

# Bank-Loan Loss Given Default

Greg M. Gupton, Daniel Gates and Lea V. Carty

This paper, an update on Moody's November 1996 study, examines borrowers of bank loans, rather than the banks that made defaulted loans. It looks at secondary market price quotes of bank loans one month after the time of default, thereby allowing markets to process the default news and revalue the debt. This additional data allows not only a refinement of recovery rate estimates, but also an examination of the factors driving loss given default.

The US-syndicated loan market continues to grow. This trend benefits investors who gain diversification by having access to different instrument types relative to public debt. In addition, banks benefit by both offloading overly concentrated exposures to high-volume borrowers and receiving a concomitant relief in statutory risk-capital requirements.

This trend also shifts the default risk-management burden from the originating institutions—who commonly can have close and long-standing relationships with the borrower—to investors—who may not. This paper continues Moody's analysis of the bank-loan market with an objective of enhancing investor risk-management understanding.

Briefly, this study finds that:

- The mean bank-loan value in default is 69.5% for Senior Secured and 52.1% for Senior Unsecured, however, the variance is substantial as the lowest tenth percentiles of recoveries were at 39.2% and 5.8%, respectively.
- The average length of time to default resolution is just under 1½ years with prepackaged Chapter 11 bankruptcy filings averaging 1.07 years and traditional Chapter 11's averaging 1.62 years. Secured loan claims settled more quickly than unsecured loans: 1.3 versus 1.7 years respectively. Interestingly, the best predictor of resolution time is the original market perception of resolution value. Recovery value that is more distant from the average (either higher or lower) strongly suggests a more rapid resolution.
- The loss given default (LGD) for Senior Unsecured loans can be materially different according to the number of loans outstanding to the defaulting borrower. That is, for single-loan defaulters, the Senior Unsecured recovery rate is 63.4%, but for multiple loan defaulters, the Senior Unsecured recovery rate is just 36.8%.
- The LGD experience by broad industry groups are not statistically significant different from one another. We speculate that the LGD correlation mechanism over time

(see Figure 1) may be causing other studies to find their differing patterns of industry-level LGD differences.

- A time series of the 12-Month Trailing Default Value Average (Figure 1) shows a 0.78 correlation between the loss experience of defaulted Senior Secured bank loans versus Senior Secured public debt (top two lines). This intuitive relationship has been previously undocumented. This observation is important because positive LGD correlation increases investors' portfolio-level risk. This correlation held even after removing the (five) firms that conjoined both of these debt classes. Thus, this is a systemic rather than a name-specific result.

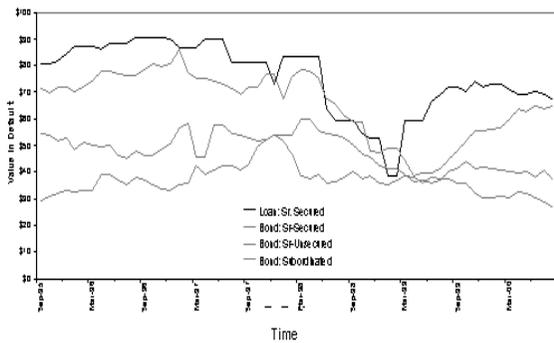
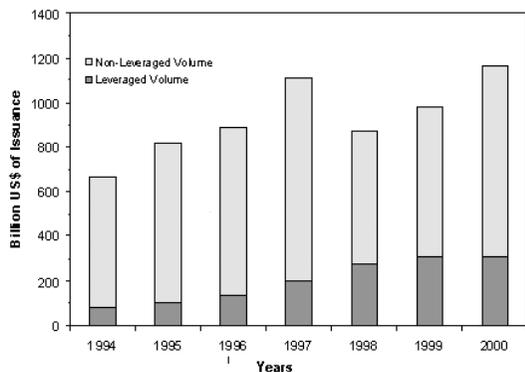


Figure 1: Trailing 12-month defaulted price (per 100 USD par)

Figure 2 shows the growth and composition of the US-syndicated loan market since 1994. Over time, growth has been steadier for leveraged issues. However, non-leveraged issues continue to constitute the bulk of the market.



Source: Loan Pricing Corporation

Figure 2: Size of the US-syndicated loan market

Moody's rates a substantial and growing number of bank loans.<sup>1</sup> Moody's ratings incorporate an assessment of both the likelihood and the severity of default. While the likelihood of default is roughly the same<sup>2</sup> for various debt obligations of the same obligor, Moody's can readily differentiate obligation-types by their severity of loss in default. Thus, Moody's pays close attention to factors that include superior seniority, collateral, and so on, of the instrument. Indeed, where Moody's believes that these factors for a loan are enough for a significantly better LGD relative to bondholders, a loan's rating would reflect that lower risk. It is common (though not guaranteed) that the rating of bank loans might be one or more notches better than ratings of that same obligor's public debt.

This paper quantifies the LGD amount for large US bank loans. Our data comprise loans that are of the type that could be syndicated—whether or not they actually are. In addition, we do not restrict our view only to Moody's rated loans. Finally, to align this study more closely with the investment goals of investors in this area, we adopt a LGD definition that mimics the actual realization of an investor selling away loans soon after default. Thus, as Moody's started reporting in 1996 (Carty and Lieberman 1996), we proxy the LGD using active secondary market quotes for defaulted loans one month after the date of default.

The date of default used here is the default date of the obligor's public debt (which is public knowledge) versus the default date specifically for the bank loans (which is commonly private information).<sup>3</sup> This seemingly minor issue of data definitions underscores a broader distinction between this report and Moody's public debt default studies.

Moody's defines a **bond default** as any missed or delayed disbursement of interest and/or principal, bankruptcy, receivership or distressed exchange where: the issuer offered bondholders a new security or package of securities that amounts to a diminished financial obligation (such as preferred or common stock, or debt with a lower coupon or par amount); or the exchange had the

Defaulter	Default date (of assoc. bond)	Bank loan description	Amount (USD)	Moody's bank loan rating		
				Initial rating	Date	at default
AmeriServe Food Distribution, Inc.	01/31/2000	Guaranteed Senior Secured Revolving Credit Facility	\$125.00	Ba3	07/02/1997	B1*
Cambridge Industries, Inc.	05/10/2000	Guaranteed Senior Secured Term Loan, Tranche B	\$135.00	B1	06/26/1997	Caa1
	05/10/2000	Guaranteed Senior Secured Revolving Credit Facility	\$75.00	B1	06/26/1997	Caa1
	05/10/2000	Guaranteed Senior Secured Term Loan, Tranche A	\$70.00	B1	06/26/1997	Caa1
Carnike Cinemas, Inc.	08/01/2000	Guaranteed Senior Secured Revolving Credit Facility	\$275.00	Ba3	01/21/1999	B3
	08/01/2000	Guaranteed Senior Secured Term Loan, Ser. B	\$75.00	Ba3	01/21/1999	B3
Crown Paper Company	03/01/2000	Senior Secured Revolving Credit Facility	\$150.00	Ba3	08/07/1995	Caa1
	03/01/2000	Senior Secured Term Loan, Tranche B	\$100.00	Ba3	08/07/1995	Caa1
Genesis Health Ventures, Inc.	03/20/2000	Term Loan, Tranche B	\$152.91	Ba3	07/25/1997	B2
	03/20/2000	Term Loan, Tranche C	\$152.55	Ba3	07/25/1997	B2
Hedstrom Corporation	04/11/2000	Senior Secured Term Loan, Tranche A	\$75.00	B1	05/28/1997	Caa1
	04/11/2000	Senior Secured Revolving Credit Facility	\$70.00	B1	05/28/1997	Caa1
	04/11/2000	Senior Secured Term Loan, Tranche B	\$65.00	B1	05/28/1997	Caa1
Laidlaw, Inc.	05/15/2000	Revolving Credit Facility	\$1,400.00	Baa2	09/16/1997	B2*
MacSaver Financial Services, Inc.	08/01/2000	Guaranteed Revolving Credit Facility	\$140.00	Ba1	01/25/1999	WR
Safelite Glass Corporation	06/09/2000	Guaranteed Senior Secured Term Loan, Tranche A	\$150.00	B1	12/10/1998	Caa1
	06/09/2000	Guaranteed Senior Secured Revolving Credit Facility	\$100.00	B1	12/10/1998	Caa1
	06/09/2000	Guaranteed Senior Secured Term Loan, Tranche B	\$100.00	B1	12/10/1998	Caa1
	06/09/2000	Guaranteed Senior Secured Term Loan, Tranche B	\$100.00	B1	12/10/1998	Caa1
Safety-Kleen Services, Inc.	05/15/2000	Guaranteed Senior Secured Revolving Credit Facility	\$450.00	Ba3	04/01/1998	Caa1
	05/15/2000	Senior Secured Term Loan, Tranche A	\$480.00	Ba3	04/01/1998	Caa1
	05/15/2000	Senior Secured Term Loan, Tranche B	\$550.00	Ba3	04/01/1998	Caa1
	05/15/2000	Senior Secured Term Loan, Tranche C	\$550.00	Ba3	04/01/1998	Caa1

Table 1: Moody's-rated bank loans involved in bond defaults—2000 (YTD)

Defaulter	Default date (of assoc. bond)	Bank loan description	Amount (USD)	Moody's bank loan rating		
				Initial rating	Date	at default
Stage Stores, Inc.	06/01/2000	Revolving Credit Facility	\$100.00	Ba2		Caa2
	06/01/2000	Revolving Credit Facility	\$100.00	Ba2		Caa2
Tokheim Corporation	07/31/2000	Guaranteed Senior Secured Term Loan A	\$120.00	B1	01/13/1999	Caa1
	07/31/2000	Guaranteed Senior Secured Revolving Credit Facility	\$120.00	B1	01/13/1999	Caa1
United Artists Theatre Company	04/15/2000	Revolving Credit Facility	\$100.00	B1	04/09/1998	Caa3
	04/15/2000	Term Loan A	\$100.00	B1	04/09/1998	Caa3
	04/15/2000	Term Loan B	\$150.00	B1	04/09/1998	Caa3
	04/15/2000	Term Loan C	\$100.00	B1	04/09/1998	Caa3

\*Rating on Watch List at the time of default

**Table 1:** Moody's-rated bank loans involved in bond defaults—2000 (YTD)

apparent purpose of helping the borrower avoid default.

In contrast, full default information is sometimes available for bank loans only if the borrower also has public debt. By their nature, bank loans are a private contract between the borrower and the lending institution. Exceptions to this include syndicated loans and, separately, those loans packaged into collateralized bond obligations, which become more public. Nevertheless, as a rule, there is no assurance of capturing information on all defaulted bank loans and no study has done so. In effect, this somewhat skews our sample towards larger obligors, which may actually be a better alignment with the syndicated loan market.

Table 1 lists 31 Moody's rated bank-loan defaults from 13 borrowers for 2000 year to date. (This study is not restricted to Moody's rated bank loans. For example, as of November 2000, there have been six unrated bank-loan defaults involving three borrowers.) We list bank-loan information in this table with the default date of the borrower's public debt. This public debt default date is not necessarily the same date applicable to the bank loans—although they are typically close. Take, for example, the default date for Safety-Kleen Services, Inc.'s bank loans which is April 7, 2000, and which is five weeks before its May 15, 2000, bond default. Although the bank-loan default date is not always reliably

known, by itself, this timing issue is not a major concern.

### Recovery rates

We focus here on the secondary market pricing of defaulted bank loans as quoted one month after the date of default. Importantly, we use name-by-name market quotes. These are bid-side quotes contributed by Goldman Sachs, Citibank, BDS Securities, Loan Pricing Corporation, Merrill Lynch and Lehman Brothers. These prices are not **matrix prices**, which are broad broker-created tables keyed off maturity, credit grade and instrument type with no particular consideration of the specific issuer. Moody's chose to make these price observations at one month after default for three reasons. First, it gives the market sufficient time to accurately assess the new post-default corporate information. Second, it is not so long after default that the market for quotes may become thinner. Third, the period is short enough to align with many investors' goal of trading out of newly defaulted debt.

Of course, this latter point can be of critical importance to investors. There are typically very different "clienteles" (i.e., investor goals/temperaments) for holding bank loans pre-default versus post-default. Indeed, the reasonable pricing we observe in our data set is likely attributable, at least partially, to trade

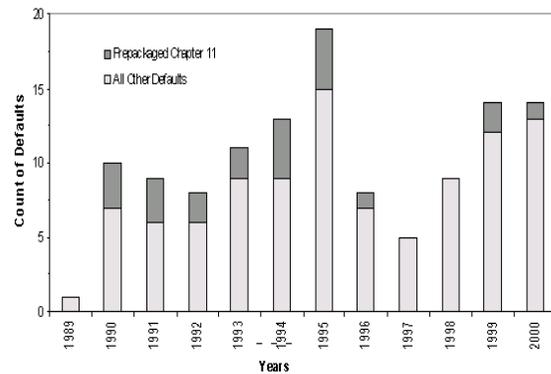
volume that this investor turnover creates soon after default.

Thus, the focus of this study – loss given default – stands as a kind of transfer price between these two investor groups. Although it is beyond the scope of this paper, there have been several studies of the market’s ability to price defaulted debt efficiently (See Eberhart and Sweeney 1992; Wagner 1996; Ward and Griepentrog 1993). These studies have addressed public debt rather than loans, and their results are not universally statistically significant. Collectively, however, the weight of this evidence strongly supports the market’s efficiently anticipating ultimate recoveries. Our own analysis supports market efficiency as well, albeit with a small sample size.

### Data and methodology

This report examines 181 defaulted bank loans (of 121 defaulted issuers). Most of these borrowers filed for regular Chapter 11 protection, but a good proportion (18%) filed for prepackaged Chapter 11s. The earliest default in this sample is Lomas Financial Corporation, which filed for Chapter 11 on September 1, 1989. The most recent is Carmike Cinemas, Inc.’s August 1, 2000 Chapter 11 filing. All together, this data set includes 121 default events: 73 Chapter 11s, 22 prepackaged Chapter 11s, and 26 additional defaults that were not formal bankruptcies. There were 181 loans caught up in these 121 firm-level defaults: 119 Senior Secured loans, 33 Senior Unsecured loans, and 29 additional loans that were unspecified.

Figure 3 shows the annual flow of bank-loan default, which spans slightly more than the 1990s decade. Highlighted are the prepackaged Chapter 11 filings, which first appeared in 1990 and have seen less popularity in the second half of the 1990s. Prepackaged filings have proven to be an effective means of reducing the time in bankruptcy, while offering other advantages such as mitigation of the “collective action problem.”<sup>4</sup>



**Figure 3:** Bank-loan defaults by year, 1989-2000 (YTD)

We selected defaulted loans for this report with the requirement that they all have reliable secondary market pricing in default. This selected data set is three times the 58 defaulted bank-loan observations in Moody’s comparable November 1996 study. We wish to highlight here that this selection criterion, which requires a secondary market price, differs from the default definition used in Moody’s annual default studies. In Moody’s more broadly based annual default studies, a missed interest payment is sufficient to define a “default,” which is similar to a banker’s “non-accrual” status.

As with any data selection “filter,” it is important to understand and make explicit any potential change in the applicability of the study’s results. Clearly, this data set focuses on the ultimate borrowers behind syndicated loans, since secondary market pricing is most likely available for these types of loans. Thus, our findings are most directly applicable to the syndicated loan market.

This type of data filter also appears across the academic literature. Public debt is widely reported in both its pricing and default events. In contrast, bank-loan pricing and default events are far less widely known. Consequently, loans are more likely to be included in our data set if the default event also encompasses public debt. In contrast, an unrated defaulter with exclusively bank-loan funding might be overlooked because there is no systematic reporting of defaulted loans external to the particular lending institution.<sup>5</sup>

Despite these challenges, 30 of the 181 loans in our data set are from 29 firms with no public debt.

Parenthetically, having a Moody’s rating is not a restriction on our data set. Moody’s started rating bank loans in 1995 with the rise in syndicated loan activity. However, our data set goes well beyond Moody’s-rated bank loans (see Table 1 for a list of recent loan defaults that carried a Moody’s rating).

### Profiling of bankruptcy experience

There is no good framework for predicting the outcome of default. This deficiency is so poignant because default outcomes are so broadly diverse. A defaulted loan might pay off essentially in full with accrued interest or it might pay off only 5¢ on the dollar. A resolution might be complete by the next month or it might take four-and-a-half years. Investors need the best guidance available. Here, we summarize the historic record to quantify the distribution of outcomes that investors have faced, and then investigate general rules for better projecting some features of LGD.

#### Defaulted loan price distribution

Figure 4 and Figure 5, show the wide distributions of recovery rates. We graph Senior Secured loans separately from Senior Unsecured loans to accommodate the difference in scaling of the vertical axis. Unsecured loans are much less common among defaulters.<sup>6</sup>

Figures 4 and 5—both a histogram of recovery rates and a cumulative distribution curve—show the distributions of bank-loan valuations in default. The average recovery rates for Senior Secured and Senior Unsecured loans are 69.5% and 52.1%, respectively. However, as these graphs illustrate, the range of valuation is broadly disbursed (inter-quartile ranges of 33.5 percentage points and 48.0 percentage points, respectively) and skewed to the downside (skews of -0.84 and -0.35, respectively). We detail additional summary statistics for these graphs in Table 2.

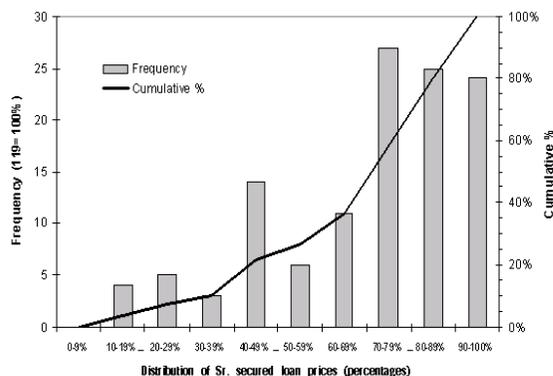


Figure 4: Bank-loan value in default, I

The very wide dispersions evident in these figures are a source of frustration for both investors and credit risk modellers alike. Senior Secured bank loans to Stage Stores, Inc., Almac’s, Inc. and Seaman Furniture Co., Inc. all received 15¢ on the dollar. In contrast, Cambridge Industries, Inc. loans were valued at 98¢ on the dollar. On the Senior Unsecured loan side, an experience of 5¢ to 88¢ was just as wide, merely lower.

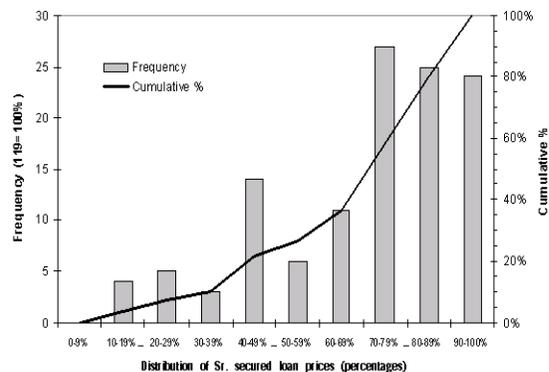


Figure 5: Bank-loan value in default, II

Investors expend enormous energy divining the likely recovery of individual loans, while Value-at-Risk (VaR) model builders apply some average recovery rate and, thereby, overlook any volatility in the loan recovery process. Understandably, for a VaR analysis, LGD volatilities might reasonably be set aside in large portfolios (with many diverse obligors) if they are uncorrelated across the portfolio, since their effects would tend to cancel themselves.

Bank loans	Count	Average	Median	Maximum	10th percentile	Minimum	Standard deviation
Sr. Secured	119	\$69.5	\$74.0	\$98.0	\$39.2	\$15.0	\$22.5
Sr. Unsecured	33	\$52.1	\$50.0	\$88.0	\$5.8	\$5.0	\$28.6
<b>Long-term Public Debt (of these same Bank Loan Borrowers)</b>							
Sr. Secured	6	\$59.1	\$49.0	\$98.5	\$30.0	\$0.1	\$32.6
Sr. Unsecured	51	\$45.1	\$44.0	\$104.8	\$16.0	\$0.5	\$25.7
Sr. Sub	55	\$29.4	\$24.0	\$98.0	\$4.0	\$0.5	\$23.6
Sub	32	\$29.1	\$29.3	\$87.5	\$4.5	\$0.5	\$20.6
Jr. Sub	5	\$10.8	\$12.5	\$20.8	\$3.7	\$1.5	\$7.2

**Table 2:** Descriptive recovery statistics of bank-loan borrowers

However, as we observe in Figure 1, there is reasonable evidence of material positive LGD correlation that arises even from different market instruments and non-overlapping sets of defaulters. Since these two market instruments were both secured by underlying assets, we might speculate that broad economic factors might raise or lower the values of assets underlying the security.<sup>7</sup>

The top two rows of Table 2 show additional statistics for the bank loans illustrated in Figures 4 and 5. Shown below these is the public debt held by the 121 firms in this bank-loan study. Compared to obligors in Moody's entire bond default database, this group held far less Senior Secured public debt relative to the more subordinated grades of public debt. Public debt showed its typical pattern of decreasing recoveries going down the seniority scale. (See Hamilton & Carty (1999) for a more complete exposition of LGD for public debt.)

Generally, bank loans had a better LGD in the 151 cases where a defaulting firm also made use of public debt funding. Senior Secured loans recovered 71.5% when the borrower also had issued bonds, but only 59.1% when the only funding was bank credit facilities. Seniority seems to be the pivotal factor since the outcome for Senior Unsecured bank loans is just the reverse. Senior Unsecured loan recoveries were only 50.9% when forced to compete with public debt,

but 61.0% in cases where there was only bank funding.

#### **Descriptive statistics of time in default**

The length of time to bankruptcy resolution can have a significant influence on the valuation of defaulted bank loans. For instance, interest accruals, if any, are typically not paid until the final resolution. Indeed, payments seldom accrue for unsecured claimants and sometimes not even for secured claimants. As a separate issue, even if creditors could be confident of the payment amounts, the uncertain timing of settlement would limit the appeal of bankrupt debt to many investors (e.g., investors seeking current income).

Table 3 lists descriptive statistics for the length of time spent in default. We first break out two bankruptcy types: Chapter 11 filings versus prepackaged Chapter 11. By all measures, the prepackaged form of Chapter 11 has realized its promise of delivering swifter bankruptcy resolutions. In fact, the median duration was a little more than seven months shorter for prepackaged Chapter 11's. Separately, we show a smaller distinction between the resolution times of Senior Secured versus Senior Unsecured loans. This less significant differentiation between security levels is augmented by the wider range of their resolution times, namely, their standard deviations.

By bankruptcy type	Count	Average (yrs)	Median (yrs)	Maximum (yrs)	Minimum (yrs)	Standard deviation (yrs)
Prepackaged Chapter 11	22	1.07	0.94	0.07	2.47	0.84
Chapter 11	73	1.62	1.53	0.31	4.54	0.96
<b>By seniority type</b>						
Sr. Secured	78	1.30	1.09	0.10	4.54	0.94
Sr. Unsecured	24	1.70	1.61	0.07	4.16	1.07
<b>Overall</b>						
	121	1.44	1.43	0.07	4.54	0.95

Table 3: Descriptive statistics for the time to default resolution

The prospect of resolution durations that can top four years is daunting to investors. Indeed, for some applications, such as the structuring of a collateralization loan obligation pool, it would be pivotal if resolution cash flows are relied upon for servicing the CLO. More generally, investors need to project the timing of their payoffs as diligently as they can. Therefore, we look at detail behind this wide dispersion in resolution times.

valuations away from the middle range of around \$70) to wrap-up more quickly is evident. Resolutions yielding in the more central valuation range of \$70 to \$80 are among the longest to resolve, and are generally longer on average. On the other end, six issuers reached resolution within three months of default. The most rapid, Memorex Telex Corporation’s prepackaged Chapter 11, was just under six weeks. The longest resolution took just over four-and-a-half years, involving Dow Corning Corporation, amidst complex litigation of silicon breast implant cases.

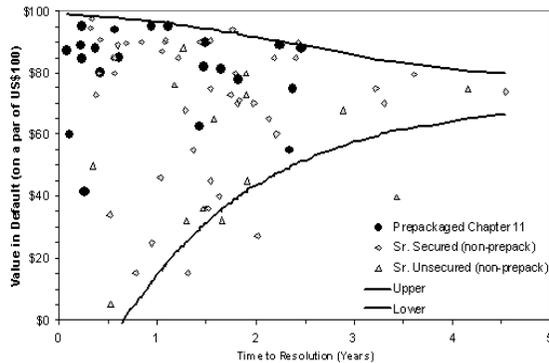


Figure 6: Bank-loan resolution time vs. default value

Figure 6 shows the length of bankruptcy resolution versus the valuation of defaulted bank loans. The 80 firms that have completed the resolution process in our sample of 121 firms are shown, and the very different experiences of prepackaged Chapter 11 bankruptcies are highlighted. Also, the general tendency for extreme recovery valuations (i.e., market

Figure 6 points directly to the single best predictor of the length of time in default. That simply is whether the market prices reflect a perception that it will be resolved with an “average” recovery value. More specifically, for defaulted loans with market pricing in the range of at least \$70 but less than \$80, the time in default was lengthy; averaging 2.36 years ( $\sigma = 1.16$ ). In sharp contrast, defaulted loans with pricing  $\geq \$80$  or  $< \$70$  resolved almost twice as quickly averaging 1.22 years ( $\sigma = 0.76$ ). Indeed, this one simple rule explains 22% of the volatility around the time to resolution. It is also more powerful than the splits shown in Table 3.

The intuition behind this relationship between resolution value and resolution time might be that market prices would not be extreme unless most market participants agree. Thus, the resolution will be more straightforward. In

Number of loans	Data	Sr. Secured	Sr. Unsecured	All Other	Total
<b>Single</b> Loan Caught up In Default Event	Count	51	19	14	84
	Mean	\$71.1	\$63.4	\$64.0	\$68.2
	Median	\$79.5	\$73.0	\$72.5	\$75.0
	Maximum	\$97.5	\$88.0	\$89.0	\$97.5
	10th Percentile	\$36.0	\$32.4	\$29.7	\$33.0
	Minimum	\$15.0	\$30.0	\$7.0	\$7.0
	StDev	\$23.5	\$21.3	\$26.1	\$23.5
<b>Multiple</b> Loans Caught up In Default Event	Count	68	14	15	97
	Mean	\$68.3	\$36.8	\$65.4	\$63.3
	Median	\$72.8	\$28.5	\$70.0	\$72.0
	Maximum	\$98.0	\$80.0	\$90.0	\$98.0
	10th Percentile	\$41.5	\$5.0	\$39.7	\$24.8
	Minimum	\$20.0	\$5.0	\$38.0	\$5.0
	StDev	\$21.8	\$30.8	\$19.5	\$25.2
<b>Total</b>	Count	119	33	29	181
	Mean	\$69.5	\$52.1	\$64.7	\$65.6
	Median	\$74.0	\$50.0	\$70.0	\$73.0
	Maximum	\$98.0	\$88.0	\$90.0	\$98.0
	10th Percentile	\$39.2	\$5.8	\$37.6	\$30.0
	Minimum	\$15.0	\$5.0	\$7.0	\$5.0
	StDev	\$22.5	\$28.6	\$22.5	\$24.5

Table 4: Bank-loan loss given default

contrast, if the market price is around average, then this might well be the middle point of very diverse views across market participants. Thus, the resolution might be less clear with resolution times spanning the ambit.

### Recovery rate factors

Guidelines for better estimating LGD beyond the immediate instances in this report are of practical value to investors and analysts. So far, we have discussed segmenting recovery experience by seniority. In the following section, we will examine three additional factors:

- the influence, especially upon unsecured loans, of a firm's having multiple loan obligations
- the influence of broad industry groups
- the information content of Moody's ratings

Taken together, these factors can aid in better estimating the likely LGD of defaulted bank loans.

### Influence upon security of having multiple loans

Do recoveries shift if there are other bank-loan borrowings within the defaulter's capital structure? These other debts effectively compete for the limited funds that a firm can make available in default. Looking back to Table 2, we add a further dimension to describe each defaulter's debt structure.

We separate firms into two groups: according to whether they had a single loan outstanding at the time of default or more than one loan. It is important to note that this type of indicator might also suggest several things about the defaulting firm that could potentially confound the analysis. Holding more than one bank loan might suggest

- a larger than average firm size
- financial "sophistication" or perhaps "aggressiveness"
- the potential for multiple security levels across loans (i.e., Senior Secured with Senior Unsecured).

Whatever the active causes, these factors do lead, in fact, to a substantial 26.6% difference in LGD for Senior Unsecured loans.<sup>8</sup> In stark contrast, there is essentially no difference (2.8%) in the recovery experience among Senior Secured loans.

Table 4 shows summary statistics for the value of defaulted bank loans as we make the usual grouping by seniority groups. We show the overall results for Senior Secured and Senior Unsecured in bold face type. These bold figures replicate the relevant portion of Table 2. The new split in our data set is between defaulters who held a single bank loan at the time of default versus multiple bank loans. The underlined figures highlight that security is strikingly significant in cases where there are multiple bank loans.

Thus, for the data set that we examine here, the presence or absence of loan security is far more relevant if there are multiple bank loans caught up in the default. In contrast, for secured loans, the number of loans caught up in default is largely irrelevant. The absence of security makes the most difference when there are obligations that must compete with one another in default. In retrospect, this type of finding is intuitive and is further evidence in support of Moody’s practice of notching bank-loan ratings where there is superior realizable value due to security or other advantageous factors.

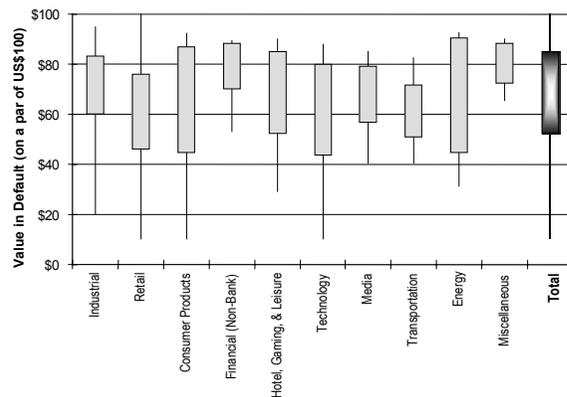
**Is industry a discriminating factor?**

We examine industry groupings, which is another factor commonly thought to influence LGD. Of course, it is intuitively appealing to believe that the borrower’s industry should help predict LGD. After all, many asset types differ between industries. Indeed, the highest value for an asset caught in default may be from its redeployment within the industry. For example, a used Boeing 727 recovered in one airline’s default really might have value only to the extent that another airline can reuse it. For a compelling, but single-industry, argument for recovery correlations, refer to Borenstein and Rose (1995).

However, we found no evidence here that industries have different LGDs. In our testing, we

first applied a series of t-tests and confirmed the visual result that the industries’ mean LGDs were not statistically distinguishable. We tested further because the data is not statistically normally distributed. We applied a more robust non-parametric test, the Kruskal-Wallis Rank Sum test, which also rejected the hypothesis that any industry grouping might be different from the aggregate population.

Figure 7 shows the dispersion of default values broken out by 10 industry groups. We represent all 181 data points here. The different security classes of bank loans are aggregated in this exhibit by adding back the security classes’ mean differences, thus bringing all loans up to the level of Senior Secured. For each industry, the vertical lines show the maximum and minimum defaulted values, while the vertical shaded rectangles show the inter-quartile range. Visually, there is a substantial overlap in the experience of one industry versus another.



**Figure 7:** Bank loans by industry group

At least two other studies have broken out LGD by industry, but both of these were broader studies across debt class, not just bank loans. The first Altman and Kishmore (1996) found statistically higher recovery values for two groups:

- public utilities and
- chemicals, petroleum, rubber and plastic products.

A more recent study, Izvorsky (1997), tabulates above average recovery rates for seemingly

similar industry groups in potential confirmation of Altman and Kishmore's result.<sup>9</sup>

The null industry result that we find here might be attributable to a number of factors:

- the effects of our strong focus on (predominantly Senior Secured) bank loans
- the relatively small sample sizes
- differences in our industry group definitions
- LGD cyclical<sup>10</sup> may confound the comparability of studies that draw from different periods
- random variability in the defaults included.

Certainly, differences in LGD by industry group are an important area that we will continue to investigate.

#### LGD by initial Moody's rating

As a final factor influencing LGD, we examine Moody's ratings themselves. A basic tenant is that Moody's intends ratings to address all the factors leading to credit losses and not just one component, such as the likelihood of default. If this is true, then a Moody's rating should have some predictive value regarding credit losses even after one component of credit losses is settled. More specifically, if we focus on defaulted obligations, then the likelihood-of-default component is settled (i.e., realized to be 100% likely). Thus, the Moody's credit rating might continue to predict the remaining component(s) of credit risk, such as the average LGD. The test of this is to average the LGD by rating grade and see if there is some correlation between the two.

Table 5 shows LGD aggregated by the Moody's bank-loan rating at the time of default. As predicted, the recovery values generally decline with lower credit ratings.<sup>11</sup> A previous and more broadly based Moody's study also shows this effect (see Table 1 of Carty, Lieberman, and Fons 1995). Two of the 32 loans in Table 5 are Senior Unsecured. We have commingled their recovery values with the Senior Secured loans on a one-to-one basis on the argument that the

rating—notched if the analyst deemed necessary—controls for the effect of security.

Moody's rating at default	Average price in default	Loan count
B1	\$86.8	2
B2	\$80.0	4
B3	\$75.5	6
Caa (old format)	\$90.3	2
Caa1	\$67.3	12
Caa2	\$45.5	3
Caa3S	\$53.5	3

**Table 5:** Recoveries for Moody's-rated bank loans

As a caveat to this, there are many factors directly contributing to the realized LGD that are not known to a credit analyst at the time a rating is determined. For example, whether or not the firm chooses to file a prepackaged Chapter 11 could have a material impact on the debtholder's realized value in default and yet this choice cannot be determined ahead of the event.

#### Conclusion

Moody's rates bank credit facilities with a clear focus on factors, such as superior seniority and collateral, that commonly yield a rating of one or more notches better than that firm's publicly held debt. This study further supports this practice. Moody's analysed a population of 181 bank loans involving 121 separate defaults for large public companies from 1989 to the present. These defaults included Senior Secured as well as Senior Unsecured bank loans and incorporated data such as their timing, value, industry, nature of resolution and security.

The data used for this study are most comparable with (and, in fact, is an extension of) the data set used in Moody's 1996 research on defaulted bank loan recoveries (see Carty and Lieberman 1996). Our finding of a 69.5% recovery rate for Senior Secured loans is essentially the same as the previous 1996 report's finding of 71%. In addition, this research was able to estimate a recovery rate for Senior Unsecured loans of

52.1%, and to expand the analysis to establish some of the determinants of LGD.

Our findings include:

- **The presence of multiple loans within a borrower's debt structure:** where the complexity of multiple loans has a strong (and negative) influence on the recovery of Senior Unsecured loans, but has no appreciable influence on Senior Secured loans
- **The nature of the bankruptcy filing:** where the prepackaged Chapter 11 form of filing has a strong (and beneficial) influence on LGD as well as the rapidity of default resolution
- **The relationship between LGD and resolution time:** where defaults with "average" LGD levels are among the longest to resolve
- **The presence of security:** where the LGD is 17.4% better for secured versus unsecured bank loans
- **Moody's ratings:** where the rating at default acted as a predictor of LGD
- **Broad industry groupings:** which is an important but null finding that showed no statistically significant influence on LGD estimates within this data set.

The overall average recovery rate estimates for this study differ from certain of Moody's previous research because of differences in methodology and data. This study focuses on the secondary market pricing of defaulted loans, which is a data definition clearly focused on loan investors seeking to determine their valuation in market terms. Loan investors with a hold-through resolution strategy may well prefer different Moody's research and data sets such as was assessed in the June 1998 "Bankrupt Bank Loan Recovery" Special Comment (Carty 1998).

## References

Altman, E. and A. Eberhart, 1994, "Do seniority provisions protect bondholders' investments?,"

*Journal of Portfolio Management*, Summer, pp. 67–75.

Altman, E. and V. Kishmore, 1996, "Almost everything you wanted to know about recoveries on defaulted bonds," *The Financial Analysts Journal*, November/December, pp. 57–64.

Asarnow, E. and D. Edwards, 1995, "Measuring loss on defaulted bank loans: A 24-year study," *Journal of Commercial Lending*, March, 10(2): 11–23.

Borenstein, S. and N. Rose, 1995, "Do airlines in chapter 11 harm their rivals?: bankruptcy and pricing behavior in U.S. airline markets," Working Paper No. 5047, National Bureau of Economic Research, February.

Carty, L., 1998, "Bankrupt bank loan recovery," *Moody's Special Comment*, June.

Carty, L. and D. Lieberman, 1996, "Defaulted bank loan recoveries," *Moody's Special Comment*, November.

Carty, L., D. Lieberman and J. Fons, 1995, "Corporate bond defaults and default rates 1970–1994," *Moody's Special Report*, January.

Chatterjee, S., U. Dhillon and G. Ramirez, 1996, "Resolution of financial distress: debt restructurings via Chapter 11, prepackaged bankruptcies, and workouts," *Financial Management*, 25(1): 5–18.

Eberhart, A. and R. Sweeney, 1992, "Does the bond market predict bankruptcy settlements?," *Journal of Finance*, Georgetown University, July, 47(3): 943–980.

Gates, D., 2000, "Changes in the global loan market are reflected in the dynamic growth of syndicated loan ratings," *Moody's Special Comment*, September.

Hamilton, D., *Monthly Default Report*, Moody's Corporation, (Monthly since June 1999).

Hamilton, D. and L. Carty, 1999, "Debt recoveries for corporate bankruptcies," *Moody's Special Comment*, June.

Izvorski, I., 1997, "Recovery ratios and survival times for corporate bonds," Working Paper of the International Monetary Fund, WP/97/84, July.

- Jokivuolle, E. and P. Samu, 2000, "A model for estimating recovery rates and collateral haircuts for bank loans," Bank of Finland Discussion Paper, February.
- Longhofer, S. and C. Carlstrom, 1996, "Absolute priority rule violations in bankruptcy," Federal Reserve Bank of Cleveland, March.
- Longhofer, Stanley D., 1997, "Absolute priority rule violations, credit rationing, and efficiency," Working Paper 9710, Federal Reserve Bank of Cleveland, September.
- Mann, R., 1997, "Explaining the patterns of secured credit," *Harvard Law Review*, 110(3): 625–683.
- RiskCalc, 2000, "Moody's public firm risk model: A hybrid approach to modeling short-term default risk," *Rating Methodology*, Moody's Investors Service, March. (Downloadable at: <http://www.moodysrms.com/>)
- Stumpp, P., T. Marshela, M. Mulvaney and M. Hilerman, 1997, "A sense of security: Moody's approach to evaluating bank loan structure and collateral," *Moody's Special Comment*, October.
- Swank, T. and T. Root, 1995, "Bonds in default: Is patience a virtue?," *Journal of Fixed Income*, Security Benefit Group in Topeka, Kansas, June.
- Thorburn, K., 1999, "Bankruptcy auctions: costs, debt recovery, and firm survival," Derived from Doctoral Thesis, Dartmouth College, Amos Tuck School of Business Administration, April.
- Wagner, H., 1996, "The pricing of bonds in bankruptcy and financial restructuring," *The Journal of Fixed Income*, June, 40–47.
- Ward, D. and G. Griebentrog, 1993, "Risk and return in defaulted bonds," *Financial Analysts Journal*, May/June.
- Welch, I., 1997, "Why is bank debt senior? A theory of asymmetry and claim priority based on influence costs," Working Paper, University of California, July.
- Moody's rating. To give greater assistance to investors in smaller borrowers, Moody's has developed a product that statistically estimates firm level default probabilities. See <http://www.moodysrms.com/> for further information on RiskCALC™. This broadly based tool does not offer the refinement and long-term view of Moody's analyst created ratings.
2. Although this is broadly true, the definition of default can change by obligation type. For bank loans, restrictive covenants often allow the lending institution to gain earlier intervention (relative to public debt) during a time of borrower credit distress. Indeed, the generally lower LGD of bank loans versus public debt is likely, at least partially, due to banks taking risk mitigating actions to reduce drawdowns, and secure or add collateral.
  3. There is no uniformity across lending institutions in defining the exact date of default. Violations of loan covenants often define a **technical default**, while one or more missed interest payments typically classify a loan as **non-accrual**. An actual **write-off** of the loan is well after the default, commonly occurring only after all efforts at loan recovery are exhausted.
  4. Bondholders do not always coordinate their efforts efficiently. Small bondholders may hold out since their individual decisions will not materially affect the outcome. Larger bondholders may hold out seeking to extract further obligor concessions. For a broader discussion of the issues leading firms to choose one course in bankruptcy versus another, see Chatterjee, Dhillon and Ramirez (1995).
  5. Perhaps the largest collection of middle-market bank loans is in Moody's unique Credit Research Database (CRD) comprised of 28,000 private firm financial statements and over 1,600 private firm defaults. Other efforts include Loan Pricing Corporation and Risk Management Associates (formerly Robert Morris Associates). Nevertheless, capturing bank-loan defaults is not as universal a process as with public debt.

## Endnotes

1. By its nature, bank lending includes many borrowers who are too small to seek a

6. Banks often seek to negotiate for enhanced security if the borrower declines in credit quality. This data set sees only those loans that are in default. Separately, any material change in the loan terms—such as enhanced security—would trigger a re-evaluation of any Moody's rating for that loan.
7. Parenthetically, the 0.78 correlation figure quoted on page 1 is at an index level, and so one should expect correlation values between individual defaulters to be lower. This is because the construction of any index effectively cancels diversifiable firm-level volatility.
8. This distance between mean Senior Secured recoveries in these two groups is statistically different from zero at the 2% level applying a Wilcoxon rank-sum test. This and other distinguishing features are an active topic of our continued research.
9. Industry labels are notoriously ad hoc and difficult to compare. Izvorsky (1997) refers to plastic products, not elsewhere classified with an average recovery rate of 69.20% and indeed this was the highest of Izvorsky's industry groupings. This appears to corroborate A & K's chemicals, petroleum, rubber and plastic products finding. Izvorsky's electric services, with an average recovery rate of 42.27%, might be comparable with A & K's public utilities. However, although this was above Izvorsky's overall average recovery rate of 35.35%, it was only the sixth highest placing industry group.
10. There is evidence of LGD varying over time as evidenced by our exhibit on page one of this report.
11. Jokivuolle and Peura (2000) assumed an opposite set of assumptions from this investigation and made the reverse prediction. J & P predicted that LGD would improve for lower rating grades based on their assumption that lenders would tend to negotiate more/better security as borrowers neared default. In contrast, Moody's practice is to restate the rating upon material changes in loan terms including enhanced security.

## Appendix: Detailed description of bank-loan defaults since 1999

### 1999 bank-loan defaults

#### Breed Technologies, Inc. (Manufacturer of automotive systems)

\$150.0 million % Guaranteed Senior Secured Revolving Credit Facility due 4/15/2004

\$325.0 million % Guaranteed Senior Secured Term Loan, Tranche A due 4/15/2004

\$200.0 million % Guaranteed Senior Secured Term Loan, Tranche B due 4/15/2006

The continuing deterioration of Breed Technologies, Inc.'s operating performance and lack of a substantial turnaround in the company's business led to a Chapter 11 filing with the US Bankruptcy Court for the District of Delaware on September 20, 1999. As a result of its uneconomic debt-funded acquisition program and lower sales in Europe and North America—primarily due to a series of negative events (such as the GM strike), difficulties related to numerous product launches, and loss of business at certain subsidiaries—Breed has experienced significant losses. These events have also resulted in onerous leverage, which has choked its cash flow flexibility. Breed Technologies, Inc., headquartered in Lakeland, Florida, designs, develops, manufactures and sells automotive systems and components globally.

05/15/1999	Breed Technologies, Inc., missed dividend payment on its TOPRS (issued through BTI Capital Trust)
09/20/1999	Chapter 11
11/22/2000	Reorganization plan confirmed
12/27/2000	Emerged from Chapter 11

#### Favorite Brands International, Inc. (Confections manufacturer)

\$75.0 million % Guaranteed Senior Secured Revolving Credit Facility due 2004

\$150.0 million % Guaranteed Senior Secured Term Loan B due 11/20/2005

Favorite Brands International, Inc., based in Lincolnshire, Illinois, is a leading US confections manufacturer of non-chocolate candy, including marshmallows, fruit snacks, gummi products and general line candy. The company faced significant turmoil in the past year with members of senior management team being replaced, and from the challenge of integrating five acquisitions made in a nine-month span. More specifically, the impact of ongoing business operating difficulties has adversely affected operating performance and strained liquidity as efficiencies and cost savings have been slow to be realized. The dramatic shortfall in performance, coupled with debt service requirements, planned capital expenditures and ongoing expenses related to the building of the company's infrastructure placed severe pressure on Favorite Brands and ultimately resulted in its decision to file for Chapter 11 protection on March 30, 1999.

03/21/1999	Chapter 11
12/06/1999	Acquired by Nabisco Inc.

#### Forcenergy Inc. (Oil and natural gas company)

\$320.0 million % Senior Secured Revolving Credit Facility due 3/31/2002

Forcenergy Inc., located in Miami, Florida, is an independent oil and gas company engaged in the exploration, acquisition, development, exploitation and production of oil and natural gas properties. Historically, the company has grown through mainly debt-financed acquisitions and by employing an aggressive drilling strategy. A principal risk was high debt leverage on short-lived reserves requiring

substantial reserve replacement capital expenditure to avoid erosion of the asset base. Forcenergy's financial position deteriorated, as indicated by three rating downgrades, due to the combination of very high leverage, short-lived reserves, continued weak pricing affecting cash flow and inherently high capital expenditures. This resulted in internal funding shortfalls of high capex and further increased the need for external financing. Having reached its borrowing limit under the bank revolver and not being able to arrange new private equity funding, on March 3, 1999, Forcenergy announced a new business plan and hired Donaldson Lufkin & Jenrette as its strategic advisor. Subsequently, on March 21, 1999, the company found it necessary to file for protection under Chapter 11.

03/21/1999	Chapter 11
01/19/2000	Reorganization plan confirmed
02/15/2000	Emerges from Chapter 11

### **Fruit of the Loom, Inc. (Apparel company)**

**\$600.0 million % Senior Secured Revolving Credit Facility, Tranche A due 9/19/2002**  
**\$60.0 million % Senior Secured Term Loan Facility due 9/18/2002**

Seasonal working capital funding requirements, as well as already high leverage and strained liquidity, prompted Fruit of the Loom, Inc. to file for Chapter 11 protection from its creditors on December 29, 1999. The company has experienced significant operating difficulties particularly during the last five quarters. Production curtailments and inclement weather also resulted in an inability to meet customer demand in 1999. Fruit of the Loom, Inc., headquartered in Chicago Illinois, is the principal operating subsidiary of Fruit of the Loom, Ltd., a Cayman Islands company. The company is a major producer of underwear, active-wear, jeans-wear and sports-wear sold under a variety of brand names, including Fruit of the Loom, BVD, Gitano and Pro Player.

12/29/1999	Chapter 11
------------	------------

### **Goss Graphic Systems, Inc. (Manufacturer of printing press systems)**

**\$200.0 million % Senior Secured Revolving Credit Facility due 1/29/2003**

As a result of poor operating performance in 1998 and into fiscal 1999, primarily in the United States, the company has continued to endure tightening liquidity and deteriorating protection in terms of being able to service its substantial debt burden. On July 30, 1999, Goss Graphic Systems voluntarily filed a prepackaged Chapter 11, including agreement to restructure its debt obligations. As part of the agreement, holders of the company's \$225 million subordinated notes, due in 2006, agreed to receive \$500 in cash for each \$1,000 par amount plus additional equity in the restructured entity. Goss Graphic Systems, Inc., headquartered in Westmont, Illinois, makes web offset systems worldwide for the newspaper and commercial printing industries.

07/30/1999	Prepackages Chapter 11 and distressed exchange: bondholders agreed to receive \$400 in cash for each \$1,000 par amount of the 12% subordinated notes due 2006
10/22/1999	Reorganization plan confirmed

### **Harnischfeger Industries, Inc. (Manufacturer of mining equipment)**

**\$225.0 million % Senior Secured Term Loan Facility due 2/5/2000**  
**\$500.0 million % Secured Senior Revolving Credit Facility due 10/17/2002**

Harnischfeger Industries, Inc., headquartered in St. Francis, Wisconsin, is a holding company whose subsidiaries produce pulp and paper making equipment (Beloit), surface mining equipment (P&H Mining Equipment) and underground mining equipment (Joy). Harnischfeger's weak operating performance reflected continued depressed demand for its paper-making machinery and mining equipment with few signs of a meaningful upturn in its businesses in the near term. Although the company had significantly cut costs, it was reporting operating losses and minimal cash flow from operations. At the same time, the company was having difficulty obtaining needed liquidity. In order to preserve the company's assets and to reverse its deteriorating financial condition, Harnischfeger and its US-based subsidiaries sought protection from creditors under US Chapter 11 on June 7, 1999.

06/07/1999 Chapter 11

#### **Hvide Marine, Inc. (Marine services provider)**

**\$175.0 million % Senior Secured Revolving Credit Facility due 9/30/2002**

Inability to improve its cash position and inability to negotiate improved terms from its banks or unsecured note holders precipitated Hvide Marine's decision to not make its interest payment due August 20, 1999, on its \$300 million unsecured notes maturing in 2008. The company suffers from the cumulative severe cash flow, leverage and liquidity impact of an aggressive leveraged acquisition program whose subsequent deleveraging program was blocked by a sector equity market collapse after the oil price collapse of late 1997 through 1Q99. Hvide Marine, Inc., headquartered in Ft. Lauderdale, Florida, grew from a 23-vessel fleet in 1993 to 283 vessels as of March 15, 1999, and provides marine support and transportation services primarily to the energy and chemical industries worldwide.

08/16/1999 Missed interest payment on its 8.375% senior notes maturing on 2/15/2008

09/09/1999 Chapter 11

12/09/1999 Reorganization plan confirmed

12/15/1999 Emerged from Chapter 11

#### **Iridium Operating LLC (Satellite telecommunications company)**

**\$800.0 million % Term Loan due 12/23/2000**

**\$275.0 million % Guaranteed Revolving Credit Facility due 12/23/2001**

07/15/1999 Missed interest payment on all of its outstanding senior notes

08/11/1999 Missed payments on more than \$1.5 billion in bank loans

08/13/1999 Chapter 11

#### **Just For Feet, Inc. (Operator of specialty retail stores)**

**\$200.0 million % Senior Secured Revolving Credit Facility due 12/10/2001**

On November 4, 1999 Just For Feet, Inc. filed for a prepackaged Chapter 11. In 1998, Just for Feet purchased the Sneaker Stadium chain of superstores. The company took on additional debt to purchase and convert these locations into Just for Feet superstores. Over the late Spring and Summer, the company embarked on an inventory reduction program, through its superstore locations, to shed excess merchandise ordered earlier this year by its specialty store division. However, the clearance strategy was not able to generate sufficient liquidity to continue normal operations. Under its Chapter

11 plan, the interest payment due November 1 on its subordinated notes will not be disbursed, and the full amount of the notes will be converted into a 100% equity stake in the company. Just For Feet, headquartered in Birmingham, Alabama, is an operator of athletic shoe stores throughout the United States and Puerto Rico.

11/01/1999	Missed interest payment
11/04/1999	Prepackaged Chapter 11

### **Loewen Group International, Inc. (Funeral services company)**

**\$750.0 million % Guaranteed Senior Secured Revolving Credit Facility due 5/29/2001**

A unit of Loewen Group, Inc. Loewen Group, Inc., headquartered in Burnaby, British Columbia, is the second largest operator of funeral homes and cemeteries in North America. Acceleration of the pre-need cemetery sales program at a time of depressed asset prices in the industry created a cash-flow drain as the payment of commissions and other general administrative expenses have exceeded instalment payments by the purchasers of cemetery plots. Furthermore, the company's consolidation strategy during the last two years also has not been effective, and Loewen has not been successful in controlling its costs. In spite of a reduction in the pace of acquisitions, Loewen's negative cash flow has resulted in a sharp increase in debt levels. On June 1, 1999, Loewen Group, together with its subsidiaries, sought protection from creditors by filing bankruptcy under Chapter 11 of the US Bankruptcy Code and under the Companies' Creditors Arrangement Act in Canada.

06/01/1999	Loewen Group Inc., the parent company, filed for Chapter 22 of the U.S. Bankruptcy Code and applied for creditor protection under the Companies' Creditors Arrangement Act (CCAA) in Canada
------------	---

### **Mariner Health Group, Inc. (Provider of health care services)**

**\$250.0 million % Senior Secured Reducing Revolving Credit Facility due 9/30/2000**  
**\$210.0 million % Senior Secured Term Loan due 9/30/2000**

A unit of Mariner Post-Acute Network, Inc. Mariner Post-Acute Network, Inc. failed to make the interest payment due October 1, 1999, on its senior subordinated notes due in 2006, and its bank loans due in 2000 (issued through Mariner Health Group, Inc.) In addition, coupon payments due November 1, 1999, on its senior subordinated notes due 2007 will not be made. Despite the company's significant restructuring measures, such as asset divestitures and corporate downsizing, the ensuing integration costs of its recent debt-funded acquisition plan, coupled with the industry's transition to the prospective payment system for Medicare, eroded its operating performance and decreased liquidity. Mariner Post-Acute Network, Inc., headquartered in Atlanta, Georgia, is a leading provider of post-acute care services.

10/01/1999	Missed interest payments on its senior subordinated notes due in 2006 and its bank loans due 2000; Announced that it would not make interest payments due 11/01/99 on its senior subordinated notes due 2007 (issued through Mariner Post-Acute Network, Inc.)
01/18/2000	Chapter 11

**Purina Mills, Inc. (Manufacturer of animal nutrition products)**

\$100.0 million % Senior Secured Revolving Credit Facility due 3/12/2005  
 \$100.0 million % Senior Secured Tranche A Term Loan due 3/12/2005  
 \$100.0 million % Senior Secured Tranche B Term Loan due 3/12/2007

Purina Mills, Inc. did not make the coupon payment due September 15, 1999, on its subordinated notes maturing 2010. The company also deferred a principal payment due September 30, 1999, to its bank group, but has continued to make scheduled interest payments on its bank debt. Purina is continuing the financial restructuring discussions that were initiated in early September with its banks and note holders. Extremely depressed hog prices have had a negative impact on the company, which has significant swine market exposure, greatly weakening cash flow generation and financial flexibility. Purina Mills, Inc., headquartered in St. Louis, Missouri, is a wholly owned subsidiary of Koch Agriculture, a unit of Koch Industries, Inc., and is a leading manufacturer and provider of animal nutrition products.

09/145/1999	Announced that it would miss interest payment due 09/15/99
09/15/1999	Missed interest payment
09/30/1999	Missed principal payments on its bank debt
10/28/1999	Chapter 11
04/05/2000	Reorganization plan confirmed
06/29/2000	Emerged from Bankruptcy

**United Companies Financial Corporation (Consumer finance company)**

\$850.0 million % Revolving Credit Facility due 4/10/2000

United Companies Financial Corporation (UC), headquartered in Baton Rouge, Louisiana, is a consumer finance company which specializes in originating, securitizing, and servicing non-prime home equity and manufactured housing loans. With its high debt burden and negative cash flow from operations, UC's funding flexibility has been persistently under pressure. Over the past few years, an increased level of delinquencies in its home equity portfolio and tightened competitive business environment have hurt UC's operating performance. Moreover, higher than expected loan prepayments and increased expenses related to the expansion of the company's retail franchise also contributed to the erosion of cash flow. The restructuring plan launched in October 1998 aimed at improving the company's profitability and cash flow has not been effective and failed to provide sufficient liquidity to improve loan production. Consequently, on March 2, 1999, UC filed for Chapter 11 protection in order to reorganize its capital structure.

01/01/1999	Missed dividend payment on preferred stock
03/01/1999	Chapter 11
10/27/2000	Reorganization plan confirmed

**Vencor, Inc. (Healthcare provider)**

\$125.0 million % Senior Secured Revolving Credit Facility due 4/23/2003  
 \$250.0 million % Senior Secured Term Loan, Tranche A due 4/23/2003  
 \$250.0 million % Senior Secured Term Loan, Tranche B due 4/23/2003

Parent of Vencor Operating, Inc. Vencor, Inc. (Vencor), headquartered in Louisville, Kentucky, is one of the nation's largest long-term care providers operating hospitals, nursing centres and contract ancillary services in 46 states. The company's operating performance has been adversely affected by the

long-term care industry's transition to the prospective payment system for Medicare. In addition, operating difficulties related to its rapid expansion and regulatory problems have significantly deteriorated the company's results across its major divisions. Further, the company is burdened with high leverage, onerous lease obligations and tight liquidity. Substantial recent losses led to covenant violations under its bank facility and its subsequent inability on May 3, 1999, to make the interest payment on its guaranteed senior subordinated notes maturing in 2005 (issued through its subsidiary, Vencor Operating, Inc.).

05/03/1999	Missed interest payment on its senior subordinated notes maturing in 2005, issued through Vencor Operating, Inc., its subsidiary
09/13/1999	Chapter 11

### 2000 bank-loan Defaults

#### **AmeriServe Food Distribution, Inc. (Foodservice systems distributor)**

**\$125.0 million FLT% Guaranteed Senior Secured Revolving Credit Facility due 6/30/2003**  
**\$205.0 million FLT% Guaranteed Term Loan due 9/15/2006**

As part of an ongoing effort to restructure its operations, AmeriServe Food Distribution, Inc., filed for Chapter 11 bankruptcy protection on January 31, 2000. The company, already highly leveraged from debt-funded acquisitions in 1998 and 1997, undertook a business plan in 1999 that focuses on achieving operational efficiencies through integrating the distribution systems of the acquisitions. Efficiencies are planned from opening new modern warehouses and installing a networked computer system. However, the financial benefits of the integration have not materialized as quickly as expected. A deterioration of liquidity from delayed realization of operational efficiencies caused a decrease of confidence among vendors and prompted the bankruptcy filing. AmeriServe, headquartered in Addison, Texas, operates 39 distribution centres serving the quick-service restaurant industry and 14 distribution centres serving the casual dining segment of the industry across the United States.

01/31/2000	Chapter 11
12/01/2000	Acquired by McLane Company, Inc.

#### **Cambridge Industries, Inc. (Plastic composites supplier)**

**\$75.0 million % Guaranteed Senior Secured Revolving Credit Facility due 6/30/2002**  
**\$47.8 million % Guaranteed Senior Secured Term Loan, Tranche A due 6/30/2002**  
**\$132.0 million % Guaranteed Senior Secured Term Loan, Tranche B due 6/30/2005**

On May 10, 2000 Cambridge Industries, Inc. filed for Chapter 11, listing assets of \$345.4 million and liabilities of \$459.8 million. The company's financial performance has deteriorated significantly over the past two years due to several factors, including labor inefficiencies at Cambridge's key plants and substantial costs associated with new launches and future business. Cambridge has reported losses since 1997 and has been struggling under high leverage from recent debt-funded acquisitions, which has rendered capital investment requirements difficult to cover from cash flow. Cambridge, headquartered in Madison Heights, Michigan, is a Tier I designer and producer of plastic components and composite systems used by the automotive and truck original equipment manufacturers.

05/10/2000	Chapter 11
07/17/2000	The company sold substantially all of its assets to Meridian Automotive Systems, Inc.

**Carmike Cinemas, Inc. (Movie theater operator)**

**\$275.0 million % Guaranteed Senior Secured Revolving Credit Facility due 11/10/2002**  
**\$74.1 million % Guaranteed Senior Secured Term Loan, Ser. B due 3/30/2005**

On August 1, 2000, Carmike Cinemas, Inc. was unable to make the interest payment on its 9.375% senior subordinated notes due 2009 after the payment was blocked by the agent under its bank credit facilities. On August 8, the company filed for protection from creditors under Chapter 11 of the US Bankruptcy Code. The company has suffered from weak operating results mainly due to excess capacity of new movie screens and a failure to close enough older, under-performing screens. In addition, the company's poor performance was negatively affected by the heightened competitive environment and generally poor box-office performance. Carmike Cinemas, headquartered in Columbus, Georgia, is one of the country's largest motion picture exhibitors.

08/01/2000	Lenders blocked the August 1 interest payment on Carmike's senior notes due 2009
08/08/2000	Chapter 11

**Crown Paper Company (Producer of value-added paper products)**

**\$150.0 million % Senior Secured Revolving Credit Facility due 6/20/2002**  
**\$100.0 million % Senior Secured Term Loan, Tranche B due 6/20/2003**

On March 1, 2000, debt-laden Crown Paper Company failed to make the interest payment on its senior subordinated notes due 2005. Despite a period of rising paper prices, increases in pulp and energy costs more than offset the revenue increases. In 1999, the company experienced a series of negative events that led to significant operating problems, including a temporary mechanical failure at its kraft pulp mill, an explosion at its principal facility in St. Francisville, Ohio, and the closing of the Berlin-Gorham facility, which had been providing the company with pulp. Shortly after it sold the facility, pulp prices rose sharply, and it had to buy it at the new, higher prices. These operating difficulties led to covenant violations and substantially reduced liquidity. Crown Paper and Crown Vantage, the parent, headquartered in Cincinnati, Ohio, manufacture and market papers for printing, publishing and specialty packaging and converting applications at its 10 pulp and paper mills in the United States and Scotland.

03/01/2000	Missed interest payments
03/15/2000	Chapter 11

**Genesis Health Ventures, Inc. (Healthcare services provider)**

**\$152.1 million % Term Loan, Tranche B due 9/30/2004**  
**\$151.3 million % Term Loan, Tranche C due 6/1/2005**

03/20/2000	Missed a \$3.8 million interest payment to its senior debt lenders due March 20, 2000, and announced, together with its subsidiary, that it would not make principal and interest payments on its???
------------	--

**Hedstrom Corporation (Toy manufacturer)**

**\$51.5 million % Senior Secured Term Loan, Tranche A due 6/30/2003**  
**\$63.4 million % Senior Secured Term Loan, Tranche B due 6/30/2005**  
**\$70.0 million % Senior Secured Revolving Credit Facility due 6/30/2003**

On April 11, 2000, Hedstrom Corporation filed for Chapter 11 in the U.S. Bankruptcy Court in Delaware. Hedstrom's recent debt-funded acquisitions generated disappointing revenues, due to an

unfavorable product sales mix, manufacturing problems, close-out sales of certain products, and high materials costs and employee-related expenses. Declining sales, because of substantial inventory reductions at its top four customers such as Toys R Us, as well as product quality problems associated with battery-operated ride-on vehicles, also contributed to Hedstrom's currently depressed condition. Hedstrom, headquartered in Mount Prospect, Illinois, is a leading manufacturer and marketer of children's leisure and activity products in the nation.

04/11/2000 Chapter 11

### **Laidlaw, Inc. (Bus transportation company)**

#### **\$1,400.0 million % Revolving Credit Facility due 2/28/2001**

On May 15, 2000, Laidlaw, Inc. failed to make interest payments on three of its bonds maturing in 2003, 2006 and 2023. The company is repositioning itself as a transportation company, by attempting to reduce its \$3.4 billion debt burden, which resulted from several debt-financed acquisitions. It is doing so through the sale of its health care operations and its remaining 44% interest in Safety-Kleen Corporation. However, asset sale proceeds remain under pressure. Recently, the investment in Safety-Kleen was written down from \$593 million to the market trading level of approximately \$60 million. Safety-Kleen filed for bankruptcy on June 9, 2000. Laidlaw, headquartered in Burlington, Ontario, Canada, is North America's largest provider of school busing, municipal transit services, patient transport and emergency room physician management.

05/15/2000 Missed interest payment on three of its bonds maturing in 2003, 2006 and 2023

05/18/2000 Announced an interest payment moratorium on all of its bank and public debt

### **MacSaver Financial Services, Inc. (Retail finance company)**

#### **\$140.0 million % Guaranteed Revolving Credit Facility due 5/24/2001**

On August 1, 2000, Heilig-Meyers Company announced that it would not make the interest payments due August 1 and August 15 on all of its outstanding senior notes issued through MacSaver Financial Services, Inc., its financial subsidiary. On August 16, the parent company filed for Chapter 11. Heilig-Meyers has had ongoing difficulty improving its financial performance. Its problems stem from unsuccessful attempts to expand by acquisition in the mid-1990's, and, in part, from difficulties in improving its core business and in-house credit program due to the economic environment. A robust economy encouraged Heilig-Meyers' wealthier customers to use third-party credit providers, reducing the income and increasing the risk of its in-house credit program, through which approximately 75% of Heilig-Meyers' sales are made. Moreover, the company's core operations also suffered disappointing results in recent periods. Headquartered in Richmond, Virginia, Heilig-Meyers is a major retailer of furniture and related items in the United States.

08/01/2000 Heilig-Meyers Company announced that it would not make the August 1 and August 15 interest payments on all of the outstanding senior notes issued through its subsidiary, MacSaver Financial

08/16/2000 The parent company, Heilig-Meyers Company, filed for Chapter 11

**PennCorp Financial Group, Inc. (Insurance holding company)****\$395.0 million % Revolving Credit Facility due 5/31/00**

On February 7, 2000, PennCorp Financial Group, Inc. signed an agreement with Reassurance America Life Insurance Company for the sale of Southwestern Life Insurance as well as other assets. Under the terms of the agreement, the company filed for reorganization under Chapter 11 of the US Bankruptcy Code in connection with the sale. The proceeds will be used by the company to pay off bank and subordinated debt. PennCorp had experienced financial difficulties as a result of numerous debt-financed acquisitions completed in recent years. PennCorp, headquartered in New York, is an insurance holding company, which, through its subsidiaries, sold life and health insurance products primarily to lower-income consumers throughout the United States.

02/07/2000 Chapter 11  
06/06/2000 Reorganization plan confirmed

**Safelite Glass Corporation (Provider of automotive glass repair services)**

**\$100.0 million % Guaranteed Senior Secured Revolving Credit Facility due 12/17/2003**  
**\$135.0 million % Guaranteed Senior Secured Term Loan, Tranche A due 12/17/2003**  
**\$99.3 million % Guaranteed Senior Secured Term Loan, Tranche B due 12/17/2004**  
**\$99.3 million % Guaranteed Senior Secured Term Loan, Tranche C due 12/17/2005**

On June 9, 2000, Safelite Glass filed for Chapter 11 as part of a pre-negotiated plan to restructure its debt. Listed in the petition were \$559.2 million in assets and \$591.4 million in debts. Integration costs from the Vistar, Inc. acquisition in 1997, intense industry pricing pressures, weak demand and the expected loss of an extensive portion of business from its largest customer upon expiration of the related contract in October 2000, led to the company's financial difficulties. Safelite, headquartered in Columbus, Ohio, is the largest provider of automotive glass and repair services in the United States.

06/09/2000 Prepackaged Chapter 11  
09/12/2000 Reorganization plan confirmed  
09/29/2000 Emerged from Chapter 11

**Safety-Kleen Services, Inc. (Waste services company)**

**\$368.0 million % Senior Secured Term Loan, Tranche A due 4/3/2004**  
**\$540.4 million % Senior Secured Term Loan, Tranche B due 4/3/2005**  
**\$540.4 million % Senior Secured Term Loan, Tranche C due 4/3/2006**  
**\$450.0 million % Senior Secured Revolving Credit Facility due 4/3/2004**

04/07/2000 Missed interest payments on its bank debt  
05/15/2000 Safety-Kleen Corporation, the parent missed interest payment on its 9.25% senior notes maturing 2009  
06/09/2000 Chapter 11

**Stage Stores, Inc. (Apparel store operator)****\$200.0 million % Revolving Credit Facility due 6/14/2002**

06/01/2000 Chapter 11  
06/02/2000 Specialty Retailers, Inc., the subsidiary, filed for Chapter 11

### **Tokheim Corporation (Petroleum dispensing devices producer)**

**\$120.0 million % Guaranteed Senior Secured Term Loan A due 9/30/2003**

**\$120.0 million % Guaranteed Senior Secured Revolving Credit Facility due 9/30/2003**

On July 31, 2000, Tokheim Corporation announced that it would miss the August 1 interest payments on its senior notes due in 2008. The company's liquidity problem was mainly attributed to a substantial downturn in demand for petroleum dispensing systems. The decline in demand led to lower than expected operating cash flow during 1999, which exacerbated the company's already high leverage and thin cash flow coverage of interest. Furthermore, its mostly debt-financed acquisitions, including the acquisition of Retail Petroleum System from Schlumberger, added significant debt load to the company while bringing only a relatively small amount of operating earnings. Based in Fort Wayne, Indiana, Tokheim is one of the three largest manufacturers of petroleum dispensing devices in the world.

07/25/2000	Distressed exchange offer
07/31/2000	Tokheim announced that it would defer its August 1 interest payments on its senior notes due 2008
08/01/2000	Missed interest payments on its senior notes due 2008
08/28/2000	Chapter 11
10/05/2000	Reorganization plan confirmed
10/20/2000	Reorganization plan effective

### **United Artists Theatre Company (Operator of movie theatre chains)**

**\$100.0 million % Revolving Credit Facility due 4/21/2005**

**\$100.0 million % Term Loan A due 4/21/2005**

**\$100.0 million % Term Loan B due 4/21/2005**

**\$150.0 million % Term Loan C due 4/21/2005**

United Artists Theatre Company's senior secured lenders blocked the coupon payment due April 15, 2000, on the company's senior subordinated notes maturing 2008. UA, which a few years ago embarked on a program of closing underperforming theatres and renovating and increasing screen counts at its remaining theatres, has been facing tightening liquidity over the last year stemming from the continued underperformance of its aging theatre network and an increasingly competitive operating environment. The company's highly leveraged balance sheet, particularly after adjusting for its significant long-term operating lease obligations and following its arguably imprudent recapitalization of 1997, has now resulted in insufficient debt service coverage levels that had already been thin for some time, ultimately rendering it effectively insolvent at present. United Artists, headquartered in Englewood, Colorado, is a leading operator of motion picture theatres with 2,018 screens in 283 locations.

04/15/2000	Missed interest payment on its senior subordinated notes maturing
09/05/2000	Chapter 11