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Scenario Analysis: Study Assesses The Resiliency Of Standard & Poor's Rated U.S. CMBS

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Scenario Analysis: Study Assesses The Resiliency Of Standard & Poor's Rated U.S. CMBS

(Editor's note: This article, part of a series produced by Standard & Poor's Structured Finance Group, provides insight into the circumstances under which ratings may change, or notes default, in an asset class given a particular set of macroeconomic circumstances. These articles are being produced as a result of the New Actions initiative announced recently by Standard & Poor's (see article titled "A Listing Of S&P's New Actions Aimed At Strengthening The Ratings Process," published Feb. 7, 2008). These New Actions incorporate the intent to provide "what-if" scenario analyses to allow investors to better understand the risk profile of a particular transaction.)

In an attempt to address credit-related concerns within the U.S. commercial mortgage-backed securities (CMBS) market, Standard & Poor's Ratings Services undertook a study to assess the resiliency of CMBS ratings on fixed-rate conduit/fusion deals issued between 1999 and 2007. The study assessed the expected performance (on average) of Standard & Poor's rated CMBS securities over their lives, taking into consideration the impact of current market and economic conditions.

Summary Findings

- While recent market stress appears to be systemic, it has not yet, in our view, meaningfully manifested itself in the overall credit performance (delinquencies and losses) of rated CMBS transactions (though it has clearly affected security spreads/prices). To the extent that it does affect CMBS credit performance, we expect it to be transaction specific, based on factors such as vintage, deal composition, loan and deal structures, etc.
- Although 2005-2007 vintage CMBS are generally characterized by aggressive underwriting and lower credit support, we do not believe that current conditions (rising vacancies, lack of available capital, declining values) will manifest themselves uniformly across all CMBS from these vintages, and therefore do not anticipate systemic downgrades.
- Standard & Poor's expects that, on average, newer-vintage classes in the 'BBB' category ('BBB-' to 'BBB+') may experience downward ratings movement at some point over their lives (generally 10-plus years). Depending on deal composition and structure (especially with regard to tranche thickness), we believe that transactions that experience 'BBB' downgrades may also experience additional "mezzanine" ('A' to 'AA') downgrades as well.
- We also expect that, on average, principal losses will be limited to speculative-grade tranches for the studied vintages. However, we believe that low investment-grade classes from recent vintages, especially 2006 and 2007, are also susceptible to principal losses during periods of economic or market stress (capital markets, property markets, global financial markets) that exceed our expectations.
- Additionally, Standard & Poor's expects that, on average, junior 'AAA' classes ("AJ" classes) from recent vintages, and subordinate 'AAA' classes from older vintages (before the 10-year 'AAA' class was split into super senior, mezzanine, and junior classes) are not likely to experience downgrades. However, we believe that junior 'AAA' classes from recent vintages, especially 2006 and 2007, are potentially susceptible to downgrades during periods of economic or CMBS market stress that exceed our expectations.
- Standard & Poor's recent surveillance efforts have resulted in a lower upgrade-to-downgrade ratio (0.59:1 currently vs. 7.29:1 in 2007), owing to a decline in credit performance in specific transactions. Given current and projected market and economic conditions, we expect this trend to continue. As a result, based on the findings of

this study, we have begun a more concentrated, comprehensive, review of our rated fixed-rate conduit/fusion CMBS transactions, focusing primarily on the 2005-2007 vintages. While the study assessed lifetime performance, this review will enable us to determine if downgrades are appropriate for transactions that we anticipate will experience stress over the next 18 to 24 months. As individual transaction reviews are completed, we will issue press releases describing any resulting rating actions. We expect to complete the entire process by late summer or early autumn. During the review period, we will continue to monitor all of our rated CMBS transactions through our ongoing surveillance efforts.

- We expect to initiate some rating actions within selected transactions over the next few months based on the results of our concentrated review.

Study Addresses Key CMBS Market Concerns

The landscape for all structured products, including CMBS, continues to change dramatically. In the wake of the global credit crunch and gradual ebbing of benign commercial real estate market conditions, Standard & Poor's believes that it's increasingly clear that commercial real estate and CMBS may be buffeted by strong headwinds. Though modest, Standard & Poor's has already observed an up-tick in CMBS delinquencies, defaults, and losses. Real Capital Analytics' first-quarter 2008 data shows that capitalization rates have started to modestly rise across most property types. Additionally, first-quarter 2008 data from REIS Inc. shows that national apartment, office, and retail vacancies have increased 20-30 basis points (bps) from the fourth quarter of 2007, and rental growth rates, while still positive, are markedly lower than they were during the 2003-2006 "boom" period.

In Standard & Poor's view, cash and synthetic market spreads, despite the previous six weeks of tightening, still do not seem to reflect any measure of consistency with their assigned credit ratings vis-à-vis historical spreads. Standard & Poor's believes that market participants attribute this to the uncertainty regarding potential credit losses, "technical" momentum trading being driven by negative headlines, and a general lack of available financing within the capital markets of late. We do believe, however, that the Federal Reserve has provided meaningful help by providing a liquidity facility for 'AAA' rated securities and lower borrowing rates.

Against this backdrop, investors and market participants are asking an array of credit-related questions: How might these worsening conditions affect select vintages of CMBS and their credit performance going forward? How great might losses become? What is the likely impact on Standard & Poor's CMBS ratings?

To address these concerns, Standard & Poor's undertook this study (the methodology and loan population are described in detail in Appendix 1), which focused on fixed-rate conduit/fusion transactions, to assess the resiliency of CMBS certificate ratings for transactions issued between 1999 and 2007. The core of the study centered on developing a projected lifetime loss for each of the vintage years using historical and extrapolated default data. We then considered stresses to reflect Standard & Poor's expectations going forward. We then applied the losses, and related recoveries, sequentially through a composite capital structure for each vintage year. The composite capital structures were derived by examining the credit enhancement levels for every rated deal within each vintage, and then applying that information to arrive at a representative current subordination level for each rating category (in other words, each year's issuance is rolled up into a "composite" deal that is similar in appearance to a typical conduit/fusion transaction).

We used the projected losses on the composite enhancement levels to assess the potential impact to Standard & Poor's CMBS ratings under our current expectations of a mild recession beginning in December 2007 and reaching a

trough in the third quarter of 2008. Risks on both sides of the forecast exist (consumer strength/response to the tax rebates, that financial markets will remain locked up, whether home prices rise/fall, whether oil prices rise/fall, etc.), and while these are difficult to quantify, we also considered them when attempting to gauge whether existing CMBS credit enhancement levels were robust enough to prevent or limit downgrades and/or defaults.

Standard and Poor's view of the commercial real estate market, which is consistent with a mild recession, is as follows:

1. Absent a prolonged, severe recession, we think that the commercial real estate market is likely to avoid a 1989-1992 type "disaster" scenario.
2. We believe that a 15%-20% decline in property prices (peak-to-trough) over the next few years is a reasonable expectation given the extraordinary run-up in valuations made possible by abundant capital and readily available leverage during 2003-2006.
3. Property market fundamentals, though softening, by and large remain quite healthy nationally, with selected pockets of weakness (e.g., Rust Belt markets due to auto industry troubles, apartments in formerly strong condo conversion markets, selected Texas multifamily, unanchored and community retail, etc.). While national vacancies are projected to rise modestly across the big four property types (retail, office, multifamily and industrial) over the next few years, real estate experts are still expecting increases in rents, just not at the pace of increases experienced during the 2003-2006 period.

The results of the study, and our ratings outlook for the next 18-24 months, are summarized in question and answer format in table 1.

Table 1

Key Findings Of The Study	
1. What is our expected case going forward and what are our next steps?	Overall, Standard & Poor's believes the results of the study suggest that credit support levels on existing conduit/fusion CMBS deals are generally adequate at the senior levels of the capital structure, and that credit losses should, on average, remain confined to speculative-grade classes. We believe that low-investment-grade classes from more recent vintages (especially 2005-2007), however, appear vulnerable to downgrades at some point over their lives (generally 10-plus years), and under moderate stress, may even experience losses. The results of the study, coupled with our recent observations, have prompted us to supplement our ongoing surveillance process with comprehensive reviews of transactions in the 2005-2007 vintage years. The goal of the comprehensive reviews is to re-examine the underlying collateral characteristics of each deal and its expected performance to determine whether or not current credit enhancement levels adequately support the outstanding ratings. While we will look at all of the transactions from this period, we will focus on deals that we expect will be pressured over the next 18-24 months. Any CreditWatch placement, rating action, or affirmation that results from the reviews will be accompanied by a press release. To arrive at the population of transactions that will be reviewed, we considered a number of factors, including relatively low 'BBB-' credit enhancement levels, financial performance, delinquencies, balance of loans on servicer watchlists, and balance of specially serviced loans. We expect to conduct most of the reviews after the June remittance reports are available, at which time recent financial data will be more readily available. We are hoping to conclude the process by early autumn. We monitor outstanding CMBS by using proprietary screening tools that examine performance measures to identify ratings that may need revision. The screening tools allow us to determine if existing credit support is sufficient to support outstanding ratings. Our screening tools also consider loans that are delinquent, specially serviced, or on the servicer's watchlist, among other things. So far this year, the process identified performance deterioration in nine 2005-2006 vintage transactions. After we identified this deterioration, we downgraded 48 tranches. Many rating actions were limited to one notch, and primarily affected speculative-grade certificates. We have also observed rising delinquent amounts across these vintages. On average, delinquencies for 2005 through 2007 vintages increased 38% from fourth quarter 2007 through first quarter 2008. However, overall delinquencies on CMBS have increased 20% over the same time period. Delinquencies of 2005-2007 vintage CMBS represent slightly more than half of total delinquencies as of March 31, 2008. Delinquencies, as a percentage of total CMBS outstanding during this same period, remained quite low at 0.34% at the end of 2007, and rose modestly to 0.43% at March 31, 2008. One other risk that bears mentioning is potential maturity, or balloon, defaults. Though any focus on maturity risk would almost solely be limited to floating-rate loans currently, and not on the conduit/fusion market, Standard & Poor's believes this may change during the next few years. As we move into the 2010-2012 period, we believe the volume of loans coming due will begin to rise substantially, and anticipate that many of the maturing five- and seven-year term loans from the 2005-2007 vintages may not have the same benefits as today's maturing conduit loans, such as sizable amounts of property value appreciation and above-market coupons. For reference, Standard & Poor's data indicates that the volume of non-defeased fixed-rate loans coming due during the next few years is as follows: \$14.2 billion matures in 2008, \$14.4 billion in 2009, \$27.0 billion in 2010, \$35.6 billion in 2011, and \$50.1 billion in 2012. In a positive development for the market, 88.9% of the fixed-rate loans that matured during 1Q 2008 have refinanced already.
2. What would cause the downgrade of a 'BBB' tranche?	We believe that more recent vintage classes in the 'BBB' category ('BBB-' to 'BBB+'), especially those issued during the 2005-2007 period, are, on average, at risk for potential downgrade in our stressed scenario at some point over their lives. While significant delinquencies and losses haven't occurred yet in most cases, as stated above, we will be conducting a comprehensive review of these transactions and taking action where we deem appropriate, including where we see intermediate-term (18- to 24-month horizon) risk. The income performance of the "top 10" loans within each deal will be one of our areas of particular focus. The prevalence of large loans that were either investment-grade or contained additional subordinated debt outside the trust structure (B notes or mezzanine debt that absorbs losses first) in 2005-2007 vintage transactions is largely responsible for the lower levels of credit support. The performance of these loans is generally presumed to provide a buffer against significant downgrades and losses, as they have historically defaulted less frequently than smaller loans—even during stressed periods. We expect this to continue. Also, we believe that events that lead to 'BBB' downgrades, depending on the thickness of the other tranches within the transactions, may lead to downgrades in additional mezzanine ('A' to 'AA') classes as well. This will obviously vary from transaction to transaction.
3. What would cause the default of a 'BBB' class?	Standard & Poor's study findings indicate that generally, losses will likely be confined to speculative-grade tranches. However, it appears that, on average, 2006 and 2007 vintage deals are most susceptible to losses at the low investment-grade level if a longer or more severe-than-expected recession should occur, or if the capital markets continue to languish for an extended period of time. More severe conditions would generally lead to higher loss severities and higher losses, which might be offset by price appreciation on loans in older vintage deals—but the risk is that newer loans may not have that benefit. As shown in tables 5 and 6, under a more severe scenario, projected lifetime losses of approximately 1.25 times our expectations for the 2006 and 2007 vintages (somewhat higher multiple for 2005) would put the composite 'BBB-' class at risk of default. It should be noted that historically, 'BBB' rated tranches of fixed-rate conduit/fusion CMBS transactions have not experienced defaults due to losses. All instances of 'BBB' defaults (of which there were three) were due to interest shortfalls which were subsequently resolved.
4. What would cause the downgrade of a junior 'AAA' (AJ) tranche?	For the intermediate term (18-24 month horizon), Standard & Poor's study suggests that junior 'AAA' AJ tranches and older vintage 'AAA' classes are not at risk for potential downgrade. Again, the 2006 and 2007 vintages contain the least amount of "cushion." We believe these tranches could come under pressure if stresses in the commercial real estate sector or the economy are more severe than we expect. We also don't completely discount the possibility for one-off scenarios where a specific transaction's 'AAA' classes are pressured by a large loan default that causes a high loss severity or many smaller defaults. We simply believe that these events are not very likely. The main reasons behind this opinion include, but are not limited to, the geographic diversity of CMBS pools, the strong motivations for a borrower not to lose control of a trophy property, and the strong historical performance of large loans, especially in primary markets.

Table 1

Key Findings Of The Study(cont.)	
5. What would happen to the junior 'AAA' class upon a 'BBB' default?	In Standard & Poor's opinion, this analysis indicates that on average, there is some, but not much, room for the junior 'AAA' classes to avoid a downgrade if a 'BBB' class in the same deal defaults. Of course, there are many different scenarios that could play out, depending on deal structure, the size of the defaulted loans, and outcomes would likely vary widely by transaction.
6. What historical data are we basing our analysis on?	We based our study on the default and loss experience of the CMBS market from its inception in 1993 through the present. We then modified our analysis based on current and forecasted economic and capital market conditions.

Understanding The Results Of This Study

Before diving into the results of our study, it's important to note that CMBS asset pools are less "homogenous" in nature than the collateral contained in most other structured finance asset pools. In essence, we mean that CMBS pools contain a broad array of property types, including retail, office, industrial, multifamily, and lodging. These diverse property types perform differently over the course of an economic cycle and help buffer against the negative performance of a particular property type during times of economic stress. For example, retail properties might face significant stress in the current economic cycle, as they depend on consumers. In contrast, other structured finance asset classes are categorized by pools of homogenous collateral that tend to perform similarly in times of stress. The diversity of property types, geographic locations, and tenants sharply distinguishes CMBS from other structured finance asset classes. Additionally, in Standard & Poor's opinion, depending on the severity of stress, CMBS is oftentimes much less susceptible to categorical, systemic performance issues.

It should also be noted that this particular study generated average outcomes for 1999-2007 vintage conduit/fusion CMBS transactions. As previously noted, the study is based on a composite CMBS capital structure, which averaged the credit enhancement levels of all Standard & Poor's rated fixed-rate conduit/fusion CMBS transactions and thus, did not consider other factors that are important in determining rating transitions. While this type of scenario analysis can be used to examine general trends in CMBS performance, we can only truly understand the performance of a particular CMBS pool after conducting a comprehensive review of the underlying collateral. In other words, this study provides average results that are intended to provide only directional, high-level insight. The actual pool composition has a major impact on transaction performance, as characteristics like loan structure (funded reserves, guarantees, subordinate debt outside the trust that absorb first losses), loan size, property sponsorship, and geography must be considered. Therefore, it's important to keep in mind that some deals may perform better than average, some may perform in line with the average, and others may perform below the average.

Based on the comments above, we are not stating that every junior 'AAA' bond within our selected vintages will perform in line with the average findings detailed in this study. Similarly, we believe it is unlikely that every 2005-2007 vintage 'BBB' rated class will suffer a downgrade; however, on average, we can probably expect the credit of these classes to decline over their lives (generally 10-plus years).

Lastly, when we discuss potential stresses on the composite capital structures that would lead to likely downgrades and/or defaults, we are referring to a stress on the projected lifetime loss figure, which equals the product of the expected default rate and the applied loss severity. Thus, an increase in either or both of these factors can potentially put a class at risk for a potential downgrade or default.

For clarity's sake, consider the 2006 vintage as an example. Using our stressed results, the average expected default

rate for the 2006 vintage is 7.9%, and the applied loss severity is roughly 34%. After taking into account the property type mix for the vintage, we get approximately 2.5% for the projected lifetime loss. A projected lifetime loss of roughly 4.1%-4.2%, on average, would put a 2006 vintage junior 'AAA' class at risk for potential downgrade. Thus, any scenario that leads to that increase in projected lifetime loss would cause a potential downgrade/default for our composite class, whether it comes from a higher default rate, a higher loss severity, or a combination of both.

Projected Lifetime Loss Results By Vintage

Our original ratings and our ongoing surveillance efforts for every rated CMBS transaction are based on a loan-by-loan, property-by-property analysis. While parts of the initial rating process are based on historical performance of nearly 60,000 commercial mortgage loans, we also consider certain forward-looking stresses. For example, on average, Standard & Poor's values are approximately 30% to 40% lower than issuer-reported appraised values. We arrive at these values by assuming that property value declines could occur during times of economic and market stress, the timing of which are difficult to estimate but are a normal factor in any real estate cycle.

Due to the effects of the housing downturn and the resulting credit crunch, our expectations for conduit/fusion CMBS transaction performance during the next 18-24 months differ from our initial forecast when the transactions were first rated. Therefore, we based our expected case going forward on our belief that the CMBS market may experience greater stress than during 2004-2007, a period characterized by record low delinquencies and losses, generally high occupancies and rents, and plentiful capital. In light of these factors, we added the following stresses to derive the results that we present later in this section.

- The loss severity across all loans that defaulted between 1993 and 2007 is roughly 24%, and includes loans that have been resolved both with and without losses. For our "expected case going forward," we used a loss severity assumption of 33%-34% for the 2005-2007 vintages. While 33%-34% may seem low to some market participants for these vintages, it's actually more conservative than it appears because it assumes that all loans were resolved with losses. Even though the current dislocation is likely to make financing for troubled loans difficult, it is conceivable that loans that experienced price appreciation in 2005 and 2006, or had additional debt held outside of the deal capital structures, could be resolved without a loss, or with a smaller loss to the trust.
- Our internal default data shows that large loans tend to default less frequently than small loans. (According to Standard & Poor's data, only 35 out of 2,526 defaulted loans had original balances of \$35 million or more). Our default extrapolation assumes that every loan defaults at a certain rate each year, without any credit given for the size of the loan, whether it has investment-grade characteristics, etc.

Table 2 displays projected lifetime loss results for our "stressed scenario" on the studied vintages. Note that we expect losses to increase for the 2005-2007 vintages from the losses of the previous vintages.

Table 2

Stressed Results By Vintage			
Vintage	Expected default rate (%)	Assumed loss severity*(%)	Projected lifetime losses†(%)
1999	7.13	34	1.58
2000	9.79	32	1.64
2001	7.05	31	1.58

Table 2

Stressed Results By Vintage(cont.)			
2002	5.73	31	1.23
2003	5.37	32	1.20
2004	5.78	32	1.49
2005	6.88	33	2.08
2006	7.89	34	2.54
2007	8.14	34	2.75

*Based on historical averages by property type when defaults resulted in a loss. ¶Because this figure is based on actual losses plus extrapolated losses, a correct figure cannot be obtained simply by multiplying cumulative default rates by loss severity. Additionally, the extrapolated losses may depend on the property type mix of each vintage, which may vary. Source: Standard & Poor's.

In order to determine the impact of losses on credit enhancement levels and ratings, we ran the stressed projected lifetime loss numbers from table 2 through our composite capital structures, to arrive at a loss-adjusted credit enhancement level for each rating category at maturity. This was intended to support a high-level directional analysis only, as we did not assume any paydowns throughout the terms of the deals. Rather, we used loan and certificate balances as of Dec. 31 2007. Table 3 displays the results for the 2005-2007 vintages. Results for the 1999 through 2004 vintages are provided in Appendix 2.

Table 3

Original And Loss-Adjusted Credit Enhancement Of The Composite 2005-2007 Vintages Assuming Stressed Projected Lifetime Losses							
Rating	2005 Weighted average credit enhancement (%)	Loss adjusted credit enhancement (%)	2006 Weighted average credit enhancement (%)	Loss adjusted credit enhancement (%)	2007 Weighted average credit enhancement (%)	Loss adjusted credit enhancement (%)	
AAA	13.07	11.76	12.19	10.43	11.90	10.00	
AA+	11.74	10.51	11.75	9.98	11.43	9.44	
AA	10.94	9.46	10.09	8.17	9.86	7.79	
AA-	9.87	8.34	9.15	7.15	8.80	6.68	
A+	8.41	7.07	8.76	6.77	8.35	6.16	
A	8.18	6.51	7.62	5.49	7.27	5.05	
A-	7.03	5.32	6.59	4.37	6.35	4.02	
BBB+	5.75	3.95	5.40	3.09	5.21	2.78	
BBB	4.69	2.84	4.34	1.94	4.17	1.64	
BBB-	3.40	1.50	3.09	0.62	3.06	0.49	
BB+	2.92	1.01	2.71	0.20	2.62	0.01	
BB	2.55	0.54	2.36	0.00	2.33	0.00	
BB-	2.14	0.11	1.98	0.00	1.98	0.00	
B+	1.90	0.00	1.82	0.00	1.72	0.00	
B	1.63	0.00	1.58	0.00	1.49	0.00	
B-	1.31	0.00	1.24	0.00	1.24	0.00	

Source: Standard & Poor's.

Older vintages (shown in Appendix 2), which contain higher credit enhancement levels and contain loans for properties that have seen large price appreciation, are unlikely to experience many downgrades at the 'AAA' rating level or defaults at the 'BBB' level in our expected case. In fact, these securities even appear well protected under significant stress. However, as table 3 illustrates, the results change for more recent vintages, especially 2005-2007.

At the 'BBB' rating level, it appears that, on average, certificates from these vintages will be at risk for potential downgrade at some point in their lifetimes. Depending on tranche thickness and subordination in specific deals, other mezzanine tranches may be affected as well. And, while we don't expect junior 'AAA' downgrades and 'BBB' defaults, the "cushion" protecting them is significantly smaller than it is for earlier vintages. The reduced cushion in these vintages is a function of lower subordination levels, smaller tranche thickness (by percentage, not by absolute size, since deal pools have been much larger in recent years), and less property value appreciation. For example, stress scenarios that lead to projected lifetime losses of 4.1%-4.2% for the 2006 and 2007 composite vintages would put those vintages' junior 'AAA' classes in jeopardy of likely downgrade. We'd only expect cumulative losses to reach those levels in a more severe and prolonged recession than Standard & Poor's is currently expecting.

In terms of lessons learned, one is that tranche thickness is especially important when defaults/losses occur quicker than initially expected. For example, the 'BBB-' classes in the 2005-2007 vintages shown in table 3 only have 38-52 bps of original credit enhancement between them and the 'BB+' tranches (although the cushion is larger in absolute dollars, owing to the larger deal sizes that characterize deals of these vintages). While downgrades are subjective and are based on more than just declining credit enhancement (for example, we would scrutinize the quality of the remaining loans in the pool), lowered credit enhancement levels compressed the mezzanine classes in these vintages and left very little margin for error. Our comprehensive review of the 2005-2007 vintages will pinpoint which transactions will avoid downgrades at these levels of the capital structure and which ones will not.

The Impact Of A Severe Recession

In the previous sections, we note that our expected case, which includes a mild recession of short duration, would likely put our 'BBB' composite classes at risk for potential downgrade, but not default. In addition, our composite junior 'AAA' classes would likely not experience downgrades. Implicit in our findings is that a more severe recession than is expected will likely produce stresses that would potentially put our composite junior 'AAA' certificates at risk for downgrade and our composite 'BBB' rated certificates at risk of suffering principal losses. This is especially true of the 2005-2007 vintage composite classes. For instance, projected lifetime losses of 3.25%, 3.12%, and 3.54% for the 2007, 2006, and 2005 vintages, respectively, would yield principal losses at the 'BBB-' rating level. These represent increases over our expected case of 18% for vintage year 2007, 23% for vintage year 2006, and 71% for vintage year 2005. There is a bit more "buffer" for our composite junior 'AAA' classes, as projected lifetime losses of roughly 4.1%-4.2% are necessary before they become susceptible to potential downgrades.

In order to determine the potential impact of a severe recession on credit enhancement levels and ratings, we stressed our expected case lifetime default rate numbers by 10% and 25%, and ran the losses through our composite capital structures, to arrive at a loss-adjusted credit enhancement level for each rating category at maturity. Again, this was intended to support a high-level directional analysis only, as we did not assume any paydowns throughout the term of the deals. Rather, we used loan balances and certificate balances as of Dec. 31, 2007. The results are displayed in the tables below for the 2005-2007 vintages.

Table 4

Potential Impact Of A More Severe Recession On The Composite 2005 Vintage				
Rating	2005 Weighted average original credit enhancement (%)	Loss-adjusted credit enhancement - expected case (%)	Loss-adjusted credit enhancement - 10% LDR increase (%)	Loss-adjusted credit enhancement - 25% LDR increase (%)
AAA	13.07	11.76	11.62	11.40

Table 4

Potential Impact Of A More Severe Recession On The Composite 2005 Vintage(cont.)				
AA+	11.74	10.51	10.38	10.18
AA	10.94	9.46	9.30	9.06
AA-	9.87	8.34	8.18	7.92
A+	8.41	7.07	6.92	6.70
A	8.18	6.51	6.33	6.06
A-	7.03	5.32	5.13	4.85
BBB+	5.75	3.95	3.76	3.47
BBB	4.69	2.84	2.64	2.34
BBB-	3.40	1.50	1.29	0.98
BB+	2.92	1.01	0.80	0.49
BB	2.55	0.54	0.33	0.00
BB-	2.14	0.11	0.00	0.00
B+	1.90	0.00	0.00	0.00
B	1.63	0.00	0.00	0.00
B-	1.31	0.00	0.00	0.00
Lifetime default rate		6.88	7.57	8.60
Projected lifetime loss		2.07	2.28	2.59

Source: Standard & Poor's.

Table 5

Potential Impact Of A More Severe Recession On The Composite 2006 Vintage				
Rating	2006 Weighted average original credit enhancement (%)	Loss-adjusted credit enhancement - expected case (%)	Loss-adjusted credit enhancement - 10% LDR increase (%)	Loss-adjusted credit enhancement - 25% LDR increase (%)
AAA	12.19	10.43	10.24	9.94
AA+	11.75	9.98	9.79	9.49
AA	10.09	8.17	7.96	7.64
AA-	9.15	7.15	6.93	6.60
A+	8.76	6.77	6.56	6.23
A	7.62	5.49	5.25	4.90
A-	6.59	4.37	4.13	3.76
BBB+	5.40	3.09	2.84	2.46
BBB	4.34	1.94	1.68	1.28
BBB-	3.09	0.62	0.35	0.00
BB+	2.71	0.20	0.00	0.00
BB	2.36	0.00	0.00	0.00
BB-	1.98	0.00	0.00	0.00
B+	1.82	0.00	0.00	0.00
B	1.58	0.00	0.00	0.00
B-	1.24	0.00	0.00	0.00
Lifetime default rate		7.89	8.68	9.86

Table 5

Potential Impact Of A More Severe Recession On The Composite 2006 Vintage(cont.)			
Projected lifetime losses	2.54	2.79	3.18

Source: Standard & Poor's.

Table 6

Potential Impact Of A More Severe Recession On The Composite 2007 Vintage				
Rating	2007 Weighted average original credit enhancement (%)	Loss-adjusted credit enhancement - expected case (%)	Loss-adjusted credit enhancement - 10% LDR increase (%)	Loss-adjusted credit enhancement - 25% LDR increase (%)
AAA	11.90	10.00	9.79	9.47
AA+	11.43	9.44	9.23	8.89
AA	9.86	7.79	7.56	7.21
AA-	8.80	6.68	6.45	6.10
A+	8.35	6.16	5.92	5.55
A	7.27	5.05	4.80	4.43
A-	6.35	4.02	3.76	3.37
BBB+	5.21	2.78	2.51	2.10
BBB	4.17	1.64	1.37	0.94
BBB-	3.06	0.49	0.21	0.00
BB+	2.62	0.01	0.00	0.00
BB	2.33	0.00	0.00	0.00
BB-	1.98	0.00	0.00	0.00
B+	1.72	0.00	0.00	0.00
B	1.49	0.00	0.00	0.00
B-	1.24	0.00	0.00	0.00
Lifetime default rate		8.14	8.95	10.17
Projected lifetime loss		2.75	3.02	3.43

Source: Standard & Poor's.

Conclusion

As noted, Standard & Poor's believes that favorable market conditions are clearly retreating and have been replaced by a slowdown in overall economic growth that will likely lead into a recession. These conditions are likely to have some effect on the commercial property market. Real estate professionals are forecasting slowing demand for space, stagnant or perhaps even declining rental rates, and a general upward bias in capitalization rates as pricing corrects from recent exuberance and capital abundance. For CMBS investors, however, the question is, "How will these trends affect creditworthiness at the asset level and the credit of CMBS certificates?"

Unlike the conditions that existed in the last severe commercial property recession of the late 1980s and early 1990s, real estate markets today, in our opinion, are not likely to suffer from a vast overhang of new speculative supply. Lenders remained relatively constrained when it came to financing new developments. In Standard & Poor's opinion, pockets exist around the country where construction and conversion projects are numerous, but these are

modest by late 1980s standards. If the commercial property sector is headed for a period of weakness, Standard & Poor's believes that neither the severity nor the length of its retrenchment is likely to be as great as in the early 1990s, primarily due to the limited new supply that has been added to most markets.

There are several reasons why CMBS vintages would likely be able to withstand some stresses to property-level cash flows and values on the underlying collateral. First, commercial mortgage-backed securities were originally designed by commercial real estate market professionals who had been through serious downturns, like that of 1989-1992, to minimize idiosyncratic commercial real estate risk. The benefits of a relatively simple waterfall-like structure, defeasance, diversity by geography and property type, third-party servicing, and the relative transparency of information have certainly manifested themselves during the 15-year tenure of this market. Second, in our original rating analysis, Standard & Poor's rating analysts examined many of these properties individually and applied a variety of stresses, including the impact of a real estate downturn. For example, on average, Standard & Poor's values are approximately 30% to 40% lower than issuer-reported appraised values. The fact that CMBS ratings are based on individual asset-level analyses is one of the underlying strengths of CMBS as an asset class.

CMBS is still a relatively new product, untested in severely turbulent times. Standard & Poor's believes that, apart from property fundamentals, the current environment may test CMBS performance in many ways. The capacity of special servicing entities may be challenged as well. The effects of additional financing outside the rated structures, whether mezzanine or in B note form (or both), may be different from those that we initially anticipated. While it remains unclear to what extent these issues may affect CMBS performance, we did consider them in our original stress scenarios. And if liquidity continues to fall away in the secondary market for the securities themselves, their values, like those of other fixed-income products, may be further affected.

Based on our analysis, in Standard & Poor's opinion, declines in credit performance may, on average, only affect CMBS up through the low-investment-grade level, and performance would be in line with the ratings. However, more severe economic stress may lead to more downgrades and defaults. We will continue to monitor the performance of the underlying collateral and adjust our ratings when our comprehensive reviews suggest that a transaction's current credit enhancement levels no longer support the current ratings. With ongoing studies like this, we seek to provide additional information to the market regarding the potential impact of market stresses on these transitions.

Appendix 1: Details Of The Study

In this study, we applied defaults and losses to 45,592 fixed-rate loans securitized in CMBS conduit and fusion transactions issued between 1999 and 2007. Defeased loans comprise 7.5% of the aggregate outstanding CMBS balance of \$577.5 billion, and are found mostly among the 1999 to 2000 CMBS vintages. On average, approximately 37% of the loans securing those vintages of CMBS have been defeased. Defeased loans were included in the calculation of lifetime default rates, but were not included in the calculation of the cumulative lifetime losses because it's difficult to imagine a scenario in which a defeased loan can suffer a loss. The 2007 vintage contributed the greatest loan volume to the studied population at \$166.9 billion (100.0% of outstanding amount), followed closely by loans from the 2006 vintage at \$129.9 billion (also 100.0% of outstanding amount). The large contribution of 2006 and 2007 vintage loans to the studied population is a function of the record amount of issuance in both years and the lack of defeased loans.

Appendix Table 1

Studied Loans By Vintage				
	Outstanding (mil. \$)	Defeased (%)	Studied (%)	Contribution (%)
1999	11,753	37.0	63.0	1
2000	13,326	37.8	62.2	2
2001	18,385	30.4	69.6	2
2002	26,998	26.7	73.3	4
2003	40,493	20.9	79.1	6
2004	58,690	14.6	85.4	9
2005	111,075	3.8	96.2	20
2006	129,918	0.0	100.0	24
2007	166,856	0.0	100.0	31
Total	577,492	7.5	92.5	100.0

Source: Standard & Poor's.

Loans secured by retail and office properties represented the highest property type contributor at 31.4% each, and multifamily placed a distant third at 16.5%. Together, these three property types accounted for 79.3% of the studied population. Lodging and industrial accounted for 7.7% and 4.9%, respectively. All of the remaining property types each contributed less than 3%.

Developing an extrapolated lifetime default rate

Because the more recent vintage year loans are still early in their life cycles (the peak default period is typically between the third and seventh year of a loan's origination date), they have experienced relatively low default rates to date. To facilitate our analysis, we approximated a lifetime default rate (LDR) for each vintage year.

We derived each vintage year's LDR from its age (seasoning) and the percent of its LDR that had occurred to date. We derived the LDR that occurred to date using Standard & Poor's default data, which considers a loan to be defaulted when it becomes 60-plus-days delinquent for the first time. The calculation also considers the property type composition of each vintage. Mechanically, the vintage year LDR adjusts each vintage year's default rate to fully reflect a 10-year seasoning term (assumed loan life cycle). This adjustment is predicated on where the vintage year's loans are within their life cycle and considers its underlying property type composition. Because property types perform differently on a seasonally adjusted basis, we also considered their behavior patterns, and factored in a property-specific LDR for each vintage year. To derive the various LDR rates for each vintage year, Standard & Poor's used the default rate data from those vintages that have already seasoned through the missing default period and applied that default experience to each vintage year.

For example, 2006 vintage loans have only seasoned between one and two years. As such, the weighted average default rate for years three-10 is missing. To obtain the weighted average default rate for loans in year three, Standard & Poor's extrapolated the rate using default data from the 1993 through 2004 vintages, which have gone through that period of seasoning. To obtain the weighted average default rate for loans in year four, Standard & Poor's extrapolated the rate using default data from the 1993 through 2003 vintages, and so on. This exercise was conducted for each property type within each vintage year.

We then applied each vintage year's property specific LDR to the outstanding loan balances and multiplied it by a historical property-type loss severity. The aggregate loan-level losses established a vintage year's projected lifetime

loss. We then applied the aggregate loss (and recoveries) to a composite capital structure for each of the studied vintages. Losses are assumed to be sequential and applied first to the lowest class in the capital structure. As illustrated in Appendix table 2, the 2000 vintage year had the highest cumulative LDR of 9.8%.

Appendix Table 2

Lifetime Default Rates									
Vintage year	1999	2000	2001	2002	2003	2004	2005	2006	2007
First year (0 to 12 months) (%)	0.08	0.17	0.16	0.29	0.21	0.06	0.15	0.20	0.11
Second year (13 to 24 months) (%)	0.35	1.10	0.82	0.32	0.46	0.58	0.29	0.23	0.49
Third year (25 to 36 months) (%)	1.43	1.56	1.29	0.79	0.42	0.37	0.20	0.71	0.71
Fourth year (37 to 48 months) (%)	1.16	2.11	1.23	0.90	0.42	0.17	0.99	1.09	1.13
Fifth year (49 to 60 months) (%)	1.59	2.02	1.01	0.49	0.23	1.02	1.23	1.35	1.37
Sixth year (61 to 72 months) (%)	0.89	0.97	0.44	0.38	1.00	0.99	1.12	1.21	1.21
Seventh year (73 to 84 months) (%)	0.70	0.63	0.38	0.88	0.92	0.89	1.07	1.18	1.19
Eighth year (85 to 96 months) (%)	0.31	0.38	0.91	0.88	0.91	0.90	0.98	1.02	1.03
Ninth year (97 to 108 months) (%)	0.23	0.46	0.45	0.43	0.45	0.44	0.48	0.52	0.52
10th year (109 and more months) (%)	0.39	0.38	0.36	0.37	0.37	0.36	0.37	0.38	0.39
Cumulative default rate (%)	7.13	9.79	7.05	5.73	5.37	5.78	6.88	7.89	8.14
Cumulative losses to date (%)	1.45	1.37	1.04	0.45	0.07	0.04	0.01	0.00	0.00
Extrapolated losses (%)	0.13	0.27	0.54	0.79	1.12	1.44	2.07	2.54	2.75
Cumulative lifetime losses (%)	1.58	1.64	1.58	1.23	1.20	1.49	2.08	2.54	2.75
Average applied loss severity (%)*	34	32	31	31	32	32	33	34	34

*Based on historical averages by property type when defaults resulted in a loss. Source: Standard & Poor's.

2000 was characterized by peak rental rates that started to decline shortly after loan origination, putting pressure property performance and each borrower's ability to make mortgage payments. The LDR by vintage, after hovering around the 5.4%-5.8% range for the 2002-2004 vintages, appears poised to increase in the 2005-2007 vintages.

Of the 10 property types in the studied population, loans secured by lodging properties had the highest LDR at 24.5%, closely followed by loans secured by healthcare properties at 22.0%. The LDRs for all of the other property types are in the single digits (the big-four, retail, office, multifamily, and industrial range from 5.7%-8.1%). Healthcare loans have the highest historical loss severity rate at 57.5%, followed by loans secured by lodging properties at 42.5%. Self-storage facilities and properties classified as "other" have the lowest historical loss severities, at approximately 22%-25%. Loss severities on the big-four property types ranged from 26%-35%.

Appendix 2: Final Waterfalls For The Composite 1999-2004 Vintages

Appendix Table 3

Original And Loss-Adjusted Credit Enhancement Of The Composite 2002-2004 Vintages Assuming Stressed Losses						
Rating	2002 Weighted average credit enhancement (%)	2002 Loss-adjusted credit enhancement (%)	2003 Weighted average credit enhancement (%)	2003 Loss-adjusted credit enhancement (%)	2004 Weighted average credit enhancement (%)	2004 Loss-adjusted credit enhancement (%)
AAA	23.01	22.47	16.64	16.00	15.22	14.36
AA+	14.07	13.63	13.09	12.45	12.27	11.48
AA	12.50	12.03	11.35	10.65	11.64	10.68
AA-	11.80	11.30	9.33	8.66	10.58	9.60

Appendix Table 3

Original And Loss-Adjusted Credit Enhancement Of The Composite 2002-2004 Vintages Assuming Stressed Losses(cont.)						
A+	10.94	10.41	8.93	8.20	9.24	8.32
A	9.41	8.90	8.32	7.52	8.66	7.55
A-	9.11	8.52	7.20	6.38	7.33	6.19
BBB+	7.18	6.62	6.74	5.83	6.18	4.97
BBB	6.61	5.97	5.26	4.39	5.13	3.88
BBB-	5.17	4.55	4.82	3.93	3.77	2.45
BB+	4.81	4.09	4.13	3.12	3.34	1.99
BB	3.80	3.12	3.43	2.42	2.80	1.45
BB-	3.24	2.56	2.94	1.91	2.32	0.97
B+	2.83	2.13	2.37	1.32	1.88	0.55
B	2.31	1.60	1.94	0.88	1.54	0.26
B-	1.68	1.08	1.63	0.56	1.28	0.00*

*Class does not suffer a full principal loss. Source: Standard & Poor's.

Appendix Table 4

Original And Loss-Adjusted Credit Enhancement Of The Composite 1999-2001 Vintages Assuming Stressed Losses						
Rating	1999 Weighted average credit enhancement (%)	1999 Loss-adjusted credit enhancement (%)	2000 Weighted average credit enhancement (%)	2000 Loss-adjusted credit enhancement (%)	2001 Weighted average credit enhancement (%)	2001 Loss-adjusted credit enhancement (%)
AAA	32.88	32.78	27.05	26.87	24.17	23.78
AA+	15.84	15.77	14.86	14.73	13.51	13.23
AA	14.63	14.56	14.22	14.08	13.03	12.70
AA-	14.40	14.33	12.63	12.48	11.04	10.73
A+	13.95	13.88	11.95	11.80	10.78	10.45
A	13.14	13.07	11.28	11.12	9.95	9.60
A-	11.09	11.02	10.53	10.35	8.70	8.35
BBB+	9.37	9.30	8.76	8.59	7.88	7.48
BBB	8.85	8.76	7.02	6.86	6.50	6.10
BBB-	8.17	8.08	5.71	5.55	5.16	4.80
BB+	7.88	7.79	5.05	4.84	4.56	4.12
BB	7.49	7.40	4.40	4.18	3.89	3.42
BB-	7.14	7.05	3.29	3.09	2.75	2.35
B+	6.80	6.70	2.72	2.53	2.31	1.89
B	6.56	6.46	2.45	2.26	2.18	1.67
B-	6.50	6.40	1.57	1.42	1.50	1.06

Source: Standard & Poor's.

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