

RESEARCH

Standard & Poor's Weighs In On The U.S. Subprime Mortgage Market

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The consequences of the U.S. housing market's excesses, a topic of speculation for the past couple of years, finally have begun to surface. Big subprime mortgage lender New Century Financial has filed for bankruptcy, and tens of thousands of subprime borrowers have found themselves unable to make their payments. This has led to concerns about the impact of subprime problems on structured finance instruments, on the broader housing market, and on the U.S. economy.

It will take many months for the forces set in motion by the subprime decline to run their course, and for the ultimate impact to become obvious. Thus, today's prediction could become tomorrow's missed estimate.

That said, assessments by Standard & Poor's Rating Services analysts and economists, articulated most recently in a March 29 public teleconference featuring the four authors of this article, provide both a historical context for the current situation and some parameters for what could happen next.

Generally, we believe that:

- The U.S. median home price could drop 5% to 6% by the end of this year, on top of a 3% decline over the past 12 months. That reflects falling home sales and starts, which have leveled off at a rate of about 30% below where they were two years ago. The amount consumers borrow against their homes to finance other activities could drop 20% to about \$500 billion this year, and another 30% to \$350 billion next year—which would be the lowest figure since 2004.
- For residential mortgage backed securities (RMBS), we will over time issue more downgrades. We have so far downgraded or placed on CreditWatch negative only 0.2% of the 4,700 tranches to which we assigned ratings in 2006. We believe there is sufficient support for the majority of these bonds based upon our loss and economic forecasts, even though we expect the downgrade ratio to continue to rise. In 2000, during a less-severe real estate downturn than the U.S. now faces, we downgraded 15.6% of 'BB' rated tranches and 16.8% of 'BBB' tranches. We forecast that losses for 2006 vintage RMBS will be 5.25% to 7.75%, compared with losses of 5.50% for the 2000 vintage, to date the worst performing vintage in recent history.
- For the near term, the CDOs most vulnerable to downgrade are those with exposure to subprime RMBS deals done in 2002, 2003, and 2004. However, there has been no CDO rating impact yet from Standard & Poor's downgrades of any RMBS vintages. Because it's impossible for us to predict precisely future downgrade activity on 2006 subprime RMBS, it will be later this year and into 2008 before we know the impact of such downgrades on CDOs.
- We have already taken the majority of ratings actions that we expect to on subprime mortgage lenders—five, so far. In addition, we feel that the core rated banking universe has relatively limited exposure to subprime loans—which in turn should not put stress on the ratings on those issuers.

Subprime loans are far from the dominant segment of the mortgage market, though their share has been rising (see charts 1 and 2). In 2006, subprime lending accounted for about 19% of originations. However, it's only about 13% of outstanding mortgage loan volume, because subprime borrowers tend to pay off their loans more quickly than the average home owner: As they build equity in their homes and their credit improves, they refinance into prime mortgages. Recently, for example, borrowers have converted about 70% of subprime mortgages into other types of loans within six months of when the adjustable rate on their original mortgage first reset to a higher rate.

Chart 1

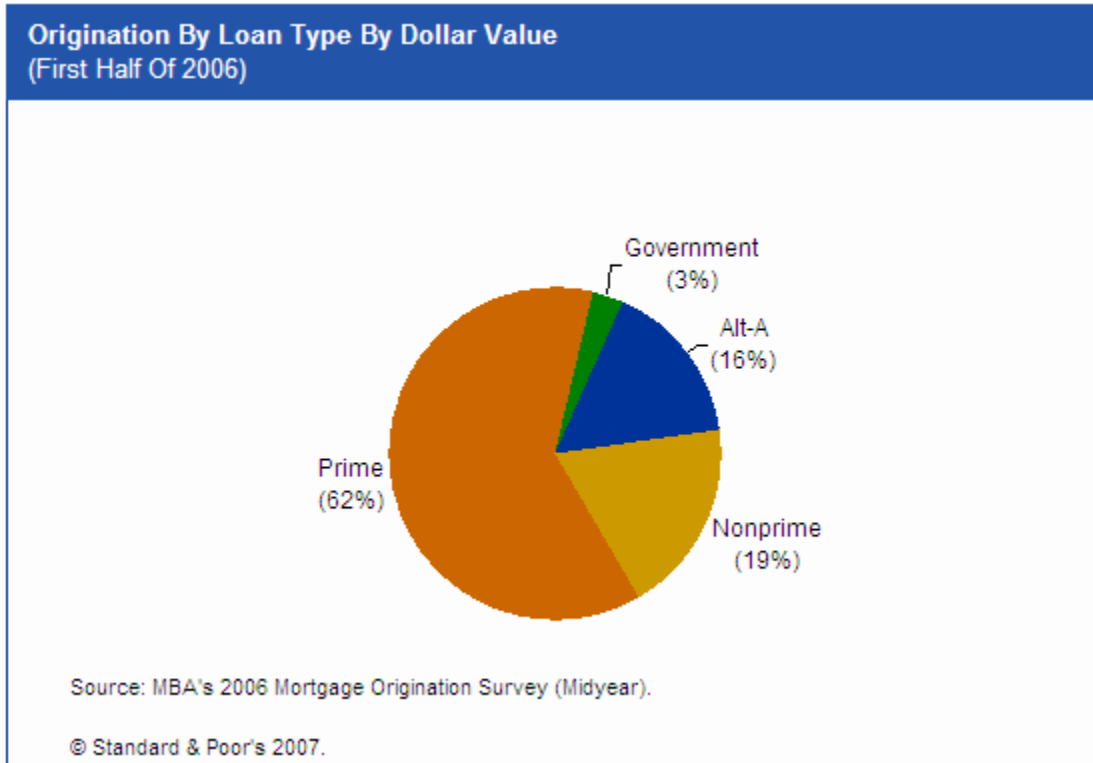
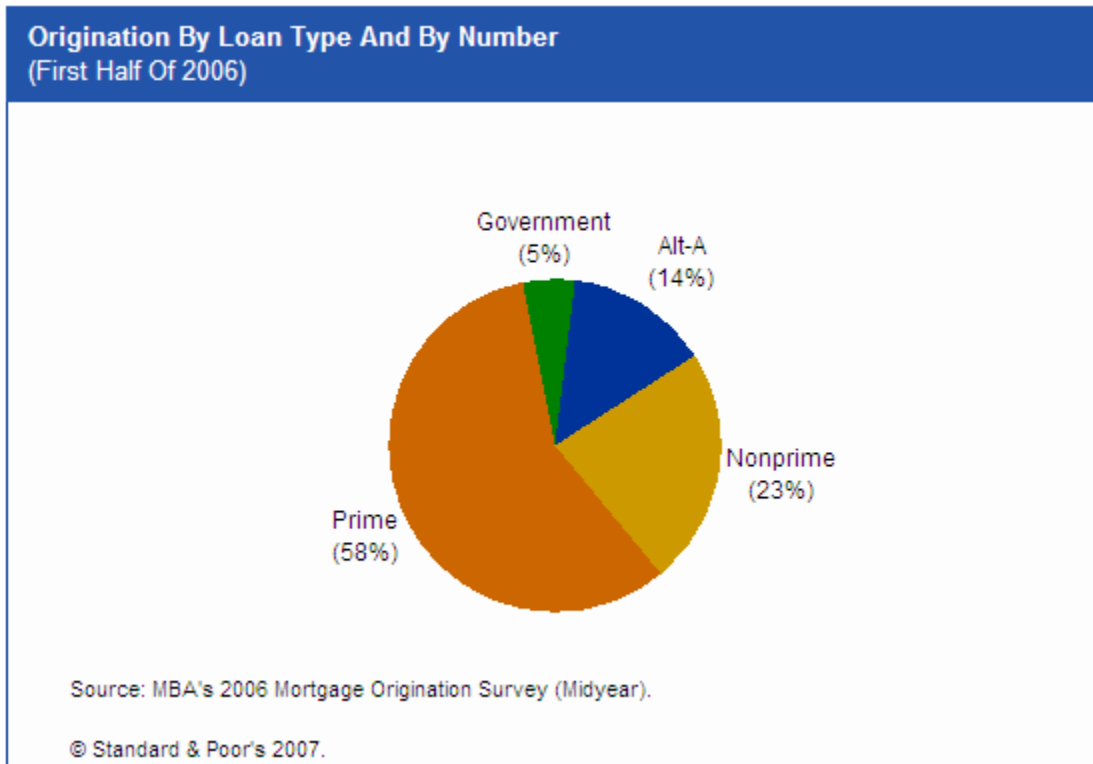
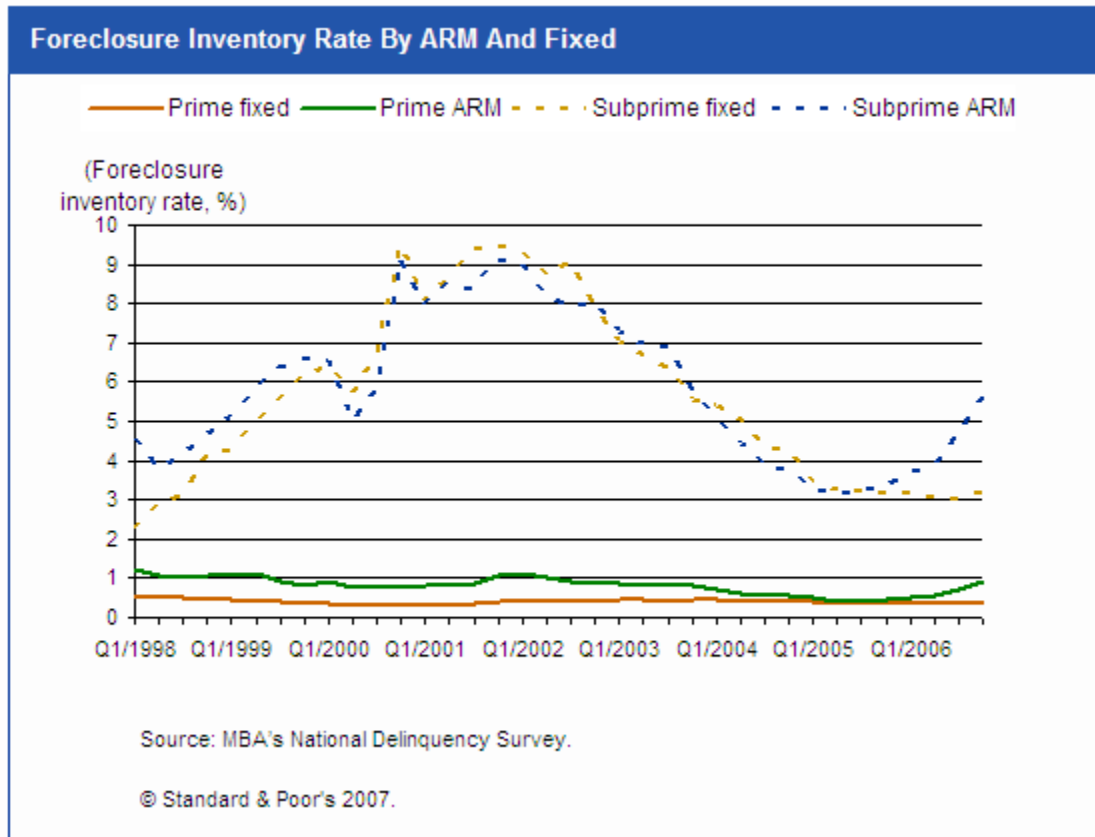


Chart 2



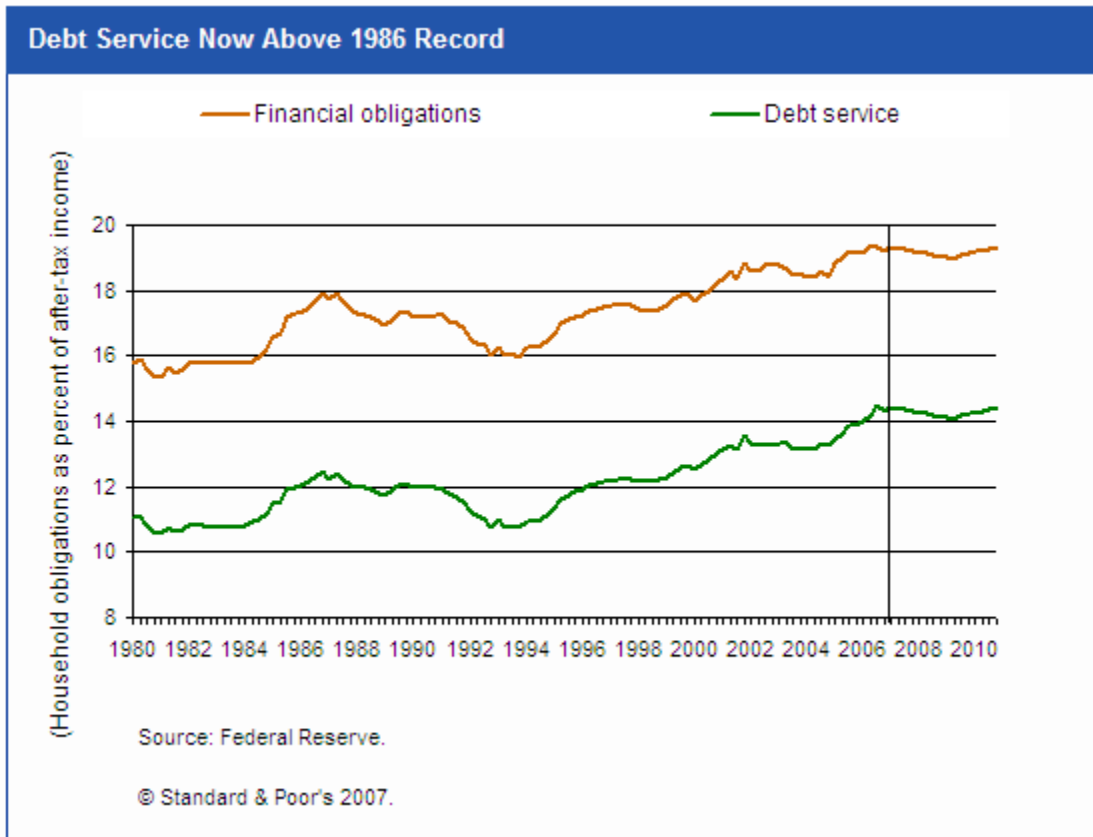
Foreclosure rates are obviously getting the most attention right now, given the significant upward turn they've taken in the past 15 months (see chart 3). However, they're still far below their recent peaks in 2001 and 2002, during a recession that was a mild event for the housing market. It's also notable that the current problem is pretty much confined to the subprime adjustable rate mortgage (ARM) market. By contrast, the subprime fixed-rate market is showing no sign of strain; its foreclosure rates remain near historic lows. At the same time, we are seeing a bit of an increase in foreclosures in prime adjustable rate mortgages, suggesting that the problem is more with ARMS than with subprime loans per se.

Chart 3



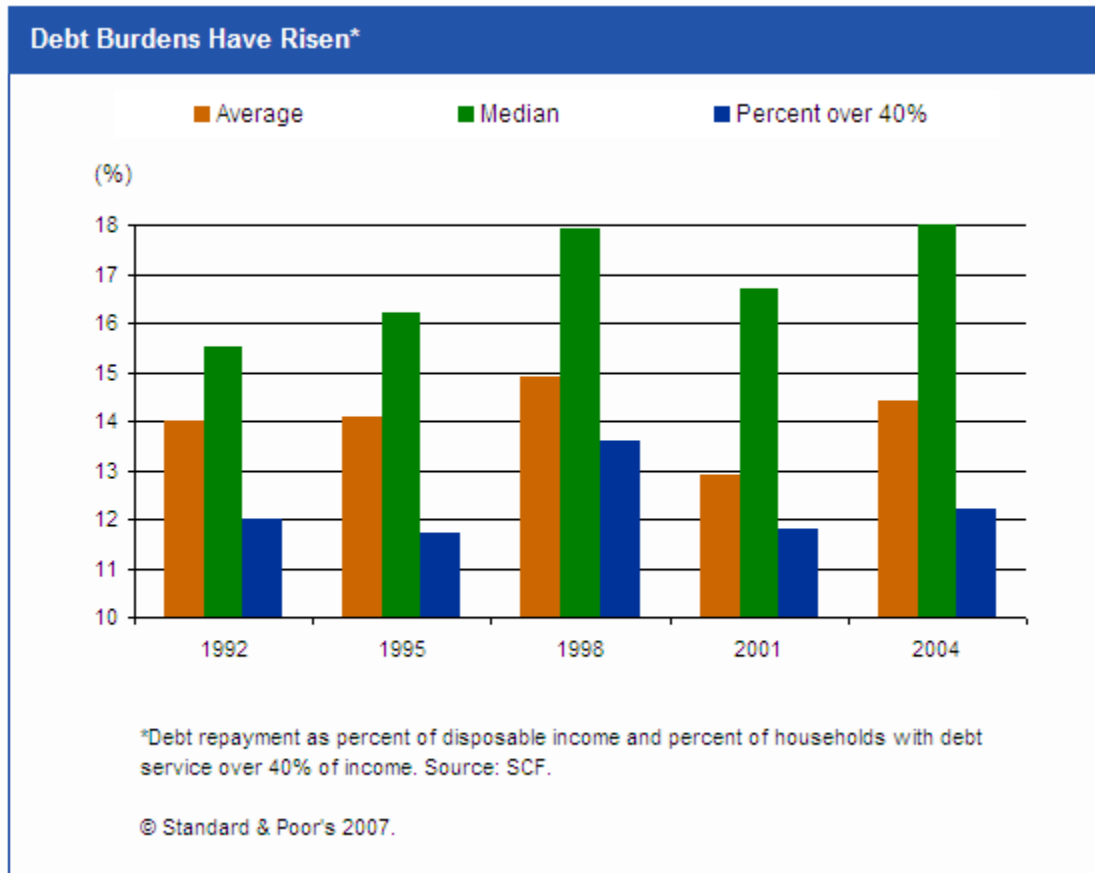
Such data dramatize the degree to which some consumers have become overloaded with debt (see chart 4), whose service costs have been rising with interest rates. Indeed, household debt levels have risen to a record of 137% of household after-tax income, saddling the average household with total financial obligations—debt service, plus property taxes, plus lease obligations—of about 19% of after-tax income. That's also a record high, but not all that much higher than it has been the last few years, and it appears to be leveling off.

Chart 4



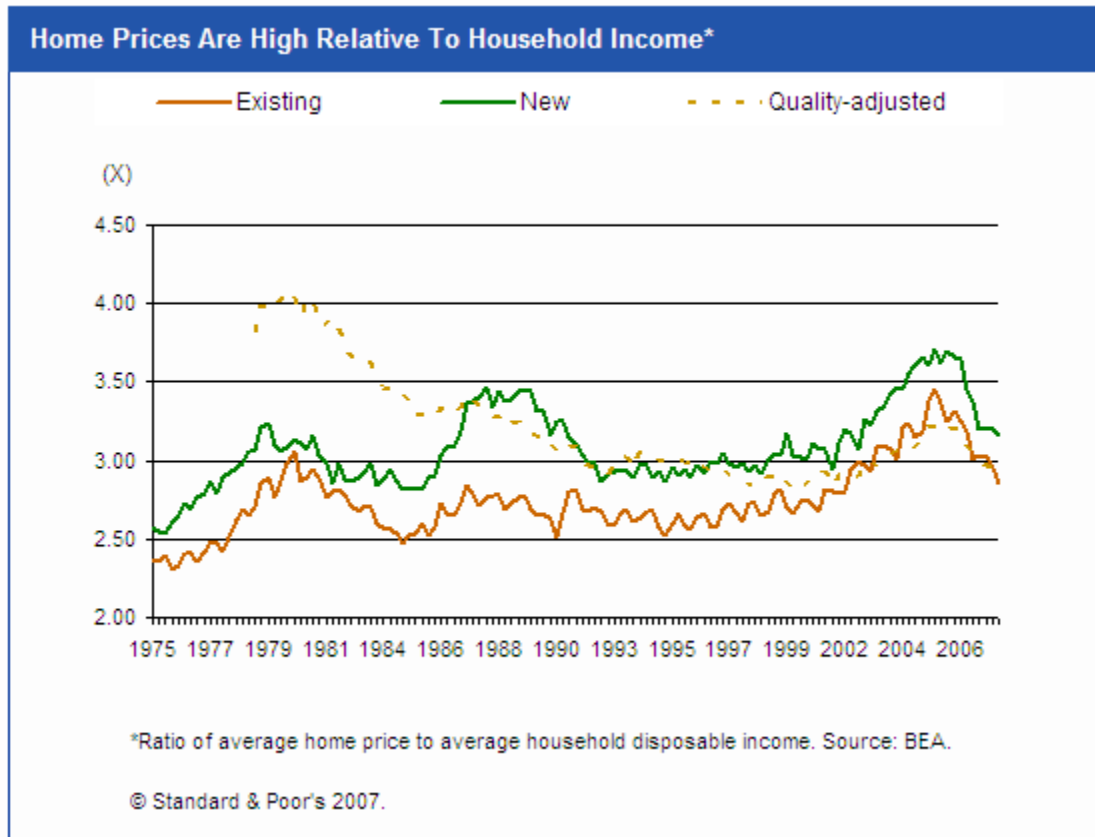
The problem, of course, is that the debt burden isn't evenly distributed. The Fed's most recent Survey of Consumer Finances, taken in 2004, found that about one-eighth of all Americans have debt-service costs that exceed 40% of their annual income (see chart 5). Obviously, these are many of the consumers who are running into trouble right now.

Chart 5



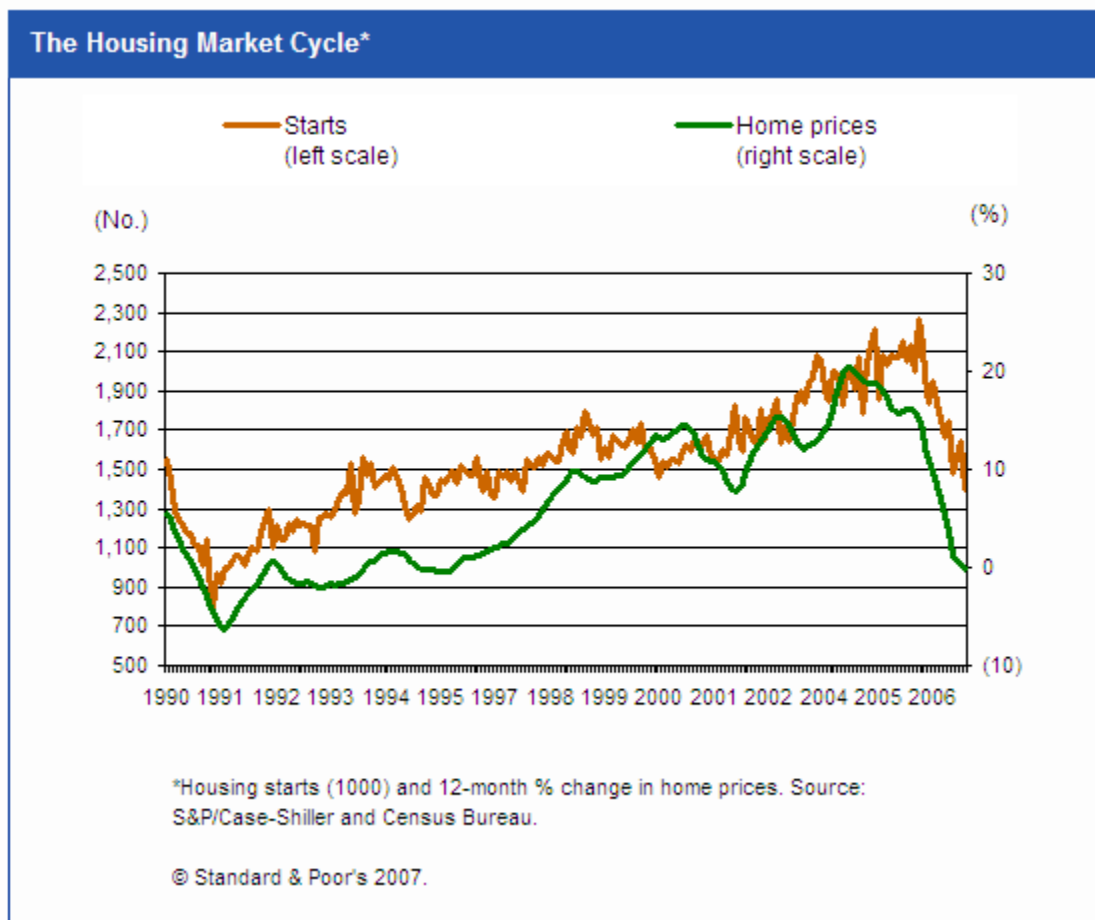
Some of them participated in this decade's housing boom, which led to record levels of home ownership but also to record home prices as many Americans bought bigger homes than they could comfortably afford. The average existing home price hit a record 3.4 times average household income last year (see chart 6) vs. its historical level of 2.6. The ratio has since dropped to 3.2, and is destined to slide further, because while a 3.2 ratio may have been affordable at a 5% mortgage interest rate, it may not be at the current 6.25%.

Chart 6



This explains why home prices are softening significantly. As of January, the S&P/Case-Shiller Index of Home Prices was down 0.2% from a year earlier (see chart 7). That was the first year-over-year decline for that index since the end of 1995 (1991-1992 was the last time the U.S. had a major housing slump). The 2001 recession had little impact on housing because the Fed was lowering interest rates so aggressively that it pretty much offset the impact of the slowing economy.

Chart 7

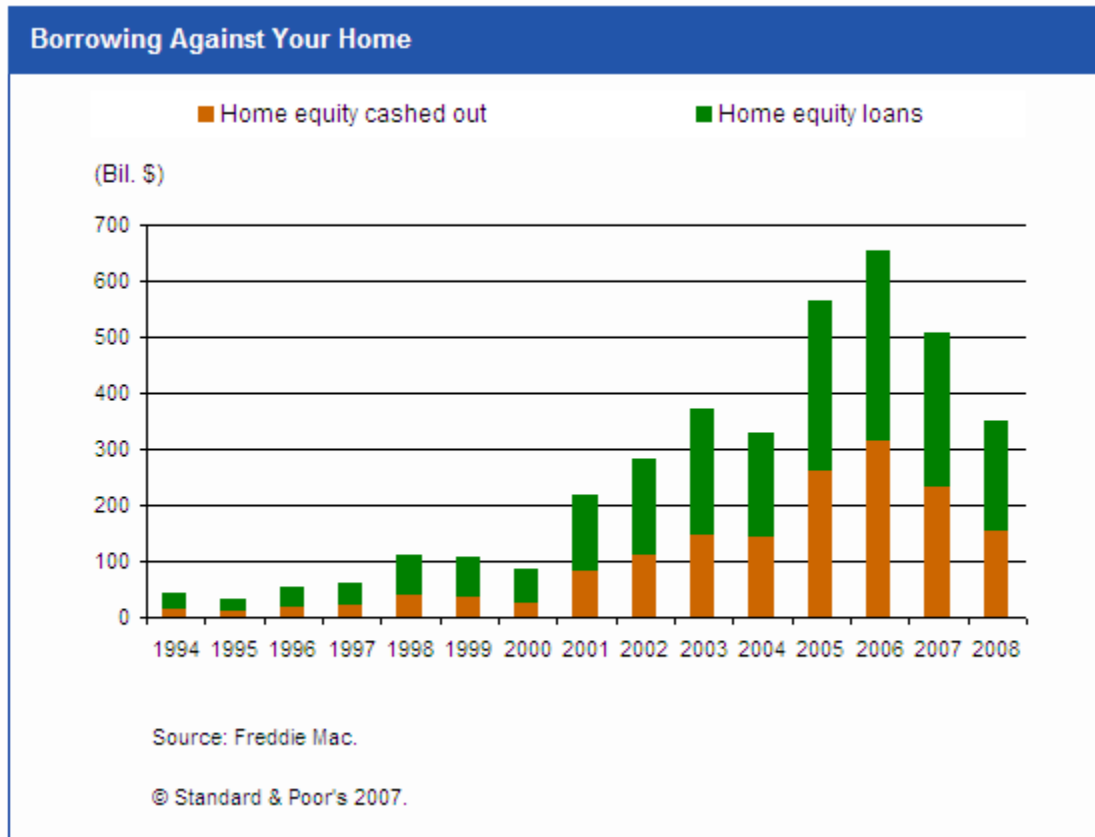


This time around, the Fed won't provide as much relief. So we expect the S&P/Case-Shiller Index, which we feel is a better indicator than the median home price because it isn't as distorted by changes in regional mix, to be down 5% by the end of the year. With housing starts dropping to 1.48 million, off 30% from two years ago, it's going to take significant discounting to shrink the current inventory of unsold homes, which stands at 3.7 million vs. 2.8 million in 2005.

There will be a couple of impacts on the rest of the economy. One will be on the housing market itself. Employment in the sector is down. That hurts incomes. But so far, income gains elsewhere have offset those lost wages. Another direct impact will be on housing and related products, such as furniture and appliances. Beyond those, it's hard to find much economic damage.

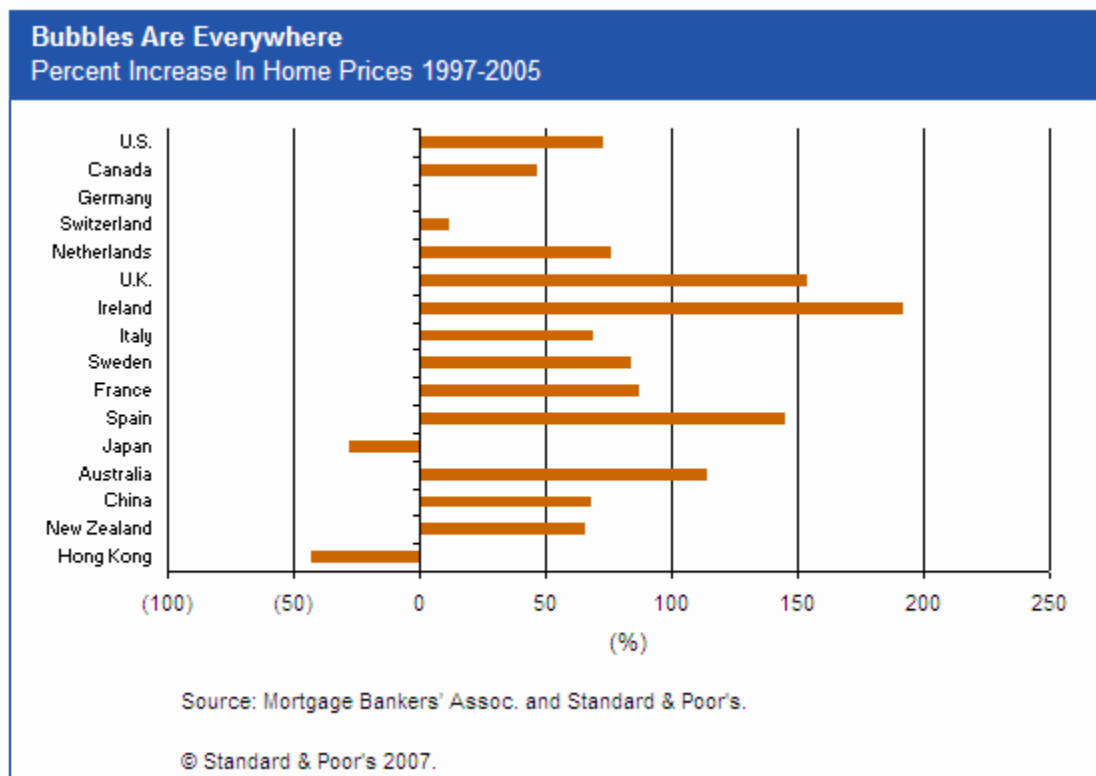
One thing that worries us is that Americans have been borrowing heavily against their homes to finance other activities. Last year, they took about \$640 billion out in the form of cash-out refinancing and home equity loans (chart 8). Americans won't be able to take as much equity out of their homes this year or next, and that will have an impact on the rest of the economy. The largest use of this debt, based on surveys, is for home remodeling, and we expect that to be the biggest loser. The second biggest use, incidentally, is education.

Chart 8



The experience of other countries implies that the fallout may not be severe. The housing bubble is a worldwide phenomenon driven by the same factor everywhere: low mortgage rates. In all countries these factors have driven up home ownership and prices. The rise in U.S. home prices from 1997 to 2005 was about average for the major industrial countries—about 72% (chart 9). And that's well below the increases in places like the U.K., Ireland, Australia, and Spain.

Chart 9



What's encouraging is that in both the U.K. and Australia, central banks began to raise interest rates before the Fed did. And both countries have an even higher share of adjustable rate loans than the U.S. does. In both cases, the resulting housing market corrections haven't had a huge impact on the economy, and housing markets seem to be stabilizing quickly both in terms of prices and sales.

In the U.S., another good sign is that the current correction doesn't have much relationship to the housing bubble. The biggest sales and price decline so far (see table 1) is in Detroit, which never had a housing bubble and doesn't have a high percentage of adjustable rate loans. Unfortunately, Detroit also doesn't have a lot of jobs right now, thanks to the layoffs in the auto industry. In short, two of the five cities with the worst declines—Detroit and Cleveland—never had housing bubbles. Three of the five hottest markets—Seattle, Portland, and Miami—all had significant housing bubbles and are still bubbling along, at least so far.

Table 1

S&P Case-Shiller Home Price Indexes		
(%)		
Top-five cities	January 2007*	2002-2005 average change
Seattle	11.1	12.2
Portland, Ore.	8.7	13.1
Charlotte	7.9	4.1
Miami	4.2	23.1
Atlanta	2.3	4.3
National average	(0.20)	14.3
Bottom-five cities		
Detroit	(6.90)	3.1

Table 1

S&P Case-Shiller Home Price Indexes (cont.)		
Boston	(5.60)	6.8
San Diego	(4.20)	17.2
Washington	(3.90)	19.5
Cleveland	(2.70)	3.7

*12-month percent change.

A similar trend shows up in terms of delinquency and foreclosure rates. The peak in delinquencies and foreclosures isn't in areas like California, which has the highest percentage of subprime ARM loans; it's in places like the Great Lakes states. Indiana and Ohio have the highest foreclosure inventory rates right now, along with Mississippi. None of those states had a housing bubble. Michigan, which has had the biggest drop in home prices, is suffering for the old-fashioned reason that jobs are in short supply, hence incomes are in trouble, and that's making it harder to afford homes.

In short, we're experiencing a fairly normal housing market correction, which will lead to a rise in foreclosure and delinquency rates consistent with rises that we've seen in the subprime sector in other recessions. It seems startling because the last time we had a downturn in this sector was 1991. People don't remember it well. And we didn't have nearly as many subprime mortgages back then.

Of course, it's impossible to rule out the chance that things could still go wrong. The biggest worry isn't the subprime market itself, but the possibility that the housing market's problems could be further aggravated by a general recession caused, for example, by the situation in the Middle East. We also worry about legislative risk—that in the process of trying to help individuals, legislators could seriously damage the mortgage and housing markets either by restricting the ability of lenders to write mortgages or by impairing the value of the collateral by restricting foreclosures. The market would likely react by making mortgages more expensive and harder to get.

So far, however, the housing industry is tracking about as it usually does during a recession—and for the housing market, this is a recession. We expect to see foreclosures rise. But keep in mind that in 2001 and 2002 we had 9% default rates for speculative-grade bonds. That's what we would expect to see this time around in comparable rating categories.

That leads to a logical question: How does Standard & Poor's issue ratings for RMBS transactions? The answer is that we do so based on our analysis of the creditworthiness of the underlying obligation. We do that by looking at the characteristics of each individual loan and assessing the probability of default and ultimate loss for each.

This is another way of saying that the dynamics in the current marketplace haven't come as a surprise to us, because our analysis recognizes layered risk—or multiple characteristics of risk—at the time the collateral is presented to us for analysis. Some of those characteristics are problems in today's marketplace. These include: ARMs and the stress they put on borrowers when they reset; the borrower's FICO, or credit score, which, when it's below 660 on a scale of 850, defines a borrower as subprime; limited or no income verification—the assessment the loan originator makes of the borrower's ability to repay the loan; and the amount of equity a borrower may have—or in many cases, not have—in a home.

Taken together, all of that is what we call the collateral analysis. Then we simulate cash flows based on that for the different scenarios that we stress. We review the track record and practices of the originator. We also assess the operational capabilities and past performance of the servicer of the structured deal, whose responsibility it is to track the payment performance of each loan in the pool. We do all of this because we need to be able to rely upon the variables that the originator presents to us. Those individual loan characteristics must be accurate so that our assessment of the risks associated with them is accurate.

Over the past few years, many lenders have begun to broaden their underwriting guidelines, as is typical in the mortgage industry when interest rates start to rise. Originators will typically do this to garner more volume—as they did in 2000 and then again in 2006. That has changed over the past four or five months, as originators have begun tightening their underwriting parameters. That's a good thing from a loan

quality perspective. But there also may be implications for the ability of borrowers to refinance out of possible troubled loans.

We also do an analysis of the "payment shock" that a borrower may experience when an adjustable rate mortgage resets. In August, 2005, we did a simulation to determine the future stresses on borrowers under different interest rate and home price scenarios. We made conservative assumptions regarding borrowers' wage growth, and determined under various scenarios and loan characteristics what their ultimate default rate could be. At that point, we calculated what we believed the appropriate corresponding loan default rate would be and factored that into our credit support requirements.

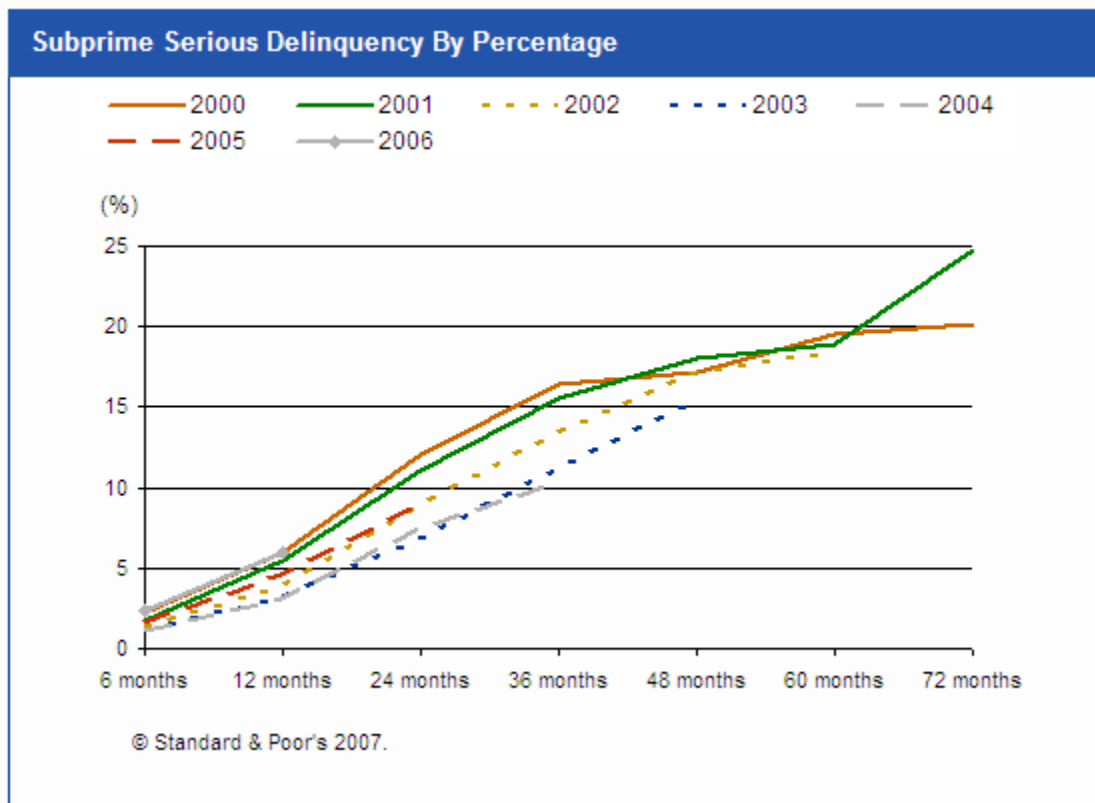
What subsequently has appeared is a bit of a new phenomenon—an unusual rise in early payment defaults (EPD), usually defined as loans that become past due by two or more payments within the first four months after a loan closes. Based on this performance, we expect to see increased downgrades in the 'BBB' and 'BBB-' tranches of RMBS deals, as well as in the speculative-grade tranches. Typically in this market, 'BBB' or 'BBB-' is the lowest rated bond. Occasionally we have a 'BB.'

Some primary characteristics in the early payment defaults we're seeing involve the coupling of a limited or no income verification loan for a first-time homebuyer with a "piggyback loan." A piggyback loan is an industry term for a first lien loan, typically for 80% of the purchase price, then a second lien at the same time for the other 20%. So in essence, the borrower is financing the down payment as well as the mortgage, and has no equity in the home at that time.

Such loans aren't new in the mortgage business, but only recently have lenders granted them to subprime borrowers. And only recently have such loans begun to comprise a significant share of securities; 20% to 30% of our pools have loans that have a combination of all three characteristics.

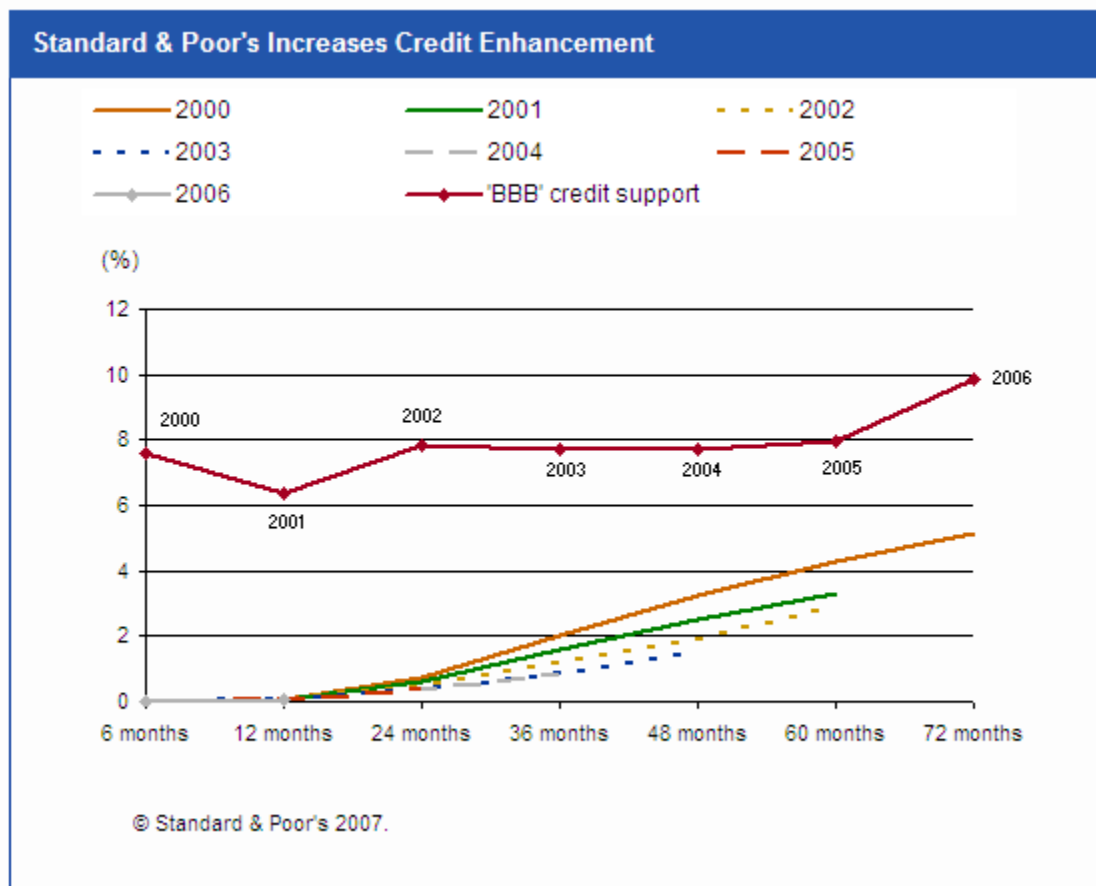
It's hard to predict what the delinquency rate for such loans will be, but historical trends could provide a clue (see chart 10). Loans originated in 2000 constitute the worst-performing vintage in recent history: 72 months out, their serious delinquencies are about 20%. While that number sounds high, it's important to remember that the vast majority of the loans in that vintage have already paid off, with the remainder typically being poorer performing loans.

Chart 10



In recent years, Standard & Poor's has reevaluated—and raised—the level of credit enhancement, or protection, that we require for various rating categories (see chart 11). For year 2000 deals, we required about 7.75% of credit enhancement. By month 72, these loans had experienced losses of about 5.50%. So the difference is what's remaining as support for that 'BBB' bond. It's important to note that from 2005 to 2006 we raised credit support from about 8% to a little above 10% for such pools. That was based on our assessment of risk in these pools, and the need to increase enhancement levels to cover additional risk.

Chart 11



Standard & Poor's has a surveillance process for evaluating the impact of the performance of individual tranches. We look at risk profiles, which we track using an automated process to allow us to target our surveillance efforts on transactions that we believe have concentrations of high-risk loans, as well as ones that are performing differently than we had expected. Of course, a lot of these transactions aren't very seasoned at this time. But we're taking a proactive approach to assess them earlier than we have historically because of the current environment.

Another historical trend worth noting is the record of rating transitions over the period 1997 to 2000 (see table 2). You can see that the transition rates—meaning the downgrade ratios—are relatively low for 'BBB's and 'BB's, which are the tranches we're most concerned about currently. Historically, we've downgraded the subprime 'BB' 2.6% of the time, and the 'BBB' 3.8% of the time.

For 2006 vintage loans, the object of most intense market interest at the moment, we currently have 10 tranches on CreditWatch negative and have downgraded another seven, mainly those with speculative-grade ratings, but a few in the 'BBB' realm. That's 0.2% of the 4,700 RMBS tranches that we rated in 2006. We do expect that downgrade ratio to increase. But we also think the majority of our investment-grade tranches have sufficient protection. That's based on our projection of ultimate losses of between 5% and 7% for the 2006 vintage RMBS pool.

The subprime impact on CDOs will depend on two factors: The ultimate impact on RMBS ratings, and the number of CDOs that have exposure to downgraded subprime mortgage loans. The affected securities will be almost exclusively U.S. CDOs, since those originated outside the U.S. have virtually no exposure to U.S. subprime loans. In U.S. CDOs of ABS there are two main sub-segments: high grade and mezzanine. High-grade structured finance CDOs are those primarily collateralized by 'AAA,' 'AA,' and 'A' rated tranches, either RMBS tranches or other structured finance transactions. Mezzanine CDOs are collateralized primarily by 'A,' 'BBB,' and 'BB' rated tranches, again of RMBS and other structured finance transactions.

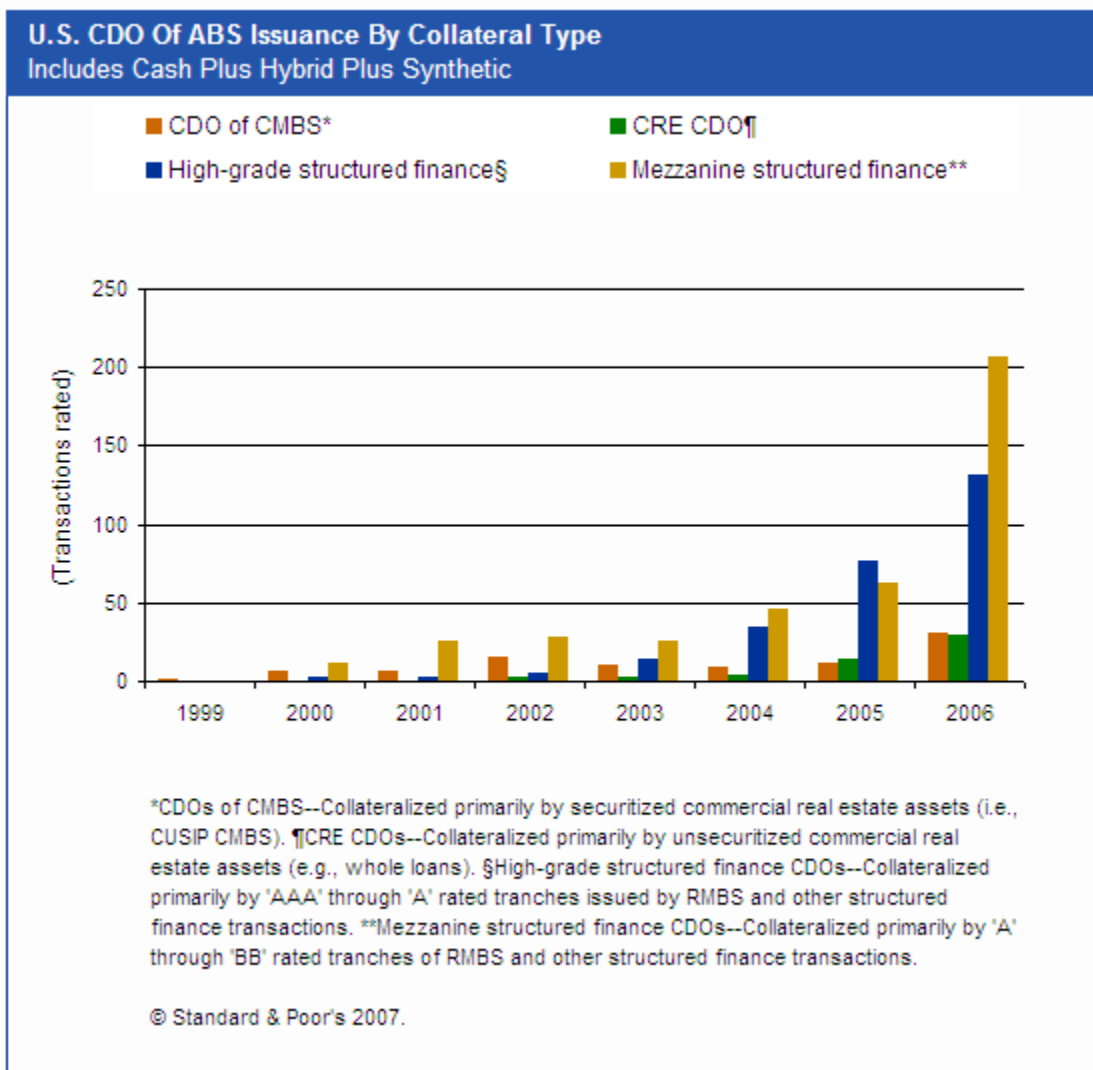
The earlier vintage CDO collateral pools were typically multisector ABS. But many of those pools experienced downgrade problems because of exposure to manufactured housing ABS, aircraft securitizations, and franchise loan securitizations. So, CDOs originated from 2002 onward have become increasingly collateralized by RMBS securities, which of course include subprime RMBS (see chart 12). Of the total CDO universe, CDOs of ABS currently represent approximately 40% of total U.S. CDOs rated by Standard & Poor's.

Table 2

Standard & Poor's U.S. RMBS Subprime Original-To-Last Rating Transition (%) 1978-2006											
Original / last rating	Original no. of ratings	AAA	AA	A	BBB	BB	B	CCC	D	Stability ratio*	Downgrade
AAA	2,408	100								100	
AA	4,267	4.3	95.5	0.02						99.8	0.2
A	4,021	1.3	2	95.9	0.3	0.1	0.1		0.3	99.2	0.8
BBB	4,313	0.1	0.07	1	94.3	1.4	0.6	0.6	1.3	98.2	3.8
BB	854			0.1	0.2	97.1	0.6	0.5	1.5	97.4	2.6
B	30						53.3		46.7	53.3	46.7
CCC	1								100		100
Total	15,894										

*Stability ratio is the percentage of ratings that were raised or remained unchanged. Data as of Dec. 31, 2006.

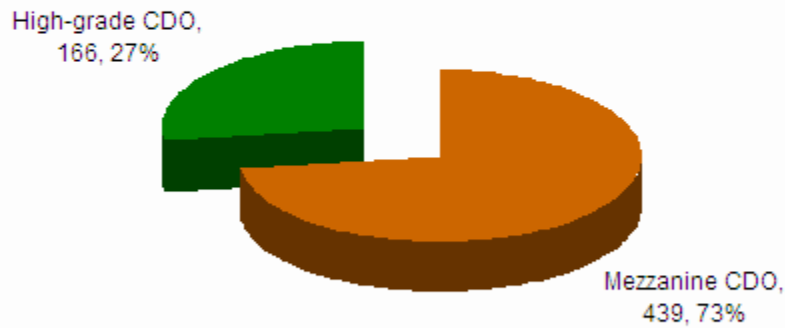
Chart 12



Over the past four years, these CDOS have packaged more and more subprime RMBS loans (see charts 13 and 14). These have tended to cluster in mezzanine structured finance CDOs, which have been the most immediately exposed CDOs. Of the 2006 mezzanine structured finance CDOs that Standard & Poor's rated, a little more than 70% of the collateral is subprime RMBS. Note that not all the 2006 CDOs have "gone effective" yet. The cash and some of the hybrid transactions take time to ramp up their collateral pool. But we have a very high percentage that already are effective. So 70% is quite representative—it's just not a final number. The point is, the overall share of subprime RMBS held by three types of CDOs—cash flow, hybrid, and synthetic mezzanine structured finance CDOs—has increased dramatically starting with the 2002 vintage deals (see table 3).

Chart 13

High-Grade Structured Finance Mezzanine And Structured Finance CDOs Of ABS Outstanding By Number Of Transactions



Standard & Poor's rated U.S. cash flow, hybrid, and synthetic CDO of ABS transactions outstanding as of Jan. 1, 2007.

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Chart 14

High-Grade Structured Finance Mezzanine And Structured Finance CDOs Of ABS Outstanding By Par Value Of Rated Notes



Standard & Poor's rated U.S. cash flow, hybrid, and synthetic CDO of ABS transactions outstanding as of Jan. 1, 2007. Bil. \$.

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Table 3

Mezzanine CDO Transaction Exposure To Subprime RMBS Tranches								
Cash flow and hybrid mezzanine CDO Of ABS								
CDO Vintage / RMBS Vintage (%)	2000 and before vintage subprime	2001 vintage subprime RMBS	2002 vintage subprime RMBS	2003 vintage subprime RMBS	2004 vintage subprime RMBS	2005 vintage subprime RMBS	2006 vintage subprime RMBS	Total subprime RMBS
2000 vintage mezz CDOs	5.10	0.19	1.11	1.70	0.34	1.43	0.00	9.87
2001 vintage mezz CDOs	0.86	1.61	1.29	3.33	2.17	1.63	0.38	11.28
2002 vintage mezz CDOs	0.65	0.74	5.19	2.95	5.29	7.17	2.38	24.39
2003 vintage mezz CDOs	0.32	0.40	3.58	16.99	7.24	6.30	6.43	41.25
2004 vintage mezz CDOs	0.15	0.07	0.58	8.49	29.56	2.75	2.95	44.55
2005 vintage mezz CDOs	0.15	0.11	0.28	1.15	21.26	28.14	1.30	52.39
2006 vintage mezz SF CDOs*	0.03	0.01	0.00	0.32	6.24	36.42	27.47	70.62
Synthetic mezzanine CDO of ABS								
CDO Vintage / RMBS Vintage	2000 and before vintage subprime	2001 vintage subprime RMBS	2002 vintage subprime RMBS	2003 vintage subprime RMBS	2004 vintage subprime RMBS	2005 vintage subprime RMBS	2006 vintage subprime RMBS	Total subprime RMBS
2000 vintage mezz CDOs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001 vintage mezz CDOs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002 vintage mezz CDOs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2003 vintage mezz CDOs	0.00	14.29	17.14	5.71	0.00	0.00	0.00	37.14
2004 vintage mezz CDOs	0.00	0.00	0.00	3.63	44.86	0.00	0.00	48.49

Table 3

Mezzanine CDO Transaction Exposure To Subprime RMBS Tranches (cont.)								
2005 vintage mezz CDOs	0.65	0.31	0.38	6.59	44.06	11.55	0.99	64.52
2006 vintage mezz CDOs*	0.00	0.00	0.00	0.04	3.74	44.66	28.62	77.07

mezz--Mezzanine. N/A--Not applicable. *Data for 2006 vintage deals includes deals having gone effective and started reporting by the end of February 2007.

While the market's focus until now has largely been on the 2006 vintage, Standard & Poor's is currently seeing more negative rating activity on the RMBS collateral in the CDOs originated between 2002 and 2004. So for now, our CDO focus is on the earlier deals. We expect to see downgrades on some of the mezzanine structured finance CDOs of ABS within a couple of months. But we expect that most of those downgrades should affect 2002 to 2004 CDOs.

We integrate our RMBS surveillance with our CDO surveillance, so performance issues and rating actions that we're experiencing or taking on the RMBS side are integrated into our monitoring of CDOs that contain RMBS.

And just as Standard & Poor's CDO surveillance group is informed by the RMBS surveillance group of its current credit opinions, and our outlooks on rated transactions, our RMBS surveillance group is aware of the RMBS exposure within CDO transactions that we have rated. So we have a complete loop when it comes to information flow and rating decisions. The result is that prior to the release of any RMBS rating actions we're fully aware of the exposures within our rated CDO transactions and have made at least a preliminary assessment of any potential CDO rating impact.

The impact on the financial institutions Standard & Poor's rates has become clear fairly quickly. To date, we have taken negative ratings actions on five institutions that focused on higher-risk, subprime mortgage lending: Fremont General, New Century Financial Corp., PHH Mortgage Corp., H&R Block, and Residential Mortgage Products Inc. These lenders typically relied on highly concentrated origination channels and collateralized funding sources.

These companies also had something else in common. Their subprime loan portfolios illustrate the heightened layering of risk contained in many 2005 and 2006 originations: These loans tended to feature very limited income documentation verification, high loan-to-value ratios, low FICO scores, and "piggyback" second-purchase mortgages.

More traditional, fully underwritten subprime mortgages are, as we expected, following normal delinquency and loss curves, and we're not seeing the same kind of credit performance volatility in these portfolios as those with the increased risk factors. And financial institutions we rate that specialize in loan products with the least degree of inherent risk—prime mortgages—are enjoying steady credit performance.

Financial institutions with highly diversified business models are also weathering the subprime storm well. That's because a lender with a wide variety of mortgage products in its mortgage banking business often employs numerous origination channels and servicing businesses, enjoys geographic diversification, and benefits from other diversified banking lines that provide stable profitability.

Within Standard & Poor's core rated banking universe, subprime loans typically account for 10% to 18% of total mortgage production. That translates into an average 9% to 12% subprime exposure on the balance sheet. In our view, this sector is under little stress from a ratings perspective. So we are currently expecting very few additional subprime-related negative rating actions among the financial institutions we rate. That, of course, depends on how deep and long the wider housing recession turns out to be.

An outcome of subprime mortgage stress is the potential for banking legislative changes. We do expect compliance costs will rise in 2007, as institutions under the guidance of banking regulators face new

standards governing – and perhaps, to some degree curtailing—their lending activities.

The upside to all this? We expect to see some more rational pricing and underwriting as a result of the current subprime correction. Plus, there are market share and growth opportunities for the companies that can take on the assets of distressed lenders.

In 2007, the mortgage cycle is moving to one of higher delinquencies and losses for all mortgage loans. The negative credit trends are starting from a low base of nonperforming assets (NPAs) and net charge-offs (NCOs) in the 2000-2001 time period. To us, this is a housing recession that varies by region. Still, coupled with a very difficult interest rate environment—with the flattened yield curve—it's posing a great challenge to bank profitability in 2007.

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