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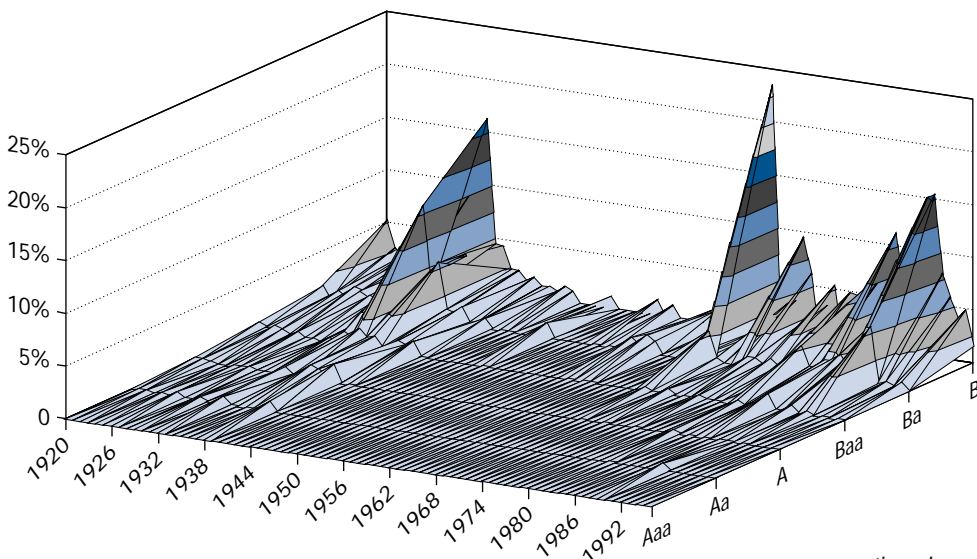
Historical Default Rates of Corporate Bond Issuers, 1920 - 1996

Summary

Moody's recently extended its corporate bond default research to cover the 77-year period beginning in 1920. This effort was initiated to examine the performance of Moody's ratings as indicators of credit quality over a wider variety of economic conditions. While this report now explores the default experience of the better part of this century, we continue to pay special attention and provide extra detail on the more recent period extending from 1970 to the present. Briefly this study finds that:

- Worldwide, 27 issuers defaulted on \$5.4 billion of long-term, publicly held corporate debt in 1996. This marks a sharp decrease from 1995, in which 49 issuers defaulted on \$8.5 billion. Moody's speculative-grade, issuer-based default rate closed 1996 at just 1.6% — less than half of 1995's 3.3% — however, we expect last year's heavy issuance of low-rated debt will support or raise default rates in 1997.
- Since 1920, Moody's has rated the debt of over 14,000 corporate and sovereign issuers — over 2,000 of which have defaulted. Industrials have accounted for the largest fraction of these defaults, 40%, with the remainder divided among transportation companies (36%), utilities (16%), financial companies (5%), and miscellaneous affiliated firms (3%).
- Moody's one-year, corporate issuer default rate peaked in July of 1932 — at the height of the Great Depression — at 9.2%. This indicates that nearly one in 10 issuers rated by Moody's as of July 1932 defaulted in the following year.
- Average one-year default and loss rates for the 1920-to-1996 period increase as Moody's

One-Year Default Rates by Rating and Year



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rating decreases. The average default and loss rates climb from 0% for the Aaa rating to 4.5% and 2.4% for the B rating category, respectively. The pattern of greater default and loss rates for lower ratings persists over 5, 10, 15, and 20-year time horizons.

- The volatilities of default rates and loss rates are higher for lower rating categories, implying that investors in low-rated debt must not only be compensated for a higher level of credit risk, but also for a greater degree of uncertainty over the level of credit risk.
- Recovery rates are highly volatile and decline, on average, with seniority and security. Since 1989, senior secured bank loans, senior secured debt, senior unsecured debt, and subordinated debt have recovered, on average, \$71, \$63, \$48, and \$34 respectively, per \$100 par amount of defaulted debt.

Introduction

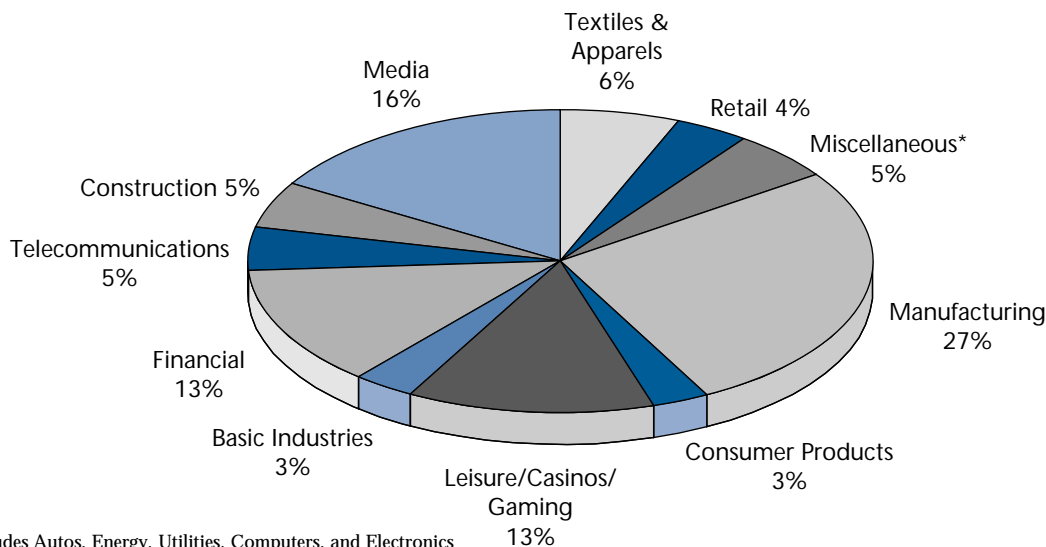
As a complement to Moody’s ongoing default research, we extended our study of historical corporate bond defaults to cover the 77-year period beginning in 1920. Moody’s corporate bond default research began in 1987 as part of an effort to ensure the uniformity of our long-term debt ratings across asset classes. We initiated this upgrade of that research to further examine the performance of our ratings as indicators of credit quality over a wider variety of economic cycles. We also intend to use these data to study patterns and correlations in the incidence of default and rating changes between industries, domiciles and rating categories.

In keeping with the spirit of previous Moody’s default studies, we limit this report to a general overview of defaults, default rates, and recovery rates. Also, under the rationale that more recent experience is of greater interest to investors, we continue to place special emphasis on the period since 1970. We first present a summary 1996’s default activity in the following section. In subsequent parts, we explore the entire period from 1920 through 1996.

1996 Default Overview

Globally, just 27 issuers defaulted on \$5.4 billion of long term, publicly held corporate debt in 1996. This is the second lowest yearly total of defaulted issuers of the last ten years and represents a marked decrease in default activity from 1995’s 49 issuer defaults involving \$8.5 billion. The low incidence of defaults dragged Moody’s trailing twelve-month, issuer-based and dollar-based speculative-grade default rates to just 1.6% each by the end of the year — less than half of their levels as of the end of 1995.

Exhibit 1
1996’s Defaulted Debt by Industry
(\$5.4 billion=100%)



*includes Autos, Energy, Utilities, Computers, and Electronics

In terms of dollar amounts, manufacturers accounted for the largest portion of last year's defaulted, public debt — \$1.4 billion (27%). Following in second-place were media firms which contributed another \$894 million (16%). The third-place slot was filled by financial firms, which defaulted on another \$700 million (13%). In terms of the number of defaulting issuers, the recently default-prone textiles and apparel industry shared a joint first place with the leisure, casinos, and lodging industry as each experienced four defaults. Exhibit 1 gives more detail of the industrial composition of 1996's defaults.

In response to diminishing credit risk, the spread between Moody's median speculative-grade bond yield and seven-year Treasuries narrowed by 92 basis points over the course of last year. Tightening spreads helped support gains in the speculative-grade bond market relative to Treasury securities. Moody's speculative-grade total return index outperformed Treasuries by a wide margin last year, returning 12.14% to investors vs. a negative 0.78% total return for long-term Treasuries.

Favorable trends in default risk, bond pricing, and a surging equity market laid the foundation for a surge in new speculative-grade bond issuance, as 1996's total matched 1993's record issuance, \$67 billion. New issuance was skewed towards the riskier end of the credit scale with 71% of the new debt carrying a B or lower rating. Additionally, nearly half (\$32 billion) of the new speculative-grade debt sold last year was issued under Rule 144A. This debt was of lower average credit quality than public speculative-grade issuance as 78% of it was rated B or lower versus 65% for public issuance. Despite the trend towards riskier issuance in 1996, after taking into account the effects of upgrades, downgrades, calls and other retirements, the rating composition of speculative-grade issuers remained constant. The percentage of speculative-grade issuers carrying the B or lower ratings at the senior unsecured level remained at last year's level, 52%. This, however, represents a considerably riskier credit mix than existed before the speculative-grade market meltdown of the early 1990s. As of the start of 1989, for example, only 43% of speculative-grade issuers carried B or lower ratings at the senior unsecured level. The significant supply of lower-rated debt and the relatively risky mix of junk bond issuers will put upward pressure on speculative-grade default rates in 1997 and beyond.

Ratings and Default Data

Moody's bases the results of this study on a proprietary database of ratings and defaults for industrial and transportation companies, utilities, financial institutions, and sovereigns that issued long-term debt to the public. Municipal debt issuers, structured finance transactions and issuers with only short-term debt ratings are excluded. We compiled the ratings data from four main sources: Moody's ratings database, Moody's "dead ratings" files, Moody's Manuals (Industrial, Utilities and Transportation) and Moody's Investment Letters. In total, the data cover the credit experiences of over 14,000 issuers that sold long-term debt publicly at some time between 1919 and 1996. As of January 1, 1997, approximately 3,500 of those issuers held Moody's ratings. These issuers account for the bulk of the outstanding dollar amount of U.S. public long-term corporate debt and a substantial part of public issuance abroad.

Exhibit 2 details the number of firms included in our ratings database as of the start of each decade since 1920. The downward trend from 1920 through 1950 reflects the public bond market's retrenchment following the Great Depression and World War II, increasing financial intermediation and consolidation in the railroad and utilities industries. Since 1950, however, the number of rated firms has increased steadily with sharp increases over the 1980s and 1990s. The increase of the 1980s reflects, in part, the development of the junk bond market in the U.S. which attracted a new set of issuers to the public bond market. The increase of the 1990s, on the other hand, primarily reflects Moody's expansion into non-U.S. markets. It was not until 1994 that Moody's again rated as many corporate issuers as it did in 1920 when, according to the study by W. Braddock Hickman ("Corporate Bond Quality and Investor Experience," NBER, 1958), nearly 98% of straight corporate bonds outstanding were rated.

Non-U.S. issuers comprised nearly as large a percentage of the Moody's rated universe in January of 1930 (15%) as they did in January of 1990 (18%). The portion of rated issuers domiciled outside of the United States hit a high in 1930 but trailed off to an all-time low in 1970. Since then, this fraction has grown significantly to higher than it has ever been in the past and stood at 38% as of the beginning of 1997. Before 1980, the non-U.S. issuers Moody's rated were predominantly those that tapped the U.S. bond market. In recent years, however, Moody's has extended ratings to many more issuers placing debt in non-U.S. markets. Currently, the two non-U.S. countries contributing the largest num-

ber of Moody's-rated companies are Japan and United Kingdom.

Historically, the industrial cross-section of U.S. bond issuers has shifted with broad patterns in the country's capital formation process. Consequently, the industrial composition of firms with Moody's-rated debt has also shifted. Exhibit 3 traces the industrial composition of Moody's-rated, corporate issuers from 1920 to the present. In the early part of the century, railroads absorbed the majority of the country's investment. As of 1920, more than half of the issuers Moody's rated were railroad companies.

Following the railroads were the utilities, industrials, and financial companies; These comprised over 31%, 14%, and 1%, respectively, of rated issuers in 1920. Since 1920, railroads have consolidated so that by January 1997, the entire transportation industry comprised only 4% of Moody's-rated, corporate public debt issuers. On the other hand, industrials have expanded to represent 44% of the total number of rated firms. Since Moody's began rating bank debt in 1971, financial companies have expanded significantly to comprise 39% of the Moody's rated universe as of the start of 1997.

We compiled the default histories used in this study from a variety of sources, including our own Industrial, Railroad, and Public Utilities Manuals; reports of the National Quotation Service; various issues of The Commercial and Financial Chronicle; our library of financial reports; press releases; press clippings; internal memoranda; and records of analyst contact with rated issuers. We also examined documents from the Securities and Exchange Commission, The Dun & Bradstreet Corp., the New York Stock Exchange, and the American Stock Exchange. The default database covers nearly 3,000 defaults by issuers both rated and unrated by Moody's.

Exhibit 2
Moody's-Rated Issuers, 1920-1997

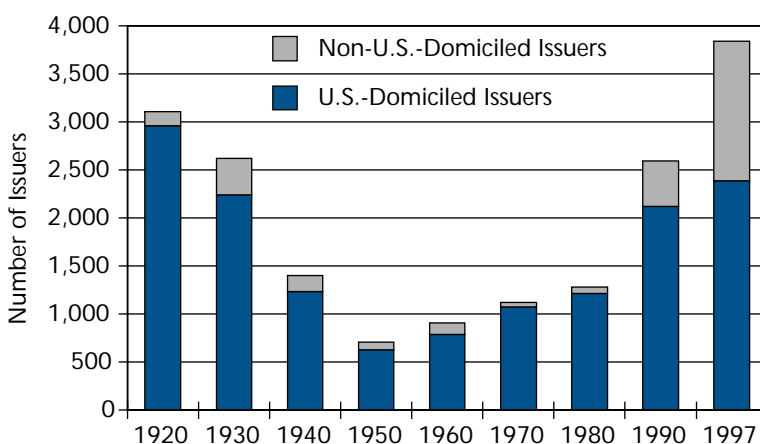
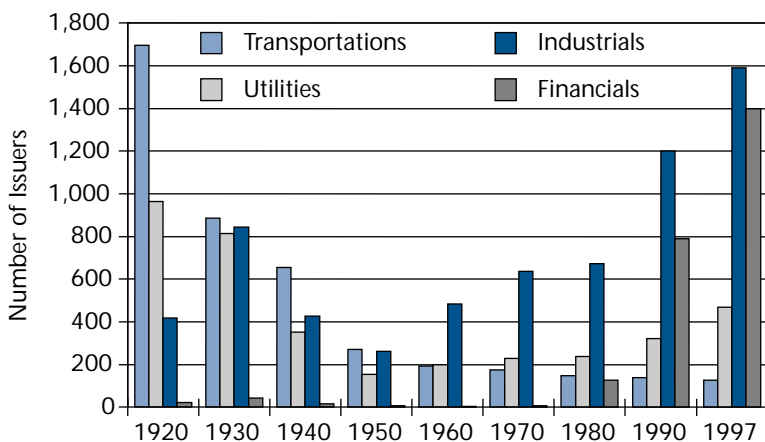


Exhibit 3
Industrial Composition of Issuers, 1920-1997



Defaults and Default Rates

Definitions and Methodology

Moody's defines default as any missed or delayed disbursement of interest and/or principal, bankruptcy, receivership, or distressed exchange where (i) the issuer offered bondholders 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 had the apparent purpose of helping the borrower avoid default.

To calculate default rates, which are estimates of the default probability component of ratings, we use the issuer as the unit of study rather than individual debt instruments or outstanding dollar amounts of debt. Because Moody's intends its ratings to support credit decisions, which do not vary

with either the size or number of bonds that a firm may have outstanding, we believe this methodology produces more meaningful estimates of the probability of default. Because the likelihood of default is essentially the same for all of a firm's public debt issues, irrespective of size, weighting our statistics by the number of bond issues or their par amounts would simply bias our results towards the characteristics of large issuers.

The default rates we calculate are fractions in which the numerator represents the number of issuers that defaulted in a particular time period and the denominator represents the number of issuers that could have defaulted in that time period. In this study, the numerators are the numbers of issuers defaulting on Moody's-rated debt. The denominators are the numbers of issuers that potentially could have defaulted on Moody's-rated debt. Hence, if all of an issuer's ratings are withdrawn, it is subtracted from the denominator. Failing to correct the denominators in this way tends to generate artificially low estimates of the risk of default. It is important to note that Moody's does not withdraw ratings because of a deterioration in credit quality. In such cases, the issuer's bonds are simply downgraded.

Moody's ratings incorporate both the likelihood and the severity of default. So, in order to calculate the default probability component of ratings, we must hold severity considerations constant. We do this by taking the rating on each company's senior unsecured debt or, if there is none, by statistically implying such a rating on the basis of rated subordinated or secured debt. In most cases, this will yield an assessment of risk that is relatively unaffected by special considerations of collateral or of position within the capital structure. This year we have incorporated some improvements to the algorithm used to imply senior unsecured ratings. In the process, some of the implied rating histories have been revised thereby generating some changes in previously reported default rates. The resulting figures represent a more accurate estimate of the actual risk of default associated with each Moody's rating.

Defaults Since 1920

Moody's corporate bond default database contains records for nearly 3,000 rated and unrated defaults as of January 1, 1997. The incidence of these defaults is spread unevenly over this century with large numbers of defaults in the 1920s, the depression of the 1930s, and again in the late 1980s and early 1990s. The number of recorded defaults per year peaked in 1933 at 317.

At 40%, Industrials account for the largest fraction of the total number of defaults in our database. The remaining defaulters are divided between transportation companies (36%), utilities (16%), financial companies (5%), and another 3% miscellaneous affiliated firms. However, closer inspection reveals that the contributions made by industries to the total number of defaults have varied substantially through time.

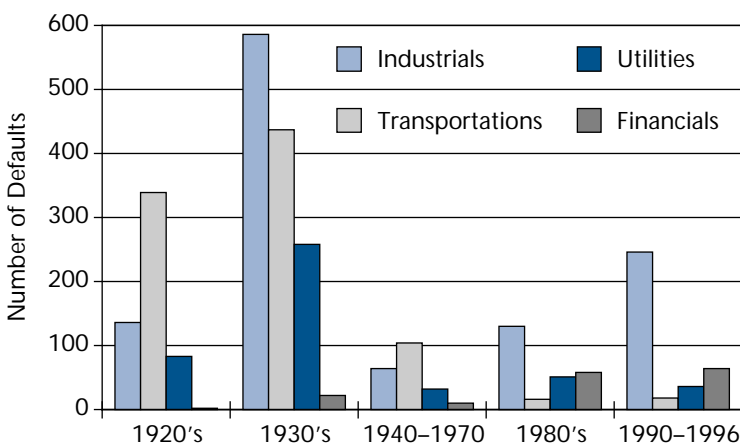
Exhibit 4 portrays the total number of defaults, sorted by industry, in each of five time periods that span the period from 1920 through the present. In the 1920s, transportation companies made up the majority of defaulters, with industrial firms coming in a distant second place. During the depression years of the 1930s, all industries experienced sharp increases in the incidence of default. However, the number of industrials defaulting during this period surged past those for other industries to hit 537. The thirty-five-year period beginning after World War II was characterized by a low incidence of

defaults within all industries. Defaults began to build again near the beginning of the 1980s, reaching a peak during the first two years of the 1990s.

Non-US defaults peaked during the 1930-1949 period when they constituted 16% of all defaults. By contrast, during the 1990's, non-US defaults have comprised only 10% of the number of defaults. The large fraction of non-US defaults in the 1930's is at least partially attributable to Germany's 1933 payment moratorium. Of the 317 defaulters on record for the year, 62 (20%) were German companies restricted from making

Exhibit 4

Default Count by Decade and Industry

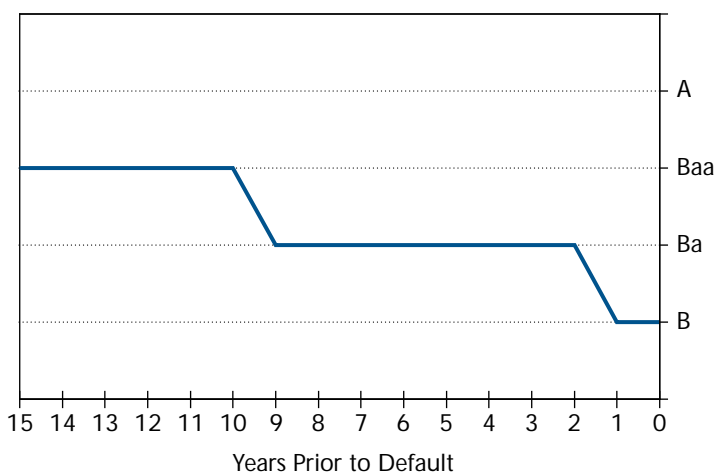


payments under the German Transfer Moratorium. All of these companies carried speculative-grade ratings at the senior unsecured level at least six months prior to the decree. Half were utility companies, a third were industrials, and the remainder were transportation companies. Subsequent related defaults were registered in Austria and Czechoslovakia. Other countries that have declared payment moratoriums and therefore generated defaults include Rhodesia, Chile, and Uruguay.

Over 2,000 of the more than 14,000 corporate issuers that Moody's has rated since 1920, defaulted at some point in time. One year prior to default, only 184 of these carried actual or implied senior unsecured ratings at the investment-grade level. However, at various lengths of time before default, more issuers carried investment-grade ratings. To capture the evolution of ratings as default approached, we calculated the median senior or implied senior unsecured rating of issuers between zero and 15 years before default. Exhibit 5 displays this information and clearly shows a decline in the median rating as the time of default approaches.

Nine years prior to default, the median rating of defaulting companies is speculative grade and one year before default it is B. This indicates that over the last 77 years, Moody's has rated at least half of its defaulters B one year prior to default. Exhibit 5 also shows an increase in the median credit quality of defaulters from B to Baa between one and 15 years prior to default. This pattern is partly generated by construction. That is, for an issuer to service its debt for the fifteen years required for it to be considered in the calculation of the median rating 15 years before default, it must have been relatively safe at the time the Baa rating was assigned. Consequently, it is not surprising that the median rating fifteen years before default is investment-grade.

Exhibit 5
Median Rating Before Default



One-Year Default Rates

Exhibit 6 portrays a monthly time-series of one-year, corporate default rates (calculated as the number of Moody's-rated issuers that defaulted over the following 12-month period divided by the number of Moody's-rated issuers that could have defaulted over that 12-month period). It provides an overall picture of how quickly, and to what extent, aggregate corporate default risk has ebbed and flowed since 1920.

January 1920 through mid-1929 was a period of cyclical and declining default risk that resembled the 1980s in terms of the average default rate. Interest rates started the 1920s at high levels and drifted lower, supporting booms in corporate debt issuance and the stock market that helped suppress default rates. The next period, from mid-1929 through December 1939, witnessed the heaviest default activity of the period examined in this report. The Great Depression generated a 77-year high, one-year corporate default rate of 9.2% in July 1932, indicating that nearly one in 10 Moody's-rated corporate issuers defaulted over the following year. The severity of the depression and its characteristic asset depreciation ensured that the high rates of default did not quickly subside. For the eight-year period beginning in January 1930, this default rate averaged 3.7% — nearly as high as the recent peak set in July 1991 - 4.1%. The default rate jumped at the beginning of World War II, reflecting the war-related defaults of Italian, German, French, Japanese, Czechoslovakian and Austrian companies. Following the war, default risk subsided to very low levels that persisted until 1970, when the defaults of Penn Central Railroad and 25 of its affiliates shook fixed income markets. Since 1970, default risk has been moderate to low by historical standards until 1982, when the modern period of relatively high default risk began.

Exhibit 6

One-Year, Corporate Issuer Default Rate vs. Baa-Aaa Yield Spread, 1920-1996

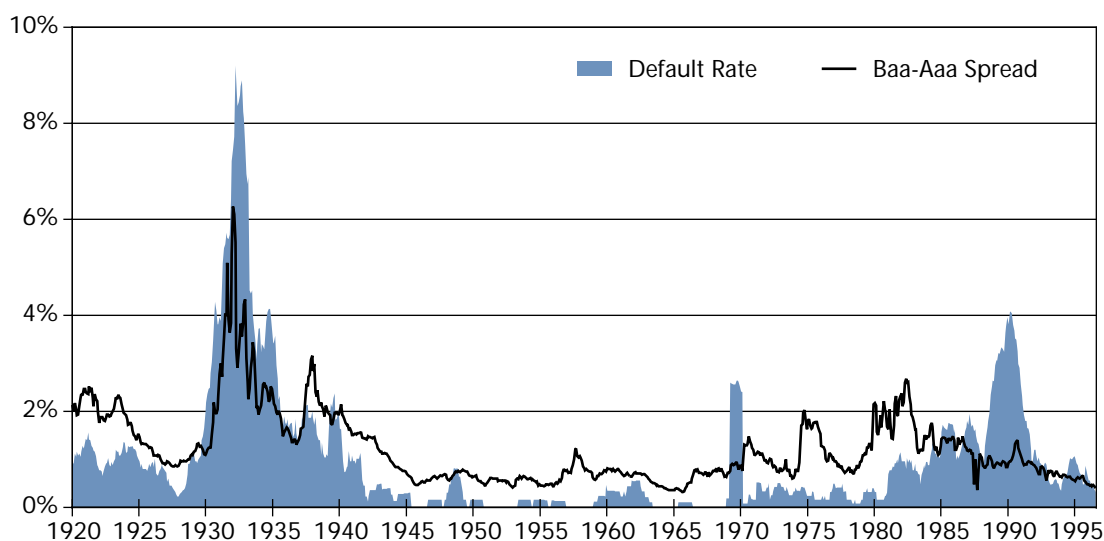


Exhibit 6 also tracks the spread between Moody's average, long-term Baa and Aaa-rated bond yields. Month-to-month, the Baa-Aaa spread varies with a variety of market conditions including, and most importantly, the market's perception of the credit risk differential between Aaa and Baa-rated debt. This spread generally tracked the corporate default rate from 1920 through the early 1980s. In the early 1980s, however, it began a pronounced downward trend that it has maintained through today despite the highest corporate default rates seen since the Great Depression. This signals a fundamental difference between the episodes of high credit risk investors faced in the 1930s versus those recently experienced during the speculative-grade market meltdown of the early 1990s. During the Great Depression, the economy experienced the most severe contraction of this century while deflation increased the real value of fixed debt obligations, placing even highly credit worthy borrowers at considerable risk of default. Consequently, defaults in the 1930s reached quite far up the credit scale, even affecting some investment-grade debt. The market reacted to the surge in credit risk for Baa-rated debt over Aaa-rated debt by demanding greater Aaa-Baa spreads. On the other hand, the economic recession that occurred during the early 1990s proved to be the mildest since World War II and was devoid of deflation. Consequently, very little investment-grade debt defaulted in the recent period, even though defaults were numerous within the speculative-grade bond ratings. The falling Baa-Aaa yield spread during this period reflects the bond market's accurate assessment that the recent period's credit risk was not resulting from significant overall and unexpected weakness in the economy, but rather from phenomena specific to the speculative-grade bond market (e.g., the many ill-conceived LBO's of the 1980s).

We define one-year default rates for any rating classification in a manner analogous to that used for calculating overall, one-year corporate default rates. For the B rating, for example, the one-year default rate is the number of Moody's-rated issuers that defaulted over the following one-year period divided by the number of Moody's-rated issuers that could have defaulted over that one-year period. The issuer-weighted average of default rates (defined as of the start of each year) represents an estimate of the risk of default within any one-year period (the underlying one-year default rates for each rating category from 1970 through the present are included in Exhibit 16 of the appendix). Exhibit 7 presents weighted-average default rates defined over the periods from 1920 and from 1970 to the present.

The weighted average default rates defined over both time horizons clearly show an increased risk of default associated with lower rating categories. The average, one-year default rates for the Aa through Baa rating categories are higher for the 1920-1996 period than for the 1970-1996 time period. This reflects the influence of the Great Depression during which greater numbers of investment-grade issuers succumbed to the period's severe economic pressures and defaulted. The average default rates for the Ba rating category differ only by 12 basis points when measured over either time period, but those for the B rating category differ by nearly three percentage points. This difference reflects the 25-

year period following W.W.II during which very few firms defaulted at all, generating a long string of near-zero default rates.

The last three rows of Exhibit 16 (in the appendix) give the one-year default rates for investment-grade issuers, speculative-grade issuers, and all corporate issuers since 1970. There is a clear pattern of higher risk of default associated with the speculative-grade rating categories. This pattern persists over the entire period considered in this study. For all but 28 of the past 77 years, the one-year default rate for the investment-grade sector was zero. By the methodology outlined above, an average of 3.25% of speculative-grade issuers defaulted per year, compared with just 0.16% of investment-grade issuers.

Moody's refined its rating scale in April 1982 by adding numerical modifiers. The ratings from Aa to B were expanded to include three numerical modifiers each in order to provide finer gradations of credit risk. Exhibit 8 and Exhibit 17 (in the appendix) present one-year and weighted average one-year default rates for each of these rating categories. These default rates are drawn from the relatively high default risk period extending from 1983 through the present. The results suggest that

the relationship between ratings and default likelihood holds for numerically modified rating categories as well as for the non-modified categories, as average one-year default rates climb from 0.0% for Aaa to 13.7% for B3. Another interesting aspect of Exhibit 8 is the great dispersion within speculative grade rating categories. The Ba3 rating has a default rate three times as great as that of the Ba1 category, and the B3 default rate is of a similar magnitude greater than the B1 default rate.

Multi-Year Default Rates

Although one-year default rates may be the most commonly reported, some investors find default rates for longer time horizons more relevant. A 10-year default rate, for example, estimates the share of a portfolio of bonds that can be expected to default over a 10-year period. To quantify the risk of default over time horizons longer than one year, we formed cohorts of issuers as of the start of each year since 1920. A cohort consists of all issuers holding a given senior rating at the start of a given year. These issuers are then followed through time, keeping track of when they default or leave the rated universe, in order to estimate the cumulative risk of default over multi-year horizons. Moody's approach, by forming cohorts of all Moody's-rated issuers with debt outstanding at January 1 of each year, provides an indicator of the experience of a portfolio of both seasoned and new-issue bonds purchased in a given year.

Exhibit 20 (in the appendix) traces, for up to 20 years, the cumulative default rates of cohorts of Moody's-rated issuers formed at the beginning of each year since 1970. This table answers, for exam-

Exhibit 7
One-Year, Weighted-Average Default Rates by Rating

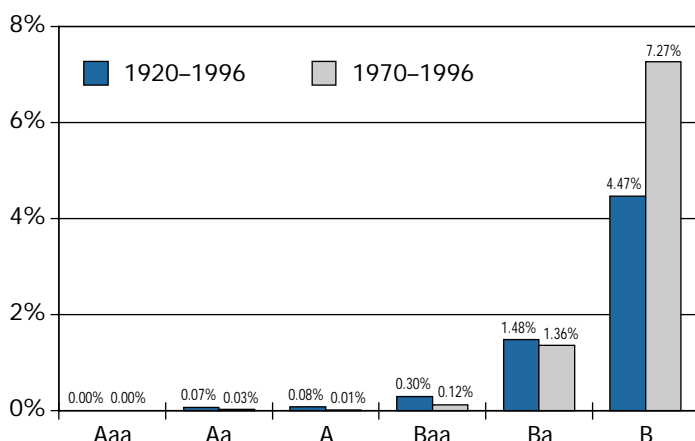
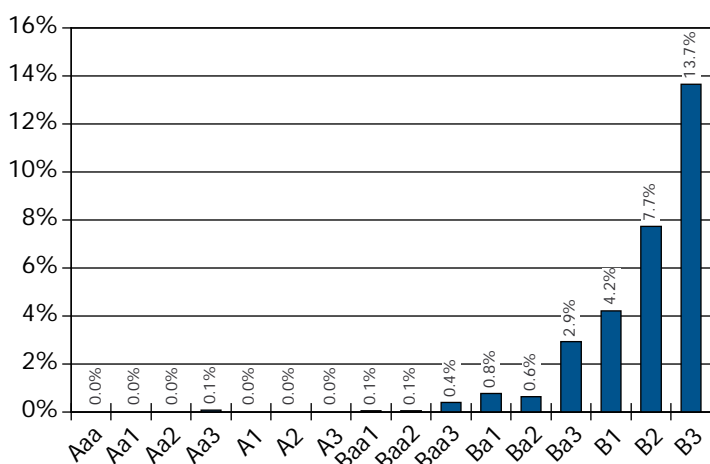


Exhibit 8
One-Year Default Rates by Numerically Modified Ratings, 1983-1996



ple, the question, “What was the risk that a B-rated issuer with bonds outstanding as of January 1, 1983 would default by 1996?” The answer is found in the last row and last column of the section labeled “Cohort Formed January 1, 1983”: 58.5%. The cohort methodology has the advantage that year-over-year comparisons of actual default experience can be made. In cases in which an investor feels that the business conditions of the current year are similar to those of some previous year, she may consult that year’s cohort directly to ascertain what default patterns to expect.

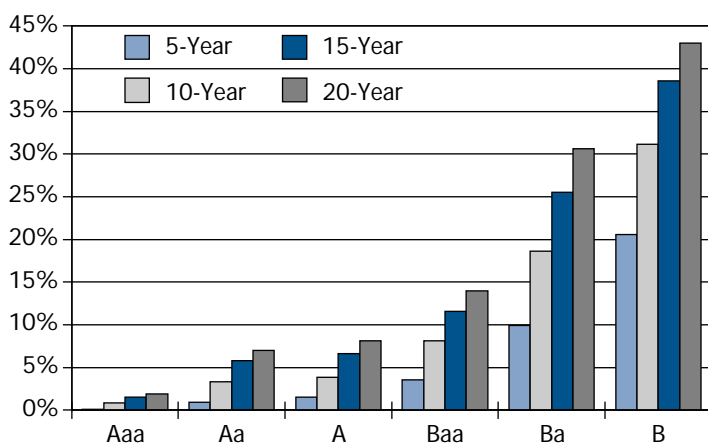
To estimate the average risk of default over time horizons longer than one year, we calculate the risk of default in each year since a cohort was formed. The issuer-weighted average of each cohort’s one-year default rate forms the average cumulative one-year default rate. The issuer-weighted average of the second-year default rates cumulated with that of the first year yields the two-year average cumulative default rate. In this manner, we compute average cumulative default rates for one to 20 years for each rating category. Exhibit 9 presents average cumulative default rates for 5, 10, 15, and 20-year time horizons based on all data available since 1920. Exhibit 18 in the appendix presents these data in

detail for the period 1970 to the present, and Exhibit 19 presents average cumulative default rates by numerically modified ratings for up to six years.

Exhibit 9 shows that higher default risk for lower rating categories remains evident over investment periods exceeding one year. For example, average default rates for five-year holding periods climb from 0.1% for the Aaa rating category to 20.6% for the B rating category. Exhibit 9 also shows that the pattern recurs for average default rates for 10-year and 15-year holding periods.

Exhibit 9

5, 10, 15 and 20-Year Default Rates, 1920-1996



Comparison with Hickman’s (1958) Default Rates

W. Braddock Hickman conducted one of the earliest and most complete studies of credit risk in corporate bond markets (“Corporate Bond Quality and Investor Experience,” NBER, 1958). Among the analyses conducted was one that correlated defaults with ratings over four-year periods. For both investment-grade and speculative-grade rating groupings, Hickman calculated cumulative default rates for each nonoverlapping four-year period from 1912 through 1943. Exhibit 10 compares his results

with analogous results drawn from Moody’s default database over the time period covered by both studies. On average, Moody’s default analysis generates a higher average investment-grade default rate than Hickman’s, 3.4% versus 2.2%. On the other hand, for the speculative-grade rating categories, Moody’s analysis, on average, generates lower default rates than Hickman’s, 13.7% versus 24.0%.

Differences between the methodologies employed by Hickman and Moody’s make reconciling discrepancies between the average investment-grade and speculative-grade default rates of Exhibit 10 difficult. For example, Moody’s results are based upon the experience of its rated universe, which includes both U.S. and non-U.S.

issuers. Hickman’s results, on the other hand, are based on a sample drawn solely from the U.S. debt markets (Hickman considered all debt issues with an original issue amount of at least \$5 million and selected a sample of issues with an original issue amount of less than \$5 million). Additionally, Hickman focuses attention on the par amount of defaulted debt whereas Moody’s uses the debt issuer as the unit of study. However, at least part of the reason that Moody’s average investment-grade

Exhibit 10

Moody’s-Hickman Comparison of Four-Year Default Rates

	Investment-Grade		Speculative-Grade	
	Moody’s	Hickman	Moody’s	Hickman
1920-23	1.5%	1.0%	7.9%	18.2%
1924-27	1.9%	1.1%	11.6%	23.5%
1928-31	2.0%	1.4%	13.6%	22.6%
1932-35	11.3%	6.2%	33.9%	48.9%
1936-39	2.8%	3.3%	9.9%	21.7%
1940-43	0.6%	0.4%	5.4%	8.9%
Average	3.4%	2.2%	13.7%	24.0%

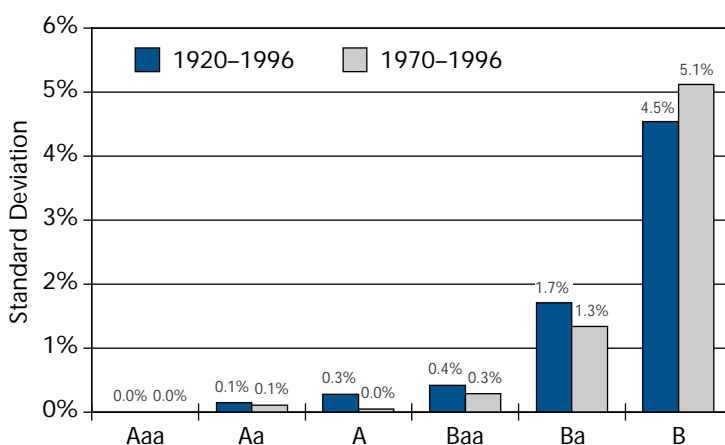
default rate is higher than Hickman's is because of Moody's stricter definition of default. In contrast to Hickman's methodology, we consider distressed exchanges as defaults. For the once-investment-grade defaults of the period covered by Exhibit 10, such exchanges accounted for about 15% of the aggregate number of defaults.

Default Rate Volatility

An examination of the cohorts presented in Exhibit 20 (in the appendix) reveals that default rates vary from one year to the next for a given rating category. For the B rating category in the period from 1920 through 1996, for instance, the one-year default rate ranged from a low of zero in several years to a high of 23.4% in 1970. The sources of this variation are many, but macroeconomic trends are certainly among the most influential factors. To quantify this variability, Moody's calculated the standard deviations of the one-year default rates for each letter rating category. Exhibit 11 presents these statistics defined over the periods from 1920 and from 1970 to the present.

Exhibit 11 highlights a pattern of higher default rate volatility for lower credit ratings for both time periods examined. That is, while the average risk of default is higher for lower rating categories, the chances of the default rate differing significantly from the average in any given year is also higher. Additionally, the greater investment-grade default rate volatilities — excepting that of the Aaa rating — for the period including the experience of the Great Depression, reflect the uncertainty over investment-grade default rates provoked by the extreme economic circumstances of that time. The volatility of default rates has important implications in bond pricing. The returns investors earn on lower-rated debt must not only compensate them for the higher average risk of default, but also for the increased risk that the default rate could differ substantially from its historical average.

Exhibit 11
One-Year Default Rate Volatilities



Recovery Rates

A critical aspect of a corporate bond default is the severity of the loss incurred. Eventually, most bond default resolutions provide bondholders with some amount of recovery, which may take the form of cash, other securities, or even a physical asset. The recovery rate, defined here as the percentage of par value returned to the bondholder, is a function of several variables. These variables include the seniority of the issue within the issuer's capital structure, the quality of collateral (if any), the overall state of the economy, and the market for corporate assets.

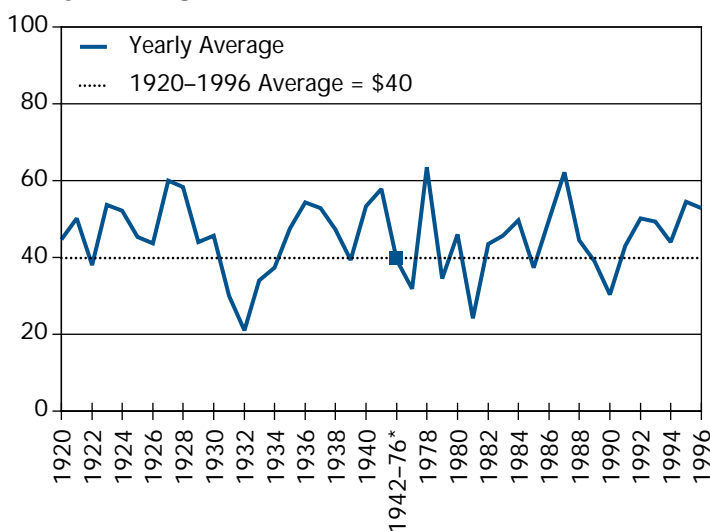
What may seem the most straightforward methodology for calculating recovery rates is not particularly practicable. This methodology would track all payments made on a defaulted debt instrument, discount them back to the date of default, and present them as a percentage of the par value of the security. However, this methodology is problematic because it relies on many assumptions. One must make a separate estimate of the discount rate to apply to each payment generated by the defaulted instrument. Furthermore, one often must make assumptions concerning the values of certain payments. The resolution may hand bondholders various equity and derivative instruments, enhancements to the terms of the surviving debt, or sometimes even a physical asset in place of cash. As there is frequently no market for such payments, there is no definite measure of their value.

For these reasons, we use the trading price of the defaulted instrument as a proxy for the present value of the ultimate recovery. Although it is only an estimate of the actual recovery, it has the advantage of being the definite measure of the recovery realized by those debtholders who liquidate a position soon after default.

We collected, from several sources, prices for many of the bonds that defaulted between January 1, 1920, and December 31, 1996. For each defaulted issue, we considered the seniority, date of default, and the price approximately one month after default. Exhibit 12 maps out the yearly average of defaulted bond prices in our database since 1920. The average for the 77-year period is \$40. The data reveal tremendous volatility in average defaulted bond prices year-over-year as well as correlations with macroeconomic variables and the risk of default. The lows of \$21 and \$30 hit in 1932 and 1990 respectively, correspond to peaks in the corporate default rate, suggesting a negative correlation of defaulted bond prices with the risk of default. Additionally, the low values during the late 1970s and early 1980s suggest a negative correlation with interest rates.

Exhibit 12

Yearly Average Defaulted Bond Prices, 1920-1996



*Because of the dearth of defaults between 1942 and 1976, we have prices for only 68 bonds from this period. We have grouped them together in order to make this chart more easily read.

Investors are entitled to receive face value at maturity, even though they may have paid somewhat less or more for the bond either at issue or in the secondary market. Expressing recoveries as a fraction of some price other than par could improperly bias recovery rates. Because discount bonds and convertible bonds have unique pricing features, we have removed them from the sample.

Trends in bond market financing make unreliable the averaging of recovery rate estimates derived from defaulted bond prices over very long time horizons. For example, a much higher percentage of the bonds Moody's rated from 1930 through 1943 were secured than those Moody's rated between 1980 and 1996. The especially dismal circumstances of the Great Depression era combined with the preponderance of secured financing conspire to generate an average 1920-1996 senior secured bond price lower than that for senior unsecured bonds. In order to mitigate this difficulty and to incorporate and facilitate comparison with recent Moody's recovery analysis of senior secured bank loans, we limit the sample period to 1989-1996. Exhibit 13 breaks out average recovery estimates by seniority of claim and includes Moody's estimate of the recovery investors can expect to receive on bank loans and preferred stock.¹ The average bank loan recovery estimate is \$71. Considering prices for 57 senior secured bonds, our recovery estimate is \$63; prices for 156 senior unsecured bonds, generate a recovery estimate of \$48. The 293 subordinated bonds sold for \$34 on average. Preferred stock holders can only expect to retrieve about \$6 per \$100 par or liquidation value of defaulted preferred stock.

Recoveries, on average, decline as priority of claim declines, lending support to Moody's practice of assigning lower ratings to an issuer's subordinated debt. Generally speaking, a bond default is an issuer-level event that will in time affect all of the issuer's outstanding debt obligations. That is, the probability of an issuer defaulting on a particular debt issue is independent of the seniority of that issue relative to the company's other obligations. However, holding all else constant, severity considerations suggest that although default likelihood is the same across an issuer's debts, Moody's should reflect the greater expected losses for subordinated issues with lower ratings.

¹ See December 1994 Moody's Special Comment, "Preferred Stock Dividend and Credit Risk" and the November 1996 Moody's Special Comment, "Defaulted Bank Loan Recoveries."

W. Braddock Hickman ("Corporate Bond Quality and Investor Experience," NBER, 1958) also examined defaulted bond prices as indicators of the recovery investors retrieve on default debt. For the period from 1930 through 1943, Hickman's average price for 394 "large" (greater than \$5 million) straight defaulted bonds was \$34, and his average for 105 "small" straight defaulted bonds was \$35. The average for the 1,106 defaulted bonds from this period for which Moody's has prices is just slightly higher, \$36.

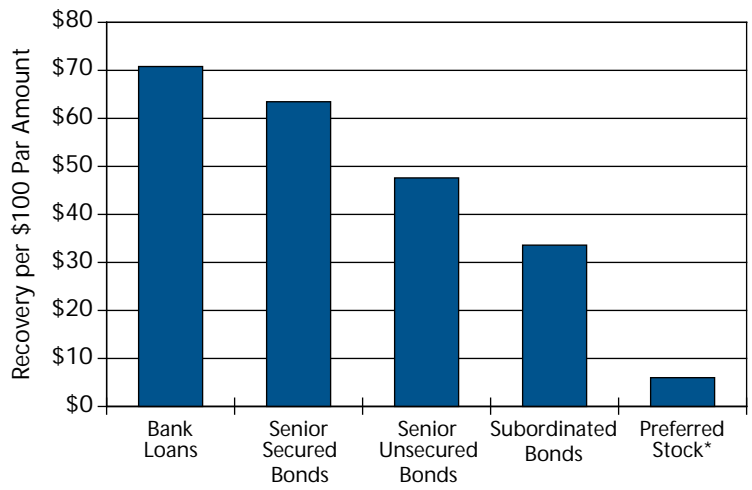
We translate defaulted debt prices into recovery rate estimates by presenting them as percentages of par (not percentages of original issue prices or accreted values).

Defaulted Bond Price Volatility

The recovery estimates presented in Exhibit 13 are simple averages of defaulted bond prices. They approximate the most likely bond price to arise from a particular default, but they do not convey the range of possible outcomes. For example, while the estimated recovery for all subordinated bonds is \$34 per \$100 par amount, one of the underlying issues had a price of just \$1 while another had a price of \$107. In addition to the expected defaulted bond price, an important consideration is the volatility of defaulted bond prices.

Exhibit 15 of the appendix provides additional statistics describing the distribution of prices underlying Exhibit 13. The standard deviations for the senior secured bank loans, senior secured, senior unsecured, and subordinated defaulted public debt prices are \$21, \$26, \$26, and \$23, respectively. The relative sizes of these standard deviations indicate that defaulted subordinated debt prices are more tightly distributed about their sample mean than are either the prices of defaulted senior unsecured or senior secured debt. Although investors can expect defaulted subordinated debt to be worth less than defaulted senior unsecured debt, they can have greater confidence that the value of the subordinated issue will be close to its mean, \$34. Senior unsecured debt prices, on the other hand, are more dispersed. Even though investors can expect a senior unsecured issue to be worth more upon bankruptcy than subordinated debt, there is greater uncertainty about the value of senior secured debt after bankruptcy than about the value subordinated debt.

Exhibit 13
Defaulted Debt Recovery Rate Estimates by Seniority of Claim, 1989–1996

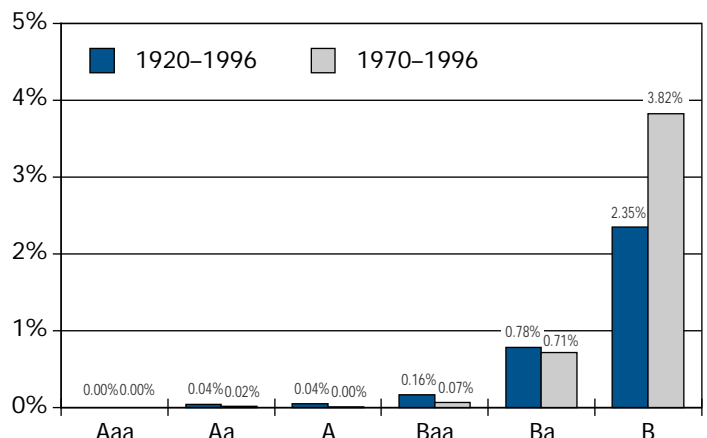


*estimate based on data from 1980 to 1994

Loss Rates

Moody's long-term debt ratings are statements about protection against credit loss. For a given economic environment, the credit loss one can expect to incur is higher for lower ratings. Conceptually, expected credit loss depends upon both the probability of a default occurring and the extent of the loss investors can expect to incur upon default. Previous sections have detailed Moody's estimation of the historical average probability of default associated with each rating category as well as average recovery rates for secured debt and unsecured debt of various seniority levels (the severity of loss is simply one less the recovery rate). Multiplying Moody's estimates of the risk of default by our estimate of the severity of loss for senior unsecured debt yields estimates of the credit loss-

Exhibit 14
Average One-Year Loss Rates



es historically associated with each rating category. Exhibit 14 presents these estimates using both the 1920-1996 and 1970-1996 average default rates and the 1989-1996 average recovery rate estimate for senior unsecured debt (the 48% recovery rate implies a 52% loss rate).

Exhibit 14 indicates that expected credit loss increases dramatically as Moody's credit opinion slips from investment-grade to speculative-grade. The safest speculative-grade rating category, Ba, has generated more than four times the credit loss of the riskiest investment-grade rating category, Baa. That the expected credit loss increases as Moody's opinion of credit quality decreases is an indication that Moody's ratings have meaningfully differentiated securities on the basis of the credit risks investors have faced over the last 77 years.

Conclusion

This study of corporate bond defaults extends Moody's previous research to cover the period from 1920 through the present. Moody's ratings and default databases cover the credit experiences of over 14,000 US and non-US corporate debt issuers. The long time horizon we have examined allows us to correlate our ratings with the incidence and severity of default over many business, interest rate, and other economic cycles. The results indicate that over the last 77 years, the average risk of default has been higher for issuers with lower-rated Moody's debt.

Moody's has also examined prices for defaulted debt as indicators of the recovery investors can expect to retrieve. The results reveal a tremendous inter-temporal and cross-sectional volatility in defaulted bond prices that may be partially attributable to correlations with macroeconomic and business conditions as well as the supply of defaulted debt. It is important to note that investors in credit risky debt must not only be compensated for the likelihood of default, but also for the volatility of default and recovery rates.

Our calculations of both the likelihood and severity of default permit the estimation of the default losses that have historically been associated with each of our ratings. That greater average default losses are associated with the lower rating categories is evidence that Moody's has consistently differentiated debt on the basis of the credit risks facing investors for the better part of this century.

Appendix

Exhibit 15 – Descriptive Statistics for Defaulted Bond Prices,
1989 – 1996

Seniority and Security	Number	Average	Standard Deviation
Senior Secured Bank Loans	59	\$71.18	\$21.09
Senior Secured Public Debt	57	\$63.45	\$26.21
Senior Unsecured Public Debt	156	\$47.54	\$26.29
Senior Subordinated Public Debt	166	\$38.28	\$24.74
Subordinated Public Debt	119	\$28.29	\$20.09
Junior Subordinated Public Debt	8	\$14.66	\$8.67
All Subordinated Public Debt	293	\$33.58	\$23.34
All Public Debt	506	\$41.25	\$26.55

Exhibit 16 – One-Year Default Rates by Year and Rating, 1970 – 1996 (Percent)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Wtd. Avg.	
Aaa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Baa	0.26	0.00	0.00	0.43	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.30	0.00	0.36	0.00	1.32	0.00	0.00	0.59	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.12	
Ba	2.78	0.40	0.00	0.00	0.96	0.94	0.50	1.05	0.48	0.00	0.00	2.73	0.91	0.83	1.75	1.75	2.47	1.43	2.96	3.30	5.51	0.30	0.55	0.24	0.68	0.00	1.36		
B	23.40	0.00	2.99	3.33	9.38	6.06	0.00	3.28	5.26	0.00	4.82	4.60	4.49	6.25	6.67	7.48	11.08	5.42	6.31	9.21	14.87	15.33	7.90	5.77	3.83	4.81	1.54	7.27	
Investment-Grade	0.13	0.00	0.00	0.22	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.20	0.00	0.09	0.00	0.31	0.00	0.00	0.27	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.05	
Speculative-Grade	8.46	1.02	1.39	1.15	1.22	2.02	0.82	1.28	1.72	0.41	1.60	0.71	3.53	3.81	3.31	3.66	5.25	3.77	3.67	5.99	9.18	10.67	4.62	3.49	1.82	3.28	1.61	3.93	
All	2.55	0.27	0.34	0.42	0.26	0.42	0.17	0.33	0.33	0.08	0.33	0.16	1.00	0.93	0.89	0.98	1.74	1.31	1.36	2.35	3.19	3.26	1.22	0.91	0.51	0.99	0.48	1.12	

Exhibit 17 – One-Year Default Rates by Year and Numerically Modified Rating, 1983 – 1996 (Percent)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Wtd. Avg.
Aaa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aa1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aa2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aa3	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Baa1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.05
Baa2	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Baa3	0.00	1.06	0.00	4.82	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Ba1	0.00	1.16	0.00	0.88	3.73	0.00	0.79	2.67	1.05	0.00	0.79	0.00	0.00	0.00	0.78
Ba2	0.00	1.61	1.63	1.20	0.94	0.00	1.79	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.65
Ba3	2.61	0.00	3.77	2.75	2.44	2.97	4.67	3.86	10.24	0.74	0.76	0.61	1.76	0.00	2.93
B1	0.00	5.67	4.26	6.35	4.86	4.35	6.33	8.27	6.20	1.08	3.49	1.97	3.31	1.28	4.22
B2	10.00	18.75	3.70	16.67	4.30	7.02	8.22	22.36	12.58	1.56	4.80	3.57	7.96	0.00	7.71
B3	18.46	2.99	14.14	16.07	7.35	10.53	18.84	23.03	29.59	20.36	10.69	7.79	4.37	3.77	13.66

Exhibit 18 – Weighted Average Cumulative Default Rates from 1 to 20 Years (Percent)

Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aaa	0.00	0.00	0.00	0.04	0.13	0.22	0.33	0.45	0.59	0.74	0.91	1.10	1.31	1.42	1.55	1.69	1.86	2.05	2.05	2.05
Aa	0.03	0.05	0.10	0.25	0.40	0.57	0.73	0.91	1.04	1.13	1.23	1.35	1.49	1.80	1.90	2.00	2.23	2.37	2.52	2.71
A	0.01	0.07	0.22	0.39	0.57	0.76	0.96	1.18	1.44	1.73	2.03	2.35	2.65	2.89	3.22	3.60	3.98	4.37	4.82	5.08
Baa	0.12	0.39	0.76	1.27	1.71	2.21	2.79	3.36	3.99	4.61	5.29	6.01	6.70	7.42	8.18	8.99	9.82	10.60	11.25	11.78
Ba	1.36	3.77	6.29	8.88	11.57	13.87	15.69	17.55	19.23	20.94	22.84	24.87	26.97	28.68	30.34	32.14	33.59	34.91	36.32	37.81
B	7.27	13.87	19.94	25.03	29.45	33.26	36.34	39.01	41.45	44.31	46.07	47.26	48.30	49.15	50.19	51.39	52.85	52.85	52.85	52.85
Investment-Grade	0.05	0.16	0.34	0.60	0.84	1.12	1.42	1.74	2.08	2.43	2.82	3.22	3.62	4.02	4.45	4.92	5.41	5.88	6.32	6.64
Speculative-Grade	3.93	7.81	8.82	12.22	15.44	18.19	20.34	22.39	24.21	26.09	27.92	29.77	31.66	33.19	34.71	36.38	37.79	38.91	40.10	41.36
All Corporates	1.12	2.22	2.87	3.86	4.75	5.55	6.22	6.87	7.49	8.10	8.73	9.38	10.02	10.60	11.20	11.85	12.48	13.05	13.59	14.05

Exhibit 19 – Weighted Average Cumulative Default Rates by Numerically Modified Rating from 1 to 6 Years (Percent)

	1	2	3	4	5	6
Aaa	0.00	0.00	0.00	0.06	0.21	0.29
Aa1	0.00	0.00	0.00	0.28	0.28	0.49
Aa2	0.00	0.00	0.08	0.26	0.60	0.73
Aa3	0.08	0.13	0.25	0.38	0.55	0.76
A1	0.00	0.04	0.45	0.73	0.93	1.16
A2	0.00	0.03	0.20	0.54	0.82	1.10
A3	0.00	0.18	0.35	0.49	0.57	0.76
Baa1	0.05	0.36	0.73	1.09	1.42	1.69
Baa2	0.05	0.25	0.32	1.00	1.59	2.31
Baa3	0.40	0.96	1.65	2.65	3.42	4.37
Ba1	0.78	2.51	4.39	7.14	9.62	12.55
Ba2	0.65	3.14	6.05	8.97	11.67	13.95
Ba3	2.93	7.84	13.19	18.22	22.84	26.75
B1	4.22	10.76	17.28	23.22	28.79	34.00
B2	7.71	14.51	21.50	27.15	30.91	34.53
B3	13.66	22.58	29.30	34.40	39.42	42.80

Exhibit 20 – Cumulative Default Rates for Cohorts Formed Since 1970 (Percent)

<u>Years:</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
Cohort formed January 1, 1970																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6	2.6
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	2.8	2.8	2.8	2.8
A	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9	0.9	1.4	1.4	1.4	2.5
Baa	0.3	0.3	0.3	0.8	1.1	1.1	1.4	2.1	2.7	2.7	3.1	3.1	4.3	4.7	5.2	6.1	7.5	8.5	9.6	10.2
Ba	2.8	3.2	3.2	3.6	4.6	5.5	6.0	6.6	7.7	7.7	7.7	9.2	11.6	12.4	12.4	15.3	19.5	20.7	20.7	22.1
B	23.4	23.4	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3
Cohort formed January 1, 1971																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6	2.6	2.6
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
A	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	1.2	1.6	1.6	1.6	2.1	2.1	3.0	3.0	3.0
Baa	0.0	0.0	0.5	0.8	0.8	1.0	1.6	2.3	2.3	2.6	2.6	3.7	4.1	4.5	5.3	6.7	7.6	8.6	9.2	10.3
Ba	0.4	0.4	0.8	1.7	3.2	3.7	4.2	5.4	5.4	5.4	6.8	9.1	9.9	9.9	12.7	17.7	18.9	18.9	20.3	20.3
B	0.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Cohort formed January 1, 1972																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6	2.6	2.6	2.6
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.8	0.8	1.2	1.2	2.1	2.1	2.6	3.1
Baa	0.0	0.5	0.7	0.9	1.2	1.7	2.3	2.3	2.9	2.9	3.6	4.0	4.3	5.1	6.3	7.1	8.1	9.1	10.7	12.9
Ba	0.0	0.4	1.3	2.7	3.2	3.7	4.8	4.8	4.8	6.2	9.1	9.9	10.8	14.3	19.1	20.1	20.1	21.4	21.4	29.8
B	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Cohort formed January 1, 1973																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5	2.5	2.5	2.5
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.8	0.8	1.1	1.1	2.0	2.0	2.5	3.0	3.5
Baa	0.4	0.6	1.1	1.3	1.8	2.4	2.4	2.9	2.9	3.6	4.2	4.9	6.0	7.1	7.9	8.7	9.7	11.6	13.7	13.7
Ba	0.0	0.9	1.9	2.4	3.0	4.1	4.1	4.1	5.5	9.2	10.0	10.0	12.6	17.4	19.5	19.5	20.7	20.7	30.2	31.7
B	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Cohort formed January 1, 1974																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.6	2.6	2.6	2.6
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.8	0.8	1.2	1.2	2.0	2.0	2.5	2.9	3.4	3.4
Baa	0.0	0.4	0.7	1.2	1.7	1.7	2.3	2.3	2.9	3.5	4.2	5.3	5.6	6.4	7.3	8.2	9.7	11.8	11.8	11.8
Ba	0.0	1.0	1.5	2.1	3.3	3.3	3.3	4.0	7.8	8.6	8.6	11.3	17.9	20.0	20.0	21.3	22.6	32.2	33.7	35.4
B	9.4	9.4	9.4	9.4	9.4	9.4	9.4	14.3	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7

Exhibit 20 – Continued

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
Cohort formed January 1, 1975																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	2.2	2.2	3.3	3.3	3.3	3.3	3.3
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	1.6	1.6	2.0	3.0	3.5	4.0	4.0
Baa	0.0	0.0	0.2	0.8	0.8	1.3	1.3	2.3	2.9	3.6	4.6	5.0	5.8	6.2	7.1	9.0	11.0	11.0	11.0	11.0
Ba	1.0	2.0	3.1	3.6	3.6	3.6	4.3	8.0	8.8	8.8	11.4	17.9	19.9	21.1	22.3	23.6	30.3	31.7	33.3	33.3
B	6.1	6.1	6.1	9.6	9.6	9.6	13.6	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	44.3	44.3	44.3	44.3
Cohort formed January 1, 1976																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	2.0	2.0	3.1	3.1	3.1	3.1	3.1	3.1
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.3	1.3	2.4	2.4	2.8	4.1	4.1	4.5	4.5	5.6
Baa	0.0	0.3	0.5	0.5	0.8	0.8	2.2	2.9	3.6	4.7	5.1	5.9	5.9	6.9	9.0	10.6	11.2	11.2	11.2	11.2
Ba	0.9	1.9	3.0	3.0	3.6	4.2	6.9	7.6	7.6	9.9	15.7	17.6	18.6	19.7	20.8	27.9	29.1	30.5	30.5	30.5
B	0.0	0.0	3.9	3.9	3.9	8.6	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	48.1	48.1	48.1	48.1	48.1
Cohort formed January 1, 1977																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Aa	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.8	1.8	1.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
A	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	1.2	1.2	3.0	3.0	3.0	3.7	4.9	4.9	5.4	5.4	6.4	6.4
Baa	0.3	0.5	0.5	0.5	0.5	1.9	2.6	3.3	4.4	4.8	5.7	5.7	6.6	8.2	9.8	10.4	10.4	10.4	10.4	10.4
Ba	0.5	1.6	1.6	2.1	2.8	5.5	6.2	6.2	8.5	14.2	16.1	17.1	18.2	19.3	26.2	27.5	28.9	28.9	28.9	28.9
B	3.3	6.7	6.7	10.8	15.1	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	52.2	52.2	52.2	52.2	52.2	52.2
Cohort formed January 1, 1978																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Aa	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
A	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.2	1.2	2.7	2.7	3.9	4.7	4.7	5.1	5.1	6.2	6.2	6.2
Baa	0.0	0.0	0.0	0.0	1.3	1.7	2.4	3.5	3.9	4.7	5.1	6.1	7.6	9.7	10.3	10.3	10.3	10.3	10.3	10.3
Ba	1.1	1.1	1.1	1.7	4.4	5.8	5.8	8.9	14.6	16.4	17.4	18.5	20.7	27.6	28.9	31.7	31.7	31.7	31.7	31.7
B	5.3	5.3	11.4	14.6	21.6	21.6	25.8	25.8	31.1	36.8	36.8	36.8	36.8	57.9	57.9	57.9	57.9	57.9	57.9	57.9
Cohort formed January 1, 1979																				
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Aa	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
A	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.2	1.2	2.6	2.6	3.4	4.2	4.2	4.7	4.7	5.7	5.7	5.7	5.7
Baa	0.0	0.3	0.3	1.6	1.9	2.3	3.4	3.4	4.2	4.6	5.6	8.1	10.2	10.7	10.7	10.7	10.7	10.7	10.7	10.7
Ba	0.5	0.5	1.0	3.3	5.8	9.0	11.6	17.9	19.5	20.3	21.2	24.1	31.0	32.1	34.5	34.5	34.5	34.5	34.5	34.5
B	0.0	6.3	9.5	16.6	16.6	20.9	25.6	36.6	42.9	42.9	42.9	42.9	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2

Exhibit 20 – Continued

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>
Cohort formed January 1, 1980																	
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
A	0.0	0.0	0.3	0.8	0.8	0.8	1.8	2.1	3.1	3.1	3.8	4.6	4.6	5.0	5.0	6.0	6.0
Baa	0.0	0.0	0.9	1.3	1.6	3.0	3.0	3.4	4.2	5.6	8.0	9.9	11.0	11.0	11.0	11.0	11.0
Ba	0.0	0.5	3.8	5.0	8.6	11.8	17.8	19.3	20.9	23.6	26.5	34.6	36.8	39.3	39.3	39.3	39.3
B	4.8	7.4	15.4	21.1	27.3	30.7	42.6	47.0	47.0	47.0	52.3	65.9	65.9	65.9	65.9	65.9	65.9

Cohort formed January 1, 1981																	
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
A	0.0	0.3	0.3	0.3	0.3	1.2	1.5	2.2	2.2	2.9	3.7	3.7	4.1	4.1	5.1	5.1	5.1
Baa	0.0	0.6	1.9	2.5	3.6	3.6	3.9	4.8	6.1	8.3	9.8	10.7	10.7	10.7	10.7	10.7	10.7
Ba	0.0	3.5	4.9	7.9	12.0	18.5	19.7	21.1	24.1	28.1	36.1	38.1	40.3	40.3	40.3	40.3	40.3
B	4.6	11.8	17.0	25.1	28.1	38.1	38.1	38.1	38.1	42.5	58.2	58.2	58.2	58.2	58.2	58.2	58.2

Cohort formed January 1, 1982																	
Aaa	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Aa	0.0	0.0	0.0	0.0	0.0	0.7	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3	3.3
A	0.3	0.3	0.3	0.3	1.1	1.1	1.8	1.8	2.9	3.6	3.6	4.1	4.1	4.1	4.1	4.1	4.1
Baa	0.3	0.3	1.3	2.3	2.7	3.5	4.3	5.6	7.9	9.4	10.4	10.4	10.4	11.0	11.0	11.0	11.0
Ba	2.7	5.2	7.9	12.0	18.8	19.9	21.1	23.8	26.7	32.4	34.3	36.3	36.3	36.3	36.3	36.3	36.3
B	4.5	11.5	16.3	18.9	27.4	27.4	27.4	27.4	32.3	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4

Cohort formed January 1, 1983																	
Aaa	0.0	0.0	0.0	0.0	1.7	1.7	1.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Aa	0.0	0.0	0.0	0.0	0.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.7	2.7	2.7	2.7
A	0.0	0.0	0.0	0.3	0.3	0.8	0.8	1.7	2.7	3.4	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Baa	0.0	1.2	1.6	3.3	3.7	4.2	5.3	6.5	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Ba	0.9	2.4	5.6	13.2	13.9	17.1	20.7	24.8	31.6	31.6	33.0	33.0	34.6	34.6	34.6	34.6	34.6
B	6.3	10.9	17.7	23.9	26.0	28.4	31.1	39.0	50.8	55.7	58.5	58.5	58.5	58.5	58.5	58.5	58.5

Cohort formed January 1, 1984																	
Aaa	0.0	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Aa	0.0	0.0	0.0	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	2.4	2.4	2.4	2.4	2.4
A	0.0	0.2	0.5	0.7	1.5	1.7	2.6	3.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Baa	0.4	0.4	0.8	1.2	1.7	2.8	3.9	5.7	5.7	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Ba	0.8	4.4	13.0	14.1	17.9	22.1	26.1	33.9	34.8	35.9	35.9	37.2	37.2	37.2	37.2	37.2	37.2
B	6.7	12.7	18.1	21.0	25.2	30.1	40.2	49.0	51.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1

Exhibit 20 – Continued

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
Cohort formed January 1, 1985												
Aaa	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Aa	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.4	1.4
A	0.0	0.2	1.3	2.3	2.5	3.5	4.3	4.6	4.6	4.6	4.6	4.6
Baa	0.0	1.2	1.2	1.7	2.8	3.3	5.1	5.7	6.4	6.4	6.4	6.4
Ba	1.8	6.7	8.8	12.3	18.4	22.7	30.2	31.7	32.6	32.6	34.5	34.5
B	7.5	16.1	20.7	25.0	29.3	41.3	49.8	52.1	57.4	57.4	57.4	57.4
Cohort formed January 1, 1986												
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8
A	0.0	0.2	0.8	1.2	1.8	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Baa	1.3	1.3	3.0	3.9	4.8	6.2	7.3	7.8	7.8	7.8	7.8	7.8
Ba	1.7	5.7	8.2	13.7	19.4	27.9	29.7	32.5	33.3	34.1	34.1	34.1
B	11.1	15.2	19.8	23.9	33.6	44.3	48.7	52.1	52.1	54.5	54.5	54.5
Cohort formed January 1, 1987												
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
A	0.0	0.0	0.4	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Baa	0.0	1.0	1.8	2.9	4.6	5.9	6.9	6.9	6.9	6.9	6.9	6.9
Ba	2.5	4.5	9.5	15.6	23.7	27.1	30.6	31.7	33.0	33.6	33.6	33.6
B	5.4	12.6	19.5	30.4	42.2	45.6	47.7	47.7	49.0	49.0	49.0	49.0
Cohort formed January 1, 1988												
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.3	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1	1.1
A	0.0	0.4	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Baa	0.0	0.3	1.0	2.5	3.6	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Ba	1.4	7.1	12.9	20.6	23.6	26.8	27.7	28.7	29.2	29.2	29.2	29.2
B	6.3	13.3	24.3	37.0	41.1	46.3	47.2	49.3	49.3	49.3	49.3	49.3
Cohort formed January 1, 1989												
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.6	0.6	0.6	0.6	0.6	0.6	1.0	1.0	1.0	1.0	1.0	1.0
A	0.0	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Baa	0.6	1.2	1.9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Ba	3.0	9.9	18.0	21.0	24.2	24.6	25.5	26.5	26.5	26.5	26.5	26.5
B	9.2	21.8	33.3	37.5	43.2	45.4	47.9	47.9	47.9	47.9	47.9	47.9

Exhibit 20 – Continued

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1990									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.2	0.2
Ba	3.3	11.9	14.7	17.6	18.3	19.6	20.5	1.5	1.8
B	14.9	26.9	33.5	38.8	40.5	42.7	42.7	8.8	11.5

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1994									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ba	0.2	1.5	0.2	0.2	0.2	0.2	0.2	0.9	0.9
B	3.8	8.8	4.8	4.8	7.2	7.2	7.2	7.2	7.2

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1995									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ba	0.7	0.9	0.7	0.7	0.9	0.9	0.9	0.9	0.9
B	4.8	7.2	4.8	4.8	7.2	7.2	7.2	7.2	7.2

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1996									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ba	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1992									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ba	0.3	1.0	1.0	2.3	2.8	2.8	2.8	2.8	2.8
B	7.9	16.1	19.5	22.8	24.4	24.4	24.4	24.4	24.4

Years:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Cohort formed January 1, 1993									
Aaa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Baa	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ba	0.5	0.5	2.6	3.3	3.3	3.3	3.3	3.3	3.3
B	5.8	9.6	13.9	15.1	15.1	15.1	15.1	15.1	15.1

Chronological List of 1996 Public Corporate Bond Defaults (\$Millions)

Company	Defaulted Debt	Not Defaulted	Status
January			
Fokker (N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker)	\$1,167.1		In Receivership
G. Heileman Brewing Company, Inc.	\$160.0		In Chapter 11
<i>Defaulted Debt (mil):</i>	<i>\$1,327.1</i>		
<i>Number of Companies:</i>	<i>2</i>		
February			
United Merchants & Manufacturers, Inc.	\$58.2		In Chapter 11
WRT Energy Corporation	\$100.0		In Chapter 11
Mid-American Waste Systems, Inc.	\$175.0		Missed interest payments
<i>Defaulted Debt (mil):</i>	<i>\$333.2</i>		
<i>Number of Companies:</i>	<i>3</i>		
March			
Discovery Zone Inc.	\$293.5		In Chapter 11
Homeland Stores Inc.	\$75.0		In Chapter 11
Maculan Holding AG	\$63.8		Bankrupt
Grupo Situr, S.A. de C.V.	\$100.0		Missed interest payments
<i>Defaulted Debt (mil):</i>	<i>\$532.3</i>		
<i>Number of Companies:</i>	<i>4</i>		
April			
Movie Star, Inc.	\$22.5		Missed interest payments
Grupo Tribasa S.A. de C.V.	\$207.4		Bonds restructured
<i>Defaulted Debt (mil):</i>	<i>\$229.9</i>		
<i>Number of Companies:</i>	<i>2</i>		
May			
Fruehauf Trailer Corporation	\$62.6		In Chapter 11
<i>Defaulted Debt (mil):</i>	<i>\$62.6</i>		
<i>Number of Companies:</i>	<i>1</i>		
June			
Tiphook Finance Corp.	\$700.0		Filed prepackaged Chapter 11
Kenetech Corporation	\$100.0		Missed interest payments
<i>Defaulted Debt (mil):</i>	<i>\$800.0</i>		
<i>Number of Companies:</i>	<i>2</i>		
July			
US Trails Inc.	\$101.5		Missed interest payments
Ben's Fashion Retail Stores Inc.	\$28.8		In Chapter 11
Braun's Fashions Corporation	\$9.9		In Chapter 11
<i>Defaulted Debt (mil):</i>	<i>\$140.2</i>		
<i>Number of Companies:</i>	<i>3</i>		
August			
Comptronix Corporation	\$24.0		In Chapter 11
<i>Defaulted Debt (mil):</i>	<i>\$24.0</i>		
<i>Number of Companies:</i>	<i>1</i>		

Company	Defaulted Debt	Not Defaulted	Status		
September					
Anchor Glass Container Corporation	\$300.0		In Chapter 11		
Packaging Research Corporation	\$1.4		Missed interest payments		
<i>Defaulted Debt (mil):</i>	<i>\$301.4</i>				
<i>Number of Companies:</i>	<i>2</i>				
October					
County Seat Stores Inc.	\$104.9		In Chapter 11		
<i>Defaulted Debt (mil):</i>	<i>\$104.9</i>				
<i>Number of Companies:</i>	<i>1</i>				
November					
MobileMedia Communications, Inc.	\$250.0	\$210.0	Missed interest payments		
Stratosphere Corporation	\$203.0		Missed interest payments		
JPS Textile Group, Inc.	\$246.9		Missed interest payments		
<i>Defaulted Debt (mil):</i>	<i>\$699.9</i>				
<i>Number of Companies:</i>	<i>3</i>				
December					
Marvel III Holdings Inc.	\$125.0		In Chapter 11		
Marvel (Parent) Holdings Inc.	\$251.7		In Chapter 11		
Marvel Holdings Inc.	\$517.4		In Chapter 11		
<i>Defaulted Debt (mil):</i>	<i>\$894.1</i>				
<i>Number of Companies:</i>	<i>3</i>				
Year-to-Date Thru December 31					
		1996	1995	1994	1993
Defaulted Debt (mil):		\$5,449.5	\$8,504.9	\$2,331.7	\$3,426.3
Number of Companies:		27	49	24	39
Moody's Trailing Twelve-Month, Issuer-Based Default Rate		1.61%	3.28%	1.82%	3.50%
Moody's Trailing Twelve-Month, Dollar-Based Default Rate		1.61%	3.63%	1.04%	1.31%

1996 Public Corporate Bond Defaults

Anchor Glass Container Corporation

Glass container manufacturer

\$100.0 million 10.25% Senior Unsecured Notes due 2002

\$200.0 million 9.875% Senior Subordinated Debentures due 2008

Anchor Glass Container Corp., based in Tampa, Florida, is the third largest glass container manufacturer in the US. The company manufactures and sells a diverse line of flint, amber, green and other color glass containers of various types, designs, and sizes. These products are principally sold in the beer, food, iced tea, distilled spirits, wine, and soft drink industries. The company is a subsidiary of Vitro Sociedad Anonima, which is one of the three largest glass container manufacturers in the world and the largest publicly traded company in Mexico. Revenues have declined consistently over the last four years due to a decline in glass container demand. This decline created an overcapacity condition in the industry and intensified the already highly competitive environment, which compressed margins. Meanwhile, capital spending remained below the required level due to the tight financial constraints. After several equity infusions, Vitro decided to cut its losses and exit the investment. Anchor Glass filed for Chapter 11 on September 13, 1996.

09/13/96 — Filed Chapter 11.

(Contact: Brian Oak, Tel: 553-4688)

Ben Franklin Retail Stores, Inc.

Variety wholesaler and franchiser

\$28.8 million 7.5% Convertible Subordinate Notes due 2003

Ben Franklin Retail Stores, Inc., incorporated in Delaware in 1985, is a national wholesaler of variety and craft merchandise and a franchiser of variety and crafts stores. As of the end of 1995, there were 566 franchisee-owned variety stores, 305 franchisee-owned craft stores (including 96 craft superstores), and the company was a wholesaler to over 800 independent retail outlets. Net sales dropped by 26% in first quarter of FY96 to \$68 million from \$93 million in the first quarter of FY95, due to a highly competitive and soft retail environment and weak wholesale sales. The drop in revenues combined with the effect of not restraining operating expenses and overspending on promotional activities squeezed the company's operating margins and consequently it reported an operating loss of \$34.5 million for FY96. The company filed for Chapter 11 on July 26, 1996.

07/26/96 — Filed Chapter 11.

(Contact: Marie Menendez, Tel: 553-4126)

Braun's Fashions Corporation

Apparel retailer

\$9.9 million 9% Guaranteed Senior Unsecured Notes due 2001

Braun's Fashions Corporation is a Minneapolis-based regional retailer of women's specialty apparel which operates approximately 221 stores through its wholly-owned subsidiary, Braun's Fashions, Inc. The company's stores offer assortments of moderately-priced ladies sportswear, sweaters, dresses, and accessories. The company reported a net loss of \$3.5 million for FY96 due to the overall depressed women's apparel market and the burden of certain unprofitable stores. By August 1995, the company was in technical default of its financial covenants, but received a waiver from note-holders. Less than one year later the company was again in technical default; however, this time it filed for relief under Chapter 11 protection on July 2, 1996. As part of the company's Bankruptcy filing, it is liquidating 39 of its cash draining stores.

07/2/96 — Filed Chapter 11.

(Contact: Michael Rowen, Tel: 553-4465)

Comptronix Corporation

Electronics manufacturer

\$24.0 million 6.75% Convertible Subordinate Debentures due 2003

Comptronix Corporation, headquartered in Delaware, provides contract manufacturing services to original equipment manufacturers, including producers of computers, computer peripherals, industrial instruments, communications equipment, medical devices and test equipment. In November 1992, it was discovered that three top executives had falsified the company's financial reports. A new management team restored order by cutting inventory by 37%, slashing employment by 44% and implementing strict cost controls. Sales decreased by 23% from FY94 to FY95, partly due to the sale of the San Jose division in October 1994 but mainly due to lower than anticipated demand for certain products. The drop in revenues together with its net losses over the last four years reduced the company's cash flow, leaving it in violation of a bank loan agreement. Unable to renegotiate terms with its banker, the company filed for Chapter 11 on August 9, 1996.

08/09/96 — Filed for Chapter 11 protection.

(Contact: Tom Marshella, Tel: 553-4668)

County Seat Stores Inc.

Specialty retailer

\$104.9 million 12% Senior Subordinated Notes due 2002

County Seat Stores Inc., a wholly-owned subsidiary of County Seat, Inc. is the largest U.S. specialty retailer selling both brand name and private-label jeans and related accessories. The company was purchased in 1989 from Carson Pirie Scott & Co. through a LBO by DLJ and member's of the company's senior management. County Seat Stores recorded a 9% decrease in comparable store sales for the six months ended August 1996. The decrease in revenues combined with a poorly led expansion which increased costs, led to a negative EBITDA of \$13 million and a net loss of \$20.1 million for the same six-month period. By August 1996 the company's book value of cash and inventory was less than 95% the value of trade payables, bank debt and current accruals. The company missed interest payments on October 1, 1996 and filed for Chapter 11 protection on October 17, 1996.

10/01/96 — Missed interest payments.

10/17/96 — Filed Chapter 11.

(Contact: Marie Menendez, Tel: 553-4126)

Discovery Zone, Inc.

Children's indoor entertainment provider

\$293.5 million LYONS due 2013

Headquartered in Fort Lauderdale, Florida, Discovery Zone, Inc. is an operator of approximately 340 children's indoor entertainment and fitness facilities in the United States, Mexico, Canada, United Kingdom, and Spain. Viacom owns 49% of Discovery Zone's equity through its 1994 acquisition of the Blockbuster Entertainment Group. Since its inception in 1989, Discovery Zone has expanded rapidly through internal development, acquisition and franchising of FunCenters, and the establishment of international ventures. However, the FunCenter concept has not proven to be as successful as originally anticipated. Lack of conceptual differentiation left consumers with little more than an indoor playground and insufficient activity changes to maintain children's interests in addition to inadequate adult amenities for child caretakers. The company reported an increase in revenues from \$181 million in FY94 to \$295 million for FY95 as the company focused on new store growth. But lack of focus on current business and maintenance of existing facilities, as well as the cost of expansion led to a net loss of \$455 million for FY95, compared to a \$24.9 million net loss for FY94. Viacom's two high profile contributions to the board of directors, Viacom's chairman and chief executive, were replaced by Blockbuster's general counsel, the day the company filed for Chapter 11.

03/25/96 — Filed Chapter 11.

(Contact: Catherine Guinee, Tel: 553-4385)

Fokker (N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker)

Aircraft manufacturer

DM 150.0 million Floating Rate Euronotes due 1998 [US\$101.8 million]

SF 150.0 million 4% Convertible Eurobonds due 1997 [US\$126.7 million]

NG 118.9 million 4.75% Convertible Euronotes due 1999 [US\$72.1 million]

DM 500.0 million 6.25% Eurobonds due 1998 [US\$339.5 million]

DM 150.0 million 6.5% Eurobonds due 1996 [US\$101.8 million]

DM 150 million 7.5% Bearer Eurobonds due 1996 [US\$101.8 million]

NG 200.0 million 10% Eurobonds due 1997 [US\$121.2 million]

NG 334.0 million 4% Eurobonds due 1999 [US\$202.3 million]

Fokker (N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker), based in Amsterdam and founded in 1919 is the oldest manufacturer in the world still producing and marketing aircraft under its own name. Since 1950, the company has specialized in regional aircraft. Due to cut-throat competition, the aircraft market's profits have deteriorated drastically since 1991. Subsequently Fokker reduced aircraft production volume from 90 in 1992 to 40 in 1994. Net sales in 1994 was NG 2,348 million, down 37% from 1993. Daimler-Benz, a German company, owns 51% of Fokker. Its aerospace unit has been paying Fokker's bills since September 1995, when the last of the Dutch company's shareholder capital was wiped out by losses. Daimler-Benz sparked a crisis when it announced it could no longer support the loss-making Dutch unit on January 22, 1996. Two days later the courts approved a suspension of payments.

01/24/96 — Court approves four-week period of suspension of debt payments.

(Contact: Tassos Philippakos, Tel: 553-1612)

Fruehauf Trailer Corporation

Truck trailer manufacturer

\$62.6 million 14.75% Senior Secured Notes due 2002

Fruehauf Trailer Corporation is a leading manufacturer and marketer of truck trailers and related parts in the U.S. The company designs, markets and manufactures a wide range of dry freight van, platform, dump, liquid, and dry bulk trailers. The company has reported a net loss consistently over the last five years, albeit declining. Since the beginning of 1993, the company's liquidity has been under severe pressure and it has been unable to make timely payments to its creditors, generating shortages in raw material. Consequently, a substantial number of production days were lost, and some plants temporarily shutdown. In late 1993, the company underwent a restructuring comprising of an additional debt and equity infusion. However, this restructuring proved to be ineffective. On May 1, 1996 the company missed interest payments on its senior secured notes due 2002.

05/01/96 — Missed interest payments on senior secured notes due 2002.

07/10/96 — Filed Chapter 11.

(Contact: Joel Lustig, Tel: 553-4760)

G. Heileman Brewing Company, Inc.

Distillers & brewer

\$160.0 million 9.625% Senior Subordinated Notes due 2004

G. Heileman Brewing Company, Inc. is the fifth largest brewer in the U.S., producing a full line of beer and malt liquor. The company produces, markets and sells its beverages on a regional basis through a network of approximately 1,300 independent distributors. The company previously filed for Chapter 11 bankruptcy protection in January 1991 emerging in December 1991. Only two years after emerging from bankruptcy, G. Heileman Brewing Company, Inc. was bought by Hicks, Muse, Tate & Furst Incorporated (HMTF), in a \$420 million buyout — \$340 million of which was financed with debt. Heileman's weak position in an intensely competitive operating environment and 1995's flat to slowly declining U.S. beer market has resulted in lower volumes for most of its brands. Rising aluminum costs, combined with declining contract beverage business, led to price cutting and reduced profit margins. Heileman lost \$7.8 million in the first six months of 1995, compared with a operating profit of \$14.7 million for the same period in 1994. Its balance sheet, already thinly capitalized, deteriorated steadily since the beginning of 1995. As of June 30, 1995, Heileman was not in compliance with certain financial ratio covenants of its secured bank credit agreement.

01/31/96 — Missed interest payments.

04/03/96 — Filed Chapter 11.

(Contact: Brian Oak, Tel: 553-4688)

Grupo Situr, S.A. de C.V.

Hotel operator

\$100.0 million 8.75% Euro Medium Term Notes due 1998

Grupo Situr, S.A. de C.V., based in Guadalajara, Mexico, is Mexico's principal developer of integrated resorts. The company, controlled by Grupo Sidek, S.A. de C.V., is one of the country's leading hotel owners and operators and a leader in timeshare units. The company is also involved in the planning, construction, and marketing of residential and commercial developments. In the last five years, the company's assets have grown to \$2.2 billion. The company's aggressive expansion, which was funded mostly with debt, came to a sudden halt by the end of 1994. The devaluation of the Mexican peso in December 1994 effectively increased the company's dollar-denominated debt by 40% overnight. Moreover, in US dollar terms, net sales decreased 37% from FY93 to FY94, producing a net loss of \$148 million for FY94 as opposed to a net income of \$126 million for FY93. The company hobbled along through 1995, defaulting on its commercial paper in March. In the midst of trying to restructure its burdensome debt load, the company on March 14, 1996, missed interest payments on its medium term notes, due in 1998.

03/14/96 — Missed interest payments.

(Contact: Joseph Chakra, Tel: 553-7821)

Grupo Tribasa S.A. de C.V.

Construction

\$83.8 million 7.75% Guaranteed Eurobonds due 2000

\$123.6 million Guaranteed Floating Rate Euronotes Series A due 1999

Grupo Tribasa S.A. de C.V. is Mexico's second largest construction company. Between 1989 and 1994, the company participated in the development, financing, construction and operation of 585 kilometers of toll roads, a significant percentage of the highway projects built under the Mexican government's concession program. Tribasa experienced a 65% contraction in construction revenues in 1995 caused by the devaluation of the peso and large infrastructure projects being put on hold as a result of the austerity program enacted by the Mexican government. Moreover, interest rates soared as a consequence of the devaluation, eating up most of the cash that the toll roads and other construction projects generated. The company redefined its strategy in 1995, diversifying away from toll roads and seeking public work projects in Mexico as well as the rest of Latin America, and restructuring its debt. As part of Tribasa's debt restructuring in April 1996, 83% of both its bond and note holders exchanged their debt instruments for debt securities with a forced equity conversion feature.

04/19/96 — Bonds and notes exchanged for debt securities with mandatory conversion into equity at 04/19/97.

(Contact: George Meyers, Tel: 553-1608)

Homeland Stores, Inc.

Retail food stores

\$75.0 million 12.25% Notes due 1999

Homeland Stores, Inc. is the leading supermarket chain in the Oklahoma, southern Kansas, and Texas Panhandle region. As of April 1995, the company operated 104 stores throughout these markets, as well as a warehouse and distribution center in Oklahoma City. The company has experienced declining sales and operating margins since FY1992 as a result of increased industry competitiveness and elevated labor costs. Moreover, the company's approximately \$20 million annual interest expense has not only put it in the red, but has also prevented it from investing in areas needed to support its operations. Homeland Stores missed interest payments on March 1, 1996.

03/01/96 — Missed interest payments.

05/13/96 — Filed Prepackaged Chapter 11.

(Contact: Michael Rowan, Tel: 553-4465)

JPS Textile Group, Inc.

Textile and apparel manufacturer

\$54.1 million 7% Subordinated Debentures due 2000

\$80.3 million 10.85% Senior Subordinated Discount Notes due 1999

\$112.5 million 10.25% Senior Subordinated Notes due 1999

\$29.3 Series A Senior Redeemable Preferred Stock due May 2003

JPS Textile Group, Inc., located in Greenville, South Carolina, is a textile manufacturer specializing in fabric for apparel, industrial applications for construction and electronics, and home furnishings. The company previously filed for Chapter 11 Bankruptcy protection in February 1991. Since then, the company returned briefly to profitability in FY94. However, JPS's profitability started declining again in the second half of fiscal year ending October 1995, reflecting weak market conditions for apparel fabrics and the company's excessive dependence on the highly competitive and contracting commodity apparel sector (49% of sales) which yields low margins. The company attempted to reduce its debt burden by repurchasing its debt in the secondary market in 1995 and by applying the proceeds of the sale of the carpet division in 1996; however this attempt did not alleviate cash requirements sufficiently. Under financial strain in September 1996, the company restructured its bank loan facility reducing the interest rate and extending the maturity. JPS stated in its third quarter FY96 financial statements that it did not anticipate being able to make interest payments on its subordinated debentures and subsequently missed the payments on November 15, 1996.

11/15/96 — Missed interest payments on subordinate debentures due 2000.

12/01/96 — Missed interest payments on both senior subordinate notes due 1999.

(Contact: Catherine Guinee Tel: 553-4385)

Kenetech Corporation

Electricity provider

\$100.0 million 12.75% Senior Secured Notes due 2002

Headquartered in San Francisco, California, Kenetech Corporation provides products and services to the electric power industry. Through its principal subsidiary, Kenetech Windpower Inc. (KWI), Kenetech manufactures and develops utility-scale wind powered electric powerplants. In addition, Kenetech's Power Systems Group develops, constructs and sells independent power projects. The company reported a net loss of \$250 million for FY95. Mechanical problems with the KWI's principal product, the 33M-VS wind turbine, historical price lows due to deregulation in the electric power industry in the US, and increased business risk associated with project development in emerging markets, caused this loss. Consequently, KWI filed for Chapter 11 protection on May 29, 1996. Even though Kenetech and its other subsidiaries did not file for Chapter 11, its liquidity remained severely constrained and on June 15, 1996, it missed interest payments on its senior secured notes due 2002.

06/15/96 — Missed interest payments.

(Contact: Bill Barry, Tel: 553-4807)

Maculan Holding AG

Construction

AS660.0 million 4.0% Debentures due 1996 [US\$63.8 million]

Maculan Holding AG, based in Austria, is a holding company for firms engaged in building construction, civil engineering, industrial construction work, and specialized underground engineering. The company operates through 149 principal subsidiaries located in Austria, Germany, Bulgaria, Hungary, Poland, and Russia. By 1992, the company had become the second-largest construction company in Austria. In January 1994, the company declared force majeure on two large-scale building projects in Russia. Materials and subcontracting costs, accounted for in roubles, soared as inflation far outstripped the fall in the value of the Russian currency, leading to cost overruns. Moreover, significant losses at the East German operations pushed the company more deeply into the red, and by the end of 1994 it was recording an operating loss of AS350 million and liabilities of around AS10 billion. By February 1996, the company did not even have enough cash to pay wages and finally filed for court protection on March 4, 1996.

03/04/96 — Filed Chapter 11.

(Contact: Wolfgang Draack, Frankfurt Office Tel: 49 69 242 84 120)

Marvel Entertainment Group, Inc.

Printer and publisher

\$145.0 million Senior Secured Revolving Credit Facility due 2001

\$350.0 million Senior Secured Term Loan due 2002

Marvel Entertainment Group, Inc. is a leading publisher, distributor and licensor of youth entertainment products. The company and its three-tiered holding companies are controlled by MacAndrews & Forbes Holdings which is wholly owned by Ronald O. Perelman. Marvel Entertainment, incorporated in 1986, grew revenues rapidly through numerous acquisitions. Over the last five years, the company diversified from primarily comic book production and distribution into other youth-based entertainment products. A decline in comic book specialty stores, coupled with a contraction in sports trading card demand decreased revenues thereby creating a net loss over the last two-year period. Dismal operating performance put the company in violation of credit agreements for the third quarter of 1996. On October 8, 1996 the company announced that it had commenced negotiations with bankers seeking waivers of certain financial covenants. Not managing to come to an agreement with noteholders, the company filed for Chapter 11 protection on December 27, 1996.

12/27/96 — Filed Chapter 11.

(Contact: Joel Lustig, Tel: 553-4760)

Marvel III Holdings Inc.*Holding company***\$125.0 million 9.125% Senior Secured Notes due 1998**

Marvel III Holdings Inc. is a direct wholly owned subsidiary of MacAndrews & Forbes Holding Inc. See accompanying critique on Marvel Entertainment Group, Inc.

12/27/96 — Filed Chapter 11.

(Contact: Joel Lustig, Tel: 553-4760)

Marvel (Parent) Holdings Inc.*Holding company***\$251.7 million Senior Secured Discount Notes due 1998**

Marvel (Parent) Holdings Inc. is a direct wholly owned subsidiary of Marvel III Holdings Inc. See accompanying critique on Marvel Entertainment Group, Inc.

12/27/96 — Filed Chapter 11.

(Contact: Joel Lustig, Tel: 553-4760)

Marvel Holdings Inc.*Holding company of printer and publisher***\$517.5 million 7.5% Senior Secured Discount Notes due 1998**

Marvel Holdings Inc. is a direct wholly owned subsidiary of Marvel (Parent) Holdings Inc. See accompanying critique on Marvel Entertainment Group, Inc.

12/27/96 — Filed Chapter 11.

(Contact: Joel Lustig, Tel: 553-4760)

Mid-American Waste Systems, Inc.*Waste management***\$175.0 million 12.25% Senior Subordinated Notes due 2003**

Mid-American Waste Systems, Inc., founded in 1985, is the seventh-largest non-hazardous solid waste management company in the U.S. The company has grown rapidly, primarily through acquisitions and owns and operates approximately 18 landfills. More comprehensive landfill regulation coupled with increased public concern over the environment and excess capacity have hurt the company's performance. Urgent liquidity problems, a \$7.25 million write-off for a Florida landfill, and the sudden departure of a key executive placed the company in a precarious financial and managerial predicament in 1995. The company had pre-sold its rights to the Atlanta market to Republic Industries for \$52 million in an effort to raise cash for interest payments. However, these funds were not available pending the approval of the company's senior noteholders. Consequently, the company missed interest payments on February 15, 1996.

02/15/96 — Missed interest payments.

(Contact: Mihoko Manabe, Tel: 553-1942)

MobileMedia Corporation, Inc.*Telecommunications provider***\$250.0 million 9.375% Senior Subordinated Notes due 2007****\$210.0 million Senior Subordinate Deferred Coupon Notes due 2003****\$600.0 million Term Loan A Facility due 2002****\$200.0 million Revolving Credit Facility due 2002****\$600.0 million Term Loan B Facility due 2003****\$600.0 million Optional Term Loan Facility due 2002**

MobileMedia Corporation, headquartered in New Jersey, is the second largest paging company in the US. Through its more than 100 sales offices, the company provides paging and wireless communications in all 50 states, the District of Columbia, Canada, and the Caribbean. In early 1996, the company completed an acquisition of MobileComm, BellSouth's paging and wireless messaging system. The restructuring of senior management in July 1996, together with incompatible backoffice systems after the acquisition left the company very disorganized. Lack of sufficient management and customer service spiraled the churn (canceling of subscriptions) to 4% a year - almost half of its subscription rate. By the third quarter of 1996, MobileMedia reported a decline in financials that put the company in violation of its bank credit facility. The company did not generate earnings sufficient to service its top heavy capital structure and failed to make interest payments on November 1, 1996.

11/01/96 — Missed interest payments on senior notes due 2007.

12/09/96 — Failed to make interest payments under its senior secured bank facility.

(Contact: Eric Goldstein, Tel: 553-3779)

Movie Star, Inc.

Apparel manufacturer and marketer

\$22.5 million 12.875% Subordinate Debentures due 2001

Movie Star, Inc., based in New York, through its subsidiaries designs, manufactures, markets and sells ladies' sleepwear, loungewear, men's work and leisure shirts and operates 25 Movie Star Factory Stores. A prolonged weak U.S. retail environment, coupled with the growing purchasing power of the company's consolidating retail customers impaired Movie Star's ability to grow sales. Consequently, the company reported a 15% decline in sales from \$68 million in the third quarter of FY94 to \$58 million in the third quarter of FY95. Moreover, over the last five years, depreciation and amortization have consistently exceeded the company's capital expenditures. With its limited financial resources, Movie Star has been unable to make the required investment in new manufacturing technology to protect its long-term viability in a retail environment dominated by a few retailers and was in a weak position to absorb increasing demands by retailers to share their inventory risk. The company missed interest payments on April 1, 1996.

04/01/96 — Missed interest payments.

(Contact: Catherine Guinee, Tel: 553-4385)

Packaging Research Corporation

Equipment and foods

\$1.4 million 8% Convertible Subordinated Debentures due 1999

Packaging Research Corporation (PRC), based in Colorado is involved in two businesses; custom precision equipment and more recently the premium pasta sauce business. Oren Brenton, the uranium trader who filed for bankruptcy in February 1995 owned 59% of the company at that time. Until February 1995, PRC was engaged in the moderately profitable business of manufacturing food processing equipment. On February 17, 1995, PRC bought "Mama Rizzo's", an unprofitable Texan maker of pasta sauce, as well as took over all the company's debt. Four months after the deal was completed, PRC's stock fell 71% from \$6.50 to \$1.875. PRC reported a net loss of \$2.4 million for FY95 as opposed to a net income of \$0.4 million for FY94 prior to purchasing the pasta business. On August 23, 1996, Mama Rizzo's filed for bankruptcy in the face of continued losses. The losses at Mama Rizzo's drained PRC's cash and subsequently the company did not meet its interest payments due September 1, 1996.

09/1/96 — Missed interest payments.

(Contact: Brian Oak, Tel: 553-4688)

Stratosphere Corporation

Casino operator

\$203.0 million 14.25% Guaranteed First Mortgage Notes due 2002

Stratosphere Corporation, headquartered in Las Vegas, owns and operates a hotel and casino in Las Vegas, Nevada centered around the Stratosphere Observation Tower. The company commenced operations on April 29, 1996. Stratosphere reported a net loss of \$35.2 million for the nine months ending September 1996 caused by poor location, insufficient room base, cost overruns and operational difficulties. Revenue expectations were not met because the company failed to translate tower customers into gaming customers. Moreover, the company still needs \$66 million to complete Phase II of its expansion, including a new hotel tower. The cost overruns together with insufficient cash flow caused Stratosphere to miss interest payments on November 15, 1996.

11/15/96 — Missed interest payments.

(Contact: Andrew Susser, Tel: 553-4312)

Tiphook Finance Corp.

Finance conduit

\$150.0 million 10.75% Guaranteed Senior Notes due 2002

\$350.0 million 8% Guaranteed Senior Notes due 2000

\$200.0 million 7.125% Guaranteed Senior Notes due 1998

Tiphook Finance Corp., based in the US, is a finance conduit and is a wholly owned subsidiary of Central Transport Rental Group plc (CTR). CTR, the holding company based in High Wycombe, England, owns subsidiaries engaged in trailer rental and together with its subsidiaries guarantees Tiphook's debt. In March 1994, CTR sold all its container operations for approximately \$1.1 billion. Although the company used the proceeds to reduce its debt, its leverage position, stemming from prior debt financed capital spendings, remained extremely high. The sale of its container operations and more recently the sale of its rail division, allowed CTR to focus on consolidation of its trailer business. Consequently, operational results improved during FY95, as the firm registered a £3 million operating profit against a previously reported £127 million loss in FY94. However, this improvement was insufficient to offset the cash drain imposed by its overleveraged balance sheet. Consequently, the company has been in discussions with debtholders since late 1995, and finally on June 21, 1996 it filed a prepackaged bankruptcy plan with the US Bankruptcy courts in Delaware.

06/21/96 — Filed a prepackaged bankruptcy plan.

(Contact Moody's Paris office: Marc de Tracy, Tel: 33-5330-1020)

United Merchants & Manufacturers, Inc.

Designer and manufacturer of costume jewelry

\$58.2 million 9.625% Senior Subordinated Debentures due 2009

United Merchants and Manufacturers, Inc. (UM&M), was once a diversified company engaged principally in the manufacture and distribution of apparel, textiles, and accessories. The company, struggling financially for more than a decade, has filed for bankruptcy twice before, once in 1970 and again in 1990. In order to reduce its debt burden, the company embarked on asset sales beginning late 1993. After closing its apparel textile manufacturing operation in February 1995, and selling its retail outlet store in January 1995, UM&M has focused on the design, manufacture and distribution of costume jewelry. The company's 79% owned subsidiary Victoria Creations, the second largest jewelry distributor in Rhode Island, is under pressure from its senior secured lender's refusal to provide an extension of its credit facilities. Despite a turnaround in Victoria Creations operating performance in FY95, UM&M's weak financial position was insufficient to provide the necessary financial support to Victoria Creations. Consequently, both Victoria Creations and UM&M filed for bankruptcy protection on February 23, 1996.

02/23/96 — Filed Chapter 11.

(Contact: Catherine Guinee, Tel: 553-4385)

UStrails Inc.

Campground and resort owner and operator

\$101.5 million 12% Senior Secured Notes due 1998

UStrails Inc., based in Dallas, Texas, through its subsidiaries National American Corporation (NACO) and Thousand Trails, owns and operates membership-based campground systems, manages time-share facilities and owns real estate. The company previously reorganized through a May 1991 Chapter 11 filing. Since emerging from Bankruptcy six months later, the company's membership base has declined by 22% from 167,000 at December 1991 to 131,000 as of March 31, 1996. Consequently, earnings have been insufficient to cover fixed charges. In June 1995, the company received a waiver of financial covenants contained in the indenture of its secured notes. However, this only alleviated the liquidity crunch temporarily, for the company missed interest payments on July 15, 1996.

07/15/96 — Missed interest payments.

(Contact: Tom Keller Tel: 553-1027)

WRT Energy Corporation

Oil and gas extractor

\$100.0 million 13.875% Guaranteed Senior Notes due 2002

WRT Energy Corporation, founded in 1988, is an oil and gas company, whose strategy is to acquire and to revitalize shut-in wells on the Louisiana Gulf Coast. Revenues increased almost threefold from FY92 to FY94 as the company transformed itself from a logging and fluid separation provider for oil and gas companies into an acquirer and developer of oil and gas reserves by using these technologies for its own properties. The company's production levels increased since March 1995, due to the acquisitions of a number of oil and gas properties. However, production increases were realized at a slower pace than anticipated due to three major well projects which proved to be unsuccessful in September 1995, and a delay in expanding the company's infrastructure to support its increased level of operations. A decline in average oil and gas prices coupled with lower than expected production levels, produced lower than expected cashflow from operations of \$2 million for the six months ending June 1995, causing considerable liquidity constraints. As of September 30, 1995, after paying its preferred dividends, the company's liquidity dwindled further. Subsequently WRT Energy Corp. filed for Chapter 11 on February 14, 1996.

02/14/96 — Filed Chapter 11.

(Contact: Mihoko Manabe, Tel: 553-1942)

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