Credit Analysis

Moody's Global
Credit Policy

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Strong Loan Issuance in Recent Years Signals Low Recovery Prospects for Loans and Bonds of Defaulted U.S. Corporate Issuers

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Summary

- We present Moody's current outlook for ultimate recovery rates (i.e., one minus loss-given-default rates) on defaulted debts of US speculative-grade corporate issuers.
- In the past few years, rated US speculative-grade issuers have increasingly chosen to issue bank loans rather than bonds, resulting in a substantial increase in bank loans' average share of total debt across issuers. As a result, Moody's expects average recovery rates on bank loans to be below their historical average for issuers that default over the next several years. Specifically, our current LGD assessments signal that the average expected ultimate recovery rate on US 1st lien senior secured bank loans is 68%, which compares with the actual historical average of 87%.
- Also as a consequence of rising loan shares, Moody's expects recovery rates on defaulted bonds to be below their historical averages. Low expected recovery rates on bonds are due to the average outstanding bond now having more debt (i.e. loans) senior to it than has historically been the case. The average expected ultimate recovery rate for US speculative-grade senior unsecured bonds is currently 32%, which is below its historical average of 40%. Subordinated bonds are expected to recover 18%, which is also below its 28% historical average.
- The rapid growth of issuers having only rated loans and no bonds outstanding (i.e., "loan-only issuers") has played a substantial role in increasing loans' share of total debt across Moody's-rated issuers. US loan-only issuers now comprise almost 60% of all US issuers that have rated loans and 34% of all US speculative-grade rated issuers. As given by Moody's LGD assessments, the average expected ultimate recovery rate for 1st lien loans issued by loan-only issuers is 64%, while for issuers with rated loans and bonds outstanding, the expected recovery is 73%.

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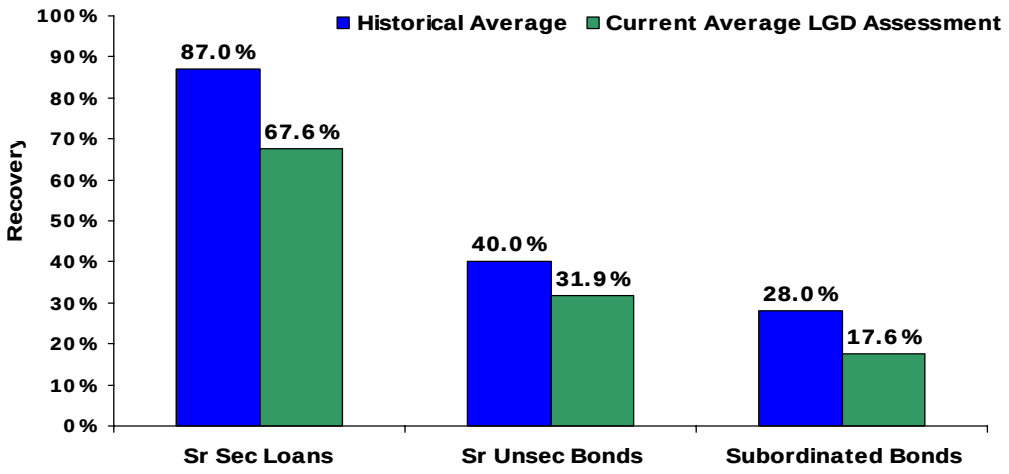
- US 2nd lien loans are expected to experience very low recovery rates relative to their historical average because they have predominantly been issued recently by loan-only issuers in a deeply subordinated position of the issuer's liability structure. Specifically, the average expected recovery rate for 2nd lien loans is only 21%, which compares with historical averages of 61% for 2nd lien loans and 28% for subordinated debt.
- Moody's LGD assessments are calibrated to a large extent on the experience of the 1990-91 and 2001-02 recessions, and therefore largely incorporate downturn economic conditions. However, if the US economy were to experience a recession that was more severe than the past two US recessions, with corresponding larger declines in firm-wide recovery rates than experienced in those recessions, both loan and bond recovery rates could be significantly lower than currently implied by Moody's LGD assessments.
- An upside-risk scenario to Moody's current LGD outlook is if firm-wide recovery rates turn out to be higher than historical averages. This scenario could occur if loan creditors are able to minimize declines in issuers' enterprise values at default resolution by, for example, forcing distressed issuers into bankruptcy at a relatively early stage of distress. Loan creditors have an incentive to be more vigilant in maintaining enterprise value in this credit cycle given the increased share of loans in issuers' liability structures. However, to the extent that outstanding loan agreements have relatively weak or limited financial covenants, holders of loans will be less likely able to force early restructurings or bankruptcies that might preserve value and achieve high firm-wide recovery rates.

Moody's Expects Lower Loan and Bond Recovery Rates Due to Higher Loan Shares in US Speculative-Grade Issuers' Liability Structures



Moody's Loss Given Default Methodology

Moody's loss given default (LGD) assessment methodology takes as its starting point the two primary factors that determine security-class level LGD rates, or recovery rates, under most bankruptcy codes:[1]

1. Priority of claim of an individual security class, defined as the percentage of total liabilities ahead of it in priority of claim and the percentage of total liabilities below it in priority of claim, and;
2. Enterprise value of the defaulted corporate family at the resolution of the default.[2]

[1] See Moody's *Rating Methodology* "Probability of Default Ratings and Loss Given Default Assessments for Non-Financial Speculative-Grade Corporate Obligors in the United States and Canada" (August 2006) for a detailed discussion of the Moody's LGD methodology and the assignment of Moody's speculative-grade issue ratings.

In other words, LGD rates depend on where an individual security class sits in terms of priority of claim and how much total value is available to be distributed to all creditors.

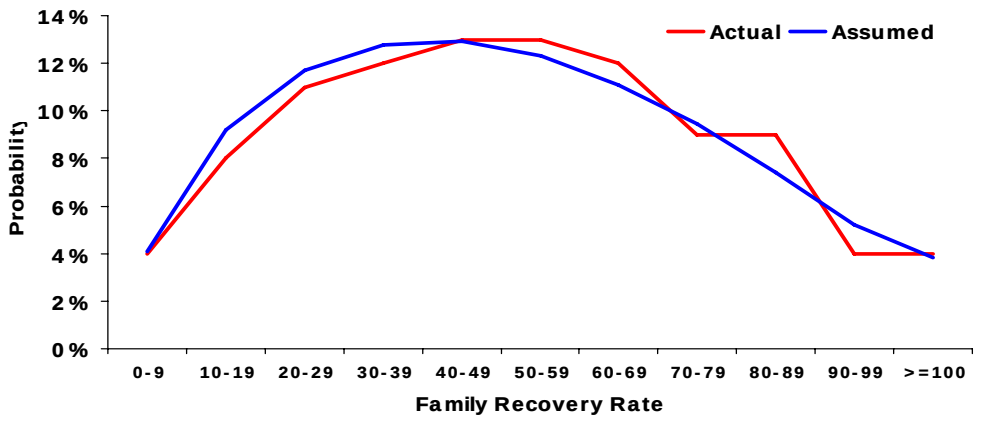
Given the importance of priority of claim in determining LGD rates, Moody's methodology entails estimating a liability structure at default for each corporate family which incorporates a detailed priority-of-claim analysis across all debt and material non-debt liabilities.[3] For estimates of enterprise value at default resolution, Moody's explicitly recognizes the high degree of uncertainty inherent in such estimates for issuers that are not in imminent risk of default. Specifically, for the majority of issuers, analysts assume a probability distribution of potential enterprise values that is based on the historical experience of defaulting issuers included in Moody's database of ultimate recoveries.[4] However, analysts may deviate from the historical probability distribution to incorporate situation-specific factors where there is a sound basis for doing so, especially as an issuer becomes distressed and is in imminent risk of default.

The solid line in Exhibit 1 illustrates the actual historical distribution of ultimate discounted firm-wide recovery rates drawn from the historical data. The firm-wide recovery rate is defined as the enterprise value at resolution of the default divided by the total liabilities of the firm. The historical mean of firm-wide recovery rates is 52 percent with a standard deviation around that mean of 26 percent, indicative of the high level of uncertainty involved in forecasting enterprise value of a defaulted firm in advance of default. The dashed line in Exhibit 1 is a depiction of a beta probability distribution with mean 50% and standard deviation of 26%, which is the probability distribution used in Moody's LGD methodology to model uncertainty about the firm-wide recovery rate for the majority of speculative-grade corporate families.[5]

Moody's methodology entails evaluating the estimated liability structure at default and examining the implied expected LGD rate for each debt obligation given the distribution of possible firm-wide recovery rates.[6] For each of 120 potential firm-wide recovery rates (i.e., 0%-120%), the LGD rate for each obligation is calculated given the priority of claims implied by the assumed liability structure. In the final step, each obligation's expected LGD rate is calculated as the probability-weighted average of the LGD rates generated across the 120 different firm-wide recovery rates.[7]

Exhibit 1

Firm-Wide Recovery Rate Distributions (Enterprise Value / Total Liabilities)



[2] While not all defaulting issuers file for bankruptcy (e.g. distressed exchanges), these two factors remain key determinants of LGD because both priority of claim and enterprise value influence bargaining outcomes in restructurings.

[3] See Moody's "User Guide to Prioritizing Claims and Applying the LGD Model" (September 2006) for a detailed discussion of the policies analysts follow in estimating the liability structure at default.

[4] See "Moody's Ultimate Recovery Database" *Moody's Special Comment,* April 2007.

[5] As indicated by the historical data, all-loan corporate families are assumed to have an average firm-wide recovery rate of 65 percent, while all-bond families are assumed to have a 35 percent average firm-wide recovery rate. Additionally, regulated utilities are also assigned a higher mean firm-wide recovery rate of 65 percent.

[6] In practice, all firm-wide recovery rates from 0% to 120% are examined, implying the evaluation of 121 different scenarios.

[7] The LGD point estimates are then used to assign LGD assessments using a LGD1 through LGD6 assessment scale. Moody's publishes both the LGD point estimate and the LGD assessment.

In summary, Moody's LGD methodology generates consistent and rigorous estimates of expected LGD rates for loans and bonds based largely on the priority-of-claim position of the debts in a corporate family's liability structure.[8] Back-testing results of this methodology using historical data and issuers' actual liability structures at default indicates that Moody's LGD assessments provide substantially better forecasts than those based on average historical recovery rates by debt type, a traditional approach to forecasting recovery rates.[9]

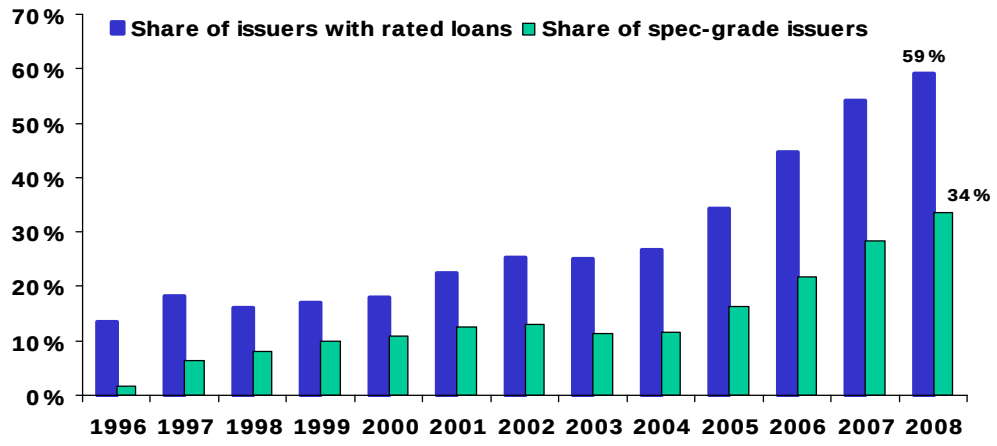
Growth of Loan-Only Issuers and Rising Loan Shares

Exhibit 2 shows that since 2004 the share of Moody's-rated US speculative-grade issuers that have only outstanding rated loans and no rated bonds (i.e., loan-only issuers) has been increasing rapidly. Such loan-only issuers now comprise almost 60% of all issuers that have rated loans and over one-third of all US rated speculative-grade issuers.

Approximately 55% of current loan-only issuers received their initial Moody's rating after 2005, while the other 45% of these issuers previously had rated bonds outstanding.

Exhibit 2

The Share of Loan-Only Issuers among Moody's US Speculative-Grade Issuers



Largely as a result of the rapid growth of loan-only issuers, 1st lien secured bank loans now comprise approximately 77% of the total rated debt of the average US speculative-grade corporate issuer. This compares with a 63% share for 1st lien loans at the end of 2003. For issuers with both rated loans and bonds, the average 1st lien loan share of total rated debt is now 55%, compared with 50% at the end of 2003. And for loan-only issuers, the 1st lien loan share has fallen to 90% from 99% during the same period due to the increased issuance of 2nd lien loans by loan-only issuers.

While the 1st lien loan shares cited above refer to rated debt, 1st lien loan shares can also be inferred from Moody's LGD assessments. 1st lien loan shares inferred from Moody's LGD assessments have the benefit of referring to total liabilities, rather than only total rated debt, because Moody's analysts construct a liability structure for each issuer that considers all material liabilities. Moody's current LGD assessments indicate that 1st lien loans now comprise an average of 70% of total liabilities across all US speculative-grade issuers that have rated loans, while the share for loan-only issuers is 79% and 58% for issuers with rated loans and bonds.

[8] Using this methodology, Moody's LGD model (available on moodys.com), calculates security-class level LGD rates once users have input an assumed liability structure at default and the parameters governing the firm-wide recovery rate distribution.

[9] See "Back-Testing Moody's LGD Methodology," *Moody's Special Comment,* June 2007.

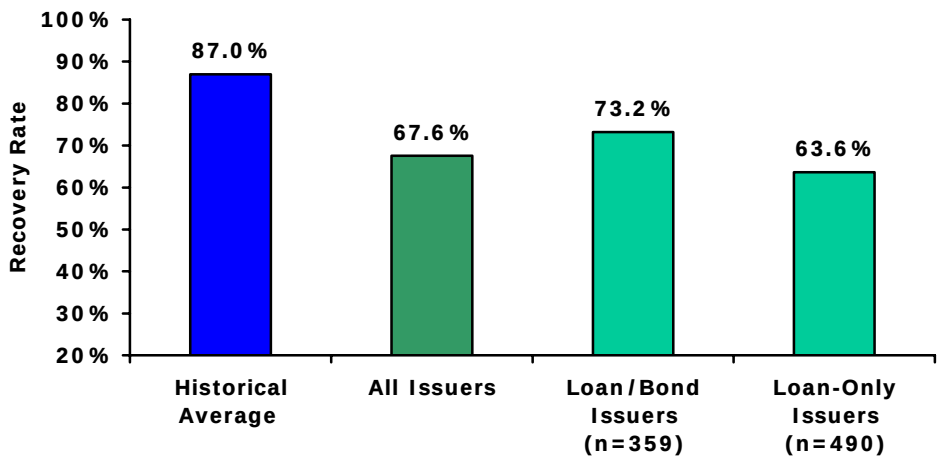
To put these current loan shares in context, for defaulted issuers included in Moody's historical database on ultimate recoveries, 1st lien loans on average made up approximately 35% of the total debt of issuers (rated and unrated) at default.

Implications for Expected Loan Recoveries

The high share of loans in US speculative-grade issuers' liability structures implies less protection for loan investors because it entails a corresponding reduction in the share of total debt junior to the loans—which serves as a first-loss cushion for the loans in the event of default. Exhibit 3 shows the implications of current high loan shares for expected loan recoveries over the next several years.[10] Based on Moody's current LGD assessments, the average expected recovery rate across all US 1st lien loans is only 68%, which compares with a historical average of 87% from Moody's ultimate recovery database. Loans of loan-only issuers are expected to experience a modestly lower average recovery rate of 64%, while loans issued by issuers with both rated loans and bonds are expected to experience a higher average recovery rate of 73%.[11]

Exhibit 3

Moody's Expects Low Loan Recoveries in this Default Cycle
(based on Moody's LGD assessments for rated US 1st lien secured loans)



Based on Moody's current LGD assessments, Exhibit 4 shows that the expected average recovery rate for 2nd lien loans is only 20.7% versus the historical average of 60.5%. Evidently, the vast majority of 2nd lien loans have been issued in recent years by loan-only issuers at a deeply subordinated position in the firm's liability structure.

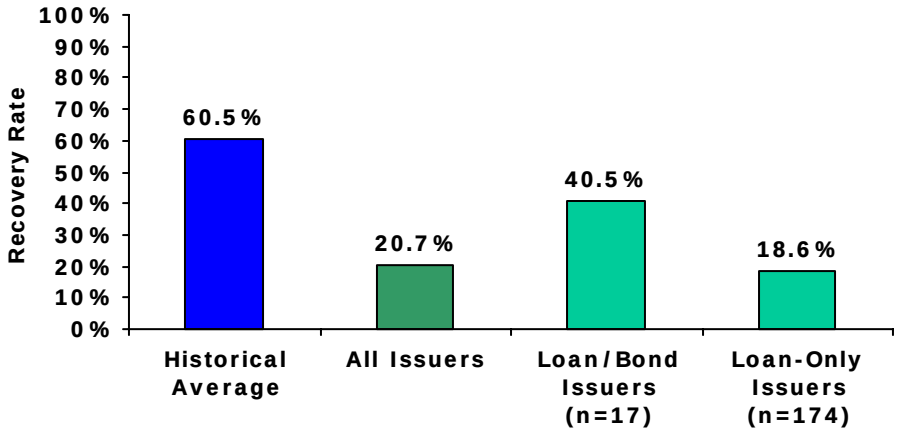
The divergence in the position of 2nd lien loans in issuers' liability structures today versus their position historically highlights the danger of basing recovery expectations on debt type. One of the strengths of Moody's LGD methodology is that it focuses on the position of each debt in the issuer's liability structure rather than the particular name given to any debt.

[10] As liability structures of speculative-grade firms are relatively stable, we would expect loan shares to remain relatively high over the next several years and make these forecasts applicable over the next several years. Additionally, Moody's LGD assessments by debt type do not vary materially by the firm's corporate family rating, which eliminates the need to only focus on the LGD assessments of lowly-rated firms that are most likely to default over the next several years. The one exception is 2nd lien loans, where the vast majority of 2nd lien loans have been issued in recent years by loan-only issuers that have single-B corporate family ratings.

[11] These expected loan recovery rates remain well above the loan recovery assumptions incorporated in Moody's CLO ratings methodology. For more detail, see "Moody's Recovery Rate Assumptions for US Corporate Loans and Bonds: Picking Up the Pieces," *Moody's Rating Methodology,* March 2004.

Exhibit 4

2nd Lien Recovery Rates Expected to be Very Low
(based on Moody's LGD assessments for rated US 2nd lien loans)

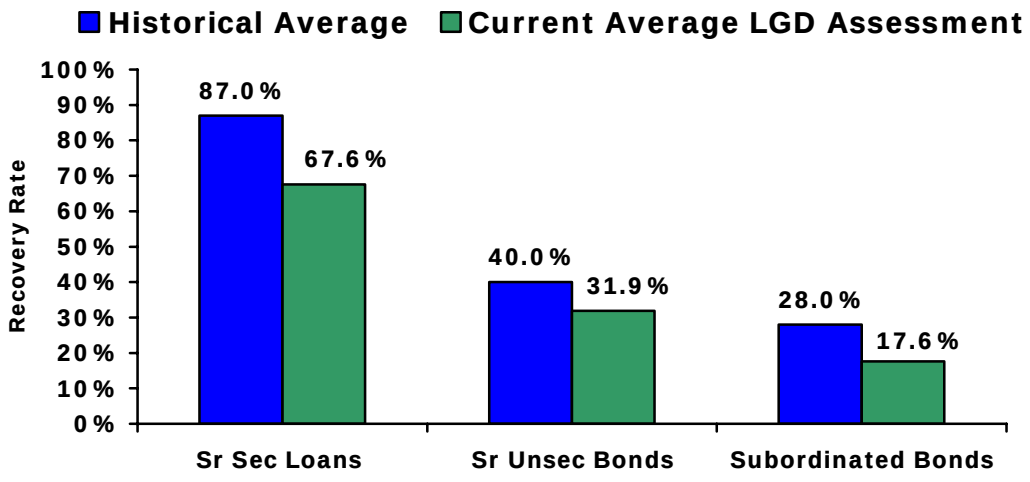


Implications for Expected Bond Recoveries

The increasing share of loans among speculative-grade issuers' liability structures implies not only less junior debt below loans, it also implies more senior debt (i.e. loans) above bonds. As a result, there is more debt ahead of the bonds to be paid off before bond creditors begin to receive recovery dollars. Exhibit 5 therefore shows that Moody's LGD assessments indicate that bond recoveries are also likely to be lower in the current default cycle as a result of rising loan shares. The average expected recovery rate for senior unsecured bonds is 32% and for subordinated bonds is 18%, which compares with historical averages of 40% and 28%, respectively.

Exhibit 5

Bond Recovery Rates Also Expected to be Low as a Result of Rising Loan Shares
(based on Moody's LGD assessments for US bonds)



Factors That Could Result in Substantially Different Recovery Rates

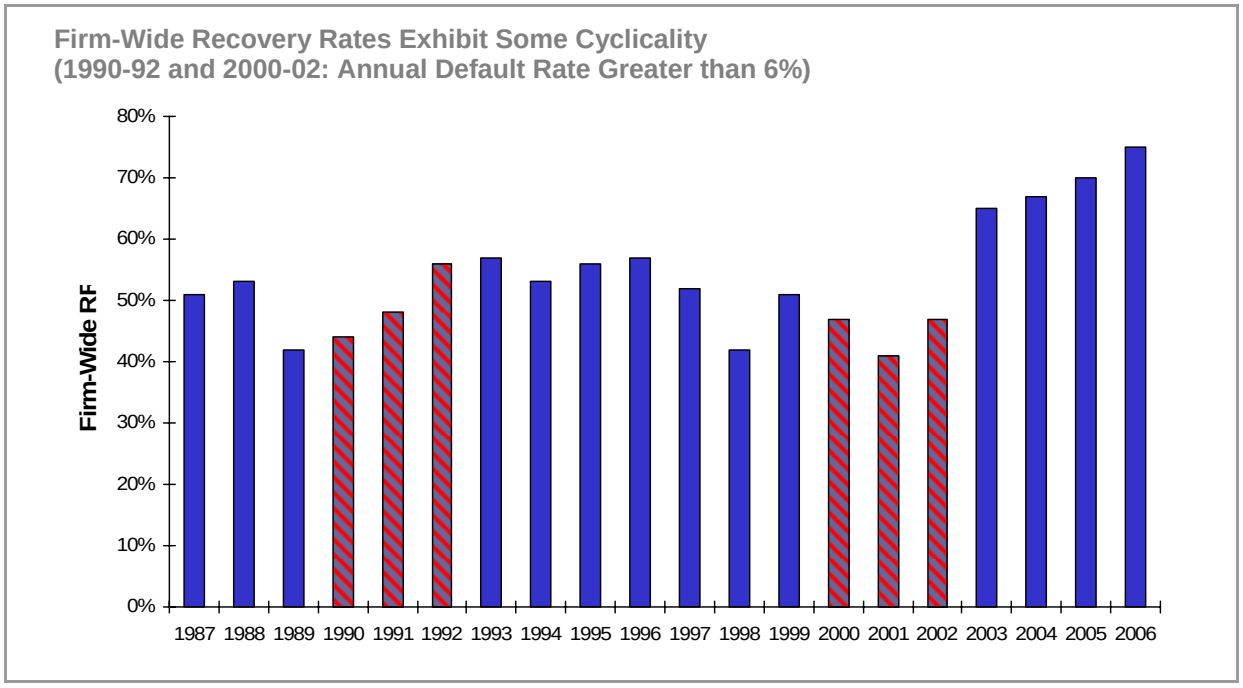
Economic Downturn Considerations

Moody's LGD assessment methodology is calibrated on the total sample of defaulting issuers included in Moody's historical ultimate recovery database; and so the assessments represent "through the cycle" expected LGD.

Given the current uncertain outlook for the US economy, however, it is worthwhile examining the likely impact on Moody's LGD assessments if the US economy were to experience a serious recession. In other words, how would Moody's LGD assessments, and therefore outlook, need to be adjusted if a more serious economic downturn were to ensue?

In Moody's LGD methodology, incorporating downturn conditions entails modifying the firm-wide recovery rate distribution used to generate security-class recovery rates.[12] Although there is some cyclicality in historical firm-wide recovery rates, as shown in Exhibit 6, the average firm-wide recovery rate for issuers that default when the speculative-grade default rate is greater than 6% (i.e. 1990-92 and 2000-02) is 47%, which is only 5 percentage points lower than the 52% average firm-wide recovery rate for all historical defaulters. This modest difference derives from the fact that the majority of issuer defaults occur during downturn years when default rates are high. For example, more than one-half of all defaulted firms included in Moody's ultimate recovery database defaulted in the six downturn years (1990-92 and 2000-02) when the annual speculative-grade default rate was greater than 6%.

Exhibit 6



Since the majority of historical defaults occurred during downturn years, Moody's LGD assessments are largely calibrated on the experience of the 1990-91 and 2001-02 downturns, and therefore largely incorporate

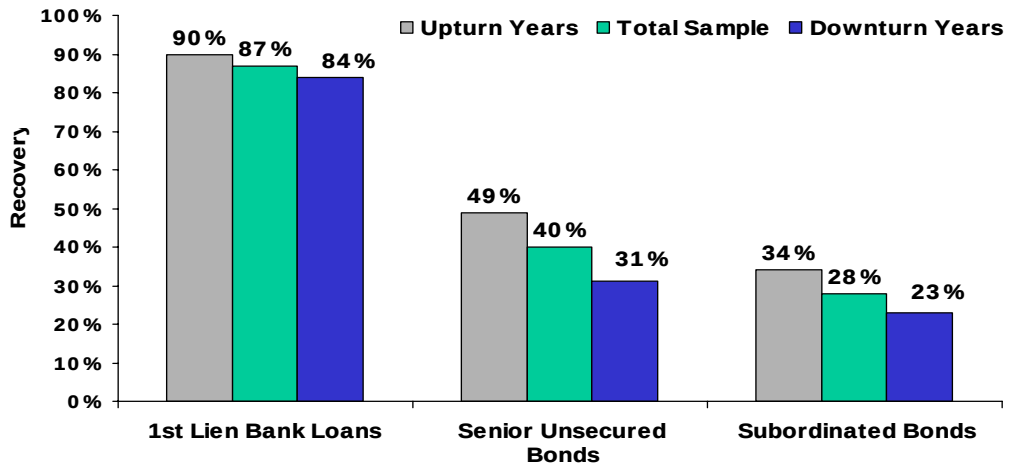
[12] For more detailed analysis of this issue, see "Adjusting Moody's LGD Assessments to Meet Basel II Downturn Requirements," *Moody's Special Comment,* November 2007.

downturn economic conditions.[13] Consequently, adjusting Moody's LGD assessments to fully reflect historical downturn conditions implies only a modest impact on LGD assessments, one that depends on the debts' position in the issuer's liability structure with the largest impact on mezzanine debts sitting in the middle of the liability structure.[14]

Consistent with this analysis, and as shown in Exhibit 7, senior secured loan and subordinated bond recovery rates are historically 3-5 percentage points lower in downturn years than they are for the entire sample, depending on how the particular debt is positioned in the liability structure. The impact on senior unsecured bonds is more substantial with downturn recovery rates typically 6-8 percentage points lower than the average derived from the entire sample.

Exhibit 7

Historical Recovery Data Signal Modest LGD Downturn Impact (Downturn Years: 1990-92 and 2000-02)



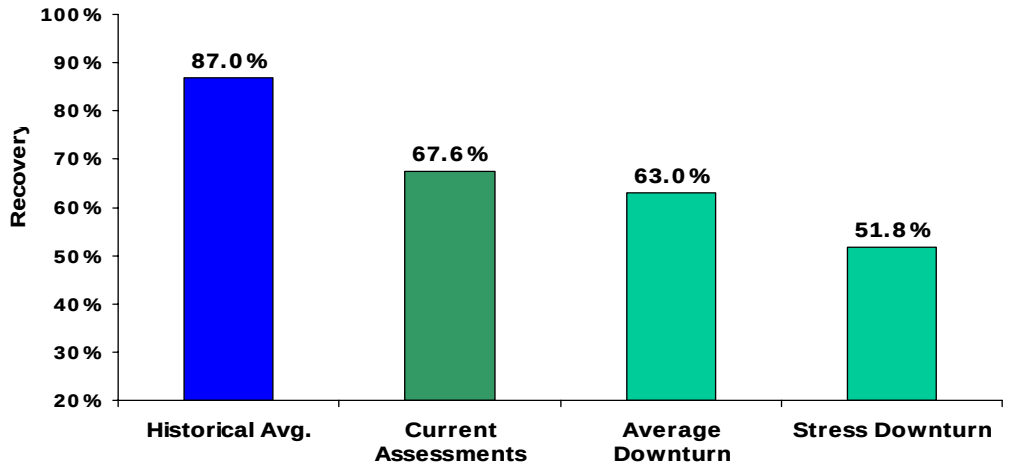
However, if the US economy were to experience a recession that was more severe than the past two US recessions, with corresponding larger declines in firm-wide recovery rates than experienced in those recessions, both loan and bond recovery rates could be significantly lower than currently implied by Moody's LGD assessments.[15]

In Exhibit 8, we assess the impact on our LGD outlook for 1st lien bank loans under a downturn stress scenario where downturn firm-wide recovery rates average 35%, rather than the approximate 45% rate they averaged in the previous two downturns.[16] While our current outlook is for an average recovery rate of 68% on 1st lien loans, that average falls to 63% were normal historical downturn conditions to materialize. However, if downturn conditions were to be unusually severe, with an average firm-wide recovery rate of only 35%, the expected 1st lien loan recovery falls all the way to 52%. In effect, the increased share of loans relative to bonds among US speculative-grade issuers makes expected loan recovery rates very sensitive to declines in firm-wide recovery rates.

[13] Adjusting Moody's LGD assessments to fully reflect downturn conditions entails using a firm-wide recovery rate distribution with a mean of 45%, rather than the 50% used for the published through the cycle assessments.
[14] See "Adjusting Moody's LGD Assessments to Meet Basel II Downturn Requirements," *Moody's Special Comment,"* November 2007.
[15] This scenario is worth considering given the recent issuance of covenant-lite bank loans and loosening of covenants via loan amendments which may make it more difficult for creditors to trigger default before the enterprise value of the firm declines considerably. Similarly, the lack of near-term debt maturities among US speculative-grade issuers over the next 1-2 years may allow issuers to temporarily avoid default and could result in diminished enterprise value when firms do eventually default.
[16] For issuers with only bank loans outstanding and no bonds outstanding, we assume a 50% firm-wide recovery rate in the downturn stress scenario, compared with 60% for average historical downturn conditions. For such issuers, based on the historical data, Moody's assumes a 65% average firm-wide recovery rate for through the cycle published LGD assessments.

Exhibit 8

Loan Recovery Rates Vulnerable to Stress Downturn Scenarios
(Average Firm-Wide Recovery Rate Equals 35% in Stress Scenario)



Potential for Aggressive Loan Creditor Behavior is the Upside-Risk Scenario

An upside-risk scenario to Moody's current LGD outlook is if firm-wide recovery rates turn out to be higher than historical averages. This scenario could occur if loan creditors are able to minimize declines in issuers' enterprise values at default resolution by, for example, forcing distressed issuers into bankruptcy at a relatively early stage of distress. Loan creditors have an incentive to be more vigilant in maintaining enterprise value in this credit cycle given the increased share of loans in issuers' liability structures. However, to the extent that many outstanding loan agreements have relatively weak or limited financial covenants, bank creditors will be less likely able to force the early restructurings or bankruptcies that might preserve value and achieve high firm-wide recovery rates.

Moody's Related Research

Special Comments:

- The Corporate Default Rate Outlook: An Update, April 2008 (108484)
- Corporate Default and Recovery Rates, 1920-2007, February 2008 (107385)
- Adjusting Moody's LGD Assessments to Meet Basel II Downturn Requirements, November 2007 (105723)
- Back-Testing Moody's LGD Methodology, June 2007 (103426)
- Moody's Ultimate Recovery Database, April 2007 (102664)
- Loss Given Default Analytics: Users' Guide to Prioritizing Claims and Applying the LGD Model, September 2006 (102815)

Rating Methodologies:

- Probability of Default Ratings and Loss Given Default Assessments for Non-Financial Speculative-Grade Corporate Obligors in the United States and Canada, August 2006 (98771)
- Measuring Systematic Risk in Recoveries on Defaulted Debt I: Firm Level Ultimate LGDs," Carey, Mark and Gordy, Michael, Federal Reserve Board Working Paper, December 2004
- Moody's Recovery Rate Assumptions for US Corporate Loans and Bonds: Picking Up the Pieces, March 2004.

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

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