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Recovery Rates On North American Syndicated Bank Loans, 1989-2003

Summary

In this *Special Comment* we examine recovery rates on North American defaulted syndicated loans using data from Moody's Loan Default Database. The database includes the defaulted loans of all nonfinancial corporate issuers with Moody's debt ratings whose outstanding loans traded in the secondary market at the time of default. The recovery measure is the average bid price on loans one month after default relative to par of \$100.

- Comprising a sample of 202 issuers with over 370 loan tranches, the distribution of North American loan recovery rates resembles a beta distribution with mean and median recovery rates of \$65.6 and \$70.4, respectively. The standard deviation is \$23.9, indicating a considerable degree of variability.
- Loss severity rates are significantly higher for bonds than for loans, reflecting the seniority and security of loans relative to bonds. For borrowers that defaulted on both loans and bonds, the median loan-loss severity is only 39% of the median bond-loss severity. Additionally, as measured by the standard deviation around the mean, the variability of bond recoveries is more than twice as large as the variability of loan recoveries.
- We find that loan recoveries vary with a number of loan and firm characteristics, including whether the loan is secured, Moody's loan ratings, loan debt cushion, issue amount, loan default type, issuer's capital structure, the number of tranches comprising the loan, age of the loan, and whether bonds of the issuer default before the loans default.
- We also find that loan recoveries vary with several macroeconomic and credit measures, including the speculative grade default rate, industrial production growth, and credit spreads. Loan recovery rates are also shown to vary with a measure of industry distress as determined by industry capacity utilization rates.
- Employing a multivariate regression model with loan recovery rates as the dependent variable, we find that the only statistically significant explanatory variables are, in order of importance, a) debt cushion, (the amount of debt junior to the loan), b) issue amount, c) industry distress and d) time from origination to default. A dummy variable for whether the loan is secured is only marginally significant; this is a statistical consequence of the fact that approximately 85% of the loans in the sample are secured, so that the dummy variable cannot differentiate among recovery rates for 85% of the sample. Similarly, although macroeconomic variables do not help explain loan recovery rates in our regression model, a stronger relationship might emerge in data sets that span longer periods of time.
- In conclusion, there remains much to be explained: even our best regression model explains only about 23% of the variation in loan recovery rates across issuers.



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Introduction

In this *Special Comment* we examine recovery rates on defaulted North American syndicated bank loans using data from Moody's Loan Default Database. This database includes the defaulted loans of all nonfinancial corporate issuers with Moody's debt ratings whose outstanding loans traded in the secondary market at the time of default.

Moody's Loan Default Database

Moody's Loan Default Database includes 400 loan tranches issued by 215 nonfinancial issuers defaulting during the period 1989 through 2003. The database is comprehensive and focused; it captures the loans of all issuers with debt rated by Moody's and whose loans traded in the secondary market at the time of default. The focus on Moody's issuers, and loans that trade in the secondary market, is particularly relevant for institutional loan investors assessing the recovery prospects of loans issued by relatively large issuers that issue rated loans and/or rated public bonds.

Definition Of Default

The definition of loan default for the purposes of this database is consistent with Moody's definition of default more generally and includes three types of events: a.) missed or delayed disbursement of interest and/or principal, including loan amendments or agreements to defer principal or interest payments, b.) a bankruptcy filing or legal receivership, or c.) a distressed exchange or distressed restructuring where (i) the issuer offers loan holders a new security or package of securities that amount to a diminished financial obligation (such as preferred or common stock, or debt with a lower coupon or par amount), or (ii) the exchange/restructuring had the apparent purpose of helping the borrower avoid default.¹

Recovery Measure

The measure of recovery is the average bid price one month after default.² We use the secondary market price one month after default because we believe it reflects investors' expectations of the present value of ultimate recovery and because it approximates ultimate recovery for those investors prohibited from holding defaulted securities.³ Recovery rates are presented as dollar values relative to par of \$100.

Loan Default Database Characteristics

Basic features of the database include the following:

- approximately 90% of the loans are issued by U.S. issuers, with European and Canadian issuers comprising the remaining 10%,
- approximately 50% of the loans are rated by Moody's,
- approximately 70% of the loans defaulted after 1998, reflecting the growth of the secondary loan market during the past five years and the relatively large number of loan defaults in the latest credit cycle,
- bankruptcy is the default type for approximately 90% of the loans with missed interest or principal payments making up the remaining 10%,
- there is only one loan outstanding per issuer for approximately 90% of the issuers,
- there is an average of 1.8 loan tranches per issuer.

1. See "Moody's Approach to Evaluating Distressed Exchanges," *Moody's Special Comment*, July 2000, and "Relative Default Rates on Corporate Loans and Bonds," *Moody's Special Comment*, September 2003, for a detailed discussion of distressed exchanges and Moody's approach to loan and bond defaults.

2. For loans defaulting prior to 1998, prices are obtained from individual brokerage firms. For loans defaulting after 1998, prices are from the Loan Pricing Corp. (LPC) and LoanX.

3. Moody's bank loan ratings, however, reflect Moody's analysts' expectations of ultimate recovery and probability of default.

Exhibit 1

Tranche Types

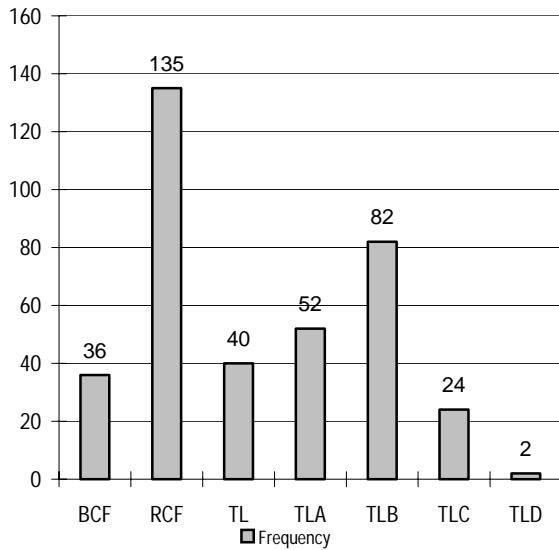


Exhibit 2

Tranche Sizes

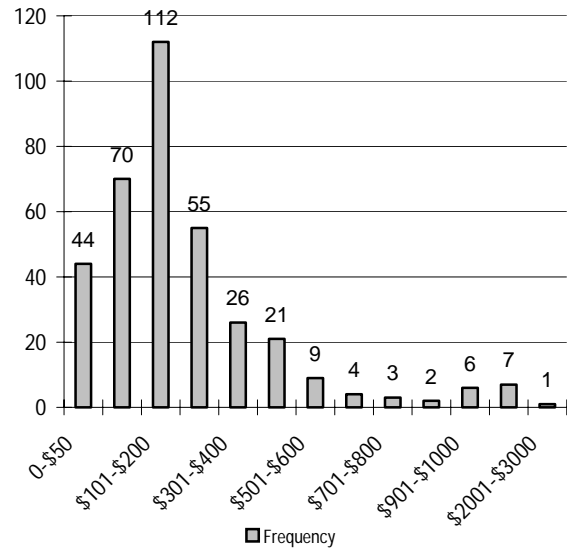
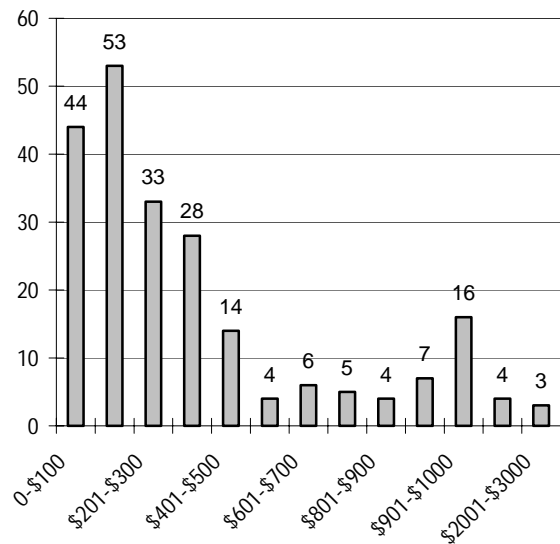


Exhibit 1 shows the types and numbers of North American loan tranches contained in the database, indicating a balanced mix of revolvers and pro rata and institutional term loans.⁴ Exhibit 2 shows the distribution of loan tranches by size, indicating that the majority of loan tranches have issue amounts of less than \$200 million, although the distribution contains a long right tail with a significant number of larger tranches.

Exhibit 3 shows the distribution of loan sizes (*i.e.* the aggregation of tranches within their respective loan facilities), indicating the majority of loans have issue amounts of less than \$300 million and has a right tail containing a significant number of larger loans.

Exhibit 3

Loan Sizes



4. "BCF" refers to bank credit facility, "TL" refers to term loan, and "RCF" refers to revolving credit facility.

Loan Recovery Rates

Issuer-Level Analysis

In the examination of the loan recovery data that follows, we use *issuer-level* recovery rates. By *issuer-level*, we mean the average recovery rate for each issuer's outstanding loan tranches at the time of default. *As a result, there is a one-to-one correspondence between the number of issuers and the number of recovery rates.*⁵ In general, equal standing in bankruptcy (*i.e. pari passu*) implies that recovery prices on individual tranches within a given loan facility are usually close to equal. We examine issuer-level recovery rates in order to avoid placing undo influence on issuers with large numbers of loan tranches. For example, without issuer-weighting, an issuer with a three-tranche \$100 million loan would have three times the weight of an issuer with a one-tranche \$100 million loan.

By Issuers' Domicile

Exhibit 4 presents mean and median loan recovery rates for North American and European issuers. The data indicate that mean and median recovery rates for defaulted loans of North American issuers are approximately 40% higher than those for defaulted loans of European issuers. Due to marked differences in the structural features of North American and European loan markets, such as differences in the maturation of the secondary loan markets, and due to the small number of European issuers in the database, we exclude European issuers in the analysis that follows.⁶ Other important structural differences facing North American and European loan issuers include differences in bankruptcy regimes and differences in issuer capital structures, such as bank loans comprising a larger percentage of total debt of the typical European issuer.

Exhibit 4

Recovery Rates By Domicile

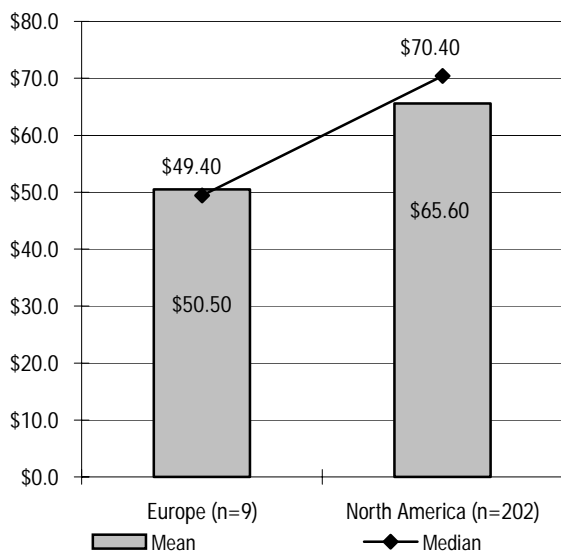
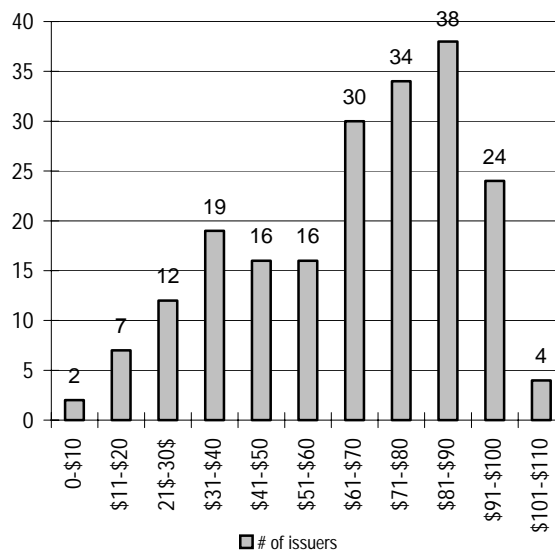


Exhibit 5

Distribution Of North American Recoveries



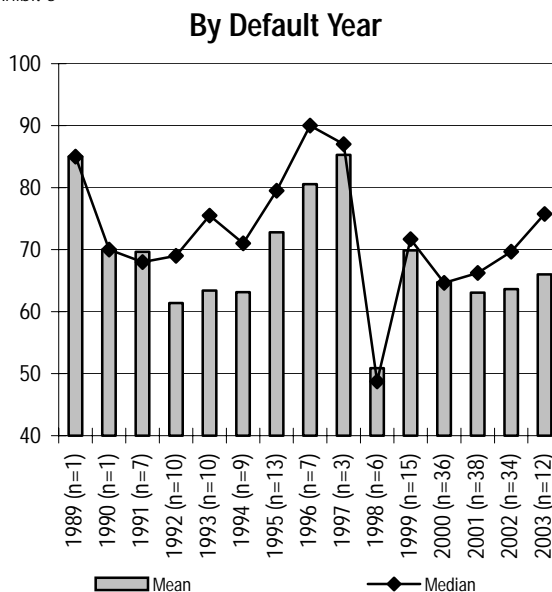
5. The average is calculated using weights based on tranche sizes within each loan facility. For the 10% of issuers with more than one loan, we calculate a value-weighted average recovery rate across the multiple loans.

6. Canadian and European issuers each make up 5% of the sample.

Exhibit 5 shows the distribution of North American loan recoveries. Several features of this distribution stand out. First, it is not a normal distribution, but instead resembles a beta distribution with the median recovery greater than the mean recovery, implying a trailing left tail. While Moody's data indicate that bond recoveries also resemble a beta distribution, bond recovery distributions tend to exhibit trailing right tails. Reflecting the loan recovery distribution shown in Exhibit 5, approximately 65% of defaulted issuers in Moody's Loan Default Database have loan recovery rates greater than \$60. Second, the standard deviation of this distribution is \$23.9, which relative to the mean of \$65.6, indicates a considerable degree of variability in recoveries.

Exhibit 6 provides data on the behavior of North American loan recoveries through time. Although the number of loan defaulters in the database in any given year prior to 1999 is relatively small, the data indicate a trend increase in loan recovery rates between 1993 and 1997, followed by a trend decline in recoveries post-1997.

Exhibit 6



Loss-Severity Rates On Loans Relative To Bonds

Exhibit 7 presents defaulted loan-loss severities as a percentage of bond-loss severities, where severity equals one minus recovery, for those issuers in Moody's Loan Default Database that also default on bonds.⁷ For example, of the 202 total North American loan defaulters in the database, 52 also defaulted on senior unsecured bonds and the median of the loan loss severity relative to bond loss severity for those issuers was 56%.⁸ Of the 115 loan defaulters also defaulting on junior bonds, the median loan-loss severity was 36% of the median bond-loss severity. The last bar on the far right of Exhibit 7 shows that the median loan-loss severity for all issuers with any type of bond was 39% of the median bond-loss severity.⁹

Exhibit 8 compares the volatility of these issuers' bond recoveries and loan recoveries. The volatility measure we use is the standard deviation of recoveries divided by the mean of recoveries, which is the inverse of the Sharpe ratio, and is also known as the coefficient of variation. It is this measure of volatility that is most relevant for investors because it represents volatility in terms of variation in return on investment. The data indicate that bond recovery volatility is more than twice as high as loan-recovery volatility.

Exhibit 7

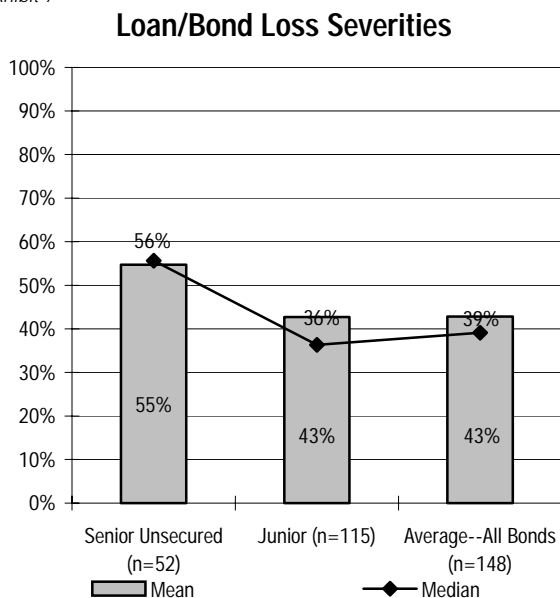
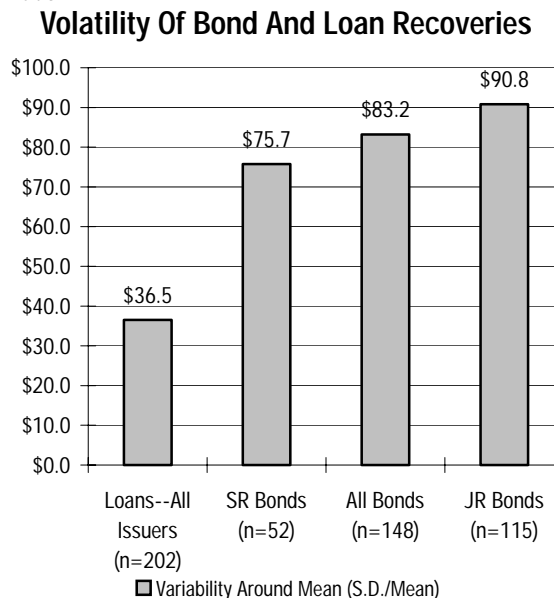


Exhibit 8



7. Framing the analysis in terms of relative "recovery" rates rather than relative "severity" rates does not materially change the results in Exhibit 7.

8. Note that the seniority of a particular bond reflects only the name or label attached to the bond, not necessarily the bond's actual position in the capital structure.

9. For each issuer with bonds, we calculate an average bond-severity rate using weights based on the bonds' issue amounts.

Firm/Loan Characteristics And Loan Recovery Rates

In this section, we examine simple correlations between loan recovery rates and firm and loan characteristics. The characteristics we examine include whether the loan is secured or unsecured, amount of debt junior to the loans (loan debt cushion), Moody's loan rating prior to default, loan issue amount, time from origination to default, loan default type, loan default date relative to bond default date, issuer capital structure, and the number and type of tranches comprising a loan.

Exhibit 9

By Secured Versus Unsecured Loans

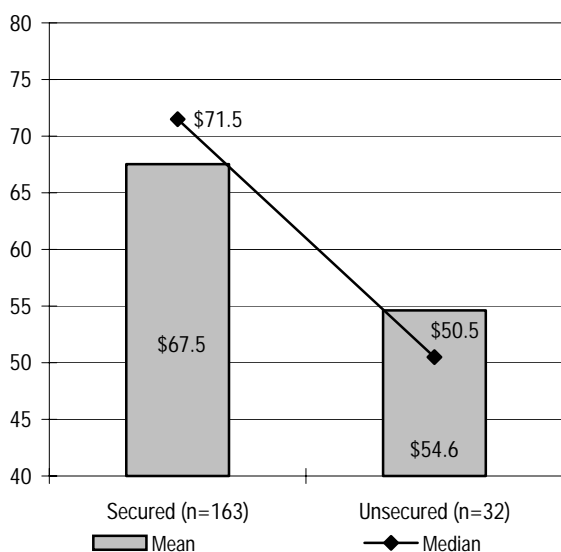


Exhibit 10

By Loan Rating One Day Prior

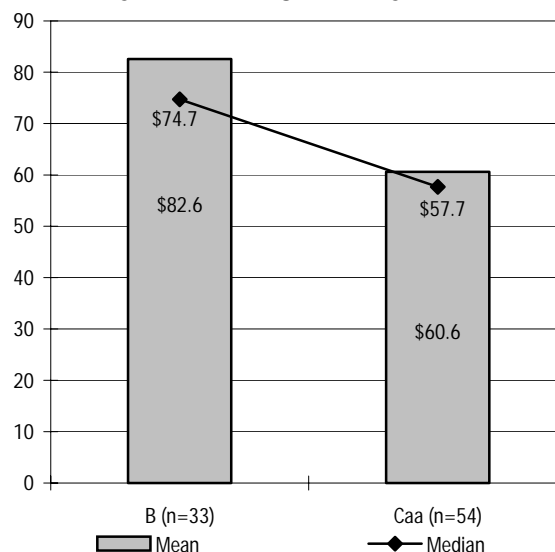


Exhibit 10A

By Loan Rating One Year Prior

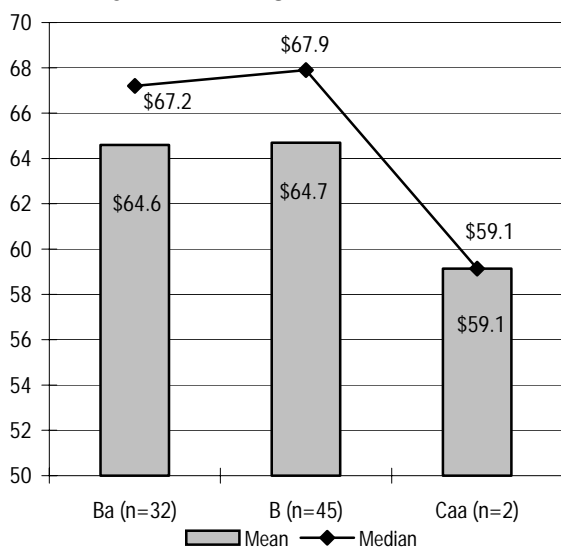


Exhibit 10B

Rating Gaps And Loan To Bond Severity

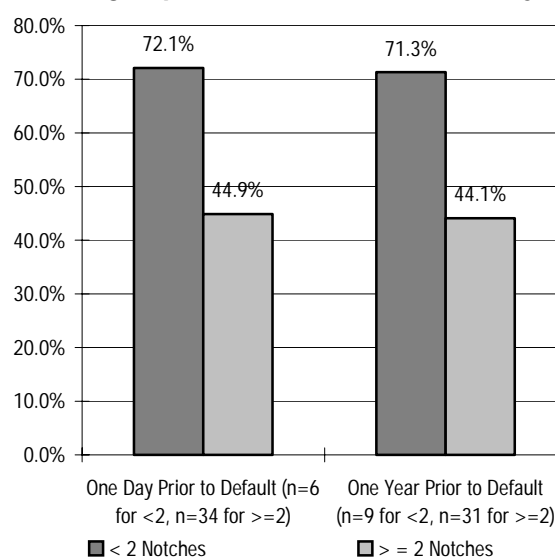


Exhibit 9 shows the differences in recovery rates for secured and unsecured loans. Not surprisingly, the median recovery rate on secured loans is roughly 40% higher than the median recovery rate for unsecured loans.¹⁰

Exhibit 10 shows recovery rates sorted by Moody's loan rating one day prior to default. While Moody's ratings are a measure of overall expected credit losses (*i.e.*, expected default rate multiplied by expected loss severity), higher ratings just prior to default are also correlated with higher recovery rates on a stand-alone basis. Exhibit 10A indicates that loan recoveries vary modestly with loan ratings one year prior to default.

10. At this time, data on the type of collateral underlying the secured loans is unavailable. Certainly, such data would help to further differentiate recovery rates among secured loans.

Exhibit 10B illustrates that gaps (*i.e.* notching) between an issuer's loan and bond ratings are correlated with the loss severities of those issuers' loans relative to their bonds just prior to default and one year before default.¹¹ For example, for issuers with loan ratings two or more alpha-numeric notches above their bond ratings one year before default, the median of loan loss severity to bond loss severity is only 45%. This compares with 72% for issuers with loan ratings less than two notches above their bond ratings.

Exhibit 11 shows recovery rates by loan debt cushion, or the amount of debt junior to the loans. Our definition of loan debt cushion is loans divided by total debt, implying the larger the value the lower the debt cushion.¹² The data indicate that issuers with loans comprising less than 60% of total debt are associated with median loan recoveries approximately 23% higher than issuers with loans comprising more than 60% of total debt.

Consistent with the results from Exhibit 11, the data in Exhibit 12 show that issuers with junior bonds have median loan recovery rates approximately 23% higher than issuers with no bonds in the capital structure.

Exhibit 11

By Loan Debt Cushion

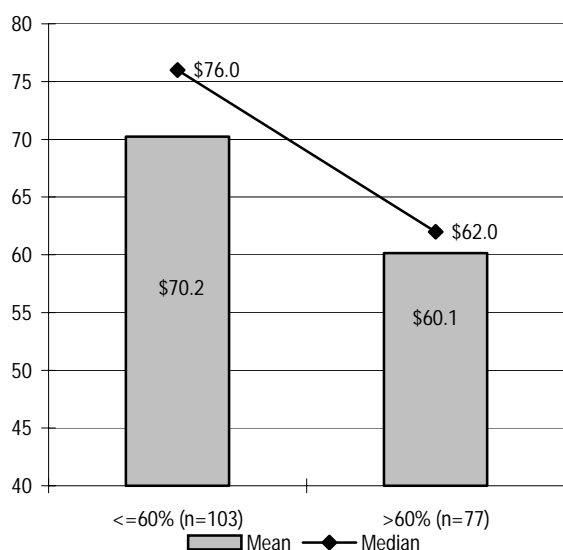


Exhibit 12

By Issuer's Capital Structure

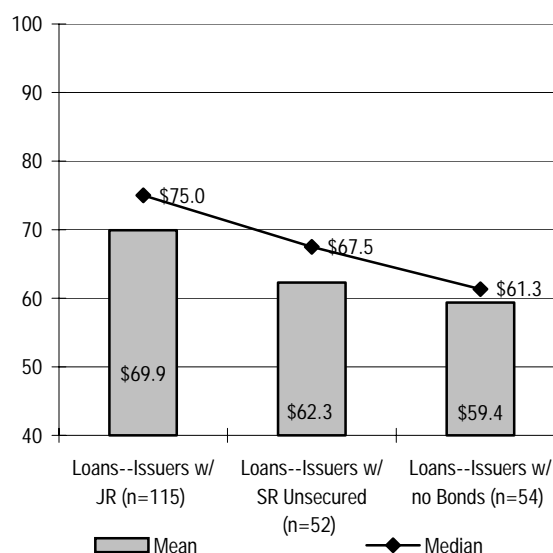


Exhibit 13 presents recovery rates sorted by loan issue amount. Somewhat surprisingly, smaller issue loans are strongly correlated with higher recovery rates. Further analysis of the characteristics of loans by issue amount indicates that relatively smaller loans in Moody's Default Database tend to be issued by smaller issuers that tend to have a relatively large amount of debt junior to the loans. In considering this result, it is worth keeping in mind that Moody's Default Database is focused on issuers with Moody's debt ratings, so that relatively small loans in this database do not necessarily resemble typical middle-market issuers. Specifically, middle market issuers usually do not have access to the public bond markets and loans typically make up a large part of such issuers' capital structures.

Exhibit 14 shows recovery rates by initial loan default type. The data indicate that pre-packaged bankruptcies have higher average and median recovery rates than regular bankruptcies or defaults caused by missed payments or distressed exchanges.

11. We calculate the issuer's bond rating based on a weighted average of the ratings on the issuer's outstanding bonds where the weights are determined by the bond issue amounts.

12. Total debt is measured by defaulted debt in Moody's default databases and does not include such items as tax liabilities, accounts payable, etc.. In cases where there are ambiguities regarding whether a particular class of bonds is junior to the loans, we conservatively add those bonds to the numerator.

Exhibit 13

By Loan Issue Amount

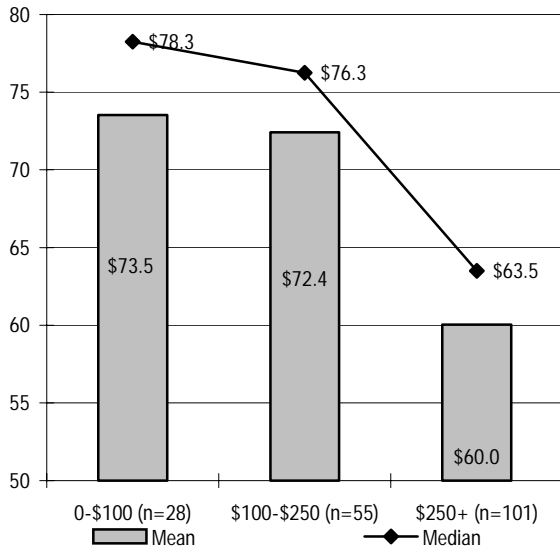


Exhibit 14

By Loan Default Type

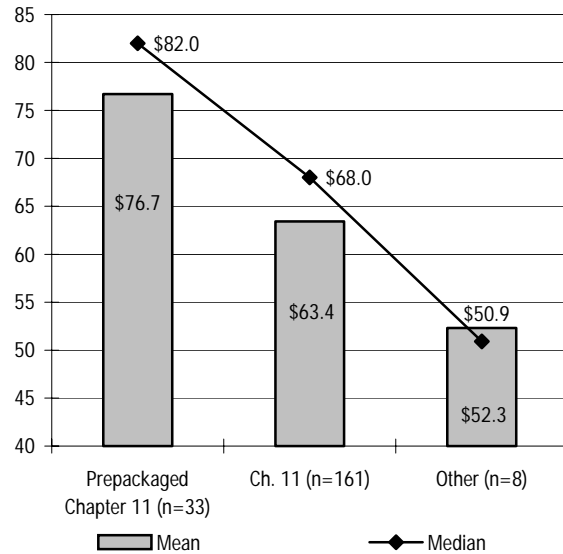


Exhibit 15 provides recovery rates sorted by loan seasoning, or time from origination to default. Loans defaulting in the first two years after origination are associated with modestly lower recovery rates than loans defaulting more than two years after origination. A potential explanation is that loans defaulting in the first two years after origination are associated with unexpected and/or relatively rapid deterioration in credit quality, whereby banks have only limited ability to take actions that prevent declines in recovery values. Conversely, if credit deterioration is gradual, banks have time to proactively secure value.

Exhibit 16 shows recovery rates for the cases where bonds default before the loans default, as well as for those cases where the loans and bonds default at the same time (e.g. bankruptcy). Loan recovery rates tend to be higher for those issuers where the bonds default before the loans. One potential reason is that loan defaults in those cases are less of a surprise and banks, as well as institutional investors, have more time to take actions to preserve collateral and recovery values.

Exhibit 15

By Loan Seasoning

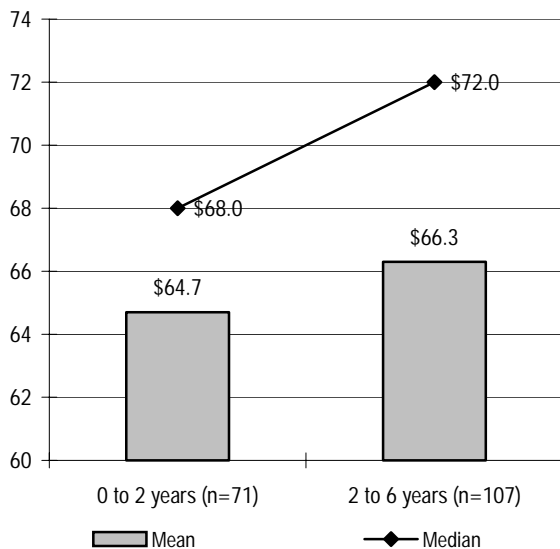


Exhibit 16

Bonds Default Before Loans

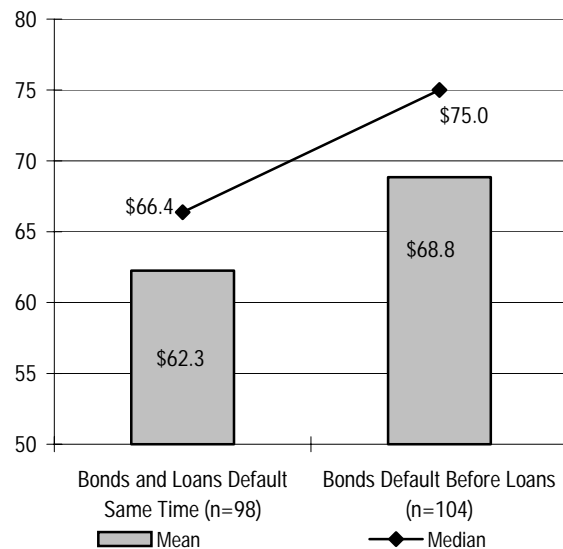


Exhibit 17 shows recovery rates sorted by the number of tranches underlying the loan. The data indicate that higher loan recovery rates tend to be associated with loans having only one tranche. Further analysis indicates that loans with only one tranche tend to be smaller loans with the majority having a pro rata tranche rather than an institutional tranche.

Consistent with Exhibit 17, Exhibit 18 presents recovery rates for loans containing only pro rata tranches versus those loans that also include institutional tranches. The median recovery rate is modestly higher for those loans containing only a pro rata tranche.

Exhibit 17

By Number Of Tranches

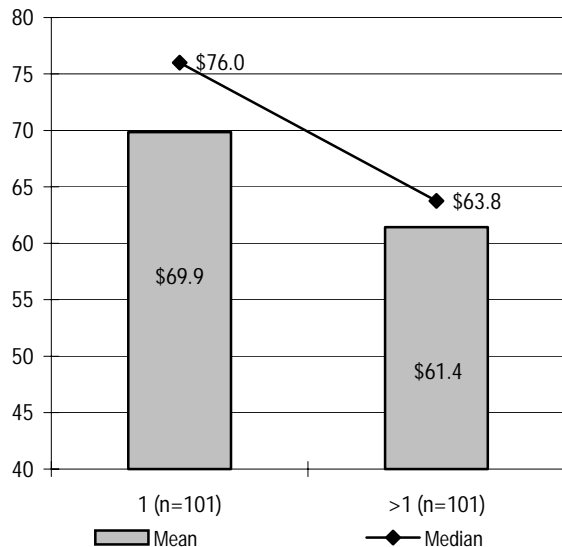
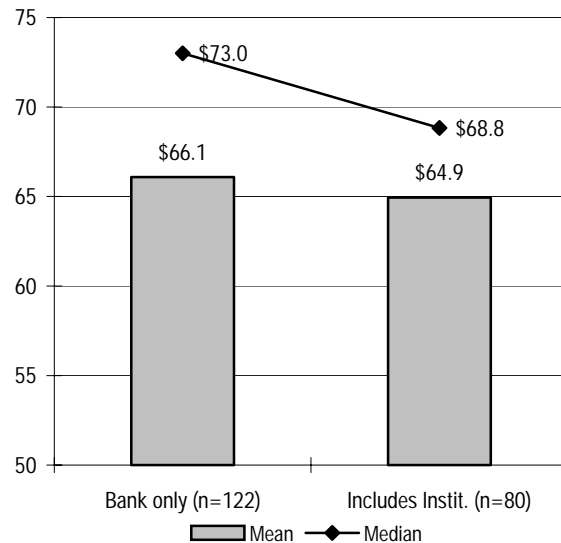


Exhibit 18

By Institutional Tranche Included



Macroeconomic/Industry Factors And Loan Recovery Rates

Here we examine loan recovery rates by macroeconomic and industry factors. The macroeconomic factors we look at include the following: Moody's Speculative Grade Default Rate at time of default, the growth of industrial production in the year leading up to default, and the Ba/Treasury spread at default. We also examine recovery rates by industry of the issuer, as well as a measure of industry distress.

Exhibit 19 shows loan recovery rates sorted by the value of Moody's speculative grade default rate at the time of the loan default. Similar to Moody's earlier findings for bond default rates and bond recovery rates, the data indicate an inverse relationship between the default rate and loan recoveries.¹³ The median recovery is \$80 when the default rate is less than 3%, falling to \$68 when the default rate is greater than 7%.

The data in Exhibit 20 show the correlation between recovery rates and industrial production growth in the year leading up to default. Declining industrial production is associated with a median recovery rate of \$67, while industrial production growth greater than 4% is associated with a median recovery of \$80.

13. See Moody's Special Comment "Default and Recovery Rates of Corporate Bond Issuers," January 2004.

Exhibit 19

By Moody's SG Default Rate

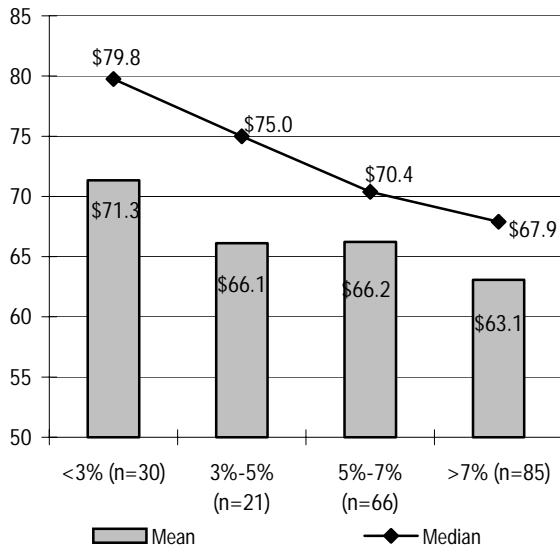


Exhibit 20

By Industrial Production Growth

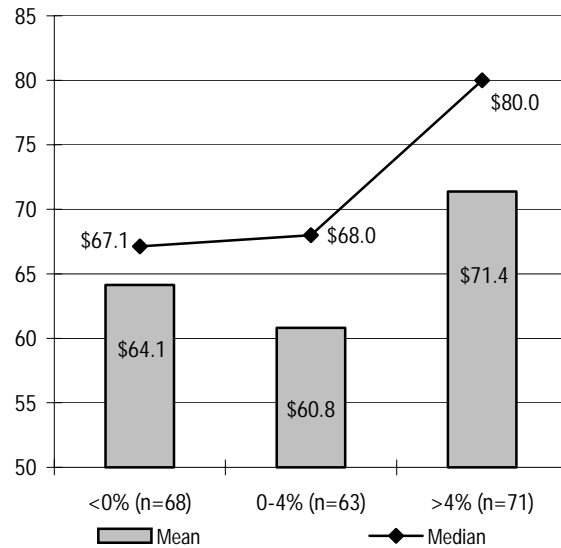


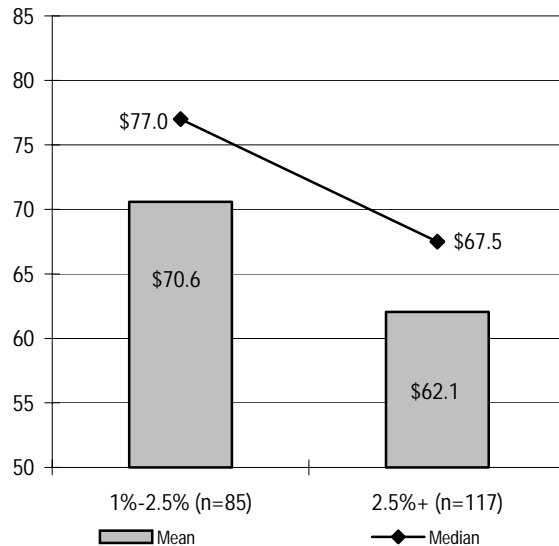
Exhibit 21 shows the relationship between Moody's Ba/Treasury spread and loan recovery rates. Consistent with the two previous exhibits, the data lends support to the hypothesis that a healthy macroeconomic and credit environment is associated with stronger loan recovery rates.

Exhibit 22 presents loan recovery rates by industry. The data do not yield any clear relationships, as there are relatively few observations per industry and recoveries within each industry display a considerable degree of variability, as seen by examining the range between the minimum and maximum observations. Not surprisingly, however, given the credit debacles in the telecom sector in recent years, the mean recovery rate is lowest for this sector.

As an alternative to industry, we also examine the hypothesis that what matters for loan recoveries is not industry *per se*, but rather the health of the industry when the loan defaults. Exhibit 23 sorts loan recoveries by whether the industry is in distress or not. We define industry distress to be those periods when capacity utilization in a particular industry is below its long-run average by more than 5%.¹⁴ The results indicate the median recovery for issuers defaulting when their industry is in distress is approximately \$61, while the median is \$74.5 for industries not in distress. For the approximately one-third of nonindustrial issuers in the database, the median recovery rate is \$73.

Exhibit 21

By Ba/Treasury Spread



14. The capacity utilization data is from the Board of Governors of the Federal Reserve System. We calculate the long-run averages using monthly data over the period January 1986 through October 2003.

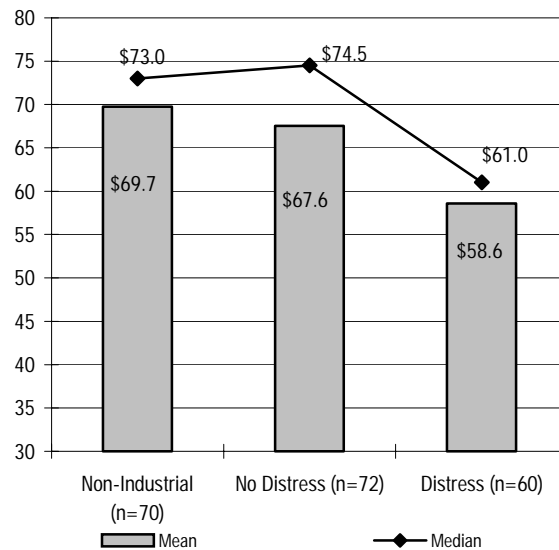
Exhibit 22

By Broad Industry

Industry	Count	Mean	Median	Max	Min
Transportation	3	82.3	91.8	94.5	60.5
Forest Products	2	85.2	85.2	85.8	84.5
Leisure/Amusement	9	83.0	85.0	104.3	67.3
Media/Publishing	7	87.7	85.0	95.0	82.6
Energy	4	70.8	84.0	110.0	5.0
Technology	4	78.3	83.5	101.0	45.2
Beverage/Food/Tobacco	14	77.2	83.3	99.8	15.0
FIRE	8	80.5	83.0	97.5	51.0
Non-Durable Consumer	3	80.1	83.0	87.9	69.5
Containers/Packaging	2	81.0	81.0	82.0	80.0
Aircraft/Aerospace	2	79.4	79.4	98.9	60.0
Metals/Mining	2	77.4	77.4	99.7	55.0
Chemicals/Plastic	7	70.9	75.4	89.6	48.5
Retail	17	66.3	70.0	93.0	25.0
Automotive	9	68.1	68.3	94.0	39.8
Textiles/Leather	17	65.9	67.5	95.0	15.0
Healthcare/Education	20	61.1	62.3	99.0	12.0
Miscell. Manufacturing	12	56.0	60.0	81.5	15.0
Building Materials	12	54.7	57.6	85.0	21.8
Hotels/Casinos/Gaming	3	51.3	50.0	67.9	36.0
Telecommunications	15	48.0	37.9	89.6	5.0
Miscellaneous	5	48.6	38.5	86.0	19.0
Electronics	9	52.8	34.0	92.9	23.3

Exhibit 23

By Industry In Distress



Regression Analysis

In the previous two sections of this *Special Comment*, we documented two-way correlations between loan recovery rates and a variety of explanatory variables. In this section, we present regression results that shed light on the relative power of these explanatory variables in a multi-variate framework. In other words, while recovery rates are correlated with a number of firm, loan, macroeconomic, and industry factors, regression analysis can assist in assessing which of these explanatory variables are most important in explaining the variation in recovery rates across issuers.

Encompassing an assessment of all of the potential explanatory variables examined in the two previous sections of this *Special Comment*, we find that the regression model presented in Exhibit 24 does the best job in explaining loan recoveries.¹⁵ The results from this model yield several conclusions:

- The only variables that are statistically significant in explaining loan recoveries are, in order of importance, the following: debt cushion, issue amount, whether the issuer's industry is in distress, and time from the loan's origination to default (i.e. seasoning).
- A dummy variable for whether the loan is secured or unsecured is only marginally significant. This result is a statistical consequence of the fact that approximately 85% of the loans in the sample are secured, so that the dummy variable cannot help to differentiate among 85% of the recovery rates in the sample.¹⁶
- Notably, macroeconomic factors are not statistically significant. This finding runs contrary to the widely perceived belief that bond recoveries vary significantly with macroeconomic conditions. The finding is consistent, however, with anecdotal evidence that overall loan recoveries did not fall materially in the latest credit cycle and that they exhibit less variability than bond recoveries (see Exhibits 6 and 8).¹⁷
- The model's adjusted R^2 (or the percentage of total variation in recovery rates that the model can explain) is 23%.¹⁸

Exhibit 24

Regression Results

Dependent variable = Loan recovery rate

Adjusted R^2 = .23

F-statistic = 6.21 (Pr>F less than .0001)

Variable	Parameter Estimate	Standard Error	t value
Intercept	0.93	0.20	4.63
Debt cushion	0.28	0.08	3.37
Issue amount	-0.01	0.0004	-2.84
Industry distress (D)	-0.11	0.04	-2.65
Seasoning	0.03	0.02	2.04
Secured/Unsecured (D)	0.10	0.06	1.56

Conclusions

In this *Special Comment* we examined loan recovery rates on defaulted North American syndicated loans using data from Moody's Loan Default Database.

Our sample of 202 issuers and over 370 loan tranches yielded mean and median loan recovery rates of \$65.6 and \$70.4, respectively. With a standard deviation of \$23.9, loan recoveries were shown to exhibit a considerable degree of variability. However, as measured by the standard deviation around the mean, the variability of bond recoveries is more than twice as large as the variability of loan recoveries. Additionally, for loan defaulters that also default on bonds, the median of loan loss severity relative to bond loss severity across these issuers is only 39%.

15. Regression models were run using ordinary least squares (OLS). Additionally, because actual loan recoveries resemble a beta distribution, we transformed the recovery data so that it approximates a normal distribution. However, whether the transformed data or the original data is used does not materially affect the results. The model in Exhibit 24 was arrived at by first regressing recovery rates on explanatory variables that could be observed before default (i.e. debt cushion, issue amount, secured/unsecured, and whether the issuer had junior bonds outstanding). The adjusted R^2 of this regression was .13, indicating that the model was capable of explaining 13% of the variation in loan recoveries, and only the junior bond variable was statistically insignificant. From this regression model, we eliminated the junior bond variable and sequentially added the following: the industry distress variable, the three macroeconomic variables, and other variables that could be observed only once the default event had already occurred (e.g. bankruptcy type, seasoning, number of tranches, etc.). Of these, only industry distress and seasoning were statistically significant at the 90% confidence level.

16. Clearly, one of the most important characteristics of loans is their secured nature, which plays an important role in high loan recovery rates relative to bond recovery rates.

17. Alternatively, the majority of loans in the sample are from the relatively short 2000-2004 sample period during which macroeconomic variables did not display their full range of historical variation. In the future, as the sample period lengthens, macroeconomic conditions could still turn out to be important for loan recovery levels.

18. Separate research at Moody's KMV produced a model of LGD, LossCalc, also based on multiple factors. LossCalc differs from this model in that it is predictive and is specified using data on bonds, preferred stock and loans. Because of the focus on all debt types and out-of-sample predictive performance, some of the factors are different than those used here and the out-of-sample predictive performance was tested extensively. That said, the results are qualitatively similar along many dimensions. See Gupton & Stein (2002) and, forthcoming, Gupton, Stein & Ibarra (2004).

We also find that mean and median North American loan recoveries vary with a number of loan and firm characteristics, as well as macroeconomic and credit measures, and whether a loan defaulter's industry is in distress at the time of default.

However, in a multivariate regression framework, only debt cushion, issue amount, industry distress, and time from origination to default add statistically significant explanatory power in terms of explaining the variation in loan recoveries. Notably, macroeconomic variables do not add explanatory power and our derived model explains approximately 23% of the variation in loan recovery rates across issuers.

Related Research

Rating Methodology:

[LossCalc: Moody's Model For Predicting Loss Given Default \(LGD\), February 2002 \(#73568\)](#)

Special Comment:

[Characteristics and Performance of Moody's-Rated Syndicated Bank Loans, March 2004 \(#81723\)](#)

[Default & Recovery Rates of Corporate Bond Issuers 1920-2003, January 2004 \(#80989\)](#)

[Relative Default Rates on Corporate Loans and Bonds, September 2003 \(#79477\)](#)

[Moody's Approach to Evaluating Distressed Exchanges, July 2000 \(#57528\)](#)

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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Report Number: 81684

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