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Foreclosure Update: over 8 million foreclosures expected

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Summary

- We forecast that 8.1M mortgages will be in foreclosure over the next four years, representing 16% of all mortgages (Exhibit 1). This is an increase from our April report in which we forecast 6.5M foreclosures, or 13% of all mortgages.

- In this report, we complement our foreclosure forecast using rough adjustments for the expected rising unemployment rate, and we also make an attempt to illustrate the impact of loan modifications on foreclosures.

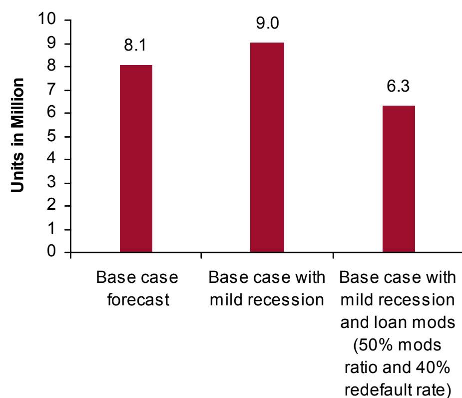
- Our base UE rate forecast under a recession would bring the foreclosure forecast to 9.0M, but a more severe recession would increase total foreclosures to 10.2M.

- Adjusting our base foreclosure forecast for loan mods brings our base forecast down to a range of 4.0M to 8.0M (the difference represent a broad range of mod success rates). Should 50% of loans facing foreclosure be modified and the re-default rate of modified loans is 40%, total foreclosures would drop to 6.3 M from 9.0M under the base case with mild recession.

- Current foreclosures show significant geographical variation. This report lists the foreclosure percentage of non-agency loans in each of the 50 largest counties and also shows the ranking of counties by foreclosure percentage.

- Treasury is developing a plan which could reduce mortgage rates to as low as 4.5% to encourage new home purchases. We believe that Treasury should target an even lower rate in foreclosure hot zones where entire neighborhoods are at risk.

Exhibit 1: Foreclosure forecast under different scenarios



Source: Credit Suisse

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Based on our updated forecast, we project 8.1 million foreclosures

In our April 23, 2008 report entitled "*Foreclosures: a sobering reality*" (click here to see the report), we forecast a total of 6.5M foreclosures over the next five years, or 13% of all mortgages. At the time, most viewed our forecast as being overly gloomy. However, based on the trends in delinquencies we were observing, the growing negative equity and our home price forecast, the forecast seemed reasonable. In this report, we update our forecast to 8.1M, or 1.5 million foreclosures greater than our earlier forecast[1]. Further, this forecast doesn't fully take into account the consensus increase in the unemployment rate to 8%. Adjusting our forecast for the rising unemployment rate, results in an increase to 9.0M. We also look into how our forecast might change under different loan modification assumptions.

If the unemployment rate reaches 8%, we project 9.0 million foreclosures

Despite some initial signs that subprime foreclosures were near a plateau, the combination of severe weakening in the economy, continued decline in home prices, steady increase in delinquencies, particularly in the prime mortgage space, ensure that foreclosure numbers, absent more dramatic intervention, will march steadily higher. While loan modifications and similar interventions (such as the Hope for Homeowners FHA refinancing program) could help to reduce the march of foreclosures, the proliferation of generally timid loan mod programs with confusing loan features raises significant doubt as to whether the current loan mod momentum is sufficient to reduce foreclosures materially. Further, though mortgage walkaways have been important, the disease hasn't infected the general population. However, should the downward spiral in home prices, neighborhood condition and equity deterioration continue, more and more mainstream borrowers are likely to walk away from their homes. Thus far, the population of subprime borrowers in the US is relatively small. However, the severe recession that appears more and more likely, coupled with the collapse of confidence in housing and resultant foreclosures and the impact on credit scores, risks transforming the US into a subprime society. That is, the deeper the foreclosure crisis penetrates into the gene pool, the greater the percentage of American consumers with impaired credit, and therefore limited ability to access credit. Therefore, foreclosures aren't only a housing-related phenomenon and should foreclosures spread, a large percentage of the population could suffer impaired credit, which in turn would hurt credit availability.

Foreclosure forecast update

Similar to our April report, we update our foreclosure forecast based on recent delinquency roll rate experience (percentage of loans moving from one delinquency status to another) that are segmented by current level of home equity. In particular, we look at loans outstanding as of September and use the average roll rate experience over the past three months. Future home price changes will be combined with previous home price declines to calculate dynamically future equity levels for each loan and the roll rate matrix corresponding to that equity position will be applied to calculate frequency of foreclosure. We applied this roll rate approach to subprime loans and then grossed up our subprime forecast to account for the entire housing market. For example, as shown in Exhibit 2 below, we assume the subprime share of total foreclosures decreases from 55% (as of today) to 20% of all mortgages by year 4. This decline results from the lack of subprime originations, a slower aging curve for prime mortgages (where it takes longer for prime mortgages to hit their foreclosure peak) and the pending payment shock for Option ARMs and other prime hybrid ARM borrowers.

This new update is based on the same home price scenario as in the April report, in which we projected home prices will decline 10% nationwide over the next 12 months, another 5% in the following year, and then grow 3% annually. We feel this is reasonable since credit markets remain frozen and economic conditions are deteriorating. Our April report

[1] It's important to note that our forecast of foreclosures is based on foreclosures initiated and doesn't take into account cured foreclosures or defaults where the borrower never enters foreclosure (such as a short sale).

is based on Case-Shiller HPI data thru December 2007. Since then, house prices have declined an additional 11% through September 2008, or a total of 20% since their peak in the middle of 2006. Therefore, relative to our previous report, the current update incorporates an additional 11% decline in home prices.

Exhibit 2 breaks out for subprime only vs. the total residential mortgage market our estimates of the number of new foreclosures and the outstanding inventory of foreclosures and REOs for subprime only and the total residential mortgage market through the end of 2012. In Exhibit 3, we put the expected total foreclosures, which include both existing foreclosures and REO properties as of September 2008 and future new foreclosures, in the context of total households with a mortgage. Based on our forecast, 8.1 million of households could fall into foreclosure by the end of 2012, representing about 16% of total households with mortgages. While this forecast may again seem high, it's somewhat lower than that implied by current RMBS market prices.

Exhibit 2: Number of new foreclosures and outstanding inventory for subprime only and total residential mortgage market by end of 2012

	Subprime Mortgage		Total Mortgage Market		
Year	# of New Fcls (in M)	# of Fcls and REOs at period end (in M)	# of New Fcls (in M)	# of Fcls and REOs at period end (in M)	Assumed % of Subprime in Total Foreclosures
Jan-Sep 2008 (actual)	0.8	1.0	1.4	1.7	55%
Sep-Dec 2008	0.2	1.0	0.4	2.0	50%
2009	0.7	0.9	1.7	2.3	40%
2010	0.5	0.7	1.6	2.2	30%
2011	0.3	0.5	1.3	1.9	25%
2012	0.3	0.4	1.3	1.8	20%

Source: Credit Suisse

Exhibit 3: About 16.1% of homeowners with mortgages, 8.1 million in total, could fall into foreclosure by end of 2012

Units in Million	Subprime	Other Mortgages	Total
# of households having mortgages	5.0	45.0	50.0
# of loans in Foreclosure and REO as of Sept 2008	1.0	0.7	1.7
# of new foreclosures by end of December 2012	1.9	4.4	6.3
# of total foreclosure (including inventory)	2.9	5.2	8.1
% of loans in Foreclosure	58.7%	11.4%	16.1%

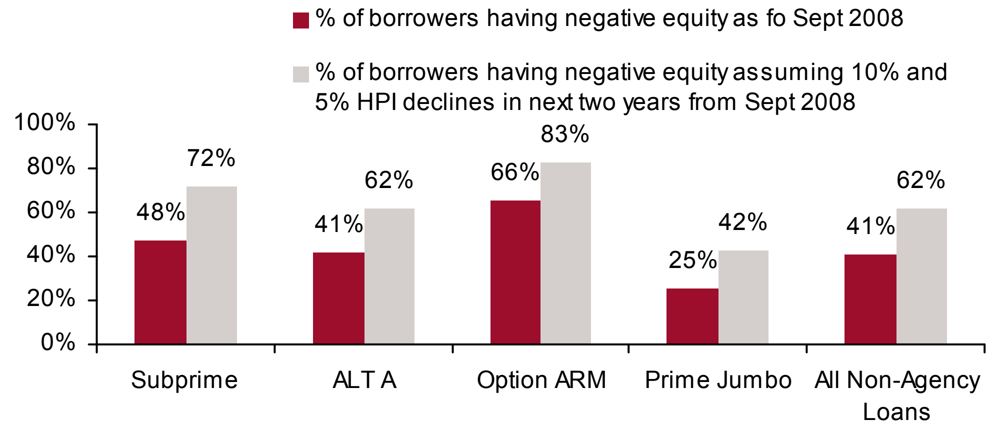
Source: Credit Suisse

62% of non-agency mortgages expected to have negative equity in two years, which will contribute to higher foreclosures

The increase in our foreclosure forecast, relative to our April report, is mainly driven by the severe price declines over the past nine months and expected further declines in the near future (resulting in greater peak-to-trough home price declines relative to our April report). Further contributing to the increase in foreclosures forecasted is the deterioration of delinquencies, which we believe largely resulted from a faster decline in home prices. As shown in Exhibit 4, the home price decline up to September 2008 has resulted in about 48% of subprime borrowers "underwater", i.e., those with outstanding mortgage balances (including both first and second liens) that were higher than current property values. Among all non-agency loans, 41% were under water by September, with the highest percentage seen in option ARM loans (66%) and the lowest in prime jumbo loans (25%). Further, given our HPA projections, we expect that 72% of subprime loans and 62% of all non-agency loans will have negative equity within two years. This is important because the propensity to default is highly correlated with the degree of negative equity. Exhibit 5 shows the significant increase in propensity to default, as measured by monthly roll rate from current (paying on time) to 30-59 days delinquency, for 2006 and later vintage non-agency loans with different levels of equity position. On average, the likelihood of rolling

into default for borrowers deeply underwater, as measured by current loan-to-value (LTV) ratio higher than 110%, is two (for subprime loans) to four times (for other non-agency loans) that for borrowers whose current LTV is still less than 80%. Similar performance variation can be found even after we limit our test to full documentation and refinance loans only (Exhibit 6).

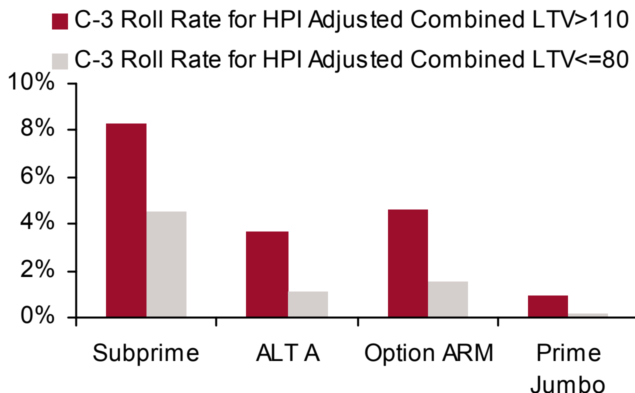
Exhibit 4: More borrowers will be underwater as a result of further home price declines



Source: Credit Suisse, LoanPerformance

Exhibit 5: Propensity of default increases across all products as borrowers fall further into negative equity

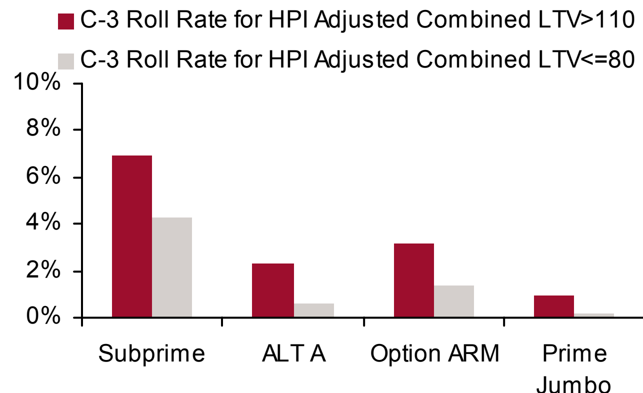
Looking at loans from 2006 and later vintages



Source: Credit Suisse, LoanPerformance

Exhibit 6: Similar trend is also found even after we control for documentation and loan purpose

Looking at **full doc and refi** loans from 2006 and later vintages



Source: Credit Suisse, LoanPerformance

Deteriorating labor market will put more pressure on foreclosures

Clearly any forecast of foreclosures needs to be tempered by the dire employment outlook over the next two (or more) years. In thinking about the relationship between UE and foreclosures, the following need to be considered:

- How long is the borrower likely to be unemployed vs. average savings and average monthly payments? Borrowers with lots of savings and a short unemployment period will likely not be forced into foreclosure.

- **Income on re-employment**. Re-employment with loss of earnings could likewise result in foreclosure, particularly for overlevered borrowers (which represent a large percentage of foreclosures).
- **Dual-income households** may cushion the impact of temporary unemployment.
- **Underemployed:** Foreclosures will increase not only for unemployed borrowers, but also for underemployed borrowers – borrowers who work part time or otherwise lose full time employment, but yet aren't classified as unemployed. This is already a phenomenon in today's market and will likely increase along with the increase in the unemployed.

To estimate the effect of a worsening economy on foreclosures, we computed the relationship between the unemployment rate and new foreclosures using a back of the envelope approach that assumes that for each 100 people added to the unemployment rolls, 40 new foreclosures arise, or a 40% response ratio of foreclosure to new unemployment. This is based on the assumption that homeowners lose jobs in the same proportion as renters. Since the homeownership rate is about 67%, we assume that for every 100 newly unemployed people, 67 will be homeowners. While we recognize that not all homeowners have mortgages, we assume that those who own their houses free and clear are not in the labor force (e.g., they are retired or self employed). Since many households are dual-income earners, a second income can provide some cushion, so we assume that about 60% of the homeowners losing their job may lose their home to foreclosure. We acknowledge that this assumption is also subject to other factors, such as the level of savings, significance of income from family member who loses income to the total family income, and how long the unemployment may last, etc. A prolonged and severe economic recession will likely push this foreclosure response ratio higher than our assumption of 40%.

Our base case scenario of unemployment, which is a little higher than the consensus forecast, projects a steady rise in the unemployment rate, peaking at 8% at the end of 2009, then falling to 7% by the end of 2010 as the economy starts recovering. Our deep recession scenario follows the base case through 2009 but keeps increasing after that, peaking at 10% by the end of 2010 (Exhibit 7). We applied each of these scenarios to our back-of-the-envelope approach to get a sense of how many additional foreclosures we might see.

Exhibit 7: Future unemployment rates under two economic scenarios

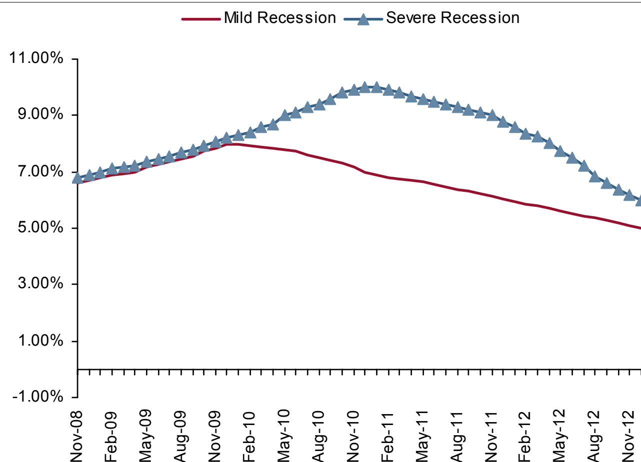
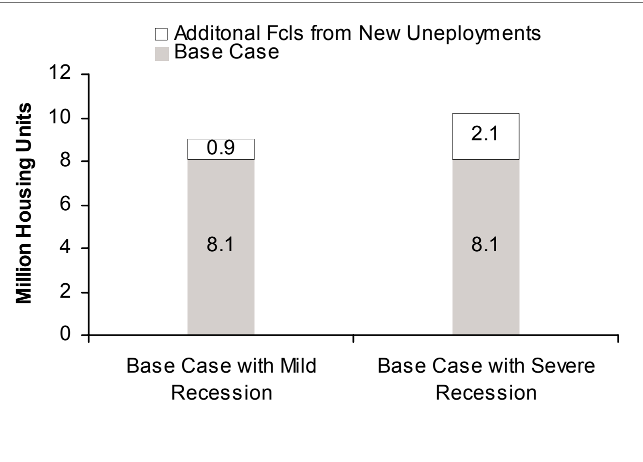


Exhibit 8: Recession and job market stress will add more foreclosures to our base case forecast

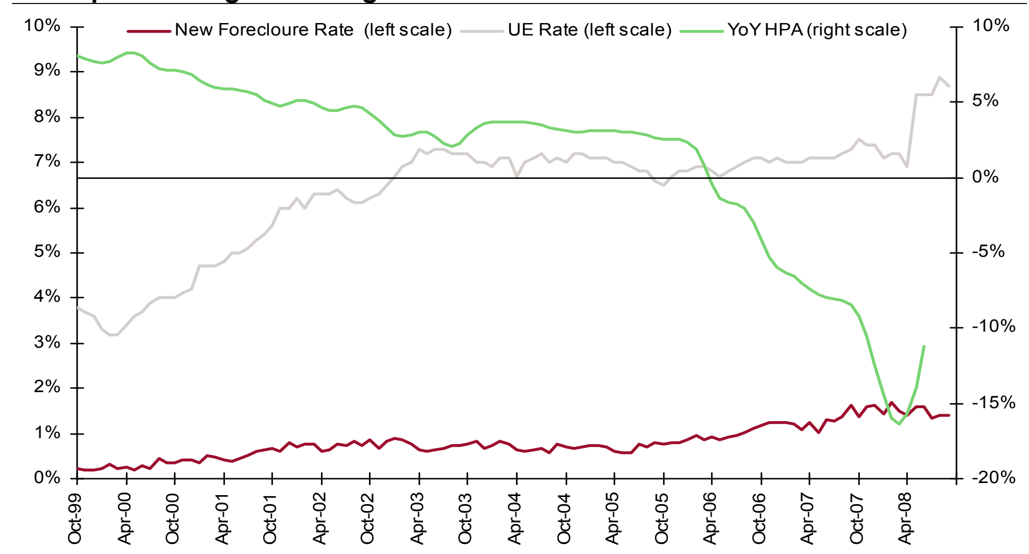


Source: Credit Suisse

Using this approach, we expect the increase in unemployment under a mild recession scenario will add an additional 0.9 million foreclosures to our base case forecast, bringing the total foreclosures to 9.0 million (Exhibit 8). Should the economy fall into a deep recession, in which the unemployment rate continues rising into 2010 to the level of 10% by year-end, we project 2.1M new foreclosures will be added on top of our base case of 8.1M foreclosures, bringing the total to 10M.

We also attempted to estimate econometrically the relationship between unemployment and foreclosure share; however, our results were not as consistent as we would have liked. Initially we started with a panel dataset controlling for state level fixed effects, but switched to a simpler model, looking at Rust Belt states, such as Michigan, only. As can bee seen from Exhibit 9 below, the relationship between the new foreclosure rate and unemployment that held up through the housing boom has started to deteriorate, making estimation difficult. Specifically, new foreclosures were generally flat during the period when unemployment was rising. This weak relationship largely resulted from positive HPA during the period unemployment was rising. Foreclosure starts, as show in Exhibit 9 below, began rising sharply again once home prices started declining in the Rust Belt. So foreclosures initially rose in the Rust Belt in the early 2000s as the unemployment rate spiked. Foreclosures renewed their upward trend very recently once home prices began to decline.

Exhibit 9: Historic relationship among new foreclosure, unemployment and home price change in Michigan



Source: Credit Suisse, Case-Shiller, BLS

Expanding loan modifications and other efforts will potentially reduce future foreclosure

Our recent modification update (click here for report) shows that modified loans remain a small percentage of delinquent loans and loans in foreclosure, even though servicers have ramped up their efforts in recent months. Since our report, several large public/private loan modification initiatives have been announced, including plans from FDIC/IndyMac. BoA/Countrywide, Chase and Citi, and Fannie and Freddie's streamlined mods. These initiatives represent an aggressive effort, from both the government and the private sector, to expand loan modification efforts significantly. However, we believe there are many flaws with these programs and they won't be sufficient to stem the rising tide of foreclosures. In addition, in order to kickstart the FHA H4H program, HUD recently relaxed several key provisions in this program, including increasing LTVs of new FHA loans from 90% to

96.5% to reduce the required principal loss in existing loans (for lower DTI borrowers only), allowing a 40-year term, increasing maximum DTI levels and giving up-front payments to second lien holders to encourage their participation.

Nevertheless, fully evaluating the effectiveness of these efforts in reducing future foreclosures is still a big challenge, as any effort will have to address the two key questions discussed below:

- How many borrowers will finally receive loan mods or other foreclosure avoidance efforts? Most loan mods programs require that homes must be owner occupied and some of the programs also require that borrowers don't have a second home or investment property. Although reported owner occupancy is high, rampant occupancy fraud in recent years will prevent a good number of loans from being eligible. Furthermore, since most mods programs only allow principal forbearance, borrowers deeply underwater may choose not to accept mods if they will be obligated to pay the forbearance amount upon sale of the home.
- Re-default rate of modified loans: As we discussed in the Oct 1 report, there is considerable variation in re-default rate by type of loan modification. The terms on which loans are modified going forward will also impact the re-default rate.

To gauge the possible impact of loan modifications on future foreclosures, we projected a series of likely modification and re-default scenarios on our base case projection of 8.1M foreclosures plus the additional 0.9M from new unemployment under the mild recession scenario. Exhibit 10 shows that under the best scenario, in which 70% of expected foreclosures are assumed to be modified with a re-default rate of 20%, total future foreclosure would decline to 4.0 million, a 56% deduction. In comparison, the most conservative scenario, in which only 30% of foreclosures are modified and re-default at 60%, the total foreclosures would decline to 8.0 million.

Exhibit 10: Impact of loan mods on foreclosure forecast

Units (in Million)

% of fcls that will be modified	Re-default rate of modified loans		
	20%	**40%**	**60%**
30%	6.9	7.4	8.0
50%	5.4	6.3	7.2
70%	4.0	5.2	6.5

Source: Credit Suisse

Mortgage rates dropped significantly from about 6.5% to 5.5% last week after the Fed announced plans to purchase $500B in Agency MBS and $100B in Agency debt, triggering a record weekly increase in the MBA refinancing index. According to *The Wall Street Journal*, the Treasury is developing a new plan that could lower mortgages rates to 4.5% for purchase money originations in an attempt to bring new buyers into the housing market. While this new plan shares some common ground with our suggestion for a national mortgage rate, we believe that the Treasury should go further, targeting even lower rates for purchases in foreclosure hot zones. In these areas, where entire neighbourhoods are at risk, rates could be set at an even greater concessionary rate to encourage new buyers. Few details of the Treasury proposal are available, so it is not clear how or if the new Treasury proposal will coordinate with the Fed' new plans to purchase Agency MBS and debt.

Regional foreclosure concentrations

Now that we've established our national foreclosure forecast, some may wonder where the foreclosures are likely to be concentrated. Just as all housing markets are local, property foreclosures also show very big geographical variation. Many factors are contributing to this variation, such as the local economy and job market and the recent housing market trend, to name a few. Exhibit 11 shows the foreclosure percentage of non-agency loans in each of the 50 largest counties, ranked by population. We can see the foreclosure performance variation among the largest counties can be as big as 20 times, from the highest foreclosure share of 24.3% in the Miami-Dade county of Florida to the lowest of 1.17% in New York City (the county including New York City).

Exhibit 12 shows the ranking of counties by foreclosure percentage. Given recent big declines in home price in California and Florida, it is not surprising to see that 17 among the top 20 counties having the highest foreclosure percentages are in these two states.

Exhibit 11: Foreclosure rate shows big variation among the 50 largest counties

Foreclosure share is defined as % of non-agency loans that were in foreclosure or REO as of September 2008

Rank	State	County	Population	Foreclosure Share	Rank	State	County	Population	Foreclosure Share
1	CA	LOS ANGELES	9,511,282	10.45%	26	NY	NASSAU	1,345,446	10.58%
2	IL	COOK	5,302,517	16.90%	27	NY	BRONX	1,327,690	14.89%
3	TX	HARRIS	3,421,255	6.24%	28	PA	ALLEGHENY	1,269,680	7.11%
4	AZ	MARICOPA	3,069,304	14.14%	29	CA	SACRAMENTO	1,225,312	20.34%
5	CA	ORANGE	2,852,324	8.64%	30	MI	OAKLAND	1,194,507	15.09%
6	CA	SAN DIEGO	2,813,659	10.35%	31	FL	PALM BEACH	1,136,387	21.02%
7	NY	KINGS	2,465,326	15.95%	32	MN	HENNEPIN	1,120,175	14.62%
8	TX	DALLAS	2,265,206	6.28%	33	OH	FRANKLIN	1,083,778	13.36%
9	FL	MIAMI-DADE	2,253,488	24.30%	34	MO	SAINT LOUIS	1,045,449	5.32%
10	NY	QUEENS	2,237,335	16.44%	35	FL	HILLSBOROUGH	1,012,387	19.62%
11	MI	WAYNE	2,077,363	21.54%	36	IL	DU PAGE	960,950	9.08%
12	WA	KING	1,740,091	3.37%	37	VA	FAIRFAX	953,576	7.00%
13	CA	SANTA CLARA	1,708,104	7.34%	38	NY	ERIE	947,878	7.12%
14	CA	SAN BERNARDINO	1,706,207	22.27%	39	CA	CONTRA COSTA	943,995	13.17%
15	FL	BROWARD	1,623,018	22.77%	40	WI	MILWAUKEE	940,164	17.77%
16	CA	RIVERSIDE	1,545,781	22.49%	41	FL	ORANGE	930,234	22.20%
17	NY	NEW YORK	1,529,375	1.17%	42	NY	WESTCHESTER	922,135	5.29%
18	PA	PHILADELPHIA	1,517,913	8.32%	43	FL	PINELLAS	921,482	18.04%
19	MA	MIDDLESEX	1,467,437	6.31%	44	TN	SHELBY	906,310	6.94%
20	CA	ALAMEDA	1,448,624	10.61%	45	GA	FULTON	899,710	8.90%
21	TX	TARRANT	1,423,027	5.61%	46	UT	SALT LAKE	898,383	7.59%
22	NY	SUFFOLK	1,413,291	12.87%	47	NJ	BERGEN	884,118	8.03%
23	OH	CUYAHOGA	1,400,828	19.61%	48	MD	MONTGOMERY	880,160	6.27%
24	TX	BEXAR	1,392,404	5.25%	49	HI	HONOLULU	876,156	5.62%
25	NV	CLARK	1,372,904	17.18%	50	IN	MARION	868,013	14.42%

Source: Credit Suisse, LoanPerformance

Exhibit 12: County ranking by foreclosure %

Foreclosure share is defined as % of non-agency loans that were in foreclosure or REO as of September 2008

Rank	State	County	Population	Foreclosure Share	Rank	State	County	Population	Foreclosure Share
1	CA	MERCED	210,428	34.95%	26	CA	KERN	663,176	21.43%
2	FL	SAINT LUCIE	185,987	34.77%	27	OH	TRUMBULL	217,478	21.28%
3	FL	LEE	442,567	34.70%	28	FL	MARION	253,497	21.15%
4	FL	OSCEOLA	169,149	30.47%	29	RI	PROVIDENCE	621,602	21.11%
5	CA	STANISLAUS	449,518	27.99%	30	CA	IMPERIAL	140,787	21.10%
6	FL	CHARLOTTE	139,499	27.67%	31	FL	PALM BEACH	1,136,387	21.02%
7	CA	SAN JOAQUIN	562,825	27.50%	32	MI	JACKSON	158,543	20.97%
8	VA	MANASSAS CITY	39,186	27.30%	33	NV	NYE	32,288	20.90%
9	FL	HERNANDO	126,042	24.67%	34	FL	BREVARD	476,557	20.49%
10	FL	MIAMI-DADE	2,253,488	24.30%	35	FL	SARASOTA	320,738	20.43%
11	CA	MADERA	122,343	24.28%	36	CA	SACRAMENTO	1,225,312	20.34%
12	CA	YUBA	59,625	24.10%	37	MN	RICE	58,804	20.22%
13	MN	SHERBURNE	59,618	23.73%	38	FL	INDIAN RIVER	112,951	19.93%
14	FL	PASCO	335,406	23.60%	39	CA	SAN BENITO	51,712	19.85%
15	FL	POLK	485,429	23.02%	40	ME	PENOBSCOT	146,681	19.80%
16	MN	ISANTI	28,056	23.01%	41	CA	SOLANO	403,407	19.72%
17	FL	BROWARD	1,623,018	22.77%	42	FL	VOLUSIA	445,486	19.64%
18	FL	FLAGLER	48,826	22.53%	43	FL	HILLSBOROUGH	1,012,387	19.62%
19	CA	RIVERSIDE	1,545,781	22.49%	44	OH	CUYAHOGA	1,400,828	19.61%
20	CA	SAN BERNARDINO	1,706,207	22.27%	45	OH	MAHONING	254,845	19.57%
21	FL	ORANGE	930,234	22.20%	46	FL	MANATEE	271,650	19.50%
22	MI	LENAWEE	100,634	21.69%	47	MN	RAMSEY	521,738	19.47%
23	FL	LAKE	225,035	21.67%	48	CA	SUTTER	78,297	19.44%
24	FL	COLLIER	250,724	21.59%	49	AZ	PINAL	174,927	19.29%
25	MI	WAYNE	2,077,363	21.54%	50	FL	HIGHLANDS	88,412	19.27%

Source: Credit Suisse, LoanPerformance

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