Commercial Mortgage Criteria Report

Rating Criteria for Fitch's U.S. CMBS Multiborrower Rating Model

Analysts

CMBS
Robert Vrchota
+1 312 368-3336
robert.vrchota@fitchratings.com

Susan Merrick
+1 212 908-0725
susan.merrick@fitchratings.com

QFR
David Austerweil
+1 212 908-0301
david.austerweil@fitchratings.com

Ahmet Kocagil, Ph.D.
+1 212 908-0271
ahmet.kocagil@fitchratings.com

Related Research

- "PMM™ Scores: Measuring Property Type and Market Volatility," dated April 24, 2006
- "U.S. PMM™ Update: View Looks Good from the Corner Office," dated May 1, 2007
- "U.S. Commercial Mortgage Servicer Rating Criteria," dated Sept. 14, 2007
- "Commercial Mortgage Originator Review Guidelines," dated March 24, 2006
- "Rating U.S. Single-Borrower Commercial Mortgage Transactions," dated Feb. 6, 2007
- "U.S. CMBS Multiborrower Rating Model Technical Report," dated Jan. 4, 2008
- "Special-Purpose Vehicles in Structured Finance Transactions," dated June 13, 2006

■ Outlook

The Fitch Ratings U.S. commercial mortgage-backed securities (CMBS) multiborrower rating model combines loan-level econometric analysis of historical commercial mortgage performance with state-of-the-art techniques for portfolio analysis. Fitch's research provided the foundation for the model. The quantitative analysis focused on the characteristics and performance of more than 32,000 fixed-rate conduit loans that were originated for securitization between 1994 and 2001. Through regression analysis of this historical data, Fitch isolated the primary drivers of the probability of default (PD), probability of loss (PL), and loss severity (LS), and used the results to develop the multiborrower model. PD, PL, and LS are indicated at the loan-level, while subordination levels are indicated through a loss distribution curve, which results from simulations that address the correlations of the particular pool through macroeconomic, geographic, and property type factors.

There are many advantages to this approach to credit analysis. First, the credit risk of an individual loan is broken into three components, each of which has multiple contributing factors that provide a richer characterization of a loan's credit risk. Second, the subordination levels for all rating categories are primarily derived from the pool's simulated loss distribution, which reflects the interdependence (correlation) between loans. Third, credit differences among pools are more precisely highlighted due to the addition of quantitative measures of correlation risk.

The model is the combined product of the Quantitative Finance Research (QFR) group's modeling expertise and the CMBS team's industry knowledge. A separate technical paper "U.S. CMBS Multiborrower Rating Model Technical Report," dated Jan. 4, 2008, describing the tools and methodologies employed to build and test the new multiborrower model is also available at www.fitchratings.com.

Due to the unique nature of commercial real estate, the rating process entails the combination of Fitch's real estate analysis, including site visits of the properties, understanding of the property's position within its market and its stressed property-level cash flows, with the model's indication of subordination levels. For additional information on the rating process, see Appendix A on page 17.

This report reflects updates to a number of variables in the model, including the impact on PD of the Fitch stressed debt service coverage (DSCR), geographic region, property type, reserves, and property count. In addition, the impact on PL of Fitch stressed DSCR on trust amount is reflected in this report.

Historical CMBS Data

The performance history of more than 32,000 fixed-rate conduit loans, which were originated for securitization from 1994–2001 totaling $173 billion, was analyzed through year-end 2005 (excluding seasoned, shadow-rated, credit tenant lease, and life company loans).

This historical data set indicated that more than 2,000 loans defaulted while more than 900 ultimately experienced a loss. Fitch defines a loan as defaulted when it first becomes at least 60 days delinquent. Through regression analysis of these defaults and losses, Fitch isolated the primary drivers of the PD, PL, and LS, and used the results to develop the multiborrower model.

The performance analysis reflected a favorable environment for commercial real estate (1994–2005), generally characterized by low delinquencies, improving property-level fundamentals such as increasing occupancies and rents, moderate amounts of new supply/construction, declining capitalization rates, and an abundance of capital. Fitch characterizes this low stress environment on historical CMBS loan performance as a 'B' rating level in the model. All loan-level calculations in the model (PD, PL, and LS) are reflective of this 'B' rating level environment.

The historical performance analysis helps indicate the 'B' rating loss expectation, while the simulation adds in higher levels of macroeconomic, geographic, and property type stresses to indicate rating loss expectations for other rating categories up to 'AAA'. The 'B' rating loss expectations are associated with the highest probability outcomes from the simulation. Each higher rating category represents a lower probability, higher loss point on the distribution, culminating in the low probability 'AAA' loss expectation.

Sample Loan Characteristics

Amortization (Years)	30
Asset Volatility Score	3
Economic Factors:	
Gross State Product Growth Rate Change (%)	10
Personal Income Growth Rate Change (%)	7.5
Encumbered Interest	Fee
Environmental Issues	None
Fitch Stressed Debt Service Coverage Ratio (on Trust Amount) (x)	1.17
Fitch Stressed Debt Service Coverage Ratio (on Total Debt Stack) (x)	1.15
Fitch Stressed Loan-to-Value Ratio (on Trust Amount) (%)	93
Fitch Stressed Loan-to-Value Ratio (on Total Debt Stack) (%)	95
Geographic Region	Plains
Loan Size ($ Mil.)	15
Lock Box	Yes
Natural Disaster Risk:	
Earthquake Risk	No
Windstorm Risk	No
Origination Practices	Standard
PMM™ Score	3
Property Count	1
Property Quality	'B'
Property Type	Office
Recourse	None
Relative Loan Spread (%)	0
Representations and Warranties	Standard
Reserves:	
For Capital Expenditures	No
For Insurance	Yes
For Taxes	Yes
For TI/LC	No
Servicer Ratings:	
Master Servicer Rating	'CMS2'
Special Servicer Rating	'CSS2'
Single Tenant	No
Sponsor Issues	None
State Foreclosure Law	Judicial

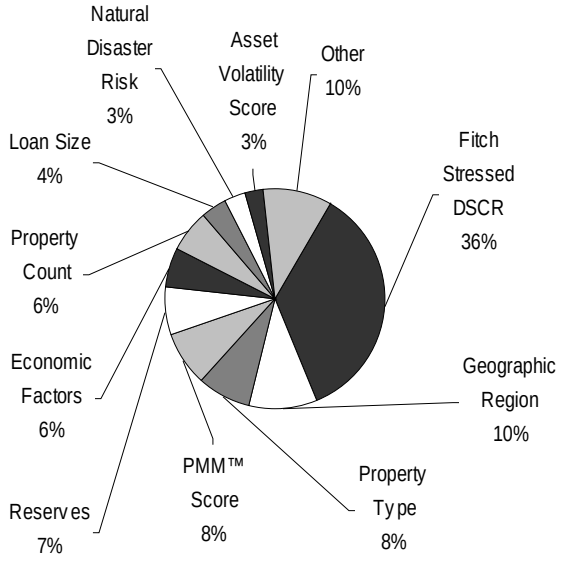
PMM™ – Property Market Metric™. TI/LC – Tenant improvements/ leasing commissions.

Sample Loan Characteristics

The individual model components are summarized in the table on page 3 and discussed in detail throughout the report. To aid the discussion, a sample loan was created to demonstrate the sensitivities of changing individual credit risk variables. The sample loan generally reflects average characteristics of the universe of loans originated for securitization between 2006 and 2007. The characteristics of the sample loan are listed in the table to the left.

In a multivariate model, the combined effect of the characteristics of each PD risk variable for a given loan

Average Contribution to Expected Loss



Model Overview

Loan-Level Calculations

Probability of Default Summary

Fitch Ratings' PD represents the 10-year cumulative default rate of a loan. Fitch defines a loan as defaulted when it first becomes at least 60 days delinquent. The actual 10-year default rate was calibrated to approximately 10%, based on Fitch's historical CMBS data set. Fitch identified 12 credit risk variables that were statistically significant to the indication of PD along with five other variables that are used in the indication of PD. The variables with the largest contributions to PD are Fitch-stressed debt service coverage ratio on total debt stack, and geographic region.

Probability of Loss Summary

Fitch's PL represents the likelihood a loan experiences a loss after it defaults. PL averaged approximately 45% based on Fitch's historical CMBS data set, which means that on average 55% of defaulted loans have cured and were returned to performing status or paid off without a loss. Fitch identified five credit risk variables that were statistically significant to the indication of PL. The variables with the largest contribution to PL are Fitch-stressed debt service coverage ratio on trust amount and PMM™ score.

Loss Severity Summary

LS is calculated as a loan's realized loss amount, if applicable, over its securitized balance where the realized loss is calculated using Commercial Mortgage Securities Association guidelines. The LS averaged approximately 40%, based on Fitch's historical CMBS data set. Fitch identified five credit risk variables that were statistically significant to the indication of LS along with one other variable that is used in the indication of LS. The variables with the largest contribution to LS are geographic region and property type.

Expected Loss Adjustment Summary

In addition to the three major loan-level model components (PD, PL, and LS), which are multiplied to indicate an expected loss for each loan, there are three additional adjustments that may increase or decrease a loan's expected loss. These are amortization, originator, and representations and warranties, as more fully described on page 14.

Probability of Default	X	Probability of Loss	X	Loss Severity	=	Expected Loss	+	Expected Loss Adjustments	=	'B' Loan-Level Subordination*

*Prior to correlations and simulations.

Pool-Level Calculations

Results of the pool-level calculations indicate the distribution of a pool's losses. A simulation model generates scenarios of default and loss on the loans over a 10-year horizon. The loans are correlated through macroeconomic and loan-specific factors. 500,000 simulation scenarios are run to capture the myriad possible scenarios and combinations/outcomes, which are represented as a loss distribution. Subordination levels are indicated by taking the loss amounts corresponding to percentiles of the loss distribution by rating category. For example, a deal's 'AAA' subordination may be modeled to withstand more than 99.99% of all loss scenarios.

indicate that loan's PD. Likewise, the combined effect of the characteristics of each loan's PL and LS risk variables indicates each loan's PL and LS, respectively. Hence, the PDs, PLs, and LSs in the charts throughout this report are based exclusively on the characteristics of the sample loan. Different loan characteristics than those of the sample loan will result in different estimates of PD, PL, and LS.

■ Impact of Model Variables

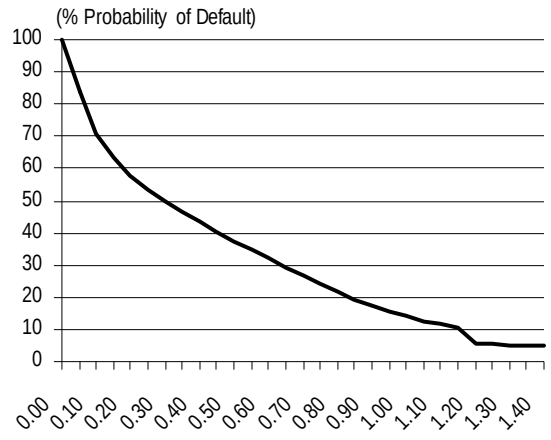
The chart on page 2 shows the contributory impact of each variable on loan-level expected loss. The contributory impact of each variable on loan-level

Probability of Default Variables

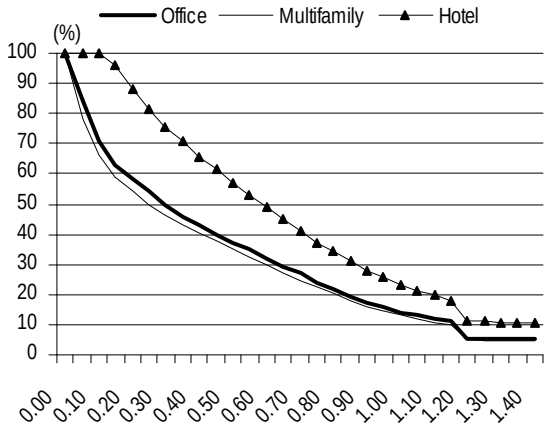
Rank	Variables
1	Fitch Stressed Debt Service Coverage Ratio (on Total Debt Stack)
2	Geographic Region
3	Reserves
	Reserves for Taxes
	Reserves for Insurance
	Reserves for Capital Expenditures
	Reserves for TI/LC
4	Property Type
5	Property Count
6	Economic Factors
	Personal Income Growth Rate Change
	Gross State Product Growth Rate Change
7	Asset Volatility Score
8	Natural Disaster Risk
	Windstorm Risk
	Earthquake Risk
9	Encumbered Interest
10	PMM™ Score
11	State Foreclosure Law
12	Servicer
	Special Servicer Rating
	Master Servicer Rating
13	Relative Loan Spread
14	Fitch Stressed Loan-to-Value Ratio (on Total Debt Stack)
15	Environmental
16	Recourse
17	Sponsor Issues

expected loss in the model was indicated by analyzing a pool of approximately 4,000 conduit loans from Fitch-rated deals issued in the first half of 2007.

Probability of Default by Fitch Stressed Debt Service Coverage Ratio on Total Debt (For Sample Loan)



Probability of Default by Fitch Stressed Debt Service Coverage Ratio on Total Debt and Property Type (For Sample Loan)



Loan-Level Model Components

PD Variables

The PD risk variables are listed in the table above at left, in order of importance from highest to lowest based on the characteristics of the sample loan described on page 2. This section discusses all of these variables in detail. The combined effect of all PD risk variables in the model indicates a loan's PD.

Fitch Stressed Debt Service Coverage Ratio (on Total Debt Stack)

Fitch stressed debt service coverage ratio on the total debt stack (FS-DSCR Total Debt) and PD are inversely related; the lower a loan's FS-DSCR Total Debt, the higher the PD. The relationship between FS-DSCR Total Debt and PD becomes more extreme at very low and very high FS-DSCRs Total Debt, as illustrated in the chart at left. In this example, when FS-DSCR Total Debt drops below 1.20 times (x), the default probability increases sharply, and when the FS-DSCR Total Debt increases above 1.20x, the decrease in the PD begins to taper off.

FS-DSCR Total Debt PDs vary by property type. For example, a hotel loan with a 1.10x FS-DSCR Total Debt will generally have a higher PD than that of a multifamily loan with a 1.10x FS-DSCR Total Debt (all else equal) because hotel revenues are generally more volatile than multifamily revenues. An example of how PD varies by FS-DSCR Total Debt and property type for office, multifamily, and hotels is shown in the chart

on the top of page 4. In this chart, other property types such as manufactured housing communities and self-storage properties have PDs similar to multifamily properties. Retail, mixed-use, and industrial properties have PDs similar to office properties. Health care properties have PDs similar to hotel properties.

The risk of additional debt is factored into PD by calculating the FS-DSCR on the total debt stack, including all pari passu debt, all subordinate notes (B-note, C-note, etc.), and any mezzanine debt and preferred equity. The reason for including additional debt in the FS-DSCR calculation is as total debt increases, equity decreases so a borrower has less capital at risk. If property performance declines, the borrower does not have strong incentives to invest more time and/or capital into the property to turn it around. The amount of additional debt also creates further stresses. Higher debt service payments on the additional debt may lead to less available cash flow to reinvest in the property or to pay for capital improvement or repositioning projects. For additional detail on FS-DSCR Total Debt, including how it is calculated, see Appendix A on page 17.

Geographic Region

Fitch's geographic regions consist of eight economic U.S. areas as defined by the Bureau of Economic Analysis (BEA), as shown in Appendix B on page 20.

The chart below at left lists the regions from the lowest to highest impact on PD based on the characteristics of the sample loan described on page 2. This variable captures differences in economic performance across various U.S. regions.

Reserves

Although reserves for taxes, insurance, capital expenditures (CapEx), and tenant improvements/leasing commissions (TI/LC) are reflected individually in the model, they each have the same relative impact on PD. Loans with one or more of the following ongoing reserves for taxes, insurance, CapEx, or up-front or ongoing reserves for TI/LCs, have lower PDs than loans without those reserves.

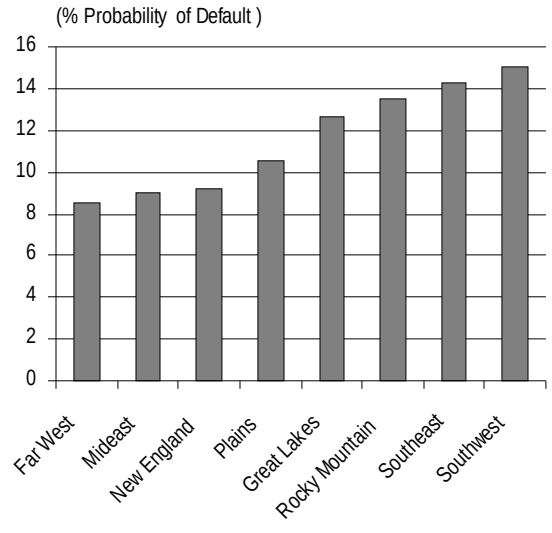
Since loans with FS-DSCRs Total Debt less than 1.20x have less cash flow available to fund reserves, the PDs for such loans are higher than those for loans with FS-DSCRs Total Debt greater than 1.20x, as shown in the chart below.

Property Type

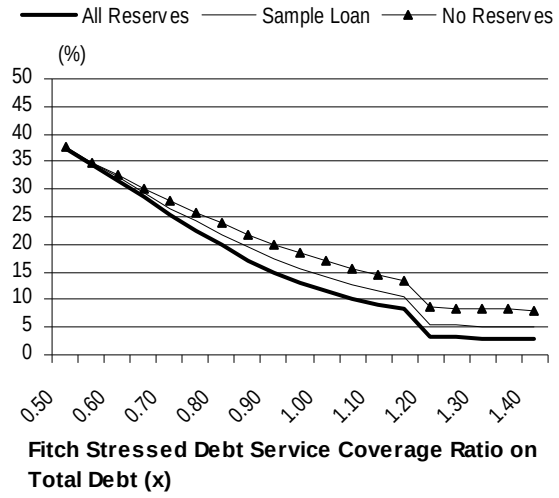
Some CMBS property types have a higher average likelihood of default than others when all else is equal. The major CMBS property types are ranked by their likelihood of default from lowest to highest in the chart on the top of page 6, with all other loan characteristics unchanged from the sample loan described on page 2.

Varying likelihoods of default are driven primarily by differing revenue volatility, demand drivers, cost structures, and ease of construction/barriers to entry.

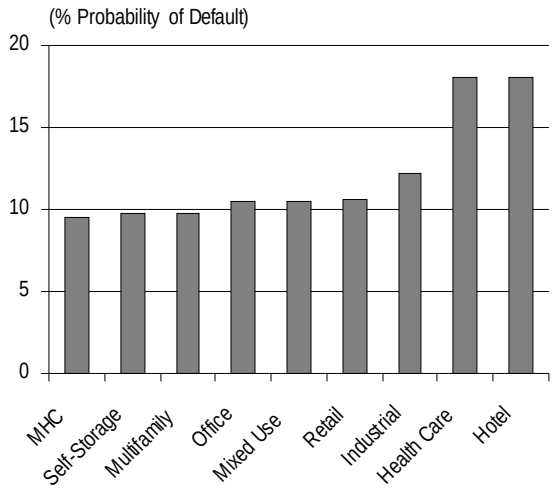
Probability of Default by Geographic Region (For Sample Loan)



Probability of Default by Fitch Stressed Debt Service Coverage Ratio on Total Debt and Reserves (For Sample Loan)



Probability of Default by Property Type (For Sample Loan)



MHC – Manufactured housing community.

More granularity among property types, such as distinguishing between anchored and unanchored retail, or limited- and full-service hotels, is accounted for in the calculation of FS-DSCR Total Debt and Fitch stressed loan-to-value ratio on the total debt stack (FS-LTV Total Debt) by the use of different refinance constants and capitalization rates.

Property Count

Loans secured by multiple properties exhibit lower PDs than loans backed by a single property, as shown in the chart below at left.

Multiproperty loans diversified across geographic markets generally exhibit a lower PD than their single property counterparts since stronger properties in the loan pool support poorer performing properties. Furthermore, an owner is more likely to continue making timely loan payments if the aggregate cash flow of the pooled properties is sufficient to cover debt service. Similarly, cross-collateralized and cross-defaulted loans also exhibit a lower PD than noncrossed loans.

The PD does not decline for loans with multiple properties in the same business park or geographic location (i.e. state or metropolitan statistical area), or with a high level of dependency on a single tenant.

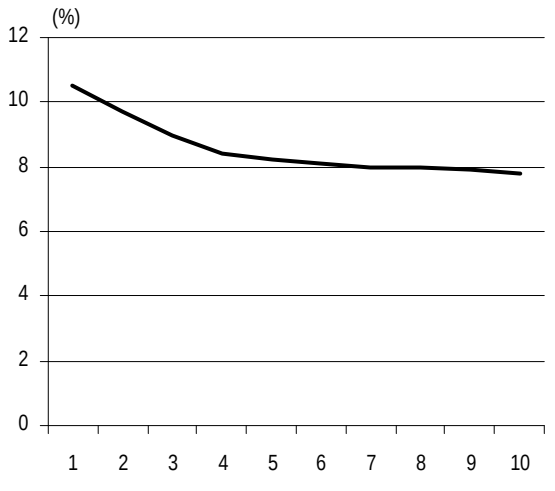
Economic Factors

Personal income growth rate and gross state product growth rate, as reported by the BEA, are macroeconomic variables in Fitch's model that capture the effect of a state's economy on its commercial real estate performance.

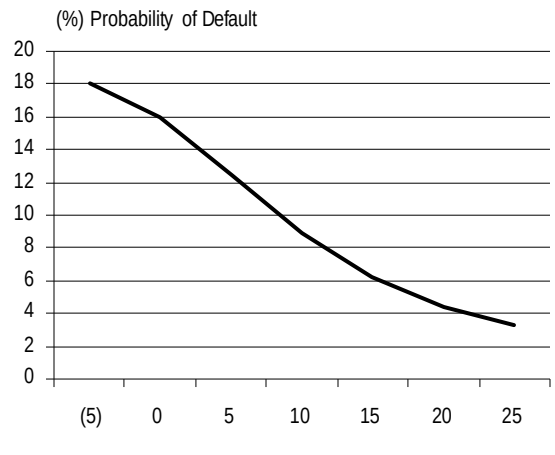
Personal Income Growth Rate Change

A state's personal income growth rate change reflects general economic conditions in a region. The higher the positive change in the personal income growth rate, the lower the PD, as illustrated in the chart on page 6.

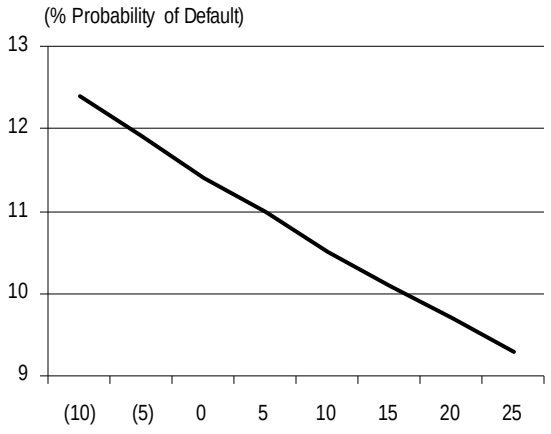
Probability of Default by Property Count (For Sample Loan)



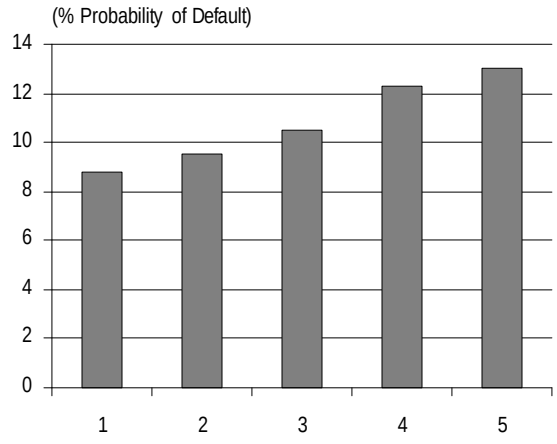
Probability of Default by Change in Personal Income Growth Rate (For Sample Loan)



Probability of Default by Change in Gross State Product Growth Rate (For Sample Loan)



Probability of Default by Asset Volatility Score (For Sample Loan)



A state's personal income growth rate change is equal to: the difference between the current year's personal income growth rate and the average of the annual growth rates over the previous three years, divided by the average of the annual growth rates over the previous three years.

Gross State Product Growth Rate Change

A state's gross state product growth rate change also reflects general economic conditions in a region. The higher the positive change in the gross state product growth rate, the lower the PD, as illustrated in the chart above.

A state's gross state product growth rate change is equal to: the difference between the current year's growth rate and the average of the annual growth rates over the previous three years, divided by the average of the annual growth rates over the previous three years.

Asset Volatility Score

Asset volatility scores and PD are directly related; the lower the asset volatility, the lower the PD, as shown in the chart above at right. Asset volatility scores range from 1–5 (with 1 being the least volatile and 5 being the most volatile).

Asset volatility scores were first introduced by Fitch in 2001 to capture loan characteristics not easily quantifiable for modeling purposes. In rating a transaction, Fitch samples asset summaries to understand additional asset volatility risks and generate asset volatility scores to apply to the nonsampled loans in the pool. Some of the factors of note are loan per square foot, tenant quality and rollover during the term, market rent relative to in-place rent, management/sponsor experience, and the number of years of historical operating information.

Natural Disaster Risk

Although not yet discernable from Fitch's historical CMBS data set, based on industry experience Fitch believes that loans secured by properties located in areas prone to natural disasters such as hurricanes and earthquakes are riskier than loans secured by properties not susceptible to natural disasters, all else equal.

Windstorm Risk

Loans with properties located in hurricane-prone areas have a higher PD than loans with properties outside such areas, all else equal. Fitch defines its hurricane-prone area for commercial real estate as anywhere within 30 miles of the coast from Texas to Virginia and the entire geographic area of Florida, Hawaii, and the Caribbean. The PD for a loan (property) not located in a hurricane-prone area is 10.5%, compared with a PD of 11.6% for a loan (property) located in a hurricane-prone area, based on the characteristics of the sample loan described on page 2.

The model assumes that all properties have full windstorm insurance coverage. If full windstorm insurance coverage is not in place, the PD may be increased on a case-by-case basis depending on such

factors as property type, construction quality, and retrofitting.

Earthquake Risk

Loans with properties located in earthquake-prone areas (seismic zone 3 and zone 4) have a higher PD than loans with properties located in seismic zones 1 or 2. The PD for a loan with a property located in seismic zones 1 or 2 is 10.5%, compared with a PD of 11.6% for a loan with a property located in seismic zones 3 or 4, based on the characteristics of the sample loan described on page 2.

The model assumes the probable maximum loss (PML) for a property is less than or equal to 20%. If the PML is greater than 20% the model assumes there is earthquake insurance in place to cover the property's replacement cost. If insurance is not in place to mitigate the risk, the PD may be increased on a case-by-case basis depending on such factors as property type, construction quality, and retrofitting.

Encumbered Interest

A loan's encumbered interest can be fee, both fee and leasehold, or leasehold. The form of the encumbered interest affects PD; loans secured solely by a leasehold interest have a higher PD than loans secured by a fee or both fee and leasehold. Loans with fee or both fee and leasehold interests have the same statistical impact on PD. The PD for a fee or both a fee and leasehold interest is 10.5%, compared with a PD of 15.4% for leasehold secured only loans, based on the characteristics of the sample loan described on page 2.

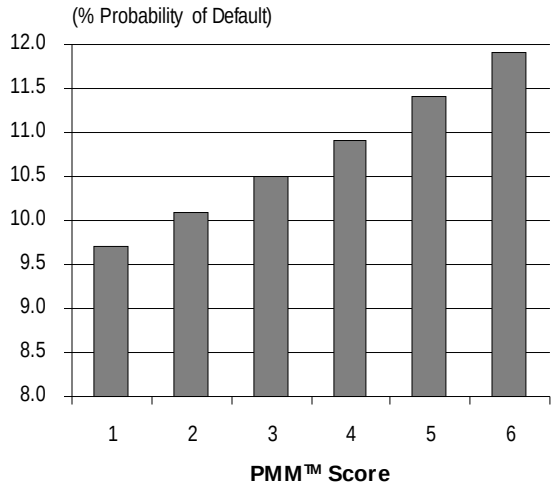
A fee interest means the borrower owns the land and building, whereas a leasehold interest means the building owner leases the land from another party. The leasehold lender generally requires the ground lease maturity to extend beyond the loan maturity on the building. Fitch also considers ground rent step-ups, and leasehold mortgagee rights of notice and cure, among other things.

Property Market Metric™ (PMM™) Score

PMM™ scores and PD are directly related; the lower the PMM™ score, the lower the PD, as shown in the chart above at right.

PMM™ scores measure cash flow volatility of a property type in its geographic market. PMM™ combines historical market volatility measured by changes in net operating income (NOI) and projected performance (NOI growth) to assess the risk of a particular market and property type combination.

Probability of Default by PMM™ (For Sample Loan)



PMM™ scores range from 1–6, with 1 having the lowest volatility and 6 the highest. Fitch assigns properties located in tertiary markets a PMM™ score of 6. PMM™ scores also vary by property type; the average PMM™ scores of multifamily properties are lower than the average PMM™ scores of hotel properties.

For a detailed discussion of PMM™ scores, see Fitch's criteria report "PMM™ Scores: Measuring Property Type and Market Volatility," dated April 24, 2006, and the special report "U.S. PMM™ Update: View Looks Good from the Corner Office," dated May 1, 2007, both available on Fitch's web site at www.fitchratings.com.

State Foreclosure Law

Loans with properties located in states with nonjudicial foreclosure laws (power-of-sale) have a slightly lower PD than those with properties located in states with judicial foreclosure laws. The PD for a loan with a property in a power-of-sale state is 9.6%, compared with a PD of 10.5% for a loan with a property in a judicial foreclosure state, based on the characteristics of the sample loan described on page 2.

In power-of-sale states lenders have the right to foreclose relatively quickly after a loan defaults; the typical "cure" period is short, in some cases no more than 30 days. Given the quick foreclosure period, borrowers are motivated to keep loans current in power-of-sale states. Borrowers in judicial states are less motivated to keep loans current because the

foreclosure process can take months or years to wind its way through the courts.

Servicer Ratings

Although not yet discernable from Fitch's historical CMBS data set, based on industry experience, Fitch believes that loans serviced by highly rated master and special servicers will exhibit better performance than loans serviced by lower-rated master and special servicers.

Special Servicer Rating

Special servicer ratings and PD are inversely related; loans with higher special servicer ratings have lower PDs than loans with lower special servicer ratings. Fitch rates special servicers 'CSS1' to 'CSS5', with 1 being the highest (best) and 5 being the lowest (worst). Loans with a 'CSS3' or lower rated special servicer, all else equal, have a higher PD than loans with a 'CSS2' or 'CSS1' rated special servicer.

For a more detailed discussion of CMBS special servicers and their role in CMBS transactions, see Fitch Research on "U.S. Commercial Mortgage Servicer Rating Criteria," dated Sept. 14, 2007, available on Fitch's web site at www.fitchratings.com.

Master Servicer Rating

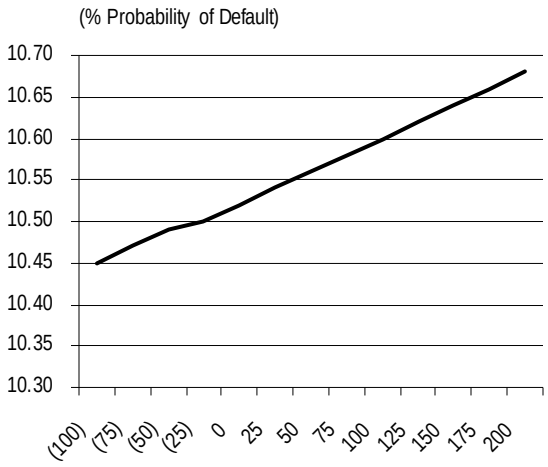
Master servicer ratings and PD are inversely related; loans with higher master servicer ratings have lower PDs than loans with lower master servicer ratings. Fitch rates master servicers 'CMS1' to 'CMS5', with 1 being the highest (best) and 5 being the lowest (worst). Loans with a 'CMS3' or lower rated master servicer, all else equal, have a higher PD than loans with a 'CMS2' or 'CMS1' rated master servicer.

For a more detailed discussion of CMBS master servicers and their role in CMBS transactions, see Fitch Research on "U.S. Commercial Mortgage Servicer Rating Criteria," dated Sept. 14, 2007, available on Fitch's web site at www.fitchratings.com.

Relative Loan Spread

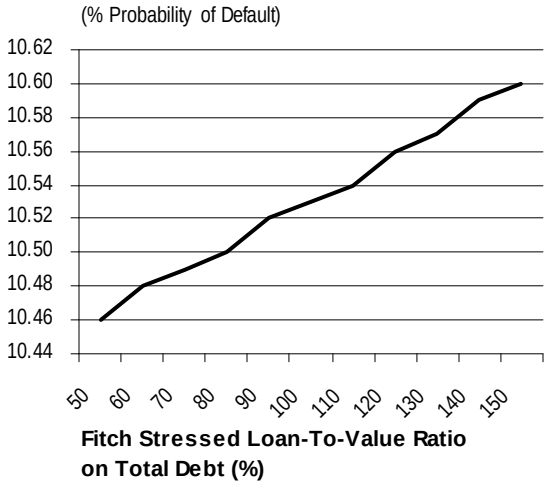
Loans with lower relative loan spreads exhibit lower PDs than loans with higher spreads, as shown in the chart above at right. Loan spreads are a good indicator of credit risk, as originators increase a loan's spread to compensate for additional risks, especially intangibles, which may not be reflected in other loan characteristics. If not reported by the issuer, loan spread is estimated as a loan's coupon less an estimated 10-year treasury rate and/or 10-year swap spread.

Probability of Default by Relative Loan Spread (For Sample Loan)



To isolate credit risk from exogenous factors that drive absolute loan spreads up or down, such as the availability of capital, Fitch employs a relative loan spread. The relative loan spread is the loan spread less a spread benchmark. The spread benchmark is a weighted average of loan spreads on recently securitized loans. The use of a relative loan spread facilitates the comparison of loan spreads over time by factoring in market conditions and historical trends in CMBS loan spreads.

Probability of Default by Fitch Stressed Loan-To-Value Ratio on Total Debt (For Sample Loan)



Fitch Stressed Loan-to-Value Ratio (on Total Debt Stack)

FS-LTV Total Debt and PD are directly related; loans with a higher FS-LTV Total Debt have slightly higher PDs than loans with lower FS-LTVs Total Debt, as shown in the chart on page 9.

Through regression testing Fitch has concluded that changes in FS-LTV Total Debt on PD have a relatively small, albeit statistically significant impact. This is consistent with Fitch's long-held view that cash flow (and hence DSCR) is a better predictor of default than LTV. Fitch tested numerous versions of LTV, including appraised LTV and actual balloon LTV, and the results indicated they were not as powerful in predicting PD as FS-LTV Total Debt. For additional detail on FS-LTV Total Debt and how it is calculated, see Appendix A on page 17.

Environmental

Based on industry experience, loans secured by properties with unmitigated environmental issues have a higher PD and LS than those without environmental issues. If environmental issues are not mitigated, a loan's PD and/or LS may be increased to reflect this additional risk depending on such factors as property type and the nature of the environmental issue.

Fitch expects a phase I environmental site assessment with adequate scope to be conducted on each property by a contractor with national or regional standing. The assessment is typically completed within 12 months prior to the securitization. In instances where consultants have recommended further investigation, Fitch expects investigative work to be completed before securitization.

Recourse

Almost all CMBS conduit loans are nonrecourse to the sponsor/borrowing entity except for certain carve-outs for fraud, misappropriation, and environmental issues. Based on industry experience, loans originated with full recourse have a lower PD than those originated without recourse. Therefore, a loan's PD may be reduced if it has full recourse or slightly reduced if it has partial recourse, depending on the sponsor/borrowing entity's financial wherewithal.

Sponsor Issues

Based on industry experience, loans whose sponsors have been found guilty of fraud or embezzlement, or who have a litigious history, have a higher PD than those loans with issue-free sponsors. Therefore, a loan's PD may be increased to reflect sponsor issues, if applicable depending on such factors as loan structural provisions including hard lock boxes, and sponsor involvement in the management and operation of the property.

PL Variables

The PL risk variables are listed in the table below, in order of importance from highest to lowest based on the characteristics of the sample loan described on page 2. The PL represents the likelihood a loan experiences a loss after it defaults; each PL variable is discussed below. The combined effect of all five PL risk variables indicates a loan's PL.

Probability of Loss Variables

Rank	Variables
1	Fitch stressed debt service coverage ratio (on trust amount)
2	PMM™ score
3	Single-tenant properties
4	Property quality
5	Fitch stressed loan-to-value ratio (on trust amount)

PMM™ – Property Market Metric™

Fitch Stressed DSCR (on Trust Amount)

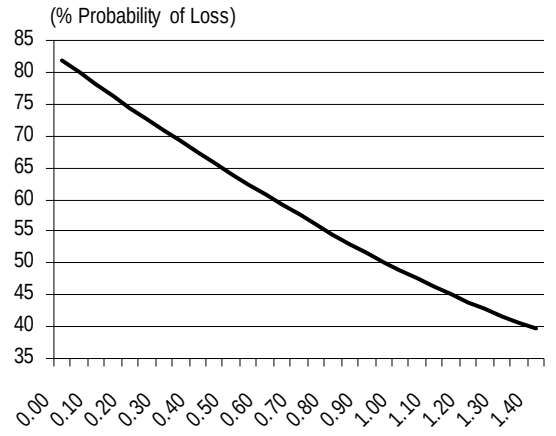
FS-DSCR on trust amount (FS-DSCR Trust Amount) and PL are inversely related; the lower a loan's FS-DSCR Trust Amount the higher the PL, as shown in the chart on the top left of page 11.

The lower a loan's FS-DSCR Trust Amount, the less cash flow that is available for debt service. Therefore, if a loan experiences a default, it is more difficult for the borrower to keep payments current. Hence, a loan with a lower FS-DSCR Trust Amount has a higher likelihood of experiencing a loss once it defaults. For additional detail on FS-DSCR Trust Amount, including how it is calculated, see Appendix A on page 17.

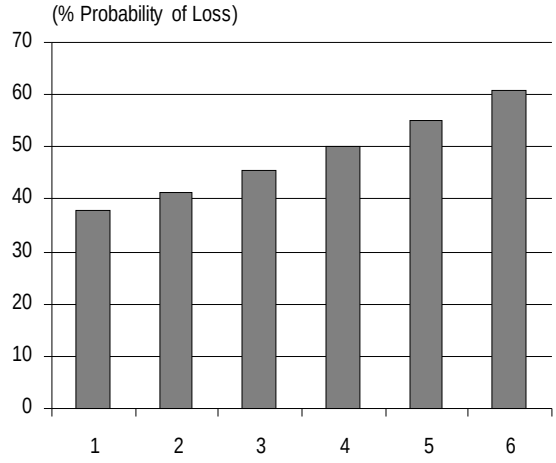
PMM™ Score

PMM™ scores and PL are directly related; the lower the PMM™ score, the lower the PL, as shown in the chart above at right. Higher PMM™ scores indicate greater NOI volatility and thus higher property value volatility. Therefore, in a scenario where NOI has dropped enough to trigger a default, the lower NOI also results in a lower property value, increasing the likelihood of a loss.

Probability of Loss by Fitch Stressed Debt Service Coverage Ratio on Trust Amount (For Sample Loan)



Probability of Loss by PMM™ Score (For Sample Loan)



Single-Tenant Properties

Single-tenant properties have a higher PL than that of multitenant properties. The PL for a loan secured by a single-tenant property is 50.6%, compared with a PL of 45.6% for a loan secured by a multitenant property, based on the characteristics of the sample loan described on page 2.

Fitch defines a single-tenant property as one where a tenant represents 75% or more of net rentable area (NRA). Single-tenant properties have an increased exposure to the credit performance of its main tenant. When a loan defaults due to problems with its main tenant, such as bankruptcy, it is more likely to suffer a loss.

Single-tenant properties have a higher PL than multitenant properties all else equal, irrespective of tenant rating or length of lease. Single-tenant properties with highly rated tenants on long-term leases may have lower asset volatility scores applied, which results in a lower PD *(see Asset Volatility Score on page 7)*.

Property Quality

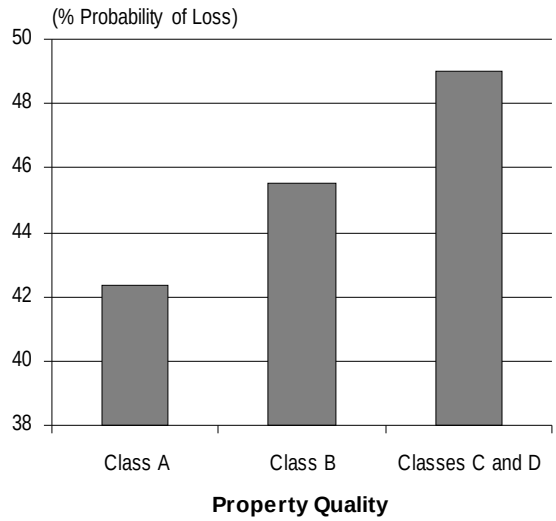
Property quality is inversely related with PL; the lower a loan's property quality, the higher the PL, as shown in the chart below. Property quality assessments range from A (highest) to D (lowest).

Low property quality may be a result of poor construction quality, functional obsolescence, inefficient floor plates, and other characteristics that make a property less desirable. Low property quality may make it more difficult to turn a property around once a default occurs.

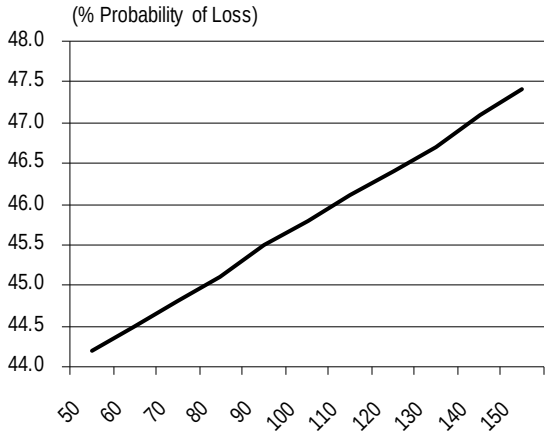
Fitch Stressed LTV (on Trust Amount)

FS-LTV on trust amount (FS-LTV Trust Amount) and PL are directly related; loans with a higher FS-LTV Trust Amount have a higher PL than loans with

Probability of Loss by Property Quality (For Sample Loan)



Probability of Loss by Fitch Stressed Loan-To-Value Ratio on Trust Amount (For Sample Loan)

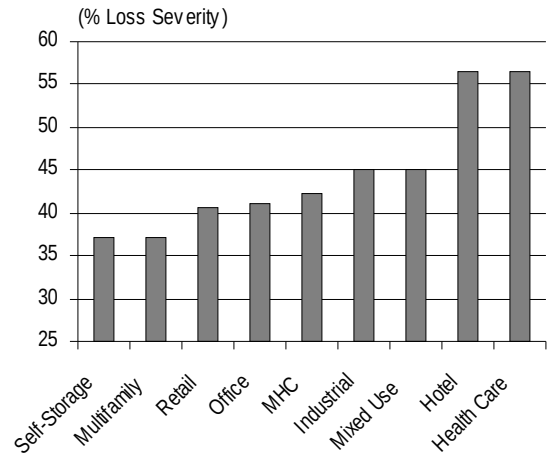


a lower FS-LTV Trust Amount, as shown in the chart above.

The higher the FS-LTV Trust Amount, the smaller the buffer available to cover a drop in a property's value upon default. When a high FS-LTV Trust Amount loan defaults, the borrower has less equity and thus a smaller incentive to continue to invest in the property to turn it around.

The FS-LTV Trust Amount is used in the determination of PL instead of the FS-LTV Total Debt to account for a loan's position in the debt stack. Loans with lower leverage A-Notes may have a lower likelihood of experiencing a loss once a default occurs than loans with higher leverage A-Notes since there may be more debt behind a lower leverage position to absorb losses first.

Loan Severity by Property Type (For Sample Loan)



MHC – Manufactured housing community.

LS Variables

The LS risk variables are listed in the table below, in the order of importance from highest to lowest based on the characteristics of the sample loan described on page 2. The LS represents a loan's realized loss amount over its securitized balance once a loan defaults and actually experiences a loss. Each LS variable is discussed below. The combined effect of all six LS risk variables indicates a loan's LS.

Loss Severity Variables

Rank	Variables
1	Property type
2	Geographic region
3	Loan size
4	Lock box
5	Property quality
6	Environmental

Property Type

Some CMBS property types have higher average loss severities than others. The major CMBS property types are listed by their historical average loss severity from lowest to highest in the chart at left based on the characteristics of the sample loan described on page 2. Varying loss severities are driven primarily by differing revenue volatility, demand drivers, cost structures, and ease of construction/barriers to entry.

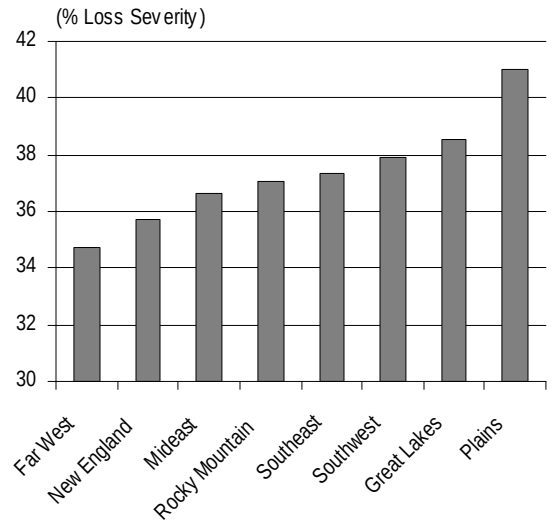
Geographic Region

Average LS varies by geographic region. Fitch's geographic regions consist of eight economic U.S. areas as defined by the BEA, as shown in Appendix B on page 20. The chart above shows the rank from lowest to highest historical average LS and relative difference in LS for each region based on the characteristics of the sample loan described on page 2. As mentioned, this variable captures differences in economic performance across various U.S. regions.

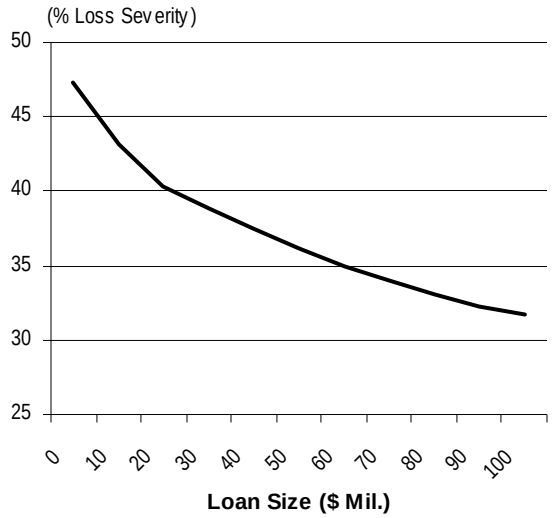
Loan Size

Loan size and LS are inversely related; the smaller the loan size, the higher the LS, as shown in the chart above

Loss Severity by Geographic Region (For Sample Loan)



Loss Severity by Loan Size (For Sample Loan)

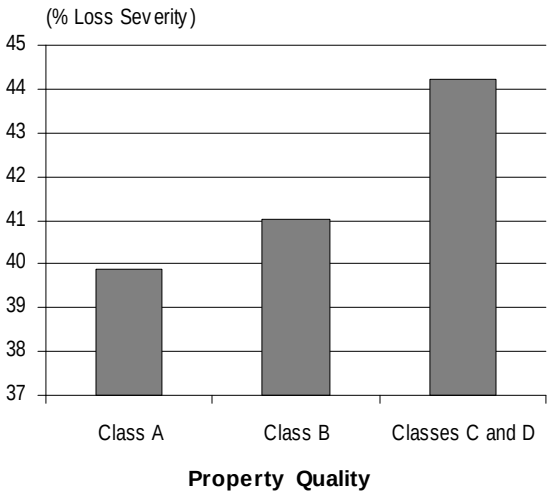


at right. Smaller loans generally have higher loss severities than larger ones because some liquidation costs are fixed regardless of loan size, resulting in a higher loss percentage for smaller balance loans.

Lock Box

Loans with hard lock boxes in place (retail, office, and industrial) or soft lock boxes (hotel and multifamily) have a lower loss severity compared to those without lock boxes. Loans with springing lock boxes have a slightly lower loss severity than those without any lock-box facility. The LS on the sample loan described on page 2 increases from 41% to 46% if a lock box facility is not in place.

Loss Severity by Property Quality (For Sample Loan)



Property Quality

Property quality is inversely related with LS; the lower a loan's property quality, the higher the LS, as shown in the Loss Severity by Property Quality chart below. Property quality is categorized from class A (highest) to class D (lowest). Low property quality may make a property more difficult to liquidate, resulting in a longer liquidation period and a higher loss severity.

Environmental

As is true with PDs, based on industry experience, loans secured by properties with unmitigated environmental issues have higher LSs than those without environmental issues. If environmental issues are not mitigated, a loan's LS may be increased to reflect this additional risk depending on such factors as property type and the nature of the environmental issue.

Expected Loss Adjustment (ELA) Variables

Based on industry experience, Fitch has identified several factors that are significant to the overall measurement of credit risk but are not yet discernable from Fitch's historical CMBS data set. The model has several expected loss adjustment variables to account for these factors. The expected loss adjustment variables

are listed in the table below in alphabetical order and discussed below.

Expected Loss Adjustment Variables

Number	Variables
1	Amortization
2	Originator
3	Representations and warranties

Amortization

Loans that amortize have lower losses than loans that do not amortize. Amortization reduces the principal balance of a loan over time. The base case for the model assumes amortization on a 10/30 schedule (10-year loan term/30-year amortization term) since most of the loans in Fitch's historical CMBS data set (originations from 1994–2001) were structured as such. If a loan amortizes on a 10/30 schedule, no adjustment is made, as shown in the table below.

Amortization

Loan Amortization	Expected Loss Adjustment (%)
Interest Only	10.0
10/30 Balloon	0.0
Full Amortization	(10.0)

The EL for interest only loans is increased by 10%. The EL for fully amortizing loans is decreased by 10%. For a loan that starts off as interest only, but converts to an amortizing loan its EL is increased up to 10% based on the amount of amortization achieved prior to the loan's balloon date, compared with a regular 10/30 amortizing loan.

Originator

The EL on loans originated by entities with less stringent procedures may be increased to reflect the risk of subpar origination practices.

Originators with experienced staff, training, well-defined policies and procedures, formal approval processes, appropriately aligned incentives, quality control, loan documents with appropriate covenants, quality borrowers, and primary supporting documents typically originate better quality loans with lower ELs.

For additional information, see Fitch Research on "Commercial Mortgage Originator Review Guidelines," dated March 24, 2006, available on Fitch's web site at www.fitchratings.com.

Representations and Warranties

Loans made under appropriately rigorous loan documentation have lower losses than those with subpar documentation. If a mortgage loan seller's representations and warranties are deemed weak by Fitch, the EL of those associated loans may be increased to reflect this additional risk.

The transaction documents generally state that the mortgage loan seller must cure breaches of representations and warranties or repurchase the loan plus accrued interest, fees, and expenses within a specified number of days. Fitch also considers the quality of the entity making the representations and warranties as an indication of the likelihood of collecting on any breaches that may occur.

■ Pool-Level Model Components

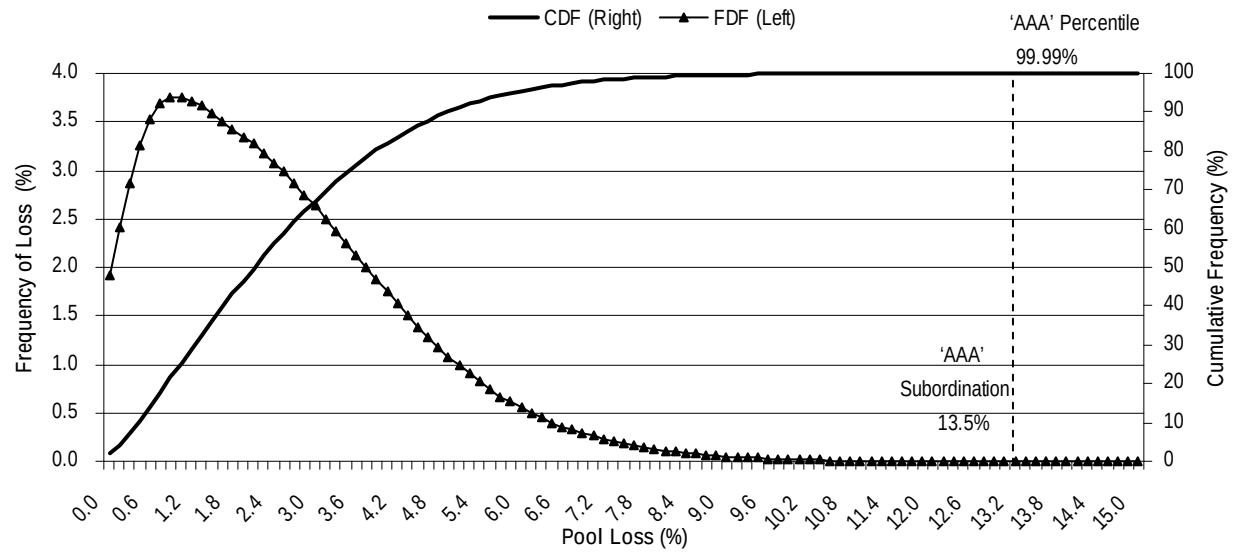
Correlation and Monte Carlo Simulation

Fitch's model incorporates correlation risk through a model of loan-specific risk factors within a Monte Carlo simulation. Each loan's risk is divided between shared risk factors (systematic) and individual risk factors (idiosyncratic). Shared risk factors have been identified as statistically significant by a multistep regression on historical CMBS data. These factors include macroeconomic risk, regional risk, and property type risk.

Fitch runs 500,000 simulation scenarios of default and loss through the risk factor model to calculate the pool's distribution of loss, as illustrated in the Loss Distribution and Subordination Example chart on page 15. These scenarios characterize a full range of environments, from relatively stable ('B' environment) to extremely stressful ('AAA' environment). Not surprisingly, the number of loan defaults and losses increases as the environment becomes more stressful.

Loans are correlated with each other because they share risk factors; correlation varies based on shared loan characteristics. For example, a loan secured by a hotel property in Florida has nearly a 58.5% correlation with a second loan backed by a hotel property located in the Northeast, whereas the correlation between two loans secured by office properties, one in Florida and one in the Northeast, is much lower at 13.3%. When loans are correlated, if one loan were to default, the other correlated loan would have an increased chance of defaulting as well.

Loss Distribution and Subordination Example



FDF – Frequency distribution function. CDF – Cumulative distribution function.

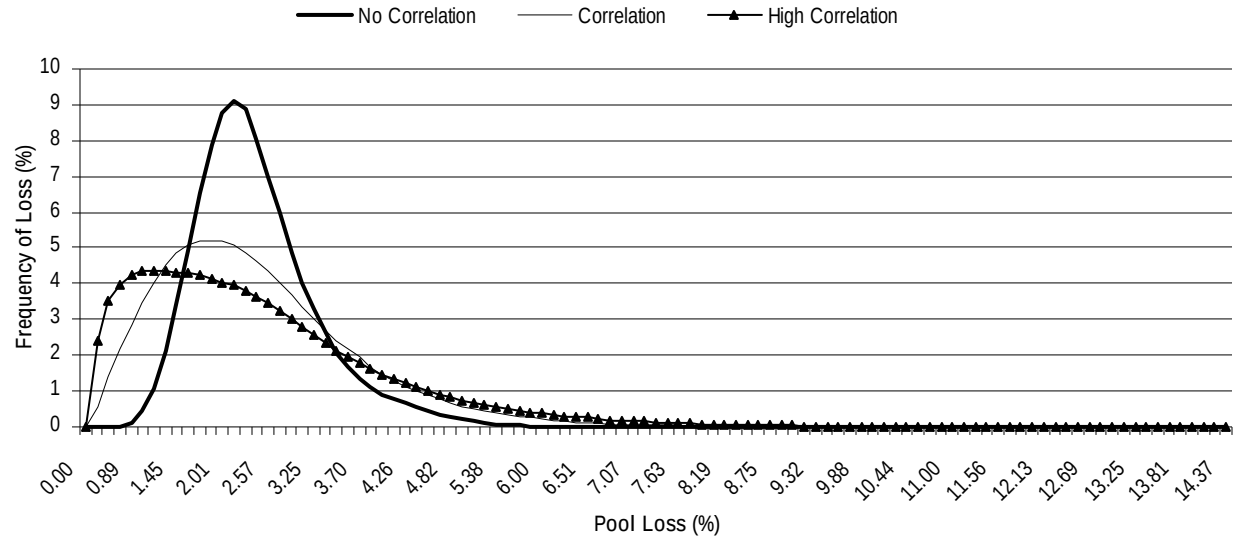
The higher the correlation, the more likely the other loan also will default.

Thus, higher correlation increases the frequency of high loss scenarios. This is illustrated in the chart below, where the curve with the highest correlation has the fattest tail. Additionally, as correlation increases, the highest loss of the pool also rises. In other words, higher correlations result in scenarios with a higher level of loss, all else equal.

Subordination Calculations

Given the loss distribution calculated from the Monte Carlo simulation *(see Loss Distribution and Subordination Example chart on page 15)*, subordination levels are indicated based on percentiles of the loss distribution for each rating category. For example, a deal at the 'AAA' level may be modeled to withstand 99.99% of all loss scenarios. This is illustrated by the cumulative loss distribution, where for a given loss amount the cumulative

Comparison of Loss Distributions with Different Levels of Correlation



percentage of scenarios required to achieve that loss is indicated.

In the hypothetical example on the top of page 15, if the 'AAA' tranche is modeled to withstand approximately 99.99% of a pool's loss scenarios, the loss is approximately 13.50%. Thus, the subordination level of the 'AAA' tranche in this hypothetical example would be approximately 13.50%.

Fusion Calculations

The methodology described in this report explains how Fitch analyzes conduit loans in a multiborrower transaction. CMBS in which large loans with investment-grade characteristics (shadow-rated loans) are combined with conduit loans are commonly referred to as fusion transactions. Each component of a fusion transaction (conduit loan component vs. shadow-rated loan component) is analyzed separately and later combined to arrive at the overall subordination levels.

For a detailed discussion on rating large loans, see Fitch Research on "Rating U.S. Single-Borrower Commercial Mortgage Transactions," dated Feb. 6, 2007, available on Fitch's web site at www.fitchratings.com.

Appendix A: Rating Process Highlights

Due to the unique nature of commercial real estate assets and loan structures, the rating process entails the combination of Fitch's real estate asset analysis with the model's indication of subordination levels. Fitch's real estate asset analysis consists of a review of a representative sample of properties, including site visits of the properties, reviews of asset summaries, and an analysis of stressed property-level net cash flows.

Data Submission

Data submission includes an electronic file of property- and loan-level data, asset summary presentations, and a transaction term sheet. The electronic file includes basic property- and loan-level information, as detailed in the list on Fitch's web site at www.fitchratings.com. The asset summary includes significant features of each loan and property, as well as the current rent roll, map, color photographs of the collateral, historical operating information, a summary of the banker's underwriting with detailed footnotes, and a discussion of strengths, concerns, and mitigants. The term sheet outlines the parties involved in the transaction in addition to payment priorities, credit enhancement, and structural features of the transaction.

Sample

Fitch selects a representative sample for its site visits, property-level cash flow analysis, and asset summary reviews. The selected sample generally includes the largest 10 loans and is representative of the remainder of the pool based on loan size, geographic location, property type, originator, and other common features.

Site Visits

Fitch performs site visits of the sampled properties to provide an indication of the quality of the underlying real estate. A quality grade from A (highest) to D (lowest) is assigned to each visited property. The quality grade reflects the property location, condition, tenancy, management, amenities, competitive position in the market, and other relevant information that may affect the volatility of property-level cash flows. The weighted-average property quality grade for the sample is applied to the nonsampled properties.

Asset Summary Review

Fitch reviews a sample of asset summaries to assess volatility risks associated with the loans or properties in the pool. Asset volatility scores range from 1–5 (with 1 being the least volatile and 5 being the most volatile). Asset volatility scores were first introduced by Fitch in 2001 to capture loan characteristics not easily quantifiable for modeling purposes. Some of the factors of note are loan per square foot, tenant quality and rollover during the term, market rent relative to in-place rent, management/sponsor experience, and the number of years of historical operating information. The weighted-average volatility assessment score for the sample is applied to the nonsampled loans.

Fitch Net Cash Flow

Fitch analyzes property cash flows for a representative sample of loans in the pool. When assessing property income, Fitch, in general, evaluates current leases in place, while taking into account the property's historical operating performance. Adjustments to income may include increasing vacancy rates and reducing rental income to reflect market conditions.

When assessing property expenses, in general, historical operating expenses are analyzed and any projected expense increases may be taken into account. Adjustments to expenses may include increasing management fees, adjusting taxes and insurance to reflect current premiums and expenses, and deducting for capital expenditure reserves, as well as tenant improvement and leasing commissions, if applicable.

The result of the various income and expense stresses is a Fitch net cash flow (NCF) for each property reviewed. The average difference between the banker-provided NCF and the Fitch NCF for the sampled properties is extrapolated to the nonsampled properties. The Fitch NCF is used to calculate the Fitch stressed DSCRs and LTVs.

FS-DSCR

FS-DSCR uses a blend of the Fitch term DSCR (FT-DSCR) and Fitch constant DSCR (FC-DSCR), as illustrated in the table on page 18. The FT-DSCR uses the Fitch NCF (see definition above) calculated by Fitch during its cash flow analysis review process and the actual debt service as reported in the loan documents to assess credit risk during the loan term.

The FC-DSCR is used to assess the credit risk at the balloon date by using the same Fitch NCF but substituting a Fitch constant debt service in lieu of the actual debt service as reported in the loan documents. The Fitch constant debt service is based on a hypothetical refinance constant that removes

Fitch Ratings Stressed DSCR

$$\text{Fitch Stressed DSCR} = 50\%\ \text{Fitch Term DSCR} + 50\%\ \text{Fitch Constant DSCR}$$

$$\text{Fitch Term DSCR} = \frac{\text{Fitch NCF}}{\text{Actual Debt Service}}$$

$$\text{Fitch Constant DSCR} = \frac{\text{Fitch NCF}}{\text{Fitch Constant Debt Service}}$$

interest rate fluctuations over time and enables Fitch to compare leverage from deal to deal.

The Fitch constant debt service estimates a stressed debt service payment if a loan refinances in a stressed environment. The Fitch refinance constant is based on rates generally available during a 10- to 15-year period. Fitch assumes specific interest rate and amortization terms based on property types to indicate a hypothetical refinance constant.

Although historical data currently show that the majority of defaults occur during the term of a loan, Fitch estimates that loans default with the same frequency during the term and at the balloon date. Therefore, Fitch generally uses an equal weighting of the FT-DSCR and FC-DSCR to indicate the FS-DSCR. Occasionally, Fitch encounters loans with either unusually high or unusually low term risk, and the weighting is adjusted accordingly.

FS-LTV

FS-LTV is equal to the outstanding loan balance divided by Fitch value *(see table above).*

Fitch value is calculated by applying a stressed cap rate to the Fitch NCF. Fitch selects a stressed cap rate based on various property attributes, including property type and property quality. The stressed cap rates are applied to NCF (net of capital expenditures) not NOI. Fitch uses the outstanding loan balance in its FS-LTV calculation to distinguish between newly originated loans and seasoned loans that have significantly amortized prior to securitization.

■ CMBS Legal Analysis

As with structured finance transactions generally, U.S. CMBS transactions are structured to isolate the collateral from the bankruptcy or insolvency risk of other entities related to the property owner. In a traditional real estate financing, if the property owner were to become bankrupt, interest and principal payments to the lender could be stayed during all or part of the bankruptcy proceedings, and the lender would be unable to foreclose on the property without relief from the bankruptcy stay. In a real estate loan structured to be included in a CMBS transaction, the property is typically owned by a special-purpose entity (SPE) designed to mitigate the likelihood that it will become insolvent or that it will be affected by the insolvency of its owners or other related entities.

Fitch Ratings Stressed LTV

$$\text{Fitch Stressed LTV} = \frac{\text{Outstanding Loan Balance}}{\text{Fitch Value}}$$

$$\text{Fitch Value} = \frac{\text{Fitch NCF}}{\text{Fitch Stressed Cap Rate}}$$

An SPE can take any legal form, including that of a corporation, limited partnership, trust, or limited liability company (LLC). In a typical CMBS transaction, the SPE usually owns and grants a mortgage over the property to secure the payment of its debt. While there is no completely effective way to make an SPE bankruptcy proof, several steps are taken to mitigate the risk of bankruptcy.

Fitch expects nonconsolidation opinions to be provided that effectively illustrate the bankruptcy remote characteristics of the SPE. A nonconsolidation opinion is a legal opinion that addresses the concern of whether, if there is a bankruptcy proceeding concerning one or more of the equity owners or affiliates (the debtor affiliate) of the SPE, a bankruptcy court would order the consolidation of the assets and liabilities of the SPE with those of the debtor affiliate, thereby disregarding the separate entities and pooling their assets. For a detailed discussion of SPEs, see Fitch's criteria report, "Special Purpose Vehicles in Structured Finance Transactions," dated June 13, 2006.

■ Ratings Background

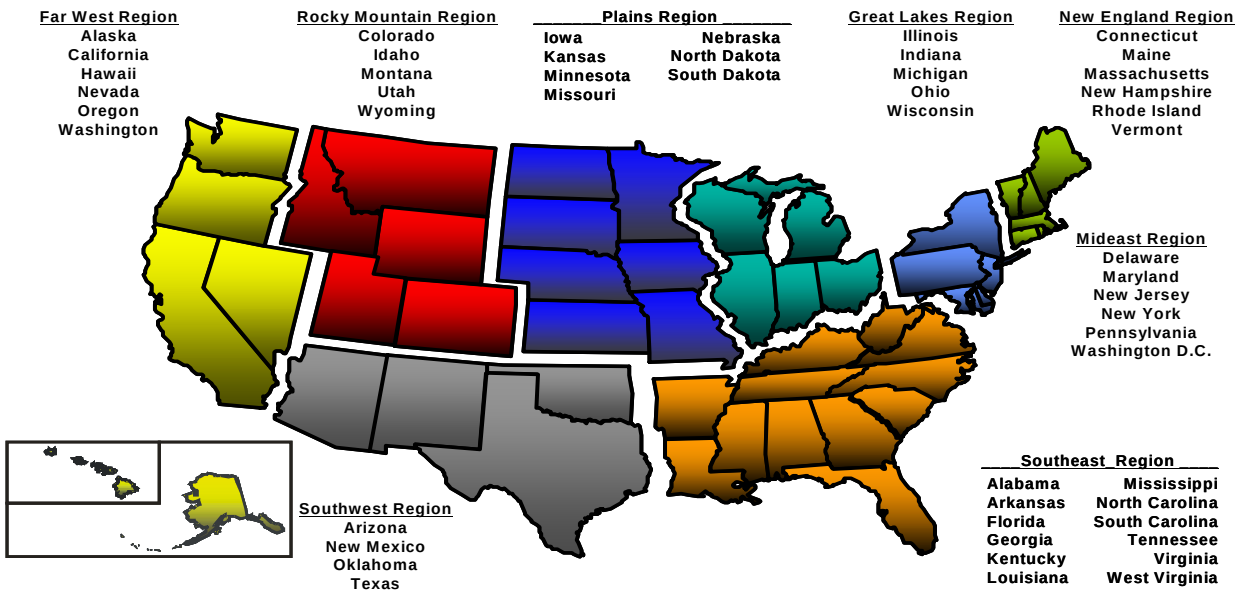
For U.S. CMBS transactions, the ratings of the certificates address the likelihood of the timely receipt by certificateholders of all payments of interest to which they are entitled on each distribution date and the ultimate receipt by certificateholders of all payments of principal to which they are entitled by the rated final distribution date. The ratings take into consideration the credit quality of the mortgage pool, structural and legal aspects associated with the certificates, and the extent to which the payment stream from the mortgage pool is adequate to make payments of principal and/or interest under the certificates.

The ratings of the certificates do not represent any assessment of: the tax attributes of the certificates or of the trust; the likelihood, timing, or frequency of voluntary or involuntary principal prepayments on the mortgage loans; the degree to which such prepayments might differ from those originally anticipated; whether and to what extent prepayment premiums, penalties, or fees will be collected on the mortgage loans in connection with such prepayments or the corresponding effect on yield to investors; whether and to what extent default interest or post-anticipated repayment date additional interest will be received; or the extent to which interest payable on any class of certificates may be reduced in connection with prepayment interest shortfalls or whether any compensating interest payments will be made.

The ratings on the interest-only certificates address the likelihood of receiving interest payments while principal on related certificates remains outstanding. The amounts payable with respect to the interest-only certificates do not include principal. The ratings do not represent any assessment of the yield to maturity or the possibility that certificateholders might not fully recover their investment in the event of rapid voluntary or involuntary prepayments of the mortgage loans. If all the mortgage loans were to prepay in the initial month, with the result that the holders of the interest-only certificates receive only a single month's interest (without regard to any prepayment premiums that may be collected), and thus suffer a nearly complete loss of their investment, all amounts due to such certificateholders will nevertheless have been paid, and such result is consistent with the ratings assigned. The ratings of the interest-only certificates do not address the timing or magnitude of reductions of the notional amount of such class but only the obligation to pay interest timely on such notional amounts. The notional amount upon which interest is calculated can be reduced by the allocation of realized losses and prepayments, whether voluntary or involuntary.

The ratings on certificates on which payments from fixed-rate collateral have been swapped to make payments on floating-rate certificates do not represent any assessment as to whether the floating interest rate on such classes will convert to a fixed rate. The ratings represent the likelihood of the receipt of a fixed rate of interest and do not represent the receipt of interest accrued at a floating rate. In addition, the ratings do not address: the likelihood of receipt by certificateholders of the timely distribution of interest in connection with the change of the payment terms to a fixed rate upon a swap default if the depository trust company is not given sufficient advance notice of such change in the payment terms; the event that the swap counterparty defaults on its obligations under the swap agreement; the likelihood that certificateholders will experience shortfalls resulting from expenses incurred in enforcing the swap counterparty's obligations; or the extent to which interest on the certificates will be reduced due to the allocation of net aggregate prepayment interest shortfalls.

Appendix B: Geographic Regions



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