households had a subprime loan, they also saw a small increase in home value. Finally, recent home purchase also led to losing money on the house for both groups. This regression suggests that for all race and ethnic groups, entering the house market more recently was a cause of losing money on your residence. But there were enough differences across regressions in what was significant and what was not, that this reflects somewhat different social positions.

Conclusions

The Great Recession of 2007-2010 had an important but differential impact on income and wealth inequality. During the recession, income inequality dropped slightly but then began to increase as the economy recovered. After 2010, most of the gains went to the top 1% of the income distribution and their share of income climbed from 18 to 20% (Atkinson, et. al., 2014). For wealth, the story is different. During the Great Recession, from 2007-2010, the wealth of the richest 10% of the wealth distribution climbed 3.6%. This rise seems counterintuitive. After all, the crash in house prices and stock prices should have at least temporarily had a negative impact on the households that held the most of these assets to begin with paralleling what happened to income inequality. But it didn't.

In this paper, we have explored why there was such a large drop in wealth for most American households. Our answer is less about how the wealthy got wealthier, but more about how everyone else was more vulnerable to having their wealth destroyed. This was for two reasons. First, the 20-80% of the wealth distribution held most of its wealth in housing. This meant that when housing went down, they were particularly vulnerable to losses. But, even more important was the fact that what could be termed the middle class (literally, the 26-75%) of the wealth distribution entered the housing market as prices soared between 2001 and 2007. They bought houses with large mortgages frequently using subprime loans. Having less wealth to begin with and working to build wealth as the housing market soared, these households were the most susceptible to the market downturn. They found themselves behind on their house payments, their houses worth less than their mortgages, and many of them were foreclosed on. Their “paper” wealth dropped as the values of their homes went down. Thus, the American dream of owning a home turned into a massive drop in wealth for the middle class.

While the timing and type of mortgage were factors for all Americans, we have also found evidence that Black and Hispanic households were at greater risk. Black and Hispanic households came into the 2000s with much lower rates of home ownership. Some of this was the history of discrimination by real estate agents, institutions, and the resulting high levels of residential segregation. But, as financial institutions ran out of candidates for conventional mortgages in 2003, they turned to underserved communities. Here, they willingly sold subprime mortgages to people who had previously been unable to qualify for a mortgage. Financial institutions made enormous sums of money off of these mortgages which were attractive because the mortgagees paid higher fees and higher interest rates. When these mortgages were turned into MBS, they were easily sold to customers looking for higher yielding “safe” investments.

But, when house prices stopped going up, all households that came to the market late and who took out subprime mortgages found themselves losing value on their homes. Black and Hispanic households were particularly hard struck and they lost half of their wealth both because of foreclosures, but also house price declines. In this case, wealth inequality did not increase because the rich were capturing more of the wealth. But because for part of the middle and lower middle classes, the small amount of wealth they had acquired was destroyed.

There is much about this story to be fleshed out. It is not clear how what happened to different households with different socio-economic characteristics is related to place. Since much of the subprime crisis was in a few places, it would be useful to unpack how race and class interacted to produce the effects we observed. Unfortunately, the SCF does not contain data on place and other data sources will have to be explored to discover this connection. It is also the case that these processes worked sufficiently differently for Hispanic and Black households, that it would be useful to unpack their differential patterns of residential segregation and histories of discrimination. Exploring how and why financial institutions targeted some populations for subprime loans and connecting it back to these other processes is something we know very little about. So, for example, many White households also got subprime loans even if they qualified for conventional mortgages. Connecting how different groups fared and connecting it to time and place will give us more insight into the wealth destruction that resulted from the meltdown of housing.

Finally, it would be useful to explore the joint effects of income and wealth on these outcomes. The descriptive statistics suggest that the middle of the income distribution was the most likely to participate in the housing price boom from 2001-2007. But these same statistics show that the participation was mostly for people with little wealth. This suggests that the

booming housing market came last to those who had middle of the distribution incomes but not much wealth. Financial institutions willingness to extend large nonconventional mortgages brought these households into home ownership. That we did not find effects for these variables implies that it is necessary to explore the join relationship between income and wealth to make sense of which households took the brunt of the downturn in wealth.

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Top income shares, United States, 1979-2012

Sources: The World Top Incomes Database. <http://topincomes.g-mond.parisschoolofeconomics.eu/>
Piketty & Saez (2007)

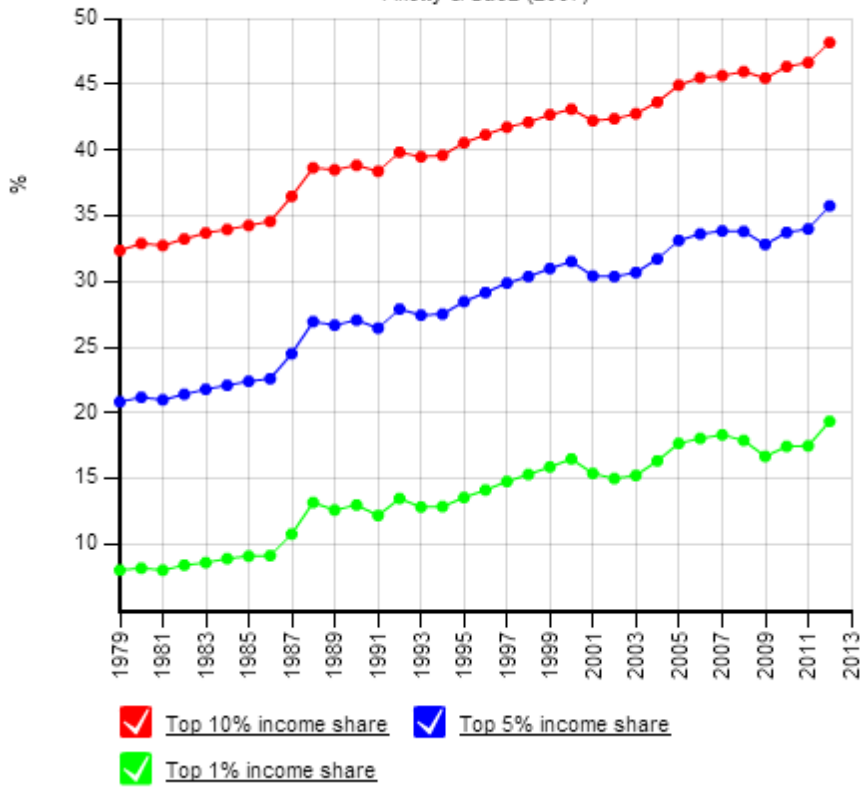


Figure 1

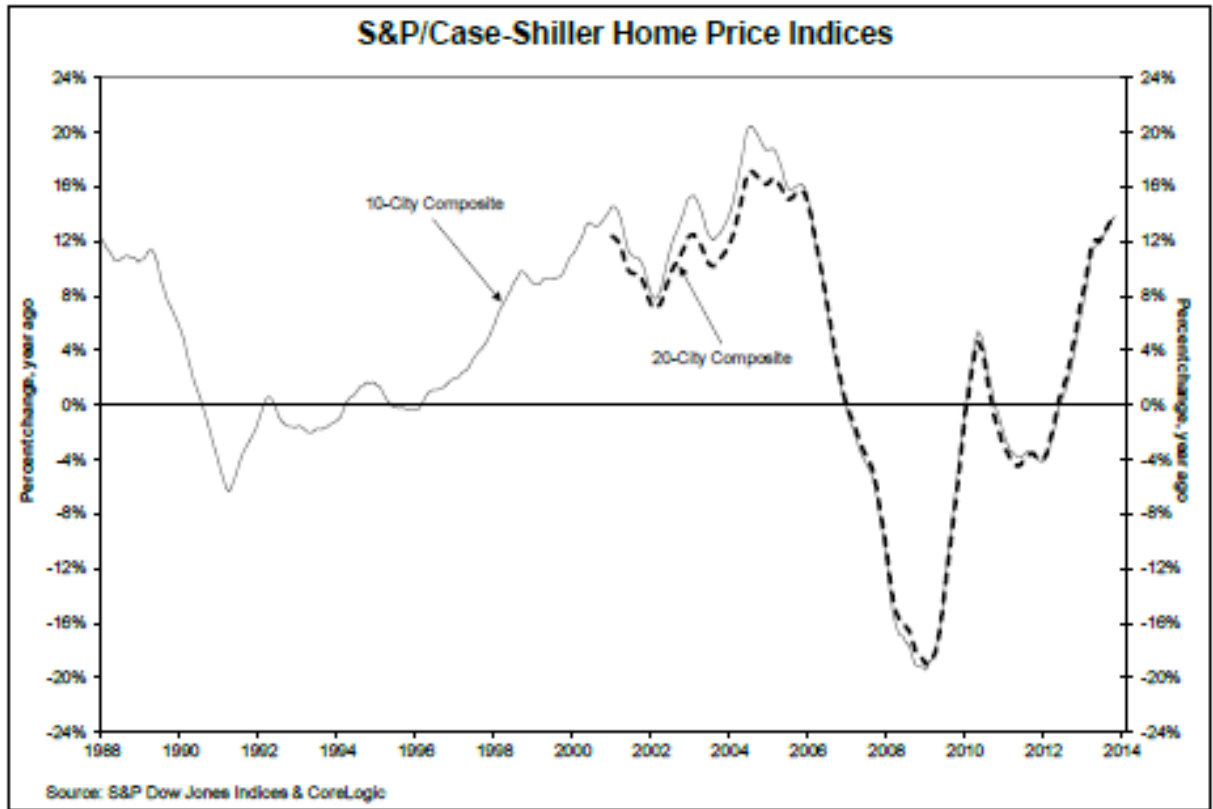


Figure 2

Figure 3: Median home prices 2000-2013

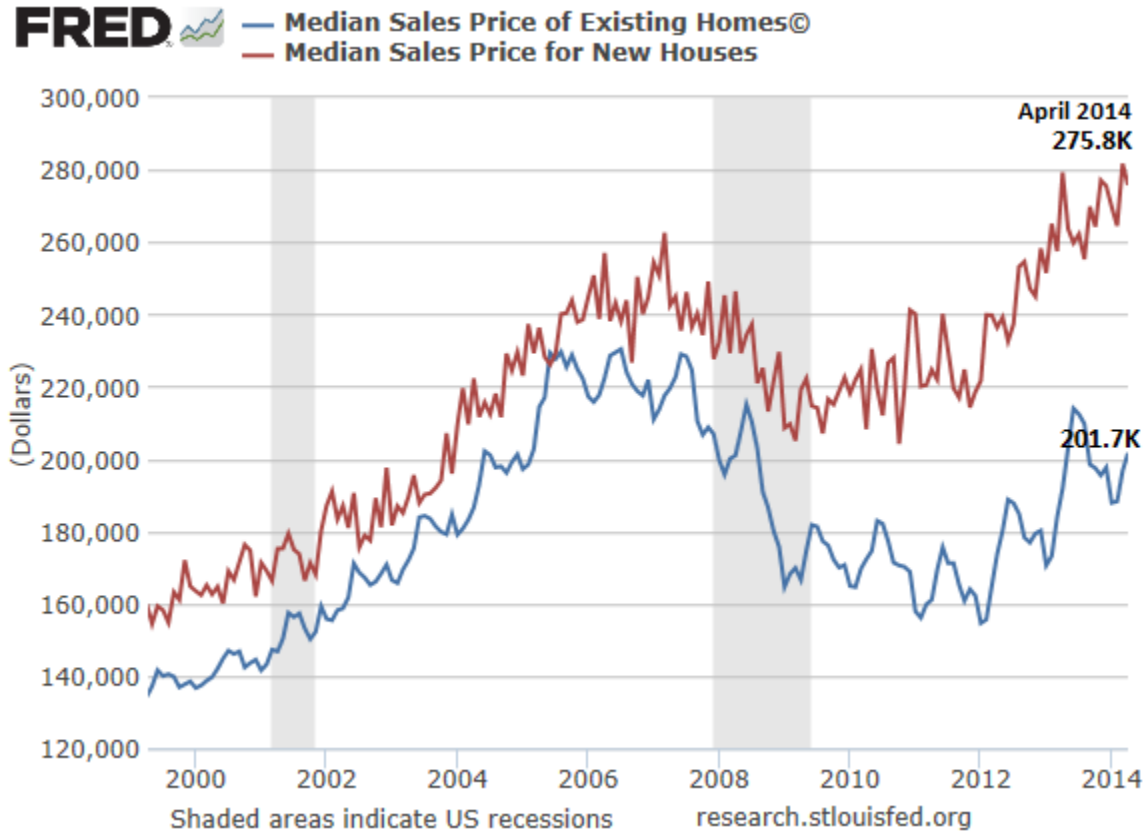


Figure 4: Dow Jones Average, 2000-2014

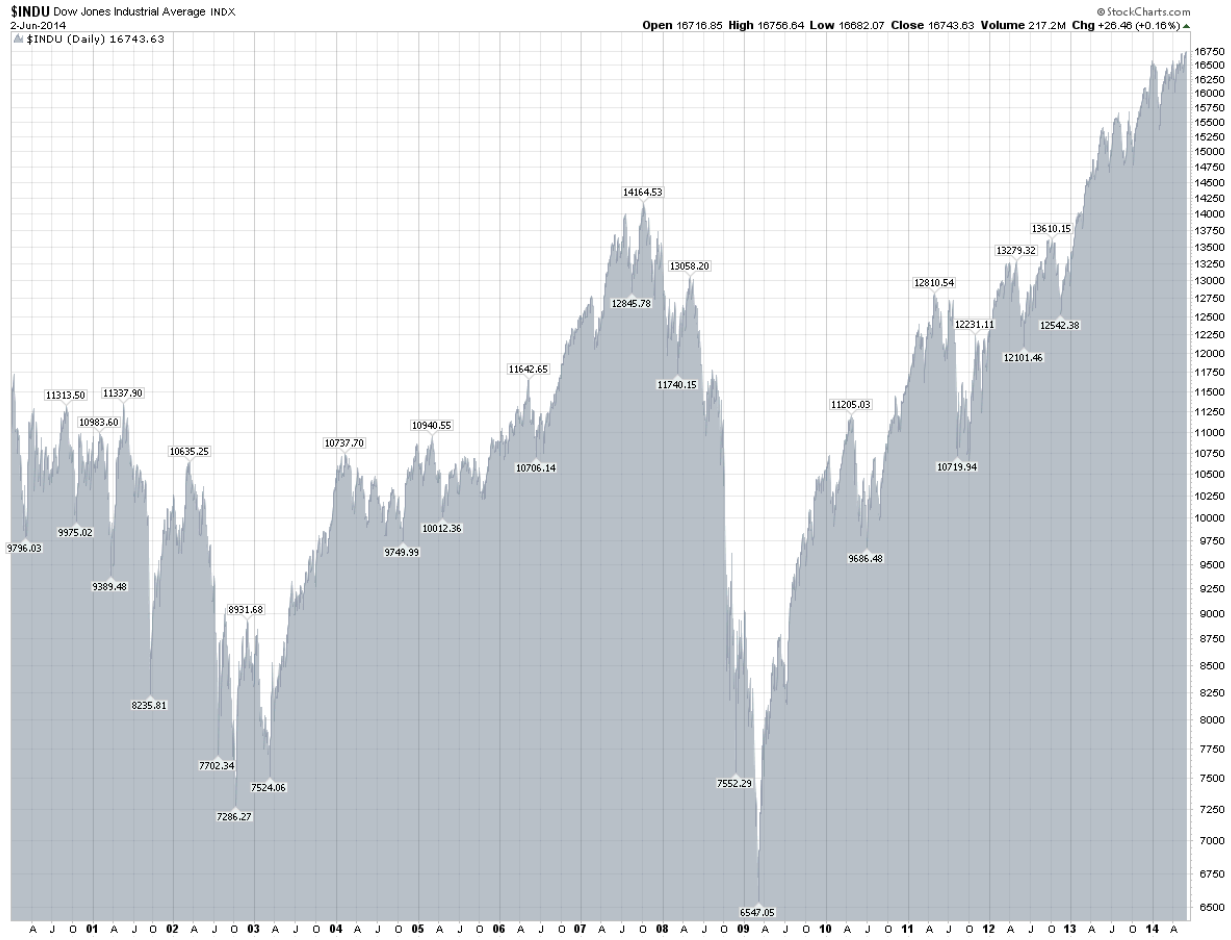


Figure 5:



Figure 6: Source: Fligstein and Goldstein (2010) and Inside Mortgage Finance (2009).

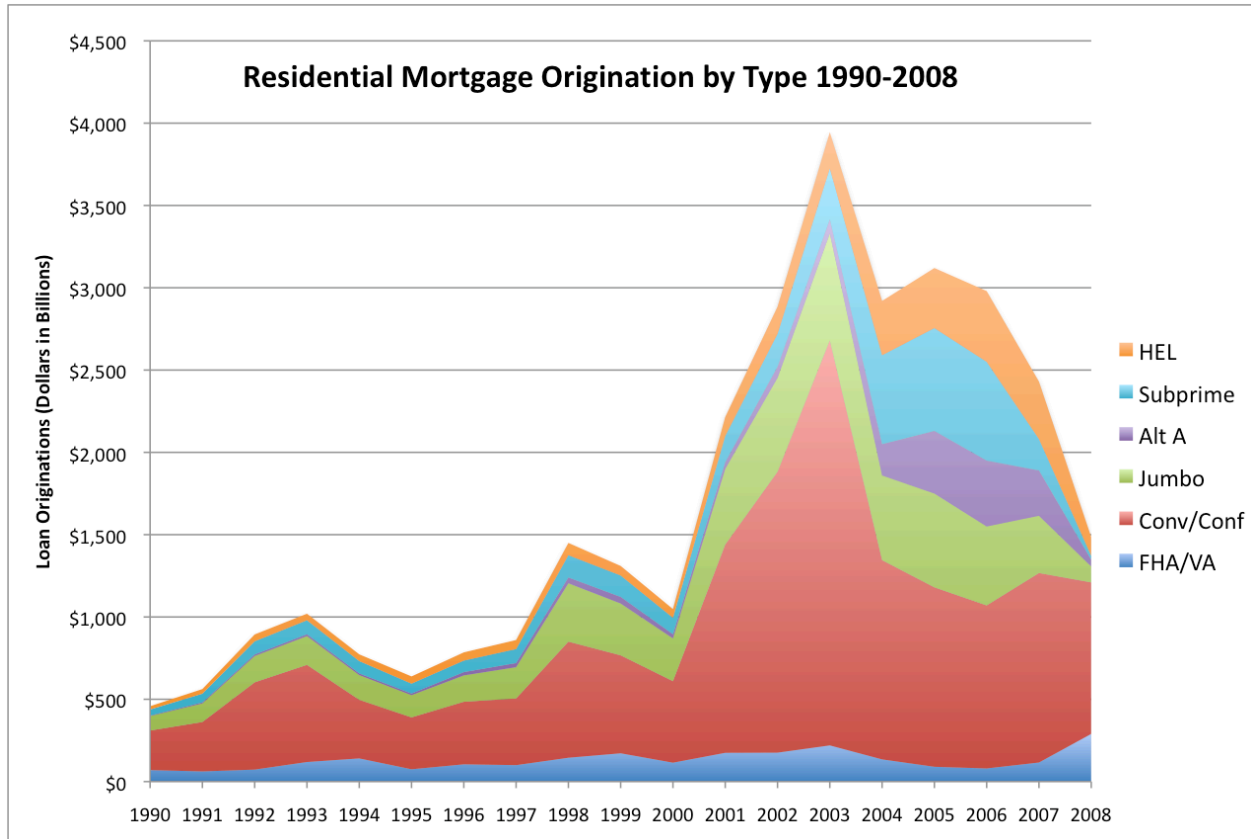


Table 1: Percent homeowners by income and wealth distribution

	Homeowners	Non-Homeowners
Income group		
0 to 10 percentile	38.28	61.72
11 to 25 percentile	52.60	47.40
26 to 50 percentile	69.86	30.14
51 to 75 percentile	90.98	9.02
76 to 90 percentile	94.05	5.95
91 to 97 percentile	98.50	1.50
98 to 100 percentile	100.00	0.00

	Homeowners	Non-Homeowners
Wealth group		
0 to 20 percentile	21.40	78.60
21 to 40 percentile	81.57	18.43
41 to 60 percentile	93.97	6.03
61 to 80 percentile	96.79	3.21
81 to 100 percentile	97.51	2.49

Table 2: Means and Medians for entire sample

	Mean	Median
Change in net worth	140,411	-18,611
Change in home value	-44,399	-18,379
Change in stock value	-67,002	-766
House worth as a proportion of net worth	57.44	45.02
Stocks as a proportion of net worth	8.54	1.79
Age	49	48
Race		
White, non-Hispanic	70.70	
Black, non-Hispanic	13.07	
Hispanic	12.12	
Other race, non-Hispanic	4.11	
Less than college educated	32.86	
College educated or more	36.47	
Unemployed in 2007	2.93	
Total household income	86,172	48,193
Net worth in 2007	585,525	132,756
Years since mortgage in 2007	14	9
Home purchase between 2001 and 2007	24.85	
Refinanced between 2001 and 2007	40.31	
Experienced foreclosure	3.44	
Behind in mortgage payments	26.72	
Underwater in mortgage	6.88	
Subprime mortgage in 2007	4.10	

Table 3: Mean and Median Values for Homeowners used in regressions

	Mean	Median
Change in net worth	-190,464	-40,340
Change in home value	-62,315	-25,862
Change in stock value	-76,626	-1,034
House worth as a proportion of net worth	59.12	47.82
Stocks as a proportion of net worth	5.60	1.69
Age	53	52
Race		
White, non-Hispanic	77.80	
Black, non-Hispanic	9.61	
Hispanic	8.56	
Other race, non-Hispanic	4.02	
Less than college educated	26.21	
College educated or more	43.14	
Unemployed in 2007	1.94	
Total household income	111,924	65,226
Net worth in 2007	819,854	250,673
Years since mortgage in 2007	14	9
Home purchase between 2001 and 2007	38.33	
Refinanced between 2001 and 2007	60.44	
Experienced foreclosure	3.64	
Behind in mortgage payments	22.91	
Underwater in mortgage	9.72	
Subprime mortgage in 2007	6.34	

Table 4: Home ownership characteristics by income distribution for various variables

	Bought Between Year	Bought Before 2001
Income group		
0 to 10 percentile	24.15	75.85
11 to 25 percentile	28.67	71.33
26 to 50 percentile	40.85	59.15
51 to 75 percentile	42.79	57.21
76 to 90 percentile	39.97	60.03
91 to 97 percentile	33.97	66.03
98 to 100 percentile	43.46	56.54

	Refinanced 2001-7	Before Refinanced 2001	Never R
Income group			
0 to 10 percentile	28.99	12.12	58.89
11 to 25 percentile	33.81	12.45	53.74
26 to 50 percentile	64.2	10.27	25.53
51 to 75 percentile	74.18	10.4	15.42
76 to 90 percentile	64.8	9.54	25.65
91 to 97 percentile	43.9	5.62	50.47
98 to 100 percentile	19.87	2.27	77.86

	Foreclosed	Not Foreclosed
Income group		
0 to 10 percentile	4.24	95.76
11 to 25 percentile	2.14	97.86
26 to 50 percentile	3.98	96.02
51 to 75 percentile	4.28	95.72
76 to 90 percentile	1.42	98.52
91 to 97 percentile	0.17	99.83
98 to 100 percentile	3.47	96.53

Table 4: Continued

		Behind	Not Behind
Income group			
	0 to 10 percentile	52.22	47.78
	11 to 25 percentile	52.58	47.42
	26 to 50 percentile	38.03	61.97
	51 to 75 percentile	25.97	74.03
	76 to 90 percentile	7.33	92.67
	91 to 97 percentile	5.74	94.26
	98 to 100 percentile	6.94	93.04

	Underwater	Not Underwater
Income group		
0 to 10 percentile	2.54	97.46
11 to 25 percentile	7.76	92.24
26 to 50 percentile	12.93	87.07
51 to 75 percentile	10.94	89.06
76 to 90 percentile	5.3	94.7
91 to 97 percentile	0.77	99.23
98 to 100 percentile	0.16	99.84

Table 5: Wealth distribution by various variables for homeowners in 2007.

	Bought Between Years	Bought Before 2001
Wealth group		
0 to 20 percentile	69.31	30.69
21 to 40 percentile	43.65	56.35
41 to 60 percentile	35.31	64.69
61 to 80 percentile	26.34	73.66
81 to 100 percentile	28.75	71.25

	Refinanced 2001-7	Before Refinanced 2001	Never Refinanced
Wealth group			
0 to 20 percentile	90.73	5.04	4.22
21 to 40 percentile	67.02	12.37	20.61
41 to 60 percentile	57.91	12.45	29.64
61 to 80 percentile	52.16	9.11	38.73
81 to 100 percentile	43.69	5.28	51.04

Wealth Group by Foreclosure

	Foreclosed	Not Foreclosed
Wealth group		
0 to 20 percentile	10.22	89.78
21 to 40 percentile	5.04	94.96
41 to 60 percentile	2.49	97.51
61 to 80 percentile	1.13	98.85
81 to 100 percentile	3.02	96.98

Table 5: Continued

Wealth Group by Ever Behind in Mortgage Payments

	Behind	Not behind
Wealth group		
0 to 20 percentile	55.59	44.41
21 to 40 percentile	40.81	59.19
41 to 60 percentile	25.77	74.23
61 to 80 percentile	18.80	81.20
81 to 100 percentile	11.84	88.16

Wealth Group by Underwater

	Underwater	Not Underwater
Wealth group		
0 to 20 percentile	46.00	54.00
21 to 40 percentile	14.02	85.98
41 to 60 percentile	5.15	94.85
61 to 80 percentile	2.41	97.59
81 to 100 percentile	2.89	97.11

Table 6: Analysis of determinants of dependent variables for homeowners

	Foreclosure (odds ratio)		Behind in Mortgage Payments (odds ratio)		Underwater (odds ratio)		Percent Change in Home Value	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	-0.02 *	0.03	-0.01 **	-0.01	-0.06 ***	0.00	0.00	0.00
	0.01	0.02	0.01	0.01	0.01	0.02	0.00	0.00
Black, non-Hispanic	0.94 **	0.04	1.41 ***	0.96 ***	1.15 ***	0.81 *	-0.06 *	0.03
	0.41	0.79	0.25	0.35	0.32	0.49	0.03	0.05
Hispanic	0.58	-0.25	0.92 ***	0.57 *	0.90 ***	0.87 *	-0.05	-0.04
	0.43	0.79	0.23	0.33	0.30	0.48	0.03	0.05
Other race, non-Hispanic	0.45	0.14	-0.09	-0.03	0.66 *	0.40	-0.05	-0.04
	0.54	1.05	0.32	0.52	0.36	0.64	0.03	0.06
College educated or more	-0.41	-1.00 **	-0.92 ***	-0.55 ***	-0.17	-0.31	0.04 **	0.05 *
	0.27	0.41	0.14	0.21	0.21	0.31	0.02	0.03
Net worth in 2007	0.00	0.00	0.00	0.00	0.00	0.00 *	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total household income in 2007	0.00	0.00	0.00	0.00 **	0.00 *	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unemployed in 2007	1.61 ***	1.44	1.43 ***	0.77	0.30	0.60	-0.12 *	-0.13
	0.58	1.15	0.54	0.82	0.65	1.13	0.07	0.12
Refinanced between 2001 and 2007		-0.59		0.48		-0.05		-0.02
		0.68		0.44		0.66		0.04
Subprime loan in 2007		0.80		0.95 ***		1.31 ***		-0.06
		0.51		0.26		0.34		0.04
Purchased home between 2001 and 2007		-0.44		0.36		0.78 **		-0.09 ***
		0.58		0.27		0.39		0.03
Years since mortgage in 2007		-0.08 **		0.01		-0.05		0.00
		0.04		0.02		0.03		0.00
Constant	-2.44 ***	-2.80 **	-0.11	-0.97	0.61	-2.52 **	-0.16 ***	-0.10
	0.57	1.33	0.32	0.69	0.41	1.07	0.03	0.08

Table 7: Regression analysis of the determinant of percent change in home value by race

	White, Non-Hispanic	Black, Non-Hispanic	Hispanic
Age	0.00	0.00	0.00 *
College educated or more	0.03	-0.07 **	0.26 ***
Net worth in 2007	0.00	0.00	0.00
Total household income in 2007	0.00	0.00 *	0.00
Unemployed in 2007	-0.06	-0.51 ***	-0.10
Refinanced between 2001 and 2007	0.00	-0.42 ***	0.04
Subprime loan in 2007	-0.08 **	0.07	0.12 ***
Purchased home between 2001 and 2007	-0.09 ***	-0.18 ***	-0.06 *
Years since mortgage in 2007	0.00	-0.01 ***	0.00
Constant	-0.14 *	0.41 ***	-0.24 ***
	0.08	0.08	0.09