

# The Subprime Lending Crisis

The Economic Impact on Wealth, Property Values and Tax Revenues, and How We Got Here

**FORECLOSURED**

Report and Recommendations by the Majority Staff  
of the Joint Economic Committee

Senator Charles E. Schumer, Chairman  
Rep. Carolyn B. Maloney, Vice Chair

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## Executive Summary

As the losses caused by the subprime lending crisis continue to work their way through the financial markets, there is a growing awareness among policymakers and financial market regulators that we need to prevent the continuing foreclosure wave from affecting the broader economy. A significant increase in lax (and often predatory) subprime lending during a period of rapid housing price appreciation put risky adjustable rate mortgages in the hands of vulnerable borrowers who are now facing substantial payment shocks and risk foreclosure when their loans reset this year and next.

Part I of this report shows that unless action is taken, subprime foreclosure rates are likely to increase as housing prices flatten or decline, and the effects of the subprime crisis are likely to extend beyond the housing market to the broader economy. The decline in housing wealth will negatively affect consumer spending, and the forced sale of large numbers of homes is likely to negatively impact the prices of other homes.

Part II of this report shows that, unless action is taken, the number and cost of subprime foreclosures will rise significantly. **For the period beginning in the first quarter of 2007 and extending through the final quarter of 2009, if housing prices continue to decline, we estimate that subprime foreclosures alone will total approximately 2 million.**

Part II also includes forward looking, state-level estimates of subprime foreclosures and associated property losses and property tax losses, covering the second half of 2007 through the end of 2009. For that shorter period, and assuming only moderate housing price declines, we estimate that:

- **Approximately \$71 billion in housing wealth will be directly destroyed through the process of foreclosures.**
- **More than \$32 billion in housing wealth will be indirectly destroyed by the spillover effect of foreclosures, which reduce the value of neighboring properties.**
- **States and local governments will lose more than \$917 million in property tax revenue as a result of the destruction of housing wealth caused by subprime foreclosures.**

Part III of the report highlights the underlying causes of the subprime crisis and explains how incentive structures in the subprime market work against the interests of borrowers and have had much to do with the dimensions of this crisis.

Finally, in Part IV, policy options aimed at reducing foreclosures and preventing the crisis from reoccurring in the future are offered.

## **Part I: The Housing Downturn and Its Impact on Subprime Mortgage Foreclosures**

Over the past few months, as residential investment and housing prices have declined, delinquency and foreclosure rates for subprime mortgages have spiked sharply upward. The deteriorating performance of subprime loans is not surprising. As the subprime market expanded rapidly after 2001, so did the share of adjustable rate, “hybrid” loans issued to financially vulnerable borrowers. **The ability of these borrowers to sustain hybrid mortgages has depended heavily on house price appreciation.** As housing prices have flattened and declined, the ability of these households to refinance their mortgages has been reduced. The resulting rise in subprime foreclosures is likely to harm an already weak housing market, and the reduction in housing wealth has the capacity to reduce consumer spending and economic growth.

### **HOUSING PRICE DECLINES WILL WORSEN SUBPRIME LOAN DELINQUENCIES AND HOME FORECLOSURES**

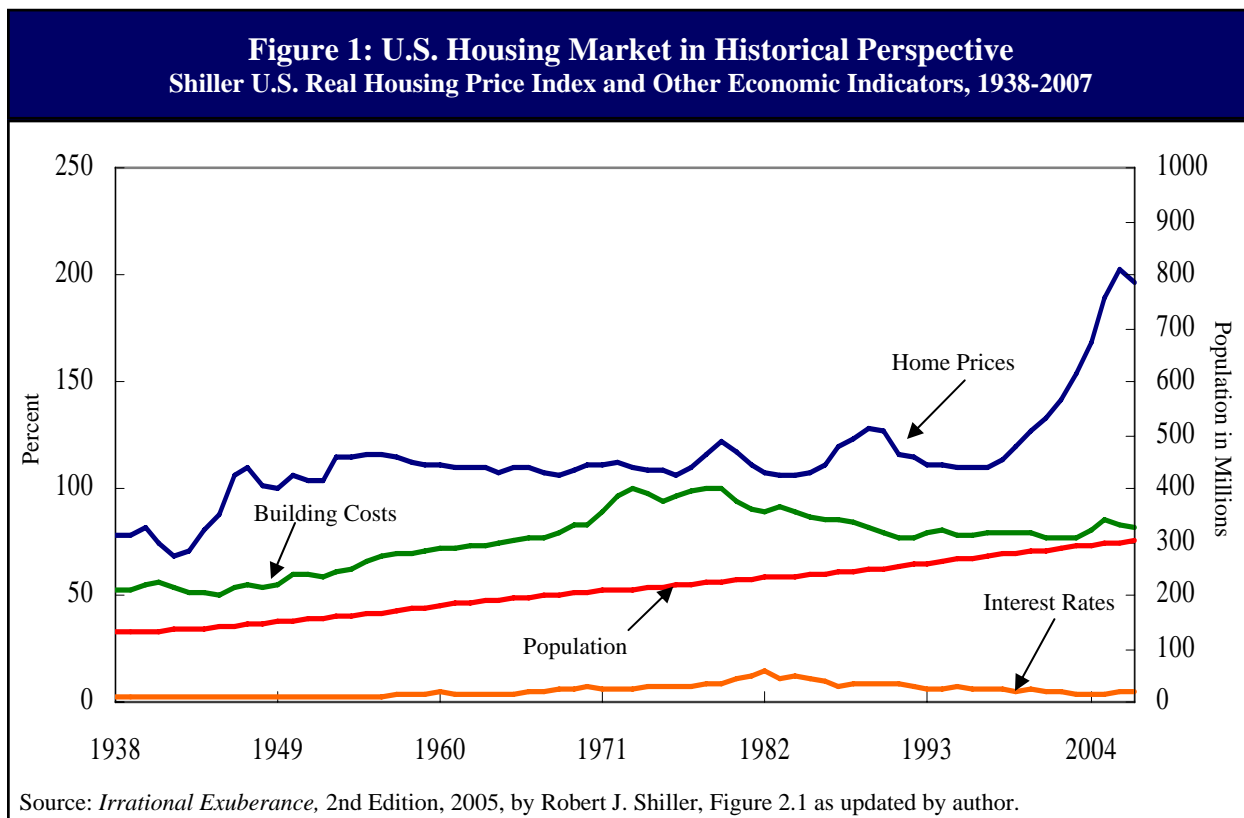
The root of the subprime mortgage crisis is the prevalence of troubling loans called “2/28” and “3/27” hybrid adjustable rate mortgages (ARMs) that were largely sold to financially vulnerable borrowers without consideration for their ability to afford them. A typical “2/28” hybrid ARM has a fixed interest rate during the initial two year period. After two years, the rate is reset every six months based on an interest rate benchmark (such as the London Interbank Bid Offered Rate, or “LIBOR”). **In the current environment, resets have caused payments to rise by at least 30 percent, to an amount that many borrowers can no longer afford.** As a result, the delinquency and foreclosure rates for subprime adjustable rate mortgages have been sharply rising. For more information about the characteristics of subprime loans and borrowers, see Box A.

When housing prices were rising, subprime borrowers could sell or refinance their homes to pay off their loans before they reset to unaffordable rates. As housing prices flatten or decline, these options dwindle. This section explains how the weakening housing market is likely to impact subprime delinquencies and foreclosures in the months ahead. For a detailed examination of the subprime market and its expansion, see Box B.

### ***Subprime Lending Has Depended on Rapid House Price Appreciation***

The period of rapid housing price appreciation that began in 1997 has helped fuel increased volumes of subprime lending and masked the weaknesses in underwriting quality and predatory tactics that accompanied it.

Beginning in 1997, the U.S. witnessed house price appreciation that was highly unusual in historical terms. Between 1997 and 2006, real home prices increased by nearly 85 percent.<sup>1</sup> Sustained price increases near this magnitude have only been observed once during the twentieth century, in the period immediately after World War II<sup>2</sup> (See Figure 1). In fact, during

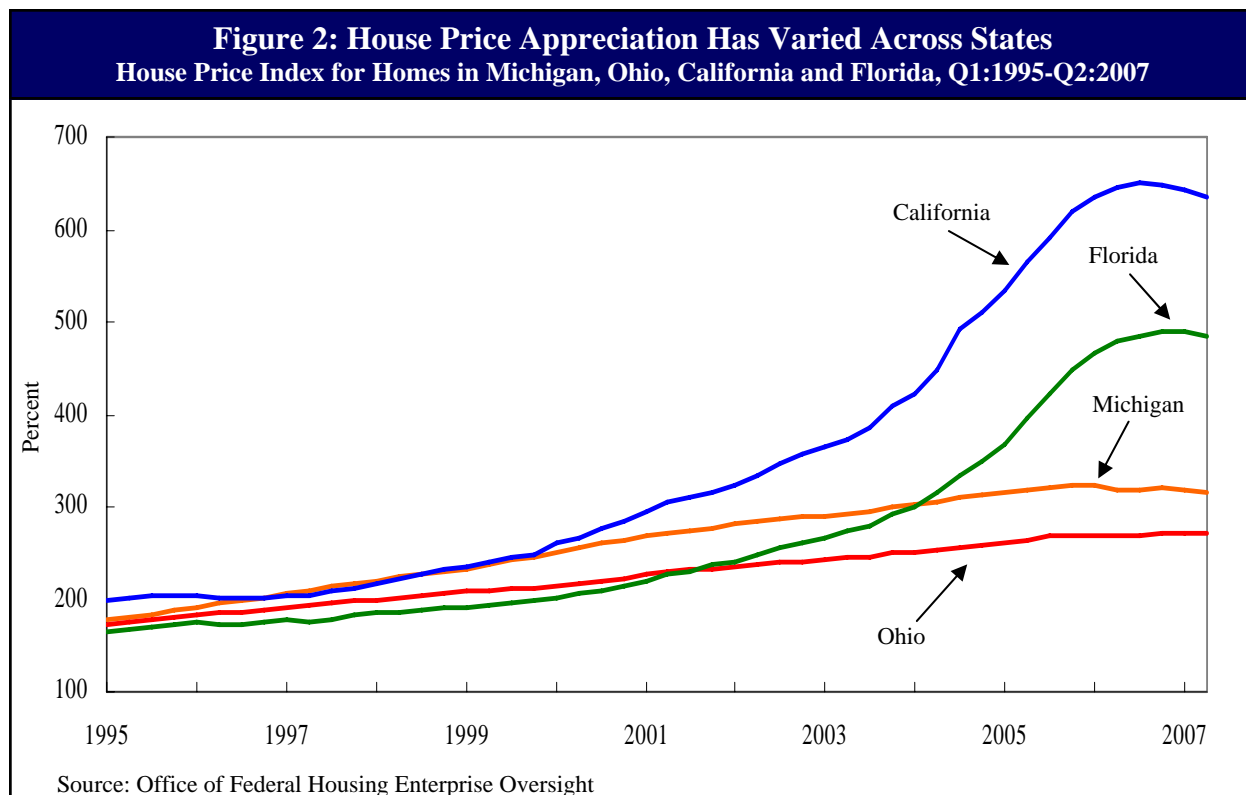


the period 2001 through 2005, the annual rate of house price appreciation accelerated. The S&P/Case-Shiller® Home Price Index shows annual price appreciation rising from slightly over eight and one-half percent in 2001 to more than 15 percent in 2005.

Not every part of the housing market witnessed this rate of home price appreciation. In some states and cities there was significant price appreciation, while it was more moderate in others. For example, Figure 2 shows the difference between home price appreciation in Michigan, Ohio, California, and Florida. But price increases were sufficiently widespread to produce significant nationwide increases in housing prices.

***Housing Price Appreciation Reduced Subprime Delinquencies and Foreclosures***

The deterioration in underwriting standards in the subprime market as the market expanded is well documented. (For a discussion on declining underwriting standards in subprime lending, see Box B.) Although underwriting standards in the subprime lending market began to decline after 2001, the effects of this decline were, until recently, mitigated by house price appreciation. If a borrower is struggling to make mortgage payments, but the value of his house has appreciated, he can solve his financial problems at least temporarily by refinancing the mortgage. Cash can be withdrawn from the increased equity in the house, and the new, higher mortgage can be sustained for a while. The house can also be sold, and the loan principal repaid. **However, when house price appreciation does not create equity, borrowers’ financial weakness cannot be disguised and default rates rise.**



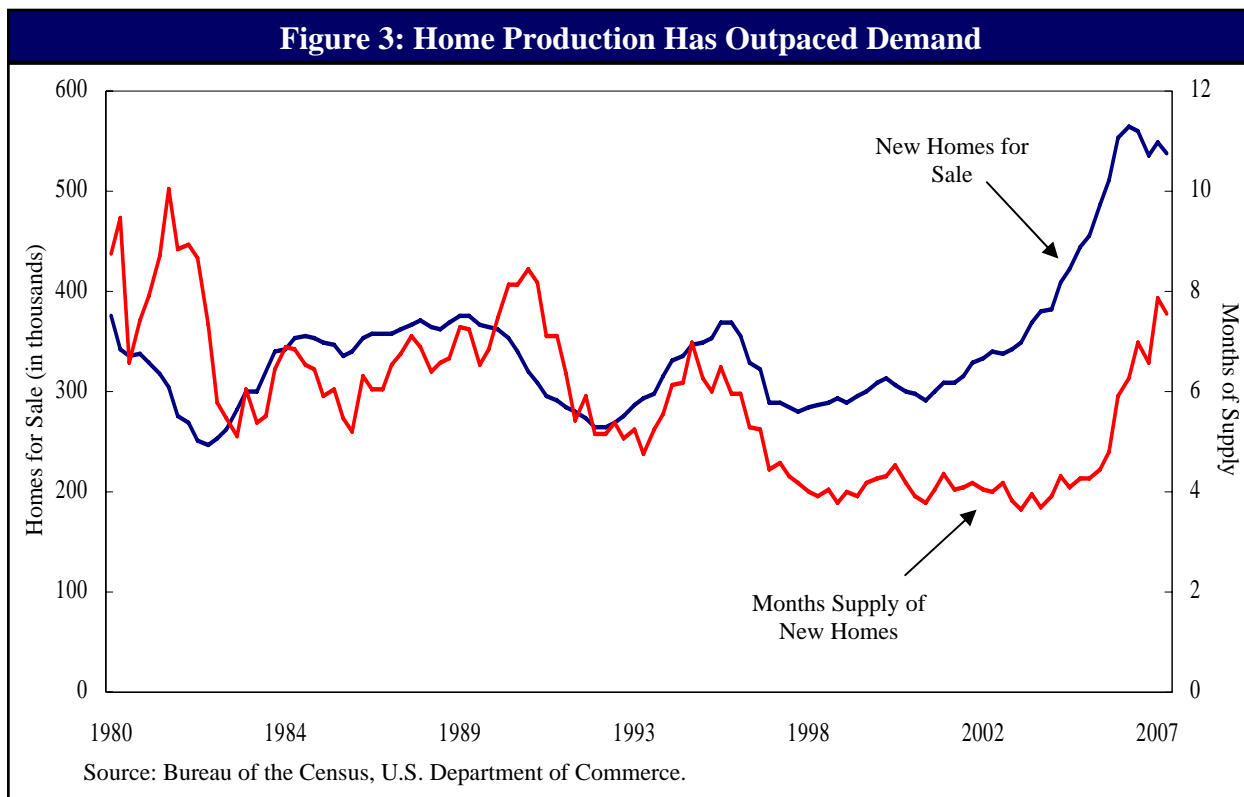
There is systematic evidence that when home prices appreciate, subprime mortgage defaults decline. Using a very large sample of subprime mortgages securitized between 1999 and 2002, researchers at the Center for Responsible Lending found statistically significant correlations between the odds of foreclosure and cumulative price appreciation in a Metropolitan Statistical Area (MSA).<sup>3</sup>

The option to sell or refinance also should reduce delinquencies, which are the precursors to default and foreclosure. Recent work by economists at the Federal Reserve Bank of San Francisco shows strong negative correlations between delinquency rates and cumulative house price appreciation across MSA's during 2006.<sup>4</sup> This research also indicates that house price appreciation significantly improved the performance of subprime loans.

## **SUBPRIME PROBLEMS ARE LIKELY TO ACCELERATE HOUSE PRICE DECLINES**

### ***The Housing Market Is Contracting***

Unfortunately, conditions in the housing market indicate that house price appreciation will no longer be able to disguise the financial precariousness of the millions of borrowers whose subprime adjustable rate mortgages are about to reset. The decade of steady house price appreciation appears to be at an end. Nationally, house prices began to decline in 2006 and are now down approximately 3.2 percent from their peak in the second quarter of 2006.<sup>5</sup>



In fact, the housing market has contracted significantly for more than a year. Inventories of unsold new homes have increased, and the monthly supply of new homes has risen (See Figure 3). **The Federal Reserve has estimated that so far, declines in residential investment have reduced the annual rate of GDP growth by about three-fourths of a percent over the past year and a half.**<sup>6</sup>

### ***A Housing Asset Bubble May Be Bursting***

As residential investment in construction declines and house prices fall, there is reason to be concerned about the longer term prospects for housing values. There is apprehension that the economy is experiencing the bursting of a housing price “bubble” – a situation in which housing prices are high only because market participants believe that prices will be high tomorrow. In other words, home prices deviate significantly from the equilibrium level consistent with market fundamentals. When an asset bubble bursts, large price appreciation can be followed by sudden and large price declines.

If a housing price bubble does exist, then house price levels can be affected dramatically by shifts in expectations.<sup>7</sup> There is some evidence that expectations about housing prices are changing. The National Association of Home Builders/Wells Fargo Housing Market Index (HMI), based on monthly surveys of a panel of homebuilders, reached an historic low in October 2007.<sup>8</sup> See Figure 4.

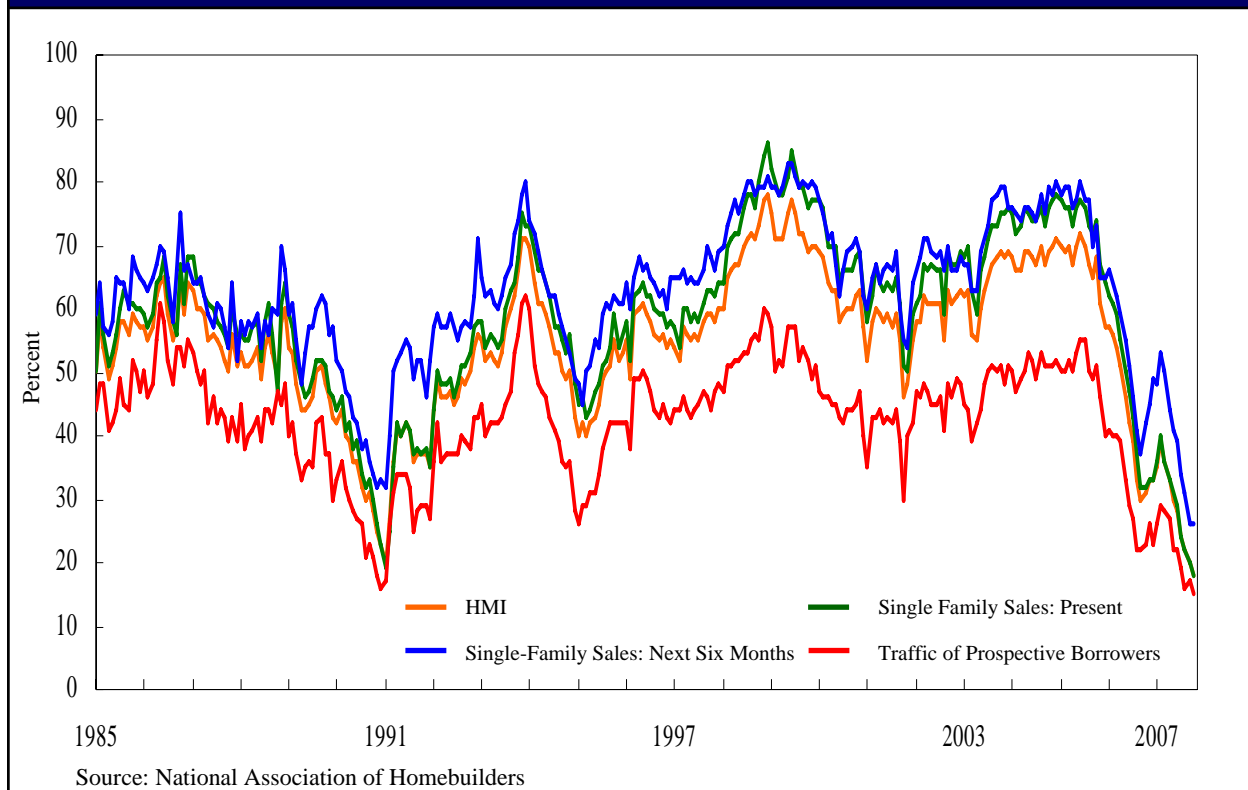
### ***Subprime Foreclosures Will Put Additional Downward Pressure on the House Prices***

It is widely expected that, as the large number of subprime 2/28 and 3/27 hybrid ARMs originated during and after 2004 reset to their higher payment rates, the volume of subprime delinquencies and defaults will rise substantially. Many financially vulnerable borrowers will be facing substantially higher payments, and the lack of house price appreciation will prevent sale or refinance.

The Federal Deposit Insurance Corporation (FDIC), citing First America LoanPerformance data on securitized subprime and near-prime (so-called “Alt-A”) mortgages, estimated in March 2007 that there were approximately 2.1 million hybrid nonprime ARMs outstanding. LoanPerformance data cover about 70 percent of subprime originations.<sup>13</sup> **This implies that as of March there were roughly 3 million nonprime mortgages, many of which will reset in the next three years.**

From Mortgage Bankers Association (MBA) data we know that the average value of all subprime ARM loans in 2005 was about \$200,000. If we use this number as the average value of for all nonprime loans then **there were approximately \$600 billion in outstanding non-prime mortgages as of March.** Since then, the number and amount of hybrids yet to reset will be somewhat smaller. However, the numbers are significant.

**Figure 4: Expectations About Housing Market Reached Historic Lows in October 2007**  
NAHB/Wells Fargo Housing Market Index (HMI) and Its Three Components  
Seasonally Adjusted, January 1985-August 2007





### **A NOTE ON THE HOUSING BUBBLE DEBATE**

There is a substantial body of economic research that attempts to explain housing prices in terms of supply and demand fundamentals such as construction costs, interest rates, employment growth, and household income.<sup>9</sup> On the basis of this line of research, some economists argue that the housing price appreciation we have witnessed is not a bubble. These economists focus on the characteristics of local markets, and argue that once accurate measures of local supply and demand factors are carefully examined, there is scant evidence that housing prices have deviated significantly from fundamental values.<sup>10</sup>

There is, however, substantial evidence pointing in the other, less sanguine direction. Using state-level data for 1985 through 2002, Case and Shiller provide econometric evidence that, in eight states, fundamentals do not explain home price appreciation.<sup>11</sup> Dean Baker from the Center for Economic and Policy Research argues that at the aggregate level it is difficult to point to changes in economic fundamentals that convincingly explain why housing prices began to increase in the mid-1990's, rather than at some other time.<sup>12</sup> He points to data showing that GDP, income, and population growth during this period were not unusually high, and notes that any constraint on supply caused by urban density or building regulation surely existed well before prices began to climb. The data in Figure 1 are consistent with the points made by Baker.

While many outstanding subprimes are hybrids, there are many other subprime borrowers who are also at high risk of default. Several studies of subprime mortgages show that cumulative default rates are very high. Estimates range from almost 18 percent to more than 20 percent.<sup>15</sup> Should housing prices decline further, cumulative defaults are likely to increase.

Using data on individual subprime mortgages originated between 1998 and the first three quarters of 2006, researchers at the Center for Responsible Lending estimated cumulative foreclosures of 2.2 million, with losses to homeowners of \$164 billion.<sup>16</sup> Although this forecast tried to take account of the effect of slowing house price appreciation, it was published in December 2006. Since that time housing prices have continued to decline.

### **THE EFFECTS OF FORECLOSURES AND HOUSE PRICE DECLINES WILL BE SIGNIFICANT**

#### ***Foreclosures Will Harm Neighboring Home Owners and Local Housing Markets***

Foreclosures can have a significant impact in a community in which the foreclosed property is located. This is particularly true when the factors that led to one foreclosure drive a concentration of foreclosures in the same neighborhood, for example in a spatial concentration of subprime lending. A concentration of home foreclosures in a neighborhood hurts property values in several ways. A glut of foreclosed homes for sale depresses home market values for the other owners. Neighboring businesses often experience a direct monetary loss from reduced sales and neighborhood landlords experience a loss or reduction in rental income. Moreover,

**BOX A: CHARACTERISTICS OF SUBPRIME LOANS AND BORROWERS****Subprime Loans Go to Higher Risk Borrowers, Who Pay Higher Rates**

Subprime mortgages are issued to higher risk borrowers. They typically have inconsistent credit histories, lower levels of income and assets, or other characteristics that increase the credit risk to lenders.<sup>14</sup> This is reflected in lower average FICO credit scores, and greater average loan-to-value ratios. These borrowers pay substantially higher interest rates and fees than other borrowers, and are more likely to be subject to prepayment penalties, which make it costly to refinance loans in the early years of their life (See Figure 15 in Appendix).

**Subprime Loans Typically Have Higher Delinquency and Default Rates**

Because of the higher risk characteristics of subprime borrowers, subprime loans typically have higher delinquency and default rates. As can be seen from Figure 11 in Appendix, the delinquency rates for subprime mortgages are usually several times that of comparable prime mortgages. The same is true for foreclosure rates, as can be seen in Figure 13 in Appendix. It is notable, however, that delinquency and foreclosure rates of subprime adjustable rate mortgages have diverged

the homes left vacant by foreclosure lower the desirability of the neighborhood since there is often an increase in crime associated with a vacant house.<sup>17</sup>

As concentrated foreclosures persist in a community, the value of surrounding homes may decline. Dan Immergluck and Geoff Smith survey the literature on this subject and estimate the impact of foreclosures on nearby property values using data on foreclosures and neighborhood characteristics in the Chicago area.<sup>18</sup> They found that conventional foreclosures have a statistically and economically significant effect on nearby property values. In particular, they found that each conventional foreclosure within a one-eighth mile of a single-family home produces at least a 0.9 percent lower property value, and may be closer to 1.5 percent in low to moderate income communities.

Similarly, Shlay and Whitman find significant affects of abandoned property on nearby housing values in Philadelphia.<sup>19</sup> They find that an abandoned property will lower property values on homes located within 150 feet by \$7,627 (or 10.1 percent) and will lower property values on homes located within 450 feet by \$3,542 (or 4.7 percent). As did Immergluck and Smith in Chicago, Shlay and Whitman find that the effects of abandoned properties on nearby home values are cumulative. They find that, on average, home values on the block decline by 9.1 percent in the case of one abandoned home on the block, and decline on average by 15.0 percent for 5 abandoned properties on the block.

***Large House Price Declines Have the Potential to Reduce Growth and Employment***

Should housing prices decline dramatically, the effects could be significant. To the extent that price declines reflect a decline in demand for new housing, construction activity will decline. This contraction is already under way, and has reduced residential investment sufficiently so that GDP growth has declined markedly in the past year.

**THE IMPACT OF SUBPRIME FORECLOSURES ON HOMEOWNERSHIP**

In addition to property value reductions, foreclosures in the subprime market have eroded some of the gains in homeownership rates for minority households. For example, the Center for Responsible Lending (CRL) estimates that the 2005 vintage of subprime loans will lead to 98,025 foreclosures by black homeowners relative to only 50,925 new black homeowners, or a net reduction in 47,101 black homeowners.<sup>20</sup> Similarly, CRL estimates a net decline in homeownership among Hispanic families of 37,693.<sup>21</sup>

House price declines can also affect economic activity through their effect on household wealth. Econometric work has established that household wealth, along with income, helps to determine the level of aggregate consumption. Higher levels of wealth lead to higher consumption, all things being equal. Since declines in home prices reduce wealth, they reduce consumption and thus output and employment.<sup>28</sup> These effects occur with significant time lags.

Federal Reserve Board Governor Frederic Mishkin has reported on simulations of Federal Reserve macroeconomic models of the U.S. economy in which housing prices are assumed to experience an exogenous 20 percent decline. One model shows real GDP declining one-half percent relative to baseline after three years, another shows a GDP decline of one and one-half percent, with the largest decline occurring somewhat earlier.<sup>29</sup>

While these outcomes are significant, they may understate the effects of large price declines. If the price of houses were to fall 20 percent in a short period of time, we might well see a shift in overall business confidence. This could produce negative effects on credit markets, as recent events have illustrated. Higher interest rates or restrictions on business credit can in turn reduce real economic activity. In addition, business decision-making and capital investment can be affected by any changes in confidence.

**BOX B: THE SUBPRIME MARKET EXPANDED RAPIDLY AND UNDERWRITING STANDARDS DETERIORATED DURING 2001-2006*****Subprime Market Expanded Rapidly During 2001-2006***

Subprime mortgages are a relatively new financial product. As former Federal Reserve Governor Edward Gramlich noted, they were made possible by legal changes dating from the 1980s, which eliminated the interest rate ceilings imposed by state usury laws, and by the development of a secondary mortgage market that allowed loan underwriters to fund subprime mortgages through the capital markets.<sup>22</sup>

Subprimes now have a substantial presence in the mortgage market. The share of subprime mortgages in total mortgage originations has risen over time, with the most rapid expansion occurring in the period 2001 to 2006. In 2001, \$190 billion in subprimes were originated, about 8.6 percent of the total mortgages originated that year. By 2005, the amount of subprime originations had risen to \$625 billion, about 20 percent of the total. Subprime originations declined in 2006 to \$600 billion, but still made up 20 percent of all originations (See Figure 8). As a consequence, the share of subprimes in the total number mortgages outstanding is now significant, rising from 2.6 percent in 2001 to 14.0 percent in the second quarter of 2007.<sup>23</sup>

In the past, borrowers who did not qualify for prime loans turned to the Federal Housing Authority (FHA) and Veterans' Administration (VA) for loans. Indeed, FHA and VA lending fell from 28.5 percent of the market in 1998 to 9.3 percent of the market (as of September 2007).<sup>24</sup> Lending backed by those government entities declined as housing prices rose, because FHA limits fell below median home prices in some regions. Additionally, borrowers may have been attracted to the lower initial payments available with many subprime loans.

***Underwriting Standards Deteriorated As the Market Expanded***

There have been significant changes in the types of subprime loans made in recent years, reflecting lower underwriting standards. As can be seen in Figure 10, between 2001 and 2006 adjustable rate mortgages (ARMs) as a share of total subprime loans originated increased from about 73 percent to more than 91 percent. The share of loans originated for borrowers unable to verify information about employment, income or other credit-related information ("low-documentation" or "no-documentation" loans) jumped from more than 28 percent to more than 50 percent. The share of ARM originations on which borrowers paid interest only, with nothing going to repay principal, increased from zero to more than 22 percent.

Over this period the share of subprime ARMs that were originated as "hybrids" increased dramatically. The share of 2- and 3-year hybrid ARM's accounted for more than 72 percent of all subprime ARM's originated in 2005 (See Figure 12 in Appendix).

Hybrid ARMS underwritten to subprime borrowers are posing the greatest problems today. For a typical 2/28 hybrid loan, the interest rate and mortgage payment are fixed during the initial two year period. After the initial two years the rate is reset every six months, with a gross margin added to an interest rate index such as LIBOR. Payments can rise substantially when they are reset at the end of the initial fixed rate period. Cagan has estimated that subprime ARMs resetting in 2008 will experience an average 31 percent payment increase.<sup>25</sup>

There are millions of subprime hybrids that will reset in the remainder of 2007 and in later years. Cagan has estimated that 2.17 million subprime ARMs will have their first reset between 2007 and 2009.<sup>26</sup> The Federal Deposit Insurance Corporation has estimated that there were about 2.1 million nonprime (i.e. subprime and Alt-A) hybrid ARMs outstanding in March of 2007.<sup>27</sup>

### ***Loan Performance Has Reflected the Underwriting Decline***

Although underwriting standards declined during 2001-2006, loan performance did not immediately deteriorate. In fact, subprime performance between 2001 and 2005 was good by historical standards. As can be seen in Figures 11 and 13, aggregate delinquency and foreclosure rates declined during 2001-2005. They have since turned sharply upward. The data in Figure 14 in the Appendix, which track the delinquency rates of subprime mortgages from the time at which they were originated, tell a qualitatively similar story. Loans originated during 2001-2005 perform better than those originated in 2000. Noticeably higher delinquency rates appear for loans originated in 2006 and 2007.

It is important to notice, however, that the trends in subprime loan performance between 2001 and 2005 could hardly be characterized as normal. During this period aggregate foreclosure and delinquency rates were well below those observed during the years 1998 through 2002. Loans originated between 2001 and 2005 were performing well, but those originated in 2000 had performed less well.

Since underwriting deteriorated from 2001 to 2005, and the accelerating housing price boom was giving subprime borrowers important help (see Part II), a cautious analyst might have questioned whether the improvements in subprime performance could be sustained. **The financial intermediaries who expanded the supply of these loans were apparently not troubled by this issue. The reasons for their lack of curiosity may lie in the strong incentives they had for expanding the subprime market.**

## Part II: State-Level Estimates of the Economic Effects of Subprime Foreclosures

To better understand how subprime lending and declining housing prices may affect households and communities in the near future, **we have made quantitative estimates of the potential scale of foreclosures and their costs at the state and national levels.** We first discuss entirely forward looking, state level estimates, covering the second quarter of 2007 through the end of 2009. We estimate the number of foreclosures, the loss in housing value that directly results from each foreclosure, the effect that a foreclosure has on the value of neighboring houses, and the state and local government tax revenues that will be lost as housing values decline.

As is made clear below, these state level estimates rely on housing price forecasts which show moderate housing price declines. It was necessary to use these forecasts to obtain state level results. **However, it is quite possible that housing price declines will be substantially larger.** Therefore we also present national level foreclosure and property loss estimates, assuming larger future housing price declines. This allows us to learn about the scale of economic damage if the housing market evolves in a less favorable way.

The results of the state level estimates, although based on forecasts of moderate housing price decline, are quite sobering. **We estimate there will be approximately 1.3 million foreclosures and a loss of housing wealth of more than \$103 billion through the end of 2009 (including approximately \$71 billion in direct costs to homeowners and \$32 billion in indirect costs caused by the spillover effects of foreclosures).** The estimated aggregate cumulative subprime foreclosure rate for this period is 18 percent (See Figures 5 and 6). **The total loss in property tax revenue is also high, amounting to more than \$917 million.** The ten states with the greatest number of estimated foreclosures, in descending order, are California, Florida, Ohio, New York, Michigan, Texas, Illinois, Arizona, Pennsylvania and Indiana.<sup>30</sup> There are, unfortunately, several others that are close behind in the rankings.

The effects of larger price declines could considerably increase the magnitude of these damages. For example, Moody's forecasts that, in the aggregate, housing prices will decline by about 6.9 percent between Q3 2007 and Q2 2009 and rise mildly thereafter. **If we instead assume that the aggregate price decline is 20 percent over that period, the total number of foreclosures for the period beginning in the first quarter of 2007 and extending through the final quarter of 2009 would be nearly 2 million and the loss of property values would total about \$106 billion.**

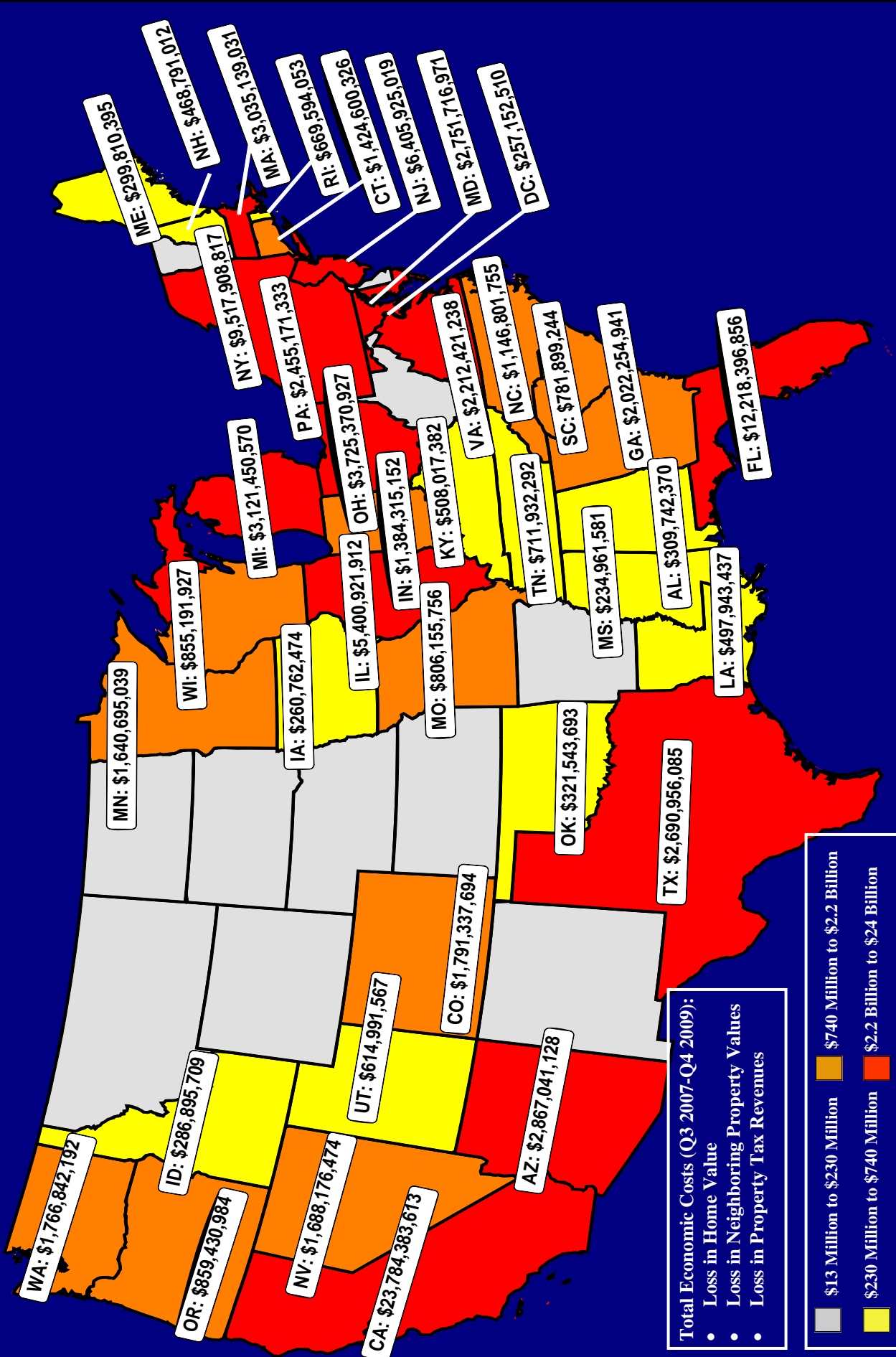
Several assumptions are necessary to make the state level estimates, and we have been deliberately conservative when making them. We have assumed that all foreclosures over the 2007-2009 period will come from the stock of subprime mortgages outstanding at the end of the second quarter of 2007. This is a very conservative assumption. The growth in the outstanding stock of subprime loans through the second quarter of 2007 indicates that incremental subprime loans are still being made. However, because we cannot forecast the course of future lending, we assume that all foreclosures come from the existing stock. This biases our estimates downward. We also assume that once a mortgage enters foreclosure it is fore-

**Figure 5: Impact of Subprime Foreclosures on Home Equity, Property Values and Property Taxes**

State	Estimated Outstanding Subprime Loans	Average Home Value (2007--Q2)	Estimated Total Subprime Foreclosures 3Q07- 4Q09	Estimated Cumulative Loss of Property Value (in 2007 dollars)			Estimated Cumulative Loss of Property Taxes (in 2007 dollars)		
				Total	Direct	Neighborhood	Total	Direct	Neighborhood
Alaska	13,580	\$261,328	1,010	\$67,254,738	\$58,986,920	\$8,267,817	\$699,045	\$613,110	\$85,936
Alabama	79,483	\$129,986	8,854	\$308,795,781	\$260,406,362	\$48,389,418	\$946,589	\$798,255	\$148,334
Arkansas	38,765	\$116,390	3,966	\$118,170,828	\$102,917,482	\$15,253,346	\$590,225	\$514,039	\$76,186
Arizona	250,799	\$247,412	52,372	\$2,852,375,215	\$2,516,539,104	\$335,836,112	\$14,665,912	\$12,939,161	\$1,726,751
California	1,030,920	\$446,800	191,144	\$23,673,462,592	\$18,213,499,917	\$5,459,962,675	\$110,921,021	\$85,338,594	\$25,582,427
Colorado	159,845	\$248,141	27,820	\$1,781,036,893	\$1,505,046,353	\$275,990,539	\$10,300,802	\$8,704,583	\$1,596,218
Connecticut	83,575	\$282,815	14,079	\$1,405,560,135	\$874,646,011	\$530,914,124	\$19,040,191	\$11,848,249	\$7,191,941
D.C.	11,356	\$370,114	1,971	\$256,208,921	\$145,777,528	\$110,431,394	\$943,589	\$536,882	\$406,706
Delaware	23,595	\$232,708	3,691	\$221,056,208	\$185,506,098	\$35,550,110	\$840,033	\$704,940	\$135,094
Florida	708,195	\$251,031	157,341	\$12,128,824,487	\$8,262,592,951	\$3,866,231,537	\$89,572,368	\$61,019,930	\$28,552,438
Georgia	254,783	\$182,552	36,753	\$2,007,518,628	\$1,479,514,992	\$528,003,636	\$14,736,313	\$10,860,470	\$3,875,843
Hawaii	26,603	\$529,346	3,638	\$928,771,130	\$422,825,372	\$505,945,758	\$2,119,850	\$965,067	\$1,154,783
Iowa	38,270	\$116,251	8,137	\$257,523,984	\$210,571,376	\$46,952,608	\$3,238,490	\$2,648,038	\$590,452
Idaho	34,033	\$202,041	5,853	\$284,689,754	\$244,060,296	\$40,629,458	\$2,205,955	\$1,891,132	\$314,823
Illinois	286,246	\$241,929	59,328	\$5,319,586,969	\$3,176,243,537	\$2,143,343,432	\$81,334,944	\$48,563,843	\$32,771,100
Indiana	167,143	\$123,346	38,626	\$1,371,531,614	\$1,061,769,291	\$309,762,323	\$12,783,538	\$9,896,358	\$2,887,180
Kansas	45,531	\$126,347	5,948	\$199,985,858	\$166,701,815	\$33,284,043	\$2,450,876	\$2,042,972	\$407,904
Kentucky	69,400	\$124,907	13,428	\$504,612,385	\$371,735,302	\$132,877,083	\$3,404,997	\$2,508,376	\$896,621
Louisiana	82,440	\$137,506	13,372	\$497,167,560	\$411,640,239	\$85,527,322	\$775,876	\$642,403	\$133,473
Massachusetts	115,780	\$323,303	22,292	\$3,009,182,395	\$1,557,268,422	\$1,451,913,973	\$25,956,635	\$13,432,701	\$12,523,934
Maryland	168,438	\$308,530	25,057	\$2,732,661,008	\$1,599,628,344	\$1,133,032,664	\$19,055,963	\$11,154,863	\$7,901,100
Maine	24,460	\$185,475	5,583	\$296,733,417	\$224,333,232	\$72,400,186	\$3,076,978	\$2,326,224	\$750,754
Michigan	275,931	\$141,914	65,607	\$3,081,807,231	\$2,076,307,211	\$1,005,500,019	\$39,643,339	\$26,708,923	\$12,934,416
Minnesota	121,471	\$220,848	27,871	\$1,626,786,871	\$1,345,003,024	\$281,783,847	\$13,908,168	\$11,499,065	\$2,409,103
Missouri	144,630	\$142,012	19,594	\$799,362,087	\$612,901,071	\$186,461,017	\$6,793,669	\$5,208,962	\$1,584,707
Mississippi	52,241	\$112,309	7,927	\$233,808,373	\$200,777,043	\$33,031,330	\$1,153,208	\$990,289	\$162,920
Montana	10,970	\$209,270	1,266	\$63,027,185	\$60,665,000	\$2,362,185	\$555,693	\$534,866	\$20,827
North Carolina	188,303	\$172,531	22,977	\$1,138,190,663	\$876,614,762	\$261,575,901	\$8,611,093	\$6,632,115	\$1,978,978
North Dakota	3,848	\$117,971	499	\$13,613,239	\$13,122,445	\$490,793	\$196,074	\$189,005	\$7,069
Nebraska	25,105	\$120,894	3,249	\$112,731,544	\$87,243,376	\$25,488,168	\$1,919,841	\$1,485,772	\$434,069
New Hampshire	30,544	\$250,101	4,302	\$461,256,428	\$231,094,893	\$230,161,535	\$7,534,584	\$3,774,915	\$3,759,669
New Jersey	179,873	\$333,883	35,117	\$6,306,612,220	\$2,475,729,646	\$3,830,882,574	\$99,312,800	\$38,986,326	\$60,326,473
New Mexico	32,598	\$196,917	4,882	\$223,836,424	\$206,488,218	\$17,348,207	\$1,184,177	\$1,092,399	\$91,778
Nevada	134,528	\$288,575	28,390	\$1,680,032,156	\$1,617,296,543	\$62,735,612	\$8,144,318	\$7,840,194	\$304,124
New York	364,433	\$358,598	67,836	\$9,415,468,274	\$5,116,483,447	\$4,298,984,826	\$102,440,543	\$55,667,475	\$46,773,068
Ohio	293,566	\$134,668	82,197	\$3,678,841,205	\$2,470,687,248	\$1,208,153,957	\$46,529,722	\$31,249,077	\$15,280,645
Oklahoma	70,294	\$110,006	11,156	\$319,256,532	\$273,411,233	\$45,845,299	\$2,287,161	\$1,958,724	\$328,437
Oregon	88,415	\$267,676	12,625	\$852,241,323	\$719,774,955	\$132,466,368	\$7,189,661	\$6,072,151	\$1,117,510
Pennsylvania	274,129	\$161,098	45,470	\$2,420,875,596	\$1,616,915,771	\$803,959,825	\$34,295,738	\$22,906,307	\$11,389,431
Rhode Island	26,033	\$269,181	5,833	\$662,456,460	\$328,832,356	\$333,624,104	\$7,137,593	\$3,542,982	\$3,594,611
South Carolina	99,318	\$168,118	16,810	\$777,434,079	\$626,257,682	\$151,176,397	\$4,465,165	\$3,596,888	\$868,276
South Dakota	6,190	\$127,871	880	\$26,826,229	\$25,279,391	\$1,546,838	\$350,218	\$330,024	\$20,194
Tennessee	163,053	\$138,636	18,133	\$706,993,104	\$561,518,235	\$145,474,869	\$4,939,188	\$3,922,873	\$1,016,315
Texas	536,228	\$147,533	61,339	\$2,641,781,864	\$2,028,046,512	\$613,735,352	\$49,174,220	\$37,750,129	\$11,424,091
Utah	73,934	\$249,796	11,324	\$611,149,592	\$579,487,942	\$31,661,651	\$3,841,975	\$3,642,935	\$199,040
Virginia	183,171	\$269,724	25,752	\$2,198,332,823	\$1,439,482,210	\$758,850,613	\$14,088,415	\$9,225,183	\$4,863,232
Vermont	6,289	\$202,856	1,316	\$73,332,809	\$56,894,221	\$16,438,588	\$1,153,567	\$894,979	\$258,588
Washington	156,810	\$304,081	21,282	\$1,751,422,346	\$1,411,662,184	\$339,760,161	\$15,419,847	\$12,428,536	\$2,991,311
Wisconsin	83,645	\$164,214	17,688	\$840,565,572	\$638,177,777	\$202,387,795	\$14,626,355	\$11,104,684	\$3,521,671
West Virginia	19,706	\$131,703	1,733	\$60,805,973	\$52,026,965	\$8,779,007	\$286,066	\$244,765	\$41,301
Wyoming	7,971	\$180,971	973	\$40,189,745	\$39,468,001	\$721,744	\$213,769	\$209,931	\$3,839
United States	7,366,460	\$252,777	1,324,291	\$103,041,748,445	\$70,839,860,303	\$32,201,888,142	\$917,056,356	\$599,640,662	\$317,415,694

Sources: Number of outstanding subprime mortgages and current subprime foreclosure rates from Mortgage Bankers Association survey data; average home value calculated using the 2006 Home Mortgage Disclosure Act (HMDA) data for subprime first-lien loans and loan-to-value ratios courtesy of the Center for Responsible Lending; historical home price indices from the Office of Federal Housing Enterprise Oversight (OFHEO); forecasts of OFHEO price indices from Moody's Economy.com; Congressional Budget Office (CBO) forecasts of personal consumption expenditure deflators; state property tax rates from U.S. Census Bureau and the Tax Foundation; state household densities, by MSA, from the U.S. Census Bureau.

Figure 6: Projected Economic Costs of the Subprime Mortgage Crisis State-by-State



Source: JEC Calculations.



Figure 7: State-Level Foreclosure Rate Regressions		
Independent Variable	Dependent Variable	
	Foreclosure Rate ARM	Foreclosure Rate FRM
House Price Appreciation (2004-2006)	-14.80 ** (2.058)	-9.27 ** (1.655)
Employment Growth (2004-2006)	-19.22 ** (5.930)	-11.19 * (5.384)
Constant	8.88 ** (0.570)	5.42 ** (0.523)
Observations	51	51
R <sup>2</sup>	0.712	0.490

\* Significant at 95% level.

\*\* Significant at 99% level.

Data Sources: Foreclosure rate are Mortgage Bankers Association “foreclosure inventory”; House Price Appreciation is calculated from Office of Federal Housing Enterprise Oversight housing price indices; Employment Growth is calculated from Bureau of Labor Statistics “employees on non-farm payrolls,” seasonally adjusted. All data accessed via Haver Analytics.

closed within a year. Although there are variations across jurisdictions, the average maximum amount of time to foreclose is less than a year.<sup>31</sup>

To estimate the numbers of mortgages that will be foreclosed, we begin by examining what determines the fraction of mortgages in foreclosure (foreclosure rate) during a year. It is reasonable to suppose that, holding the risk characteristics of borrowers constant, the foreclosure rate will depend heavily on house price appreciation and the economic fortunes of borrowers.<sup>32</sup> If house prices appreciate, refinance or sale is easier. If general economic conditions are good, it is more likely that households will be able to meet their financial commitments. As it turns out, both these factors are significant determinants of the foreclosure rate. Figure 7 shows the results of state-level cross sectional regressions of subprime foreclosure rates for 2006 on two independent variables – cumulative housing price appreciation between 2004 and 2006, and cumulative employment growth in the same period. The cumulative housing price appreciation variable is an index of changes in home equity, and the cumulative employment growth variable is an index of the ease of finding employment and the overall performance of the real economy. Both variables are statistically significant. The significance of the employment variable highlights the importance of developments in the real economy for loan outcomes. However, we do not attempt to estimate changes in employment when we use these results. If employment growth were to slow during our forecast period, foreclosure rates likely would be higher than our estimates.

To estimate future foreclosure rates, we use current foreclosure rates, the coefficients on house price appreciation reported in Figure 7, and estimates of future housing prices. That is, we calculate foreclosure rates according to  $FC_t = FC_{t-1} + \beta(\Delta HPA_t)$ , where  $FC_t$  is the foreclosure rate in year t,  $FC_{t-1}$  is the foreclosure rate in the previous year,  $\Delta HPA_t$  is the change in

cumulative two-year housing price appreciation between years  $t$  and  $t-1$ , and  $\beta$  is the estimated coefficient of HPA (house price appreciation) as reported in Figure 7. The values for the variable  $\Delta\text{HPA}_t$  are calculated using forecasts of state-level housing price indices from the Office of Federal Housing Enterprise Oversight (OFHEO). The forecasts were produced by Moody's Economy.com. We estimate foreclosure rates separately for fixed rate and adjustable rate mortgages. These foreclosure rates are used to calculate the absolute number of foreclosures in a given period.<sup>33</sup>

Using our estimates of the number of subprime foreclosures, we then estimate the associated economic costs. Research has shown that foreclosure causes a decrease in the value of the foreclosed house.<sup>34</sup> We estimate this direct loss in housing wealth by discounting the average loan value of a subprime mortgage. We apply a 22 percent discount rate to the average home value associated with subprime loans (net of the loss due to the decline in home prices) to calculate this loss.<sup>35</sup>

Foreclosures also affect the values of neighboring houses. We estimate the effect of a foreclosure on surrounding house prices as 0.9 percent of the value of all single family houses within  $1/8^{\text{th}}$  mile of a foreclosed house.<sup>36</sup> We use MSA-level population densities to estimate the number of houses within one-eighth mile of each foreclosed house.<sup>37</sup>

The loss in property taxes caused by housing price losses is calculated by assuming that average state property tax rates remain unchanged through the end of 2009. Tax losses are calculated by applying existing property tax rates to the change in housing values caused by foreclosure (net of the loss due to the decline in home prices).

We conclude by noting that the forecast values for housing prices clearly play a pivotal role in this analysis, and that the price forecasts we have used are likely to be conservative. The Moody's data are forecasts of future values of OFHEO housing price indices. However, in recent quarters the OFHEO indices have not reflected the same downward movement in housing prices registered in other price measures. For example, the national OFHEO index had not peaked by the second quarter of 2007, but the S&P/Case-Shiller® U.S. national home price index peaked in the second quarter of 2006 and had declined by 3.2 percent by the end of the second quarter of 2007. Therefore it is possible that the price forecasts we have used will not pick up all of the likely housing price declines over the near term.

To account for this possibility, we have applied the procedure developed for state level estimates to aggregate foreclosures, assuming a 20 percent decline in aggregate home prices. A price decline of that amount is not out of the question. When simulating the possible macroeconomic effects of housing price declines, the Federal Reserve recently assumed a 20 percent decline in aggregate housing prices.<sup>38</sup> Moreover, futures contracts based on the S&P/Case-Shiller® indices are predicting that housing prices may decline as much as 10 percent over the coming year.<sup>39</sup> Since the S&P/Case-Shiller® indices already show a 3.2 percent decline over the past year, calculating subprime foreclosures by assuming a 20 percent decline in the OFHEO price indices over two years seems unfortunately plausible. **Under these assumptions, the number of foreclosures for the period covering the third quarter of 2007 through the end of 2009 is approximately 1.66 million, and the associated property loss is about \$106 billion.<sup>40</sup> If we add in an estimate of foreclosures in the first half of 2007, the foreclosure total rises to approximately 2 million.**

## Part III: The Origins of the Subprime Lending Crisis

The discussion above highlights the potential economic damage that could result if subprime foreclosures are allowed to proceed unchecked. In this section we investigate the underlying causes of the subprime mortgage crisis in an effort to identify policy approaches that could prevent the reoccurrence of such a threat to homeownership, household wealth, and the broader economy.

### FINANCIAL INTERMEDIARIES DROVE THE EXPANSION OF THE SUBPRIME MARKET

#### *Most Lending Organizations Make Few Subprime Loans*

The expansion of subprime mortgages during the years 2001 through 2006 came, for the most part, through a well defined channel of financial intermediaries. The intermediaries in this channel – brokers, mortgage companies, and the firms that securitize these mortgages and sell them on to the capital markets – had strong incentives to increase the supply of these loans. One outcome was a significant increase in the rate of homeownership. From 1994 to 2005, the overall homeownership rate rose from 64 to 69 percent.<sup>41</sup> **However, since brokers and mortgage companies are only weakly regulated, another outcome was a marked increase in abusive and predatory lending.**

#### *Most Subprime Loans Are Originated Through Mortgage Brokers*

The mortgages underwritten by subprime lenders come from many sources, but the overwhelming majority is originated through mortgage brokers. For 2006, Inside Mortgage Finance estimates that 63.3 percent of all subprime originations came through brokers, with 19.4 percent coming through retail channels, and the remaining 17.4 percent through correspondent lenders.<sup>42</sup> Their data show the broker share increasing from 2003 through 2006.<sup>43,44</sup> For the mortgage market in total, Inside Mortgage Finance estimates that 29.4 percent of mortgages were originated by brokers in 2006. This percentage does not change much between 2003 and 2006.<sup>45</sup>

#### *Independent Mortgage Companies and Other Mortgage Specialists Account for Most Subprime Lending*

Most subprime loans are made by companies that specialize in mortgage lending. Using 2005 Home Mortgage Disclosure Act (HMDA) data, former Federal Reserve Governor Edward Gramlich concluded that “30 percent of [subprime] loans are made by subsidiaries of banks and thrifts, less [*sic*] lightly supervised than their parent company, and 50 percent are made by independent mortgage companies, state-chartered but not subject to much federal supervision at all.”<sup>46</sup>

<b>Figure 8: Mortgage Origination Statistics</b>					
	<b>Total Mortgage Originations (Billions)</b>	<b>Subprime Originations (Billions)</b>	<b>Subprime Share in Total Originations (percent of dollar value)</b>	<b>Subprime Mortgage Backed Securities (Billions)</b>	<b>Percent Subprimes Securitized (percent of dollar value)</b>
<b>2001</b>	\$2,215	\$190	8.6	\$95	50.4
<b>2002</b>	\$2,885	\$231	8.0	\$121	52.7
<b>2003</b>	\$3,945	\$335	8.5	\$202	60.5
<b>2004</b>	\$2,920	\$540	18.5	\$401	74.3
<b>2005</b>	\$3,120	\$625	20.0	\$507	81.2
<b>2006</b>	\$2,980	\$600	20.1	\$483	80.5

Source: Inside Mortgage Finance, The 2007 Mortgage Market Statistical Annual, Top Subprime Mortgage Market Players & Key Data (2006).

**Because they are not deposit-taking institutions, the independent mortgage companies and bank subsidiaries are not subject to the safety and soundness regulations that govern federal or state banks.** These entities are less closely monitored under the Home Owners' Equity Protection Act (HOEPA) and the Community Reinvestment Act. They are state-chartered and subject to state law. Some states have tried to apply federal predatory lending advisories to all lenders or regulate brokers or lenders in their state, but the resources that states have for oversight are far fewer than those of the federal government.<sup>47</sup>

### ***Most Subprime Loans are Securitized Via Non-Agency Conduits to the Capital Markets***

Lenders hold only a fraction of the subprime loans they make in their own portfolios. Most are sold to the secondary market, where they are pooled and become the underlying assets for residential mortgage backed securities. As can be seen from the data in Figure 8, the percentage of subprime mortgage securitized rose rapidly after 2001, reaching a peak value of more than 81 percent in 2005. Deposit-taking institutions such as banks and thrifts, which deal mostly in lower-priced mortgages, sell their mortgages primarily to government sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac. Independent mortgage companies, however, make their secondary market sales primarily to other financial market outlets (See Figure 9).<sup>48</sup> **Hence whatever influence the GSEs have on lender underwriting standards is missing from much of the subprime market since securitization is done by other market participants.**

**Figure 9: Subprime Lenders Usually Securitize Loans Through Non-GSE Conduits  
Percent Distribution**

	<b>Higher-Priced Specialized Lender Percent Sold in 2004</b>							<b>Total</b>
	<b>Not Sold</b>	<b>GSE</b>	<b>Private</b>	<b>Bank or Thrift</b>	<b>Mortgage Company</b>	<b>Affiliate Institution</b>	<b>Other Conduits</b>	
<b>Deposit Taking Organizations</b>								
<b>Credit Unions</b>	0.4	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.5</b>
<b>CRA-Regulated Lenders</b>								
<b>Assessment Area Lenders</b>	1.4	0.0	0.0	0.1	0.0	0.0	1.0	<b>2.6</b>
<b>Outside Assessment Area</b>	4.1	0.0	0.0	0.7	0.0	0.3	8.3	<b>13.5</b>
<b>Independent Mortgage Bankers</b>	12.6	0.1	1.7	0.6	12.4	1.6	54.4	<b>83.4</b>
<b>All Loans</b>	18.4	0.1	1.7	1.5	12.5	1.9	63.8	<b>100.0</b>
	<b>Lower-Priced Specialized Lender Percent Sold in 2004</b>							<b>Total</b>
	<b>Not Sold</b>	<b>GSE</b>	<b>Private</b>	<b>Bank or Thrift</b>	<b>Mortgage Company</b>	<b>Affiliate Institution</b>	<b>Other Conduits</b>	
<b>Deposit Taking Organizations</b>								
<b>Credit Unions</b>	5.6	1.3	0.0	0.1	0.3	0.1	0.4	<b>7.8</b>
<b>CRA-Regulated Lenders</b>								
<b>Assessment Area Lenders</b>	18.8	11.6	0.0	0.9	0.5	2.3	2.9	<b>37.0</b>
<b>Outside Assessment Area</b>	8.6	10.1	0.1	1.0	1.0	2.8	5.4	<b>29.0</b>
<b>Independent Mortgage Bankers</b>	1.5	5.6	0.5	2.1	6.0	0.2	10.4	<b>26.2</b>
<b>All Loans</b>	34.5	28.5	0.6	4.0	7.8	5.5	19.1	<b>100.0</b>

Source: Apgar, et al. 2007.

Note: Higher-Priced Specialized Lenders are, approximately, firms that specialized in subprime lending. Lower-Priced Specialized Lenders tend to make few subprime loans. See the discussion in Apgar et al. (2007).

## MARKET INCENTIVES FACILITATED PREDATORY LENDING

### *Broker and Lender Incentives Work Against Borrowers*

Mortgage brokers are salesmen who want to maximize their net income. Their interest in providing the least expensive mortgage is limited. In fact, lenders provide them incentives to do the opposite. Lenders sometimes pay brokers so-called “yield-spread premiums,” when they sell loans with interest rates above the minimum acceptable rate for the loan.<sup>49</sup> Some brokers may also receive higher fees for selling mortgages with prepayment penalties.<sup>50</sup>

**Moreover, since mortgage brokers bear little or no risk when a borrower defaults, they have no economic incentive to originate loans that a borrower can afford in the long term.** Brokers also lack strong legal incentives to act in the interest of borrowers. Under state law brokers are not fiduciaries, who must put the interest of their clients first. Nor do they have a duty to sell their clients products which are at least suitable to their circumstances, as registered securities brokers do.

**Because mortgage companies sell many of the loans they underwrite to the secondary market, they have an interest in underwriting loans that are desired by the secondary market investors.**<sup>51</sup> This observation has special weight because of developments in non-mortgage financial markets. In recent years, as hedge funds have proliferated and the market for structured financial products has expanded, there has been significant demand for high-yield assets that can underlie collateralized debt obligations (CDOs) and other financial derivatives. Subprime mortgages have, until recently, been considered terrific assets to include in CDO structures. **Hence subprime lenders have had a strong incentive to underwrite high-yielding subprime mortgages, whether or not these loans were best interests of the borrowers.**

### *Predatory Lending Practices*

Given the financial incentives for brokers and lenders to provide an increasing volume of high yield mortgages, it is no surprise that tactics were invented to meet the demand. The rapid expansion of 2/28 and 3/27 hybrid ARMs, and the imposition of prepayment penalties, are examples of financial innovations that were widely adopted by subprime lenders.<sup>52</sup> Both made it possible for loan originators to expand lending—hybrid ARMs by allowing credit-constrained borrowers to pay initially low rates on mortgages, and prepayment penalties by raising returns on loans. However, both innovations can have abusive or predatory results.

In the abstract, ARM loans need not work to the disadvantage of borrowers. Subprime hybrid ARMs, however, have frequently been made on the basis of the borrower’s ability to pay at the low initial rate rather than the reset rate. This is reflected in public disclosures of lenders, who make it clear that they qualify borrowers for loans on the basis of their ability to make payments at or near the initial rate.<sup>53</sup> It is also reflected in loan performance. When hybrids reset there is a dramatic rise in prepayments as borrowers refinance and an increase in the default rate. Prepayments and defaults are very sensitive to the size of these shocks. Pennington-Cross and Ho estimate that “a one-standard-deviation increase in the size of the shock is associated with an almost 50 percent increase in the probability of prepaying and more than a

**Figure 10: Underwriting Standards in Subprime Home-Purchase Loans**

	ARM Share	IO Share	Low-No-Doc Share	Debt Payments-to-Income Ratio	Average Loan-to-Value Ratio
2001	73.8%	0.0%	28.5%	39.7	84.04
2002	80.0%	2.3%	38.6%	40.1	84.42
2003	80.1%	8.6%	42.8%	40.5	86.09
2004	89.4%	27.2%	45.2%	41.2	84.86
2005	93.3%	37.8%	50.7%	41.8	83.24
2006	91.3%	22.8%	50.8%	42.4	83.35

Source: Freddie Mac, obtained from the International Monetary Fund via <http://www.imf.org/external/pubs/ft/fmu/eng/2007/charts.pdf>.

Notes: “ARM” represents “adjustable rate mortgages”; “IO” represents interest-only mortgages, where payments do not retire the principal value of the loan; “Low-No-Doc” represents low or no documentation mortgages.

25 percent increase in the probability of defaulting.”<sup>54</sup> **By underwriting hybrid loans on the basis of the initial rate, lenders make it more probable that a subprime borrower must sell, refinance or default at reset.** This means there is increased lender reliance on asset values and prepayment fees to provide earnings, and less consideration of borrower ability to pay.

**Mortgage lending on the basis of asset value, without regard to borrower ability to pay, is widely recognized as predatory and harmful to borrowers.** HOEPA recognizes asset-based mortgage lending as predatory, as do several state statutes.<sup>55</sup> Several researchers also regard asset-based mortgages as predatory.<sup>56</sup> However, HOEPA coverage is limited. Because HOEPA applies only to loans that have an annual percentage rate that exceeds a very high threshold, less than one percent of subprime loans are covered.<sup>57</sup> Currently at least 41 states have laws which restrict predatory mortgage lending, but the terms and enforcement of these statutes are uneven.<sup>58</sup>

Moreover, unscrupulous originators can evade state law by falsifying information or making “no documentation” loans that make loans appear affordable even when they are not.<sup>59</sup> The remarkable expansion of low document and no document loans, observable in Figure 10, is likely to reflect something more than risk-taking by lenders. It may also measure the determination of originators to evade state controls on predatory lending.

Prepayment penalties, which are frequently imposed on all types of subprime loans at a very high relative and absolute rate (See Figure 15), have the potential to strip housing equity from subprime borrowers. As Farris and Richardson note: “The typical penalty is six months’ in-

terest on up to 80 percent of the original mortgage balance. For a subprime loan at 12 percent interest, this means that a prepayment penalty amounts to nearly 5 percent of the loan balance. For a \$150,000 loan, the fee is \$7,500, which was about 40 percent of the total net wealth of the median black family in 2001.<sup>60</sup> Hence, sale or refinance during the penalty period, which often lasts three or more years, is very costly to subprime borrowers. A subprime 2/28 borrower with the example \$150,000 mortgage, who began with \$15,000 in equity, would have no equity after two refinancings (even ignoring closing costs and other fees), unless the price of his house had appreciated.

Prepayment penalties also raise the likelihood that a subprime borrower will default. In a study of subprime refinance loans originated in 1999, Quercia et al. concluded that prepayment penalties raise the odds of foreclosure, risk factors held constant.<sup>61</sup> This most likely results from the fact that prepayment penalties prevent subprime borrowers from refinancing their loans when interest rates decline or their credit standing improves.

Prepayment penalties are sometimes explained as a means of compensating lenders for unanticipated interruption to the stream of mortgage payments. However, it is also usually understood that a prepayment penalty should lower the interest rate on the loan, all things being equal, since the lender has insurance against early payment. This does not appear to be the case in the subprime market. **Borrowers with prepayment penalties do not receive lower interest rates compared to similar borrowers without penalties.**<sup>62</sup>

There is also evidence that the sales effort of mortgage brokers and mortgage companies has meant that subprime loans are more likely to be sold to more vulnerable members of the population, **even when those borrowers might qualify for less expensive mortgages.** In a study of a random sample of borrowers who took out mortgages during 1999 and 2000, Courchane et al. examined whether factors other than credit risk indicators (such as FICO score and the loan to value ratio) explain who receives a subprime loan.<sup>63</sup> Their results show that those who do not search for the best price, who are not offered choices about mortgage terms, who obtain their mortgage through a broker, who are Hispanic, or are older than 65 are more likely to obtain a subprime mortgage, credit risk factors held constant.<sup>64</sup> A second study by Lax et al. reaches very similar conclusions.<sup>65</sup>



## **Part IV: Policy Responses**

The following section proposes several policy options that lawmakers should consider to reduce foreclosures and prevent future foreclosure epidemics and associated economic losses.

### **INCREASE RESOURCES FOR NONPROFIT HOUSING COUNSELORS SPECIALIZING IN FORECLOSURE PREVENTION**

There is a broad consensus among the Administration, Congress, private sector participants and consumer protection groups that the role of housing counselors as intermediaries between borrowers and lenders/loan servicers is critical in helping prevent foreclosures. Housing counseling agencies across the country are working on behalf of struggling borrowers to negotiate safe and affordable loan modifications and refinancings in an effort to prevent foreclosures. Because of the often competing incentives of the market players involved in the securitization of subprime loans, borrowers are often at a loss when it comes to figuring out how they can financially mitigate an unaffordable rate reset. Nonprofits that specialize in foreclosure prevention have been highly effective in acting on behalf of borrowers to explore their options with their lenders.

In the FY2008 Senate Transportation, Housing and Urban Development (HUD) Appropriations bill, a \$100 million appropriation targeted to HUD-certified foreclosure-avoidance nonprofits was approved. The bill also included \$100 million in loss mitigation funding for both nonprofits and private entities. This is a significant additional funding stream targeted to preventing foreclosures, but more resources are urgently needed.

### **DIRECT SERVICERS AND LENDERS TO MAKE SAFE AND SUSTAINABLE MODIFICATIONS, OR REFINANCING**

The most effective way to help prevent foreclosures for hybrid ARM borrowers that cannot afford their payments after the rate reset is to modify the terms of their loan to make them affordable. The Center for Responsible Lending (CRL) estimates that 20 percent of existing borrowers that were able to repay their loans before their rates reset but cannot refinance to conventional loans could afford their loans over the life of the mortgage if their current “teaser” interest rate was fixed at that rate. CRL estimates that another 20 percent of borrowers—those unable to pay the teaser rate because they may have been placed into stated income loans they could not afford, for example—could afford their mortgages only if their principal balance or interest rate was reduced to make it possible for them to afford the lower payments on the reduced loan balance. Legislation is currently pending in Congress to temporarily change the tax law to let homeowners avoid paying taxes on any forgiven debt in loans being restructured by financial institutions.

The federal regulators have issued guidance to lenders and servicers to engage in loss mitigation efforts prior to pursuing foreclosures, and lawmakers should put pressure on the private

sector players to step up their efforts to help subprime ARM borrowers before their loan resets. Policymakers should also emphasize the importance of servicers developing a rules-based approach to doing loan modifications so that the servicers can handle the volume of borrowers whose loans are due to reset. Policymakers may also consider requiring specific loss mitigation efforts prior to any foreclosure filing by creating an affirmative duty for lenders and servicers prior to foreclosure.

### **INCREASE FHA'S ABILITY TO REFINANCE**

Congress is currently working to pass the Federal Housing Administration's (FHA) Modernization Act of 2007, which would increase FHA's capacity and flexibility to insure subprime mortgages that can be refinanced. The proposal is designed to make FHA-insured loans a more attractive option to lenders and borrowers by increasing allowable loan limits and lowering down-payment requirements. The Administration has backed the proposal.

### **EXPAND CAPABILITY OF GOVERNMENT SPONSORED ENTERPRISES TO REFINANCE SUBPRIME BORROWERS**

Expanding the near-term capabilities of the government sponsored enterprises (GSEs) Fannie Mae and Freddie Mac to help subprime borrowers through refinancings could help curb the pace and volume of foreclosures. Both Fannie Mae and Freddie Mac have specialized, affordable loan products that they make available to subprime borrowers. Both of the GSEs are currently constrained by portfolio limits imposed upon them by their safety and soundness regulator, the Office of Federal Housing Enterprise Oversight. Temporarily raising the GSE portfolio limits, if the increase is focused on the key problem of refinancing subprime ARMs, could provide much needed funding to mortgage lenders who will be able to refinance struggling borrowers in safe and sustainable loan products.

### **AMEND THE BANKRUPTCY CODE TO PROTECT FAMILIES FROM FORECLOSURE**

Many of today's subprime borrowers have loans that are greater than the value of their homes, which means foreclosure will not extinguish their debts. Bankruptcy could be a highly effective tool for helping families recover from subprime loans, but today's bankruptcy code prevents courts from providing relief on mortgage loans. In fact, the law singles out the home mortgage loan as the one debt the courts are not permitted to modify. To address the subprime crisis, policymakers could amend the bankruptcy code to either temporarily or permanently exclude primary home loans from the remedies that are available on other, less important debts. This would allow borrowers to pay the fair market value of their home and to keep that home, rather than seeing the home sold to a third party for its liquidation value.

## **REFORM MORTGAGE LENDING AND BAN PREDATORY LENDING PRACTICES**

The prevalence of predatory lending that helped fuel the volume of risky subprime loans was enabled by a patchwork of federal and state regulations that was all-too-easily evaded by subprime mortgage brokers and lenders. Federal laws are needed that would offer predatory lending protections to homeowners, restore common sense underwriting practices and ensure a borrower's ability to pay. At a minimum, the federal government should require lenders to determine that the borrower has the ability to repay a loan at the fully-indexed rate and assume fully amortized payments. Federal banking regulators have issued strong guidance requiring depository banks and their affiliates to underwrite loans at the fully indexed interest rate, but a clear federal standard is needed that apply this requirement to the whole mortgage market. Policymakers should also require lenders to verify a borrower's income using tax documents or other reasonable documentation.

Policymakers may also want to require mortgage lenders to escrow for taxes and insurance on all mortgage loans. Failing to escrow for taxes and insurance on a subprime loan is an unfair and deceptive practice that contributes to high rates of foreclosure.<sup>64</sup> Furthermore, eliminating prepayment penalties and yield-spread premiums on subprime loans would help discourage steering of borrowers into unnecessarily expensive loans.

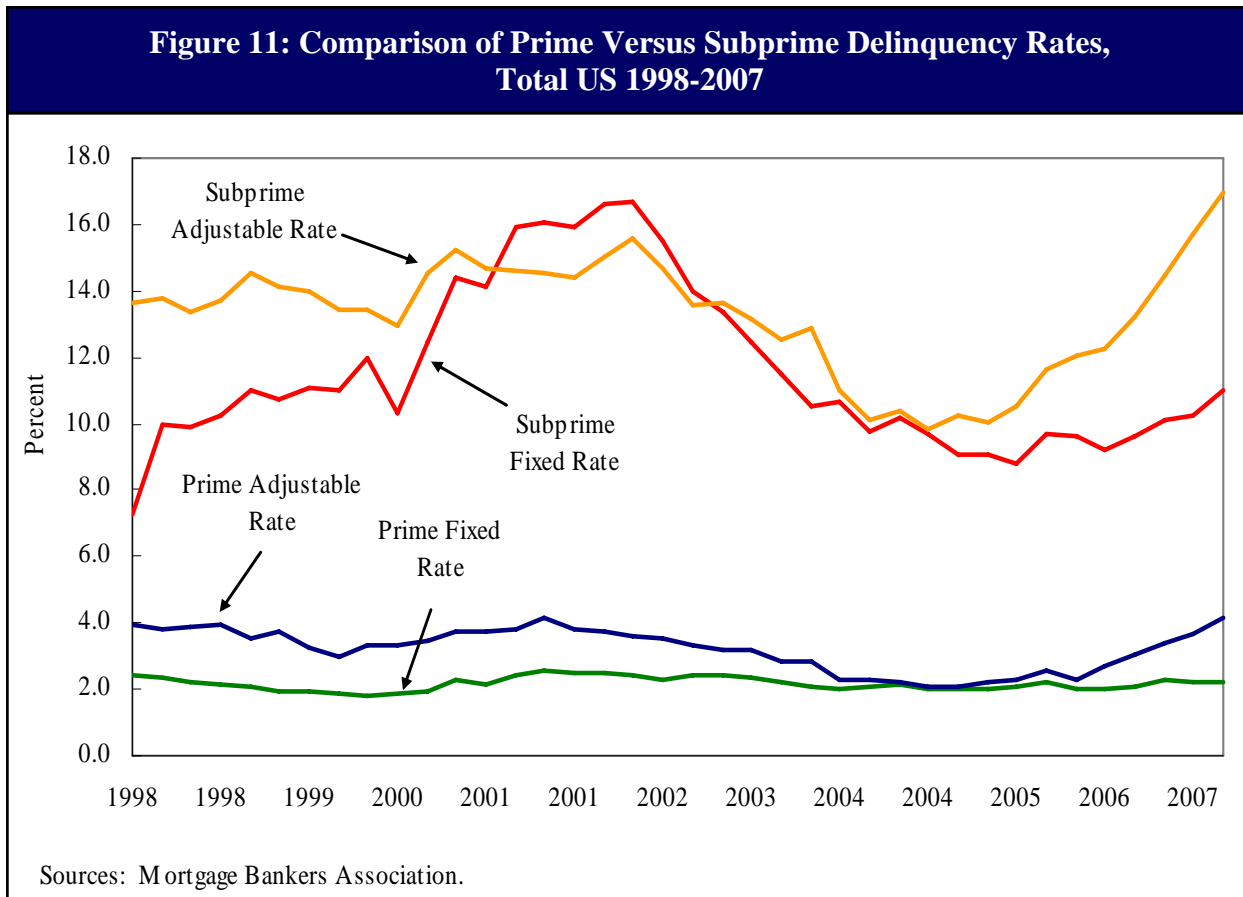
Policymakers should also consider regulating mortgage brokers and originators under the existing Truth in Lending Act (TILA) by establishing a fiduciary duty between brokers and their customers, and a duty of good faith and fair dealing standard for all originators. An important takeaway from the subprime mortgage crisis is that too often mortgage originators have no incentive to act in the borrowers' best interest. Instead their interests are aligned with securitizers that repackaged the subprime loans into securities designed to maximize attractiveness to investors.

## **MAKE SURE ALL BORROWERS UNDERSTAND THE TERMS OF THEIR MORTGAGES**

The current subprime mortgage crisis has made it clear that the mortgage finance system does not require that borrowers understand how their loans work. As explained above, subprime mortgage origination has been accompanied by a rise in predatory lending practices that can lead borrowers to believe that they can afford their loans or refinance before they reset to a much higher payment. Policymakers should consider requiring that all mortgage lenders disclose the basic facts about the mortgage loan that they underwrite for the borrower. This form should be easy to understand and not exceed one page in length.

The borrower should receive this one-page form from the lender well before the closing of his or her loan. At a minimum, the form should require that the borrower know the amount of the loan, the property's appraised value, the term of the loan, the payments at each reset date, and today's estimate of how much the rate will increase (the fully indexed rate), as well as the maximum possible rate on the loan. Other disclosures would include, in plain language, any prepayment fees and other estimated costs and fees due at closing.

Appendix

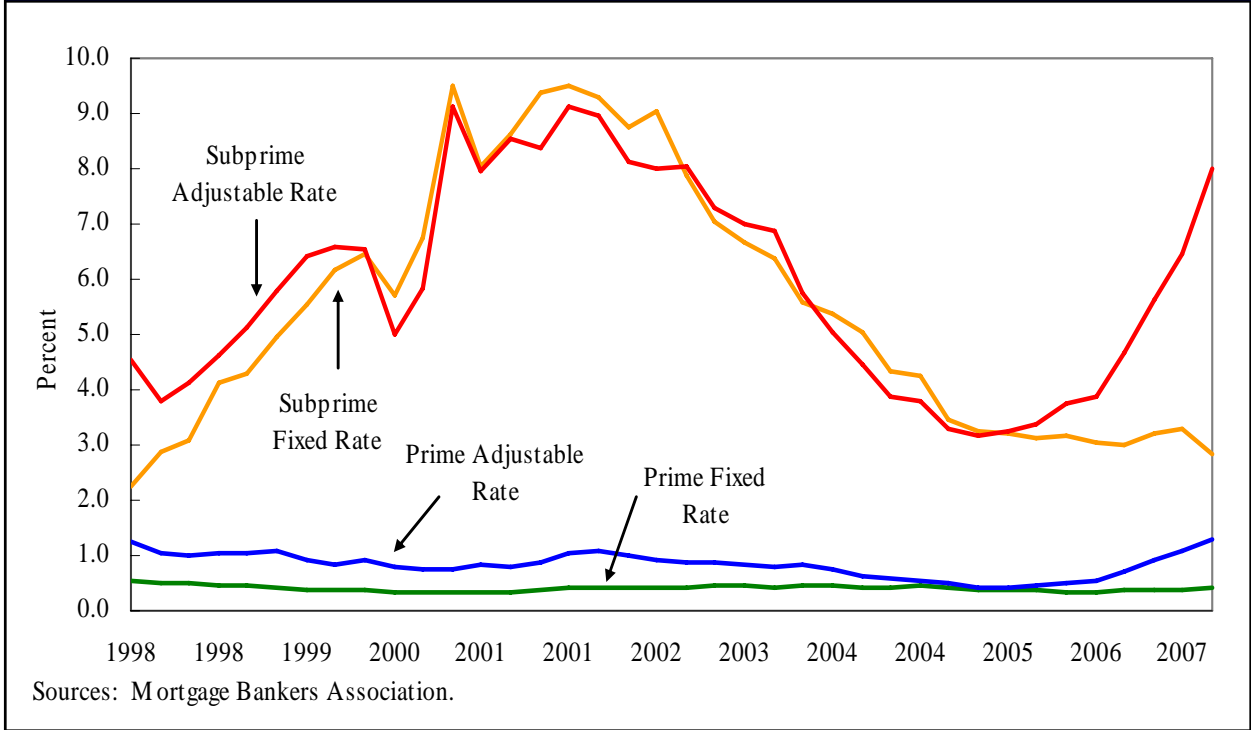


**Figure 12: Subprime Mortgage Backed Security Composition**  
An Analysis of Private Label Securitization Data

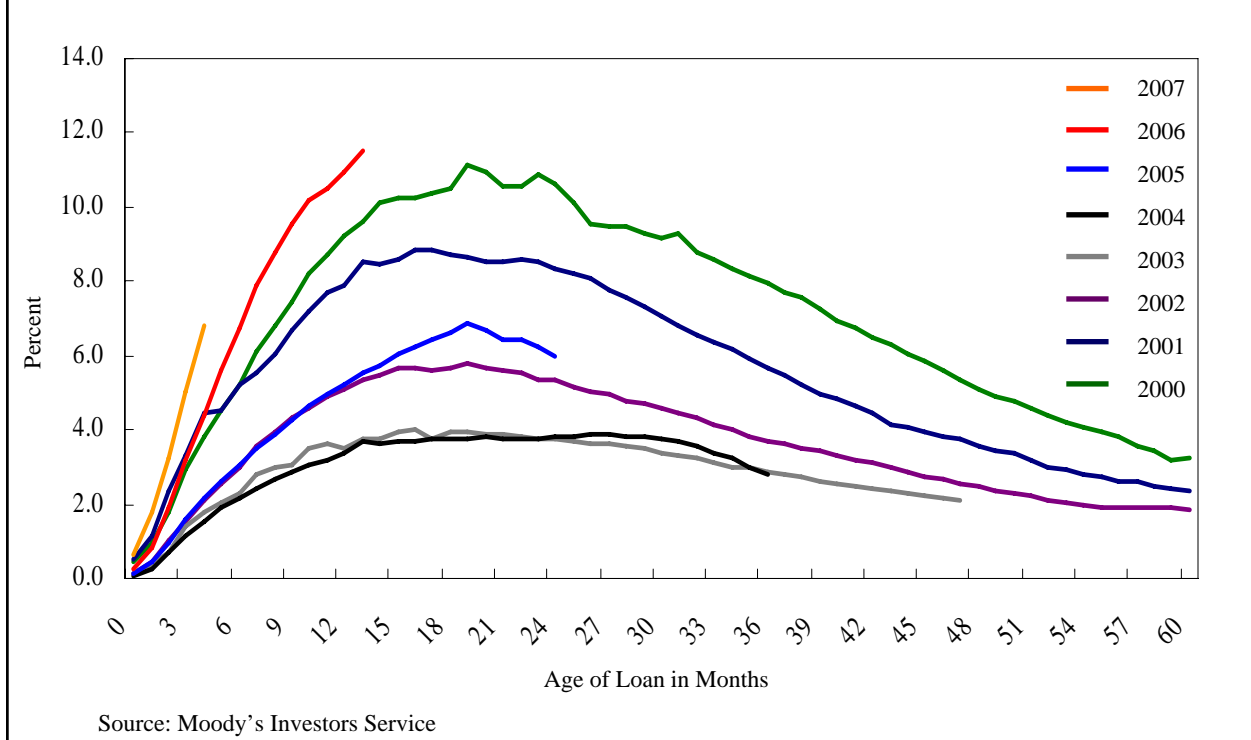
	IO Share	Negative Amortization Share	2- and 3-year Hybrid Adjustable Rate	5- 7- and 10-year Hybrid Adjustable Rate
2001	0.0%	0.0%	59.5%	0.8%
2002	1.2%	0.0%	65.4%	1.4%
2003	4.1%	0.0%	63.1%	1.4%
2004	16.2%	0.0%	73.5%	1.5%
2005	27.2%	0.0%	72.2%	1.5%
2006	17.0%	0.0%	50.3%	2.0%

Source: Sandra L. Thompson, Director of Supervision and Consumer Protection, FDIC, statement before the Committee on Banking, Housing and Urban Affairs, U.S. Senate, March 22, 2007. Data from LoanPerformance

**Figure 13: Comparison of Prime Versus Subprime Foreclosure Rates, Total U.S. 1998-2007**



**Figure 14: Recent Subprime Vintages Have Performed Poorly  
Percent of Loans 60+ Days Delinquent by Year of Origination**



<b>Figure 15: FICO Score and Sector: 2005 Originations</b>					
<b>Sector</b>	<b>Average Loan Size</b>	<b>FICO Score</b>	<b>Combined Loan-to-Value</b>	<b>Percent Prepayment Penalty</b>	<b>Gross Margin (in basis pts.)</b>
<b>Prime ARM</b>	\$453,000	732	73.9	15.4	256.2
<b>Near Prime ARM</b>	\$321,000	711	80.0	52.6	282.4
<b>Subprime ARM</b>	\$200,000	624	85.9	72.4	582.6
<b>Prime Fixed</b>	\$499,000	742	70.6	1.7	N/A
<b>Near Prime Fixed</b>	\$215,000	717	76.2	15.6	N/A
<b>Subprime Fixed</b>	\$128,000	636	81.2	76.6	N/A

Source: Mortgage Bankers Association, Characteristics of Outstanding Residential Mortgage Debt: 2006, MBA Data Notes, January 2007, p. 5.

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- <sup>1</sup> Data from Robert Shiller, Irrational Exuberance website, accessed 9/10/07, available at <http://www.irrationalexuberance.com/index.htm>.
- <sup>2</sup> Robert Shiller (2005). Irrational Exuberance, Second Edition. Princeton: Princeton University Press, p. 13.
- <sup>3</sup> E. Schloemer et al. (2006). Losing Ground: Foreclosures in the Subprime Market and Their Cost to Homeowners, Center For Responsible Lending: Durham, NC, p. 14.
- <sup>4</sup> Federal Reserve Bank of San Francisco (2007). Economic Letter, House Prices and Subprime Mortgage Delinquencies, Number 2007-14, June 8.
- <sup>5</sup> S&P/Case-Shiller® U.S. National Home Price Index.
- <sup>6</sup> Ben Bernanke, Housing, Housing Finance and Monetary Policy, August 31, 2007, available at <http://www.federalreserve.gov/newsevents/speech/bernanke20070831a.htm>.
- <sup>7</sup> R. Shiller (2007a). Historic Turning Points in Real Estate, Cowles Foundation Discussion Paper No. 1610; R. Shiller (2007b). Understanding Recent Trends in House Prices and Home Ownership, FRB Kansas City Jackson Hole Symposium, August 31, 2007.
- <sup>8</sup> The National Association of Home Builders/Wells Fargo Housing Market Index (HMI) is based on monthly surveys of a panel of homebuilders. The builders are asked to rate local market conditions. Their responses on three aspects of market conditions – current sales of single-family detached new homes, expected sales of new single-family detached homes over the coming six months, and traffic of prospective buyers in new homes – are used to construct the HMI index.
- <sup>9</sup> C. Himmelberg et al. (2005). Assessing High House Prices: Bubbles, Fundamentals and Misperceptions. Journal of Economic Perspectives, Volume 19, Number 4, Fall, pp. 67-92; E. Glaeser and B. Ward (2004). The Causes and Consequences of Land Use Regulation. Harvard Institute of Economic Research, Discussion Paper Number 2124; E. Glaeser et al. (2004). Why Have Housing Prices Gone Up?
- <sup>10</sup> Himmelberg et al (2005); Gyourko et al. (2006). Superstar Cities. National Bureau of Economic Research Working Paper Number 12355, July.
- <sup>11</sup> K. Case and R. Shiller (2003). Is There a Bubble in the Housing Market? Brookings Papers on Economic Activity, Number 2, pp. 307-12.
- <sup>12</sup> D. Baker (2007). Midsummer Meltdown: Prospects for the Stock and Housing Markets, 2007. Center for Economic and Policy Research: Washington, D.C.
- <sup>13</sup> Sandra L. Thompson, Director Division of Supervision and Consumer Protection Federal Deposit Insurance Corporation, statement on “Mortgage Market Turmoil: Causes and Consequences,” before the Committee on Banking, Housing and Urban Affairs U.S. Senate, March 22, 2007.
- <sup>14</sup> Inside Mortgage Finance Publications defines subprime loans as those “made to those who have impaired credit. Generally have higher interest rates than prime loans. Such loans are tied to borrowers’ credit ratings, expressed as letter grades, such as A-, B, D. Prime loans’ credit is most often A.” Inside Mortgage Finance Publications (2007a). The 2007 Mortgage Market Statistical Annual, Bethesda, Maryland: Inside Mortgage Finance Publications, p. vi. Subprime lending is also called “B&C” lending.
- <sup>15</sup> See A. Pennington-Cross and G. Ho (2006) The Termination of Subprime and Fixed Rate Mortgages, Federal Reserve Bank of St. Louis, Working Paper 042-A, pp. 22.; R. Quercia et al. (2005). The Impact of Predatory Loan Terms On Subprime Foreclosures, Center for Responsible Lending: Durham, NC; E. Schloemer et al. (2006). Losing Ground, Center for Responsible Lending: Durham, NC.

<sup>16</sup> Schloemer et al. (2006), pp. 15-16.

<sup>17</sup> A recent paper by Apgar et al. discusses the non-pecuniary costs associated with vacant houses, such as increases in crime. See W. Apgar, M. Duda, and R. Gorey (2005). The Municipal Cost of Foreclosures: A Chicago Case Study, Homeownership Preservation Foundation, Housing Finance Policy Research Paper Number 2005-1. The authors found an increase in gang activity, drug dealing, prostitution, arson, rape and even murder occurring in vacant properties.

<sup>18</sup> D. Immergluck and G. Smith (2006). The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values, Housing Policy Debate, Volume 17, Issue 1.

<sup>19</sup> A. Shlay and G. Whitman, "Research for Democracy: Linking Community Organizing and Research to Leverage Blight Policy," City & Community, Vol.5, No. 2. June. 2006.

<sup>20</sup> Center for Responsible Lending, "Subprime Lending: A Net Drain on Homeownership," CRL Issue Paper No. 14, March 27, 2007, available at <http://www.responsiblelending.org/page.jsp?itemID=32032031>.

<sup>21</sup> *Ibid.*

<sup>22</sup> E. Gramlich (2007). Subprime Mortgages, America's Latest Boom and Bust. Washington: The Urban Institute Press, pp. 13-18.

<sup>23</sup> Joint Economic Committee calculations using data from Mortgage Bankers Association, "Number of Mortgages Serviced."

<sup>24</sup> *Ibid.*

<sup>25</sup> C. Cagan (2007). Mortgage Payment Reset: The Issue and the Impact. Santa Ana, CA: First American Core-Logic, pp. 29-31, available at [http://www.facorelogic.com/uploadedFiles/Newsroom/Studies\\_and\\_Briefs/Studies/20070048MortgagePaymentResetStudy\\_FINAL.pdf](http://www.facorelogic.com/uploadedFiles/Newsroom/Studies_and_Briefs/Studies/20070048MortgagePaymentResetStudy_FINAL.pdf)

<sup>26</sup> Cagan (2007), pp. 42-43.

<sup>27</sup> Sheila Bair, Chairman, Federal Deposit Insurance Corporation, statement on "Subprime and Predatory Lending" before the House Subcommittee on Financial Institutions and Consumer Credit of the Committee on Financial Services, March 27, 2007, p. 7.

<sup>28</sup> See, for example, Frederic Mishkin, (2007). Housing and the Monetary Transmission Mechanism, Finance and Economic Discussion Series, Federal Reserve Board, 2007- 40, August; J. Muellbauer (2007) Housing, Credit and Consumer Expenditure, FRB Kansas City Jackson Hole Symposium, August 31, 2007.

<sup>29</sup> F. Mishkin (2007), pp. 34-35.

<sup>30</sup> This ranking is closely correlated with the size of the outstanding stock of subprime mortgages, but the correlation is not perfect. As we explain below, expected housing price movements affect foreclosure outcomes, and these expected changes are not identical across states.

<sup>31</sup> Calculations from data at [http://www.realtytrac.com/foreclosure\\_laws\\_overview.asp](http://www.realtytrac.com/foreclosure_laws_overview.asp) and at [www.stopforeclosure.com](http://www.stopforeclosure.com).

<sup>32</sup> See the discussion of the role of price appreciation in subprime loan performance in Part I above.

<sup>33</sup> For example, let  $FC_1$  be the estimated ARM foreclosure rate covering Q3 2007 through Q2 2008 and let  $FC_2$  be the ARM foreclosure rate for Q3 2008 through Q2 2009. Let  $T$  be the number of subprime ARMs outstanding in at the beginning of Q3 2007. Then for the last two quarters of 2007, the number of ARM foreclosures is estimated by  $.5 * FC_1 * T$ . The number of ARM foreclosures in 2008 is estimated as  $.5 * FC_1 * T + .5 * FC_2 * T * (1 - .5 * FC_1)$ .

<sup>34</sup> See the discussion in Part I above.



<sup>35</sup> See A. Pennington-Cross (2006). The Value of Foreclosed Property, The Journal of Real Estate Research, April-June 2006, Volume 28, Number 2, p. 204.

<sup>36</sup> See D. Immergluck and G. Smith (2006), p. 69. Immergluck and Smith also discuss a higher estimate of neighborhood effects, but we use their more conservative value in our calculations.

<sup>37</sup> We estimate the number of houses affected within 1/8<sup>th</sup> mile net of the number of foreclosures.

<sup>38</sup> See Mishkin (2007).

<sup>39</sup> Robert Shiller, Professor of Economics, Yale University, statement on “Evolution of an Economic Crisis?: The Subprime Lending Disaster and the Threat to the Broader Economy,” before the Joint Economic Committee, U.S. Congress, September 19, 2007, p. 2. Shiller cites a 13 percent real decline. Given a three percent inflation rate, this translates to a 16 percent nominal decline.

<sup>40</sup> Note that total property loss is only slightly higher than the loss calculated in our state level forecast. This is a consequence of assuming greater housing price declines.

<sup>41</sup> Bureau of the Census, U.S. Department of Commerce.

<sup>42</sup> Mortgage brokers originate and process loans for a number of lenders for a fee or other compensation, and generally do not use their own funds for closing. Correspondent lenders deliver loans to a lender, but fund the closing with their own money. Retail lenders offer mortgages directly to the public.

<sup>43</sup> Inside Mortgage Finance Publications (2007b). Top Subprime Market Players & Key Subprime Data 2006, Bethesda, MD: Inside Mortgage Finance Publications, p. 19.

<sup>44</sup> The Mortgage Bankers Association has a similar estimate for 2005. They estimate that, in 2005, 71 percent of subprime originations came from brokers. Their estimate, however, excludes correspondent originations. See Mortgage Bankers Association (2006). MBA Data Notes, Residential Mortgage Origination Channels, September.

<sup>45</sup> Inside Mortgage Finance Publications (2007a), p. 5.

<sup>46</sup> Gramlich (2007), p. 7. Gramlich’s analysis of the role of independent mortgage companies is confirmed Apgar et al., “Mortgage Market Channels and Fair Lending,” Joint Center for Housing Studies, Harvard University, p. 14.

<sup>47</sup> See Gramlich (2007), p. 21-22.

<sup>48</sup> Ibid, pp. 21-23.

<sup>49</sup> Elizabeth Renuart (2004), An Overview of the Predatory Lending Process, Housing Policy Debate 15:3, pp. 467-502.

<sup>50</sup> John Farris and Christopher A. Richardson, The Geography of Subprime Mortgage Prepayment Penalty Patterns, Housing Policy Debate, 15:3, pp. 687-714.

<sup>51</sup> Statement of Sheila Bair, Chairman, Federal Deposit Insurance Corporation, on Subprime and Predatory Lending, before the House Subcommittee on Financial Institutions and Consumer Credit of the Committee on Financial Services, March 27, 2007, pp. 9, 20-28.

<sup>52</sup> As has been discussed above, hybrid ARMS offer an initial low interest rate and payment, but build in a significant payment shock at the end of the initial two or three year period.

<sup>53</sup> Michael D. Calhoun, President for the Center for Responsible Lending, statement on “Calculated Risk: Assessing Non-Traditional Mortgage Products” before the Senate Committee on Banking, Housing and Urban Affairs, Subcommittee on Housing and Transportation and Subcommittee on Economic Policy, September 20, 2006, pp. 7-8.

<sup>54</sup> A. Pennington-Cross and G. Ho (2006).

<sup>55</sup> See Federal Reserve System (2001), 12 CFR 226. HOEPA was enacted in response to evidence of abusive lending practices in the home-equity lending market. According to the Federal Reserve, reports of predatory lending have generally included one or more of the following: (1) making unaffordable loans based on the borrower's home equity without regard to the borrower's ability to repay the obligation; (2) inducing a borrower to refinance a loan repeatedly, even though the refinancing may not be in the borrower's interest, and charging high points and fees each time the loan is refinanced, which decreases the consumer's equity in the home and (3) engaging in fraud or deception to conceal the true nature of the loan obligation from an unsuspecting or unsophisticated borrower.

<sup>56</sup> R. Quercia et al. (2003). *The Impact of North Carolina's Anti-Predatory Lending Law: A Descriptive Assessment*. Center For Community Capitalism, University of North Carolina, Chapel Hill; E. Renuart (2004). *An Overview of the Predatory Mortgage Lending Process*. Housing Policy Debate, Volume 15, Issue 3.

<sup>57</sup> R. Avery et al. (2006). *Higher-Priced Home Lending and the 2005 HMDA Data*. Federal Reserve Bulletin, September 8, A123-A166, Table 4.

<sup>58</sup> R. Bostic et al. (2007). *State and Local Anti-Predatory Lending Laws: The Effect of Legal Enforcement Mechanisms*, available at <http://ssrn.com/abstract=1005423>; W. Li and K. Ernst (2006). *Do state predatory home lending laws work?* Center for Responsible Lending working paper, 2006; R. Bostic et al., *State and Local Anti-Predatory Lending Laws: The Effect of Legal Enforcement Mechanisms*; Working Paper, Aug. 7, 2007, available at <http://ssrn.com/abstract+1005423>.

<sup>59</sup> See Renuart (2004), pp. 481-482.

<sup>60</sup> J. Farris and C. Richardson (2004). *The Geography of Subprime Mortgage Prepayment Penalty Patterns*. Housing Policy Debate, Volume 15, Issue 3, p. 689.

<sup>61</sup> R. Quercia et al. (2005). *The Impact of Predatory Loan Terms on Subprime Foreclosures: The Special Case of Prepayment Penalties and Balloon Payments*. Center for Community Capitalism, University of North Carolina, Chapel Hill.

<sup>62</sup> K. Ernst (2005). *Borrowers Gain No Interest Rate Benefits from Prepayment Penalties on Subprime Mortgages*. Center for Responsible Lending: Durham, NC. Available at [http://www.responsiblelending.org/pdfs/rr005-PPP\\_Interest\\_Rate-0105.pdf](http://www.responsiblelending.org/pdfs/rr005-PPP_Interest_Rate-0105.pdf).

<sup>63</sup> M. Courchane et al. (2004). *Subprime Borrowers: Mortgage Transitions and Outcomes*, Journal of Real Estate Finance and Economics, Volume 29, Number 4, 365-392.

<sup>64</sup> *Ibid*, p. 373.

<sup>65</sup> H. Lax et al. (2004). *Subprime Lending: An Examination of Economic Efficiency*. Housing Policy Debate, Volume 15, Issue 3.

<sup>66</sup> E. Schloemer et al. (2006).