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Defaults and Returns on High Yield Bonds: Analysis Through 1995.

Altman, Edward I., and Vellore Kishore.

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REPORT ON

DEFAULTS AND RETURNS ON HIGH YIELD BONDS: ANALYSIS THROUGH 1995

By

**Edward I. Altman
and
Vellore Kishore**

Dr. Altman is the Max L. Heine Professor of Finance and Vice Director of the NYU Salomon Center, Leonard N. Stern School of Business. Mr. Vellore Kishore is a Research Associate at the NYU Salomon Center.

Introduction and Overview

Nineteen-ninety five was an excellent year for the high yield market with relatively low defaults combined with returns of almost 20%, the highest since 1991. When viewed in comparative terms with other fixed income securities markets, however, the high yield debt market's performance in 1995 was not exceptional.

This report documents the high yield debt market's risk and return performance by presenting default and mortality statistics and providing a matrix of average returns and other performance statistics over the relevant periods of the market's evolution. Our analysis covers the period 1971-1995 for defaults and 1978-1995 for returns.

Default Rates

During 1995, \$4.55 billion of high yield debt defaulted, was exchanged under distressed conditions or an exchange was announced. This amount was comprised of 37 issues from 28 defaulting companies and resulted in a default rate of 1.90%.¹ A list of 1995 defaults appears in **Appendix A**. The 1995 default rate was up from 1.45% in 1994 but considerably below the historic weighted average annual rate from 1971-1995 of 3.93% per year (2.72% arithmetic average rate and just 1.70% median annual rate over the same 25 year period - **Exhibit 1**). The relevant face value of defaults was about \$1.13 billion greater in 1995 than one year earlier. Coincidentally, the increase in defaults was the same as the 1993-94 growth, indicating a continuing upward trend of default amounts and rates since the recent lowest year in 1993.

The 1.90% 1995 default rate is based on a mid-year population estimate of \$240 billion -- an amount that does not include issues that defaulted prior to 1995 but are still trading. **Exhibits 1 and 3** show the annual default rates from 1971-1995 as well as the average annual rates. For those analysts who prefer to calculate the default rate with prior defaults in the population base (\$251 billion), **Exhibit 2** shows that the 1995 rate was 1.81%.

Appendix B calculates default rates on a quarterly basis since

¹Some readers will note that our default rate is considerably below the 3.2% (by issuers) and 3.6% (by principal amount) that Moody's has reported for 1995. The difference is primarily due to the fact that we included two major defaults accounting for over \$1.5 billion (Grand Union and TWA) in our 1994 statistics while Moody's waited for the official defaults in early 1995. Also, Moody's includes convertible debt and foreign debt defaults which we do not.

1990 and **Appendix C** lists the defaults since 1970 by industry affiliation. General manufacturing firms (8) from a broad spectrum of industries, which includes textile manufacturers (4 in 1995), retailing (6) and leisure and entertainment companies (4) are the main participants in the class of 1996 defaults. In a subsequent study, we will attempt to analyze default recoveries by industry.

Default Losses and Recovery at Default

Default losses were also up slightly in 1995 to 1.24% versus 0.96% in 1994, but still far below the average from 1978-1995 of 1.96% per year (2.65% weighted average annual rate). **Exhibits 4 and 5** show the 1995 loss rate, which includes the loss of one-half of the average annual coupon, and the default losses for the last 18 years.²

The average recovery rate on the 37 issues for which we had end-of-default month prices was 40.6% -- remarkably close to the venerable 40% historical average recovery rate (**Exhibit 5**). **Exhibit 6** lists the recovery rates (prices just after default) by seniority for 1995 and for the past 18 years. The senior-secured and subordinated levels recovered lower amounts in 1995 than the historical 18-year average, while the senior unsecured and senior subordinated issues recovered more. The overall average 18-year recovery rate of \$41.7 is based on almost 700 issues, a very respectable sample.

²We are reporting the default loss rate going back to 1978 for the first time in this special report.

In Exhibit 7 we list the average recovery at default stratified by original bond rating for the period 1971-1995. The weighted recoveries for investment grade bonds definitely show higher rates than non-investment grade debt but the latter three "junk" bond classes show very little differences.³ Exhibit 8 lists the original Standard & Poor's ratings of defaulting issues, as well as the one year and six-months-prior ratings. Of the 673 issues tabulated, 75.2% were original issue high yield bonds and 24.8% were originally rated as investment grade but eventually defaulted. About 9% of the defaulted issues were still rated investment grade one year prior to default and 7% six months prior (multiple issues from a few large high grade issuers, e.g., Columbia Gas System, however, accounted for a large proportion of the 12 and 6 month prior investment grade defaults).

Exhibit 9 shows that the time it takes for an issue to default compared to its issuance date makes virtually no difference to the recovery rate. The possible exception is the recovery of \$52.48 in the first year which is almost matched by the slightly over 50% in the ninth year. Most other weighted recoveries by year are in the high 30's - low 40's range.⁴

³This is true even when we adjust for seniority bias. We will report on this more thoroughly in the future.

⁴In a subsequent study, we will attempt to calculate recoveries by industry as well as seniority and original bond ratings.

Mortality Rates, Losses and Simulated Return Spreads

Updated mortality rates and losses from 1971-1995 are reported in Exhibits 10 and 11. Our total defaulted issue population that had a rating upon issuance now numbers 606.⁵ The results through 1995 reflect the unusually great number of calls in 1993 when over \$94 billion of corporate bonds issued from 1971-1992 were redeemed by companies who took advantage of lower interest rates throughout the year. Calls were relatively trivial in 1994, however, due to upward interest rate movements.

It appears that the relatively low 1995 default rate reduced cumulative mortality rates and losses very slightly and only at selected horizons, e.g., the five year horizon. For example, the five year cumulative rates through 1995 vs. 1994 were for BBB (2.09% vs. 2.39%), for BB (9.97% vs. 10.79%) and for CCC (44.51% vs. 45.63%) but for B (23.91% vs. 23.71%) the rate was actually slightly higher. Interestingly, the ten year rates were the reverse with higher BBB, BB and CCC levels and slightly lower B rated levels.

As for the aging effect of bond defaults, we do find some evidence of this for BBB rated bonds during the first four years after issuance but no relationship thereafter. This can be observed by the yearly (marginal) mortality rates in Exhibit 10. The BB marginal rates are erratic, rising for the first three years and then actually falling thereafter. Single-B marginal rates also

⁵We have expanded our default data base somewhat from the 553 issues reported last year.

rise but only for the first three years, then reach a steady state of about 6-7% per year for years three through six and then fall off to a range of between 2-4% per year in most years after year six. Recall that these marginal and cumulative rates reflect underlying cohort populations that are adjusted each year for defaults, distressed restructurings and redemptions (calls).

Exhibit 12 lists a type of "simulated-actual" return spread of corporate bonds (per \$100 of investment) over long-term U.S. Treasuries for up to ten years after issuance, covering the period 1971-1995. This analysis assumes the investor bought the indicated rating category and held for ten years (semi-annual holding periods). The yield spread changes over time as interest rates change and returns are adjusted for reinvested cash flows, at the then prevailing rate, from coupon payments and recoveries on defaults. Prices of individual issues, however, do not change unless a default occurs. Data on defaults and losses are derived from the same information that was used in Exhibits 10 and 11.

Results through 1995 indicate that the Double-B class continues to do best,⁶ followed closely by Triple-B bonds. Single-B return spreads are lower than many classes, but they improved from last year's results (\$29.35 vs. \$22.07 for the 10 year horizon) due to slightly lower cumulative mortality losses. Although BB bonds continue to simulate better than B-rated issues,

⁶Please note that Exhibit 12 does not include the impact of price changes caused by interest rate fluctuations or those caused by overall market perceptions. Indeed, in 1994, BB-rated bonds actually performed more poorly than single-B's but this is not recorded in our simulated return measures.

the differential narrowed considerably in 1995 vs. 1994 results (see Altman and Kishore, 1995).

Total Returns

Exhibits 13-15 document the actual total returns and spreads on high yield bonds compared to U.S. Treasuries for the period 1978-1995 inclusive. Exhibit 13 shows each year's return and return spread as well as the promised yield to maturity and yield spread. Note that the high yield bond return spread (based on the Merrill Lynch High Yield Master Index vs. 10-Year U.S. Treasuries) was -3.67% in 1995, considerably lower than last year's differential of +7.13% and also lower than the arithmetic annual average of 1.81%. The returns are net of defaults. Despite this negative spread, the news was quite good since total returns were actually 19.91% on high yield bonds, considerably better than the past 18-year average of 12.40%.

The compound average annual return spread dropped slightly to 2.01% in 1995 from 2.32% through 1994. The average arithmetic return spread was 1.81% compared to an average annual yield spread of 4.51%. The difference (270 b.p. per year) is very close to our average annual default loss (Exhibit 5).

Exhibit 13 also shows promised yields and spreads. At the end of 1995, the yield spread was 4.12%, higher than yield spreads in 1993 and 1994 but still below the 18-year average of 4.51%.

We note that the impressive 23.58% return on 10-year U.S. Treasuries was due to the fairly sharp drop in interest rates,

conforming to the longer duration status of Treasuries. The total return on 5-10 year U.S. Treasuries in 1995, with duration closer to that of higher yield bonds, was 21.52%, somewhat closer to the high yield return.

Exhibits 14 and 15 show matrices of high yield compound returns and spreads over ten-year U.S. Treasuries for all possibly beginning-of-year and end-of-year points. Note the relatively high absolute compound returns for most investment horizons, translating to double-digit absolute returns. Return spreads are for the most part positive, although not for every possible horizon.

EXHIBIT 1

**HISTORICAL DEFAULT RATES - STRAIGHT DEBT ONLY
EXCLUDING DEFAULTED ISSUES FROM PAR VALUE OUTSTANDING
1971 - 1995 (\$ MILLIONS)**

<u>YEAR</u>	<u>PAR VALUE OUTSTANDING</u>	<u>PAR VALUE DEFAULTS</u>	<u>DEFAULT RATES</u>	
1995	\$240,000	\$4,551	1.896%	
1994	235,000	3,418 (a/b)	1.454% (a/b)	
1993	206,907	2,287	1.105%	
1992	163,000	5,545	3.402%	
1991	183,600	18,862	10.273%	
1990	181,000	18,354	10.140%	
1989	189,258	8,110	4.285%	
1988	148,187	3,944	2.662%	
1987	129,557	7,486 (c)	5.778% (c)	
1986	90,243	3,156	3.497%	
1985	58,088	992	1.708%	
1984	40,939	344	0.840%	
1983	27,492	301	1.095%	
1982	18,109	577	3.186%	
1981	17,115	27	0.158%	
1980	14,935	224	1.500%	
1979	10,356	20	0.193%	
1978	8,946	119	1.330%	
1977	8,157	381	4.671%	
1976	7,735	30	0.388%	
1975	7,471	204	2.731%	
1974	10,894	123	1.129%	
1973	7,824	49	0.626%	
1972	6,928	193	2.786%	
1971	6,602	82	1.242%	
				Standard Deviation
ARITHMETIC AVERAGE DEFAULT RATE		1971 TO 1995	2.723%	2.623%
		1978 TO 1995	3.028%	2.906%
		1985 TO 1995	4.200%	3.116%
WEIGHTED AVERAGE DEFAULT RATE (d)		1971 TO 1995	3.933%	3.226%
		1978 TO 1995	3.990%	3.244%
		1985 TO 1995	4.203%	3.258%
MEDIAN ANNUAL DEFAULT RATE		1971 TO 1995	1.708%	

Notes

- (a) Includes Grand Union debt of \$1,271.0 million and Trans World Airlines debt of \$231 million in 1994 defaults; if both were not included, the default rate would be 0.64%.
- (b) Amount of defaults in 1994 adjusted for accreted value of two TWA issues and two Grand Union issues.
- (c) \$1,841.7 million without Texaco, Inc., Texaco Capital, and Texaco N.V.; if not included, the default rate is 1.345%.
- (d) Weighted by par value of amount outstanding for each year.

EXHIBIT 2

HISTORICAL DEFAULT RATES - STRAIGHT DEBT ONLY DEFAULTED ISSUES INCLUDED IN PAR VALUE OUTSTANDING 1971 - 1995 (\$MILLIONS)

<u>YEAR</u>	<u>PAR VALUE OUTSTANDING</u>	<u>PAR VALUE DEFAULTS</u>	<u>DEFAULT RATES</u>	
1995	\$251,000	\$4,551	1.813%	
1994	249,000	3,418 (a/b)	1.373% (a/b)	
1993	234,727	2,287	0.974%	
1992	194,100	5,545	2.857%	
1991	209,400	18,862	9.008%	
1990	210,000	18,354	8.740%	
1989	201,000	8,110	4.035%	
1988	159,223	3,944	2.477%	
1987	136,952	7,486 (c)	5.466% (c)	
1986	92,985	3,156	3.394%	
1985	59,078	992	1.679%	
1984	41,700	344	0.825%	
1983	28,233	301	1.066%	
1982	18,536	577	3.115%	
1981	17,362	27	0.156%	
1980	15,126	224	1.482%	
1979	10,675	20	0.187%	
1978	9,401	119	1.265%	
1977	8,479	381	4.488%	
1976	8,015	30	0.368%	
1975	7,720	204	2.644%	
1974	11,101	123	1.106%	
1973	8,082	49	0.607%	
1972	7,106	193	2.720%	
1971	6,643	82	1.234%	
				Standard Deviation
ARITHMETIC AVERAGE DEFAULT RATE 1971 TO 1995			2.523%	2.302%
1978 TO 1995			2.773%	2.532%
1985 TO 1995			3.801%	2.688%
WEIGHTED AVERAGE DEFAULT RATE 1971 TO 1995 (d)			3.615%	2.832%
1978 TO 1995			3.662%	2.846%
1985 TO 1995			3.840%	2.853%

Notes

- (a) Includes Grand Union debt of \$1,271.0 million and Trans World Airlines debt of \$231 million in 1994 defaults; if both were not included, the default rate would be 0.64%.
- (b) Amount of defaults in 1994 adjusted for accreted value of two TWA issues and two Grand Union issues.
- (c) \$1,841.7 million without Texaco, Inc., Texaco Capital, and Texaco N.V.; If not included, the default rate is 1.345%.
- (d) Weighted by par value of amount outstanding for each year.

EXHIBIT 3

HISTORICAL DEFAULT RATES (1971 - 1995)

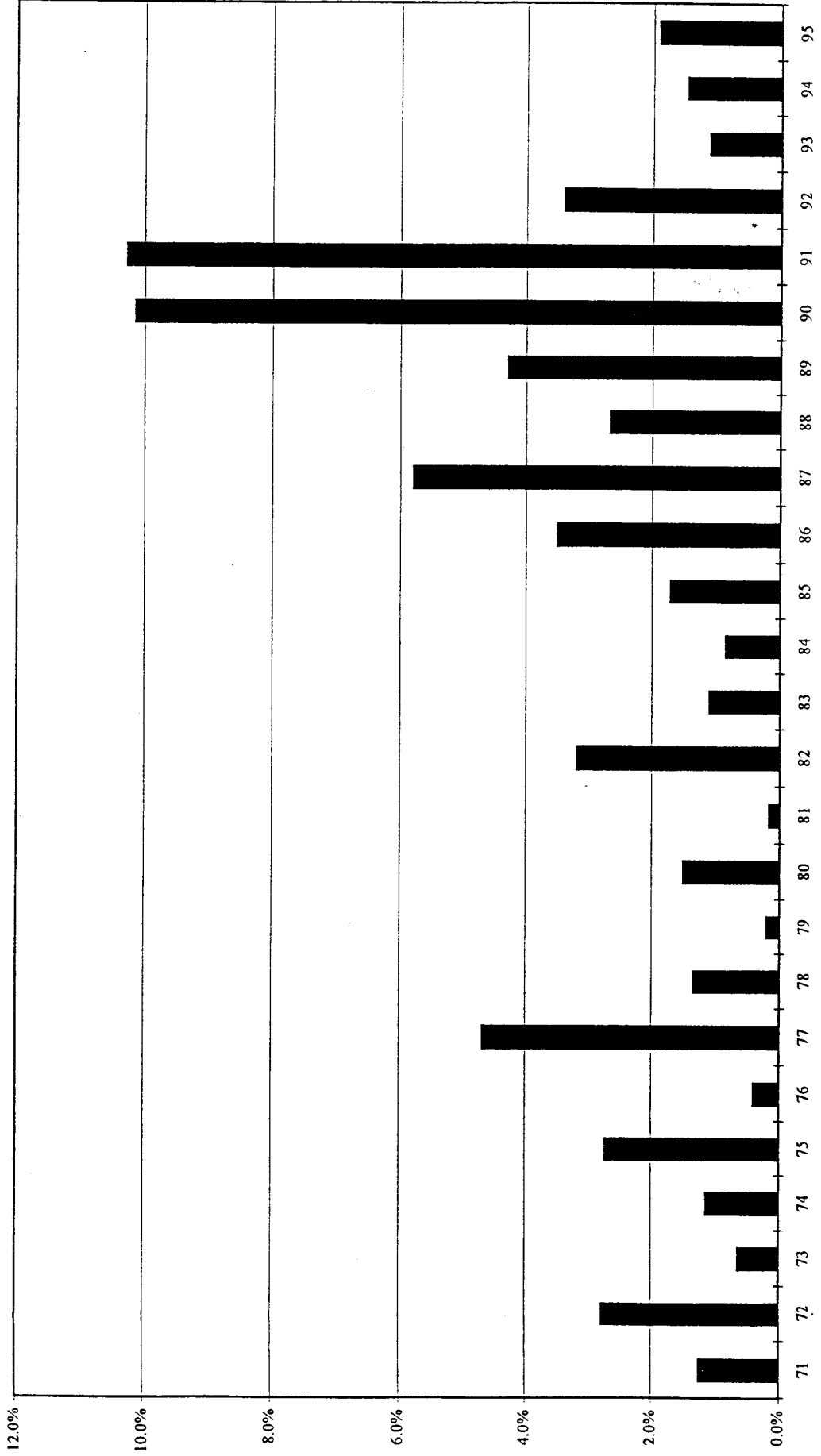


EXHIBIT 4

1995 DEFAULT LOSS RATE

<u>BACKGROUND DATA</u>	<u>WEIGHTED CALCULATION</u>	
	<u>INCLUDING DEFAULTS</u>	<u>EXCLUDING DEFAULTS</u>
AVERAGE DEFAULT RATE 1995	1.81%	1.90%
AVERAGE END OF MONTH PRICE AFTER DEFAULT	40.61%	40.61%
AVERAGE LOSS OF PRINCIPAL	59.39%	59.39%
AVERAGE COUPON PAYMENT	11.83%	11.83%
 DEFAULT LOSS COMPUTATION		
DEFAULT RATE	1.81%	1.90%
X LOSS OF PRINCIPAL	<u>59.39%</u>	<u>59.39%</u>
DEFAULT LOSS OF PRINCIPAL	1.077%	1.126%
DEFAULT RATE	1.813%	1.896%
X LOSS OF 1/2 COUPON	<u>5.914%</u>	<u>5.914%</u>
DEFAULT LOSS OF COUPON	0.107%	0.112%
DEFAULT LOSS OF PRINCIPAL AND COUPON	1.184%	1.238%

EXHIBIT 5

DEFAULT RATES AND LOSSES (a) 1978 - 1995

<u>YEAR</u>	<u>PAR VALUE OUTSTANDING (a)</u> (\$ MMs)	<u>PAR VALUE OF DEFAULT</u> (\$ MMs)	<u>DEFAULT RATE (%)</u>	<u>WEIGHTED PRICE AFTER DEFAULT</u>	<u>WEIGHTED COUPON (%)</u>	<u>DEFAULT LOSS (%)</u>
1995	\$240,000	\$4,551	1.90%	\$40.6	11.83%	1.24%
1994	235,000	3,418	1.45%	39.4	10.25%	0.96%
1993 (b)	206,907	2,287	1.11%	56.6	12.98%	0.56%
1992	163,000	5,545	3.40%	50.1	12.32%	1.91%
1991	183,600	18,862	10.27%	36.0	11.59%	7.16%
1990	181,000	18,354	10.14%	23.4	12.94%	8.42%
1989	189,258	8,110	4.29%	38.3	13.40%	2.93%
1988	148,187	3,944	2.66%	43.6	11.91%	1.66%
1987 (c)	129,557	7,486	5.78%	75.9	12.07%	1.74%
1986	90,243	3,156	3.50%	34.5	10.61%	2.48%
1985	58,088	992	1.71%	45.9	13.69%	1.04%
1984	40,939	344	0.84%	48.6	12.23%	0.48%
1983	27,492	301	1.09%	55.7	10.11%	0.54%
1982	18,109	577	3.19%	38.6	9.61%	2.11%
1981	17,115	27	0.16%	12.0	15.75%	0.15%
1980	14,935	224	1.50%	21.1	8.43%	1.25%
1979	10,356	20	0.19%	31.0	10.63%	0.14%
1978	8,946	119	1.33%	60.0	8.38%	0.59%
ARITHMETIC AVERAGE 1978-1995:			3.03%	41.7	11.60%	1.96%
WEIGHTED AVERAGE 1978-1995:			3.99%			2.65%

Notes

- (a) Excludes defaulted issues.
- (b) Includes Mesa.
- (c) Includes Texaco.

Exhibit 6

WEIGHTED AVERAGE RECOVERY RATES ON DEFAULTED DEBT BY SENIORITY PER \$100 FACE AMOUNT

(1978 - 1995)

Default Year	Senior Secured		Senior Unsecured		Senior Subordinated		Subordinated		Discount & Zero Coupon	
	No.	\$	No.	\$	No.	\$	No.	\$	No.	\$
1995	5	\$44.64	9	\$50.50	17	\$39.01	1	\$20.00	1	\$17.50
1994	5	\$48.66	8	\$51.14	5	\$19.81	3	\$37.04	1	\$5.00
1993	2	\$55.75	7	\$33.38	10	\$51.50	9	\$28.38	4	\$31.75
1992	15	\$59.85	8	\$35.61	17	\$58.20	22	\$49.13	5	\$19.82
1991	4	\$44.12	69	\$55.84	37	\$31.91	38	\$24.30	9	\$27.89
1990	12	\$32.18	31	\$29.02	38	\$25.01	24	\$18.83	11	\$15.63
1989	9	\$82.69	16	\$53.70	21	\$19.60	30	\$23.95	-	-
1988	13	\$67.96	19	\$41.99	10	\$30.70	20	\$35.27	-	-
1987	4	\$90.68	17	\$72.02	6	\$56.24	4	\$35.25	-	-
1986	8	\$48.32	11	\$37.72	7	\$35.20	30	\$33.39	-	-
1985	2	\$74.25	3	\$34.81	7	\$36.18	15	\$41.45	-	-
1984	4	\$53.42	1	\$50.50	2	\$65.88	7	\$44.68	-	-
1983	1	\$71.00	3	\$67.72	-	-	4	\$41.79	-	-
1982	-	-	16	\$39.31	-	-	4	\$32.91	-	-
1981	1	\$72.00	-	-	-	-	-	-	-	-
1980	-	-	2	\$26.71	-	-	2	\$16.63	-	-
1979	-	-	-	-	-	-	1	\$31.00	-	-
1978	-	-	1	\$60.00	-	-	-	-	-	-

Total/Average	85	\$57.89	221	\$47.65	177	\$34.38	214	\$31.34	31	\$21.66
Median		\$51.04		\$40.65		\$27.86		\$31.96		\$18.66
Std.Dev.		\$22.99		\$26.71		\$25.08		\$22.42		\$18.35

Exhibit 7

AVERAGE PRICE AFTER DEFAULT BY ORIGINAL BOND RATING
(1971 - 1995)

Rating	No. of Observations	Average Price	Weighted Average Price	Median Price	Std Dev	Minimum Price	Maximum Price
AAA	7	\$68.34	\$76.99	\$71.88	\$20.82	\$32.00	\$97.00
AA	20	\$59.59	\$76.52	\$54.25	\$24.59	\$17.80	\$99.88
A	52	\$64.94	\$57.38	\$64.07	\$20.90	\$10.50	\$100.00
BBB	74	\$50.96	\$52.59	\$50.25	\$22.15	\$10.00	\$103.00
BB	61	\$40.11	\$41.79	\$33.50	\$23.61	\$1.00	\$98.75
B	364	\$36.44	\$35.26	\$32.75	\$23.67	\$0.50	\$112.00
CCC	110	\$38.18	\$33.87	\$29.31	\$27.88	\$1.00	\$103.25
Total	688	\$41.75	\$40.22	\$37.00	\$25.62	\$0.50	\$112.00

EXHIBIT 8

**RATING DISTRIBUTION OF DEFAULTED ISSUES (a)
AT VARIOUS POINTS PRIOR TO DEFAULT
(1971-1995)**

	ORIGINAL RATING		RATING ONE YEAR PRIOR TO DEFAULT		RATING SIX MONTHS PRIOR TO DEFAULT	
	Number	Percentage	Number	Percentage	Number	Percentage
AAA	5	0.7%	0	0.0%	0	0.0%
AA	25	3.7%	0	0.0%	0	0.0%
A	66	9.8%	5	0.9%	2	0.3%
BBB	71	10.5%	45	8.0%	39	6.5%
Total Investment Grade	167	24.8%	50	8.8%	41	6.9%
BB	73	10.8%	61	10.8%	43	7.2%
B	335	49.8%	274	48.4%	236	39.5%
CCC	94	14.0%	164	29.0%	230	38.5%
CC	4	0.6%	12	2.1%	41	6.9%
C	0	0.0%	5	0.9%	6	1.0%
Total Noninvestment Grade	506	75.2%	516	91.2%	556	93.1%
TOTAL	673	100%	566	100%	597	100%

(a) Based on Standard & Poor's Bond Ratings

Exhibit 9
WEIGHTED AVERAGE PRICE AT DEFAULT
BY NUMBERED YEARS AFTER ISSUANCE
(1971 - 1995)

Years To Default	No. of Observations	Average Price	Weighted Avg. Price	Median Price	Standard Deviation
1	25	\$46.36	\$52.48	\$32.00	\$28.26
2	92	\$37.80	\$35.65	\$35.50	\$22.66
3	112	\$39.42	\$37.22	\$35.00	\$25.54
4	99	\$41.11	\$38.78	\$38.00	\$24.82
5	89	\$40.33	\$39.94	\$35.13	\$26.33
6	75	\$39.54	\$41.17	\$36.00	\$25.04
7	40	\$37.25	\$44.44	\$35.75	\$26.11
8	33	\$36.75	\$34.51	\$27.00	\$27.35
9	18	\$41.55	\$50.28	\$33.00	\$28.06
10	23	\$36.85	\$41.27	\$32.00	\$23.64
All	606	\$41.33	\$39.07	\$35.06	\$25.78

Exhibit 10

MORTALITY RATES BY ORIGINAL RATING - ALL RATED CORPORATE BONDS*

(1971 - 1995)

Years after issuance

	1	2	3	4	5	6	7	8	9	10
AAA										
Yearly	0.00%	0.00%	0.00%	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%
Cumulative	0.00%	0.00%	0.00%	0.00%	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
AA										
Yearly	0.00%	0.00%	0.54%	0.31%	0.00%	0.00%	0.01%	0.00%	0.05%	0.05%
Cumulative	0.00%	0.00%	0.54%	0.84%	0.84%	0.84%	0.85%	0.85%	0.89%	0.94%
A										
Yearly	0.00%	0.00%	0.06%	0.18%	0.08%	0.18%	0.07%	0.15%	0.12%	0.00%
Cumulative	0.00%	0.00%	0.06%	0.24%	0.32%	0.50%	0.58%	0.73%	0.85%	0.85%
BBB										
Yearly	0.03%	0.39%	0.53%	0.68%	0.47%	0.60%	0.24%	0.13%	0.12%	0.67%
Cumulative	0.03%	0.42%	0.94%	1.62%	2.09%	2.68%	2.91%	3.04%	3.16%	3.80%
BB										
Yearly	0.50%	0.98%	4.03%	1.49%	3.34%	1.37%	3.02%	0.29%	2.15%	4.20%
Cumulative	0.50%	1.48%	5.45%	6.86%	9.97%	11.20%	13.88%	14.13%	15.98%	19.51%
B										
Yearly	1.29%	4.29%	6.90%	6.69%	7.29%	6.24%	4.13%	2.38%	1.58%	1.88%
Cumulative	1.29%	5.53%	12.05%	17.93%	23.91%	28.66%	31.60%	33.23%	34.29%	35.52%
CCC										
Yearly	2.54%	17.25%	18.96%	11.80%	3.75%	9.82%	1.69%	5.71%	0.00%	10.11%
Cumulative	2.54%	19.34%	34.64%	42.35%	44.51%	49.96%	50.81%	53.62%	53.62%	58.31%

* Rated by S & P at Issuance
Based on 606 issues

Exhibit 11

MORTALITY LOSSES BY ORIGINAL RATING - ALL RATED CORPORATE BONDS*

(1971 - 1995)

Years after issuance

	1	2	3	4	5	6	7	8	9	10
AAA										
Yearly	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Cumulative	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
AA										
Yearly	0.00%	0.00%	0.11%	0.11%	0.00%	0.00%	0.00%	0.00%	0.03%	0.03%
Cumulative	0.00%	0.00%	0.11%	0.22%	0.22%	0.22%	0.22%	0.22%	0.25%	0.28%
A										
Yearly	0.00%	0.00%	0.04%	0.12%	0.06%	0.13%	0.03%	0.09%	0.07%	0.00%
Cumulative	0.00%	0.00%	0.04%	0.16%	0.21%	0.35%	0.38%	0.46%	0.53%	0.53%
BBB										
Yearly	0.03%	0.23%	0.29%	0.44%	0.15%	0.35%	0.21%	0.08%	0.08%	0.47%
Cumulative	0.03%	0.26%	0.54%	0.98%	1.13%	1.48%	1.68%	1.76%	1.84%	2.30%
BB										
Yearly	0.33%	0.61%	2.98%	1.05%	1.72%	1.07%	1.60%	0.17%	1.19%	2.18%
Cumulative	0.33%	0.94%	3.89%	4.90%	6.53%	7.53%	9.00%	9.16%	10.25%	12.20%
B										
Yearly	0.66%	2.90%	5.42%	4.97%	5.48%	3.96%	2.55%	1.76%	0.84%	1.44%
Cumulative	0.66%	3.54%	8.77%	13.30%	18.05%	21.30%	23.30%	24.65%	25.28%	26.36%
CCC										
Yearly	1.31%	14.06%	13.97%	7.22%	2.28%	6.79%	1.51%	4.54%	0.00%	7.91%
Cumulative	1.31%	15.19%	27.04%	32.31%	33.85%	38.34%	39.27%	42.03%	42.03%	46.61%

* Rated by S & P at Issuance
 Baes on 606 issues

Exhibit 12

RETURN SPREAD OF CORPORATE BONDS OVER
RISK FREE GOVERNMENTS FOR THE PERIOD 1971-1995*

Years After Issuance	Bond Rating At Issuance						
	AAA	AA	A	BBB	BB	B	CCC
0.5	\$0.22	\$0.36	\$0.51	\$0.12	\$0.13	\$1.45	(\$3.19)
1.0	\$0.46	\$0.05	\$0.02	\$0.03	\$1.61	\$4.12	(\$6.52)
1.5	\$0.71	\$1.05	\$1.66	\$2.13	\$1.86	\$5.00	(\$10.01)
2.0	\$0.99	\$1.45	\$2.25	\$2.87	\$1.14	\$5.73	(\$10.20)
2.5	\$1.30	\$1.87	\$2.94	\$3.69	\$0.35	\$6.51	(\$10.40)
3.0	\$1.62	\$2.41	\$3.68	\$4.76	\$3.56	\$7.62	(\$7.80)
3.5	\$1.98	\$2.99	\$4.57	\$5.93	\$4.36	\$8.80	(\$4.81)
4.0	\$2.36	\$3.62	\$5.39	\$7.07	\$5.67	\$9.19	(\$4.39)
4.5	\$2.78	\$4.31	\$6.29	\$8.30	\$7.15	(\$4.69)	(\$3.78)
5.0	\$3.24	\$5.05	\$7.33	\$9.75	\$8.34	(\$3.79)	\$0.70
5.5	\$3.73	\$5.86	\$8.53	\$11.32	\$9.62	(\$2.83)	\$5.64
6.0	\$4.27	\$6.74	\$9.71	\$13.14	\$12.23	(\$1.14)	\$8.64
6.5	\$4.84	\$7.69	\$11.07	\$15.11	\$15.07	\$0.68	\$11.80
7.0	\$5.46	\$8.70	\$12.47	\$17.26	\$17.21	\$3.51	\$19.55
7.5	\$6.13	\$9.79	\$14.09	\$19.60	\$19.53	\$6.61	
8.0	\$6.86	\$10.96	\$15.80	\$21.72	\$21.00	\$9.44	
8.5	\$7.64	\$12.23	\$17.72	\$24.01	\$22.56	\$12.53	
9.0	\$8.48	\$13.63	\$19.72	\$27.04	\$26.78	\$17.54	
9.5	\$9.41	\$15.19	\$22.19	\$30.40	\$31.50	\$23.15	
10.0	\$10.40	\$16.87	\$24.59	\$34.03	\$36.66	\$29.35	

*Net Investment each period adjusted for cumulative mortality rates, calls and sinking fund redemptions. Assume sale of defaulted debt at the average price at the end of the month after default, minus loss of one semi-annual coupon payment. Assume reinvestment of all cash flows at the actual average annual YTM for the appropriate bond rating class; long-term average annual YTM used for Government bonds. Returns are expressed in dollars per \$100 of investment.

EXHIBIT 13

ANNUAL RETURNS, YIELDS AND SPREADS ON TEN-YEAR TREASURY (TREAS) AND HIGH YIELD (HY) BONDS (1978-1995)

<u>YEAR</u>	<u>RETURN(%)</u>			<u>PROMISED YIELD(%) *</u>		
	<u>HY</u>	<u>TREAS</u>	<u>SPREAD</u>	<u>HY</u>	<u>TREAS</u>	<u>SPREAD</u>
1995	19.91	23.58	(3.67)	9.70	5.58	4.12
1994	(1.17)	(8.29)	7.13	11.27	7.83	3.44
1993	17.18	12.08	5.11	9.61	5.80	3.81
1992	18.16	6.50	11.66	11.28	6.69	4.59
1991	34.58	17.18	17.40	13.11	6.70	6.41
1990	(4.36)	6.88	(11.24)	17.58	8.83	8.75
1989	1.62	15.99	(14.37)	15.41	7.93	7.48
1988	13.47	9.20	4.27	13.95	9.00	4.95
1987	4.67	(2.67)	7.34	12.66	8.75	3.91
1986	16.09	24.08	(7.99)	14.45	9.55	4.90
1985	22.51	31.54	(9.03)	15.40	11.65	3.75
1984	8.50	14.82	(6.32)	14.97	11.87	3.10
1983	21.80	2.23	19.57	15.74	10.70	5.04
1982	32.45	42.08	(9.63)	17.84	13.86	3.98
1981	7.56	0.48	7.08	15.97	12.08	3.89
1980	(1.00)	(2.96)	1.96	13.46	10.23	3.23
1979	3.69	(0.86)	4.55	12.07	9.13	2.94
1978	7.57	(1.11)	8.68	10.92	8.11	2.81

ARITHMETIC ANNUAL AVERAGE:

1978-1995	12.40	10.60	1.81	13.63	9.13	4.51
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COMPOUND ANNUAL AVERAGE:

1978-1995	11.88	9.86	2.01
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* End of year yields.

EXHIBIT 14

COMPOUND AVERAGE ANNUAL RETURNS OF HIGH YIELD BONDS (%) 1978-1995

BASE PERIOD (JAN 1)	TERMINAL PERIOD (DECEMBER 31)																	
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
1978	7.57	5.61	3.36	4.39	9.48	11.45	11.02	12.40	12.80	11.96	12.10	11.18	9.90	11.50	11.94	12.26	11.42	11.88
1979		3.69	1.32	3.36	9.97	12.24	11.61	13.10	13.47	12.46	12.56	11.52	10.10	11.81	12.26	12.58	11.66	12.13
1980			(1.00)	3.19	12.14	14.48	13.26	14.75	14.94	13.61	13.59	12.33	10.70	12.52	12.94	13.24	12.22	12.68
1981				7.56	19.36	20.17	17.14	18.19	17.84	15.86	15.56	13.92	11.95	13.84	14.19	14.42	13.23	13.66
1982					32.45	27.01	20.52	21.01	20.01	17.31	16.75	14.74	12.44	14.48	14.81	15.01	13.67	14.11
1983						21.80	14.96	17.42	17.09	14.49	14.32	12.41	10.17	12.64	11.92	13.54	12.24	12.81
1984							8.50	15.29	15.56	12.73	12.88	10.92	8.60	11.55	10.97	12.75	11.40	12.09
1985								22.51	19.26	14.18	14.00	11.41	8.61	11.99	12.74	13.23	11.70	12.42
1986									16.09	10.23	11.30	8.80	6.03	10.33	11.41	12.12	10.56	11.46
1987										4.67	8.98	6.47	3.65	9.21	10.65	11.56	9.89	10.96
1988											13.47	7.38	3.32	10.37	11.89	12.75	10.65	11.77
1989												1.62	(1.42)	9.36	11.50	12.61	10.19	11.53
1990													(4.36)	13.45	15.00	15.54	11.99	13.27
1991														34.58	26.10	23.06	16.49	17.17
1992															18.16	17.67	11.02	13.18
1993																17.18	7.62	11.57
1994																	(1.17)	8.86
1995																		19.91

Source: Merrill Lynch High Yield Master Index; Edward I. Altman, New York University Salomon Center

EXHIBIT 15

COMPOUND ANNUAL RETURN SPREADS BETWEEN HIGH YIELD AND LT GOVERNMENT BONDS (%) 1978-1995

BASE PERIOD (JAN 1)	TERMINAL PERIOD (DECEMBER 31)																		
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
1978	8.68	6.60	5.01	5.51	3.17	5.82	4.13	2.70	1.59	2.22	2.41	0.98	(0.04)	1.06	1.76	1.96	2.32	2.01	
1979		4.55	3.23	4.48	1.71	5.22	3.32	1.77	0.62	1.44	1.73	0.23	(0.82)	0.43	1.23	1.48	1.89	1.59	
1980			1.96	4.45	0.67	5.39	3.05	1.24	(0.02)	1.01	1.38	(0.25)	(1.35)	0.05	0.94	1.23	1.69	1.39	
1981				7.08	(0.13)	6.74	3.36	1.07	(0.42)	0.85	1.29	(0.54)	(1.73)	(0.16)	0.84	1.17	1.67	1.34	
1982					-9.63	6.49	1.93	(0.69)	(2.16)	(0.33)	0.36	(1.60)	(2.80)	(0.96)	0.22	0.62	1.22	0.89	
1983						19.57	6.62	1.84	(0.56)	1.22	1.74	(0.65)	(2.11)	(0.16)	(0.24)	1.39	1.95	1.55	
1984							-6.32	(7.60)	(7.73)	(3.48)	(1.89)	(4.06)	(5.19)	(2.65)	(2.35)	-0.45	0.35	0.05	
1985								-9.03	(8.50)	(2.50)	(0.76)	(3.60)	(5.00)	(2.12)	(0.39)	0.21	1.02	0.63	
1986									-7.99	0.34	1.64	(2.41)	(4.30)	(1.12)	0.69	1.23	1.98	1.47	
1987										7.34	5.89	(0.76)	(3.49)	0.13	2.01	2.44	3.11	2.43	
1988											4.27	(5.16)	(7.31)	(1.85)	0.83	1.53	2.45	1.75	
1989												-14.37	(12.76)	(3.89)	(0.03)	0.97	2.15	1.40	
1990													-11.24	(3.89)	(0.03)	0.97	2.15	1.40	
1991														1.54	4.92	4.97	5.47	4.09	
1992														17.4	14.39	11.22	10.07	7.52	
1993																8.41	7.96	5.33	
1994																	6.23	3.27	
1995																	7.13	2.41	-3.67

Source: Merrill Lynch High Yield Master Index; Edward I. Altman, New York University Salomon Center

APPENDIX A
1995 DEFAULTED CORPORATE STRAIGHT DEBT (a)

<u>Company (a)</u>	<u>Bond Issue</u>	<u>Outstanding</u>			<u>Default/</u>
		<u>Coupon</u> <u>(%)</u>	<u>Amount</u> <u>(\$ MM)</u>	<u>Maturity</u> <u>Year</u>	<u>Exchange</u> <u>Date</u>
Anacomp, Inc.	Sr Subordinated Nts	15.00	225.0	00	May-95
Anacomp, Inc.	Sr Sec'd Nts (Ser B)	12.25	65.0	97	May-95
Bibb Co.	Sr Subordinated Nts	14.00	127.0	99	Apr-95 (b)
Bibb Co. (NTC Group)	Sr Subordinated Nts	13.875	32.8	99	Apr-95 (b)
Equitable Bag Co.	Sr Nts	11.00	50.0	04	May-95
Americold Corp. (c)	Sr Subordinated Debentures	11.00	115.0	97	May-95
Dow Corning Corp.	Sr Debentures	8.15	50.0	29	May-95
Dow Corning Corp.	Sr Debentures	9.375	75.0	08	May-95
Dow Corning Corp.	Sr Nts	8.13	34.5	03	May-95
Presidio Oil Co.	Sr Sec Nts (Ser B)	11.50	75.0	00	Mar-95
Presidio Oil Co.	Sr Gas Indexed Nts (Ser B)	13.25	99.8	02	Mar-95
Spectravision (d)	Sr Subordinated Resets (PIK-6/95)	11.65	313.4	02	Jun-95
Spectravision (d)	Sr Disc Nts	11.50	178.3	01	Jun-95
UDC Homes Inc.	Sr Unsec Nts	11.75	115.0	03	May-95
Vendell Healthcare Inc.	Sr Nts (Ser B)	12.00	75.0	00	May-95
Bradlee's	Sr Subordinated	9.25	100.0	03	Jun-95
Bradlee's	Sr Subordinated	11.00	125.0	02	Jun-95
Plaid Clothing Group	Sr Subordinated Nts	11.00	75.0	03	Jul-95
Baldwin Co.	Sr Nts (Ser B)	10.375	155.0	03	Jul-95
Heileman Acq. Co.	Sr Subordinated Nts	9.625	160.0	04	Aug-95 (e)
Seven-Up/RC Btlg of So. Cal.	Sr Sec'd	11.50	140.0	99	Jul-95
Warehouse Entertainment	Sr Subordinated	13.00	110.0	02	Aug-95
Forstmann	Sr Subordinated Disc Nts (f)	14.75	56.6	99	Sep-95
Goldriver Hotel and Casino	First Mortgage Notes	13.375	75.0	99	Aug-95
Victory Markets	Subordinated	12.50	59.0	00	Sep-95
Almac's Inc	Sr Subordinated Nts (g)	11.50	11.0	04	Sep-95
Capital Gaming International	Sr Secured	11.50	135.0	01	Aug-95
Burlington Motor Holdings	Sr Subordinated Nts	11.50	100.0	03	Dec-95
Color Tile	Sr Nts	10.75	200.0	01	Nov-95
Drypers	Sr Nts	12.50	45.0	02	Nov-95
Harrah's Jazz	First Mortgage	14.25	435.0	01	Nov-95
I.C.H. (Swstn. Life)	Sr Subordinated Nts	11.25	256.1	96	Oct-95
I.C.H. (Swstn. Life)	Sr Subordinated Nts	11.25	91.2	03	Oct-95
Ithaca Industries	Sr Subordinated Nts	11.125	125.0	02	Dec-95
Lomas Mortgage USA Inc.	Senior	10.25	190.0	02	Oct-95
Lomas Mortgage USA Inc.	Sr Nts	9.75	150.0	97	Oct-95
Rickel Home Centers	Sr Unsecured Nts	13.50	126.5	01	Dec-95
Total			4551.2		

Notes

- (a) Eurosecurities (\$1,554 mm) and convertible securities (\$106mm) are not included.
Grand Union, Sam Houston, and TWA debt are included in our 1994 total.
- (b) In April, Bibb announced it would miss its August payment. It legally defaulted in August.
- (c) Two Americold first mortgage bonds (Series A & B) did not default and were not affected by the restructuring.
- (d) Accreted values for the two Spectravision issues are \$313 million (11.65%) and \$178 million (11.50%).
- (e) In August, Heileman announced it would miss its January payment.
- (f) Forstmann Discount Notes were fully accreted.
- (g) Coupon payment has optional PIK feature.

APPENDIX B

QUARTERLY DEFAULT RATES: HIGH YIELD
DEBT MARKET 1989-1995 (a)

QUARTER	PAR VALUE OF DEBT OUTSTANDING (\$Billions)		AMOUNT OF DEBT DEFAULTED BY QUARTER (\$ BILLIONS)	QUARTERLY DEFAULT RATES (%)	
	(W/ DEFAULTS)	(W/O DEFAULTS)		(W/ DEFAULTS)	(W/O DEFAULTS)
1989 1Q	\$183.72 (est.)	NA	\$1.03	0.56%	NA
2Q	191.19 (est.)	NA	1.13	0.59%	NA
3Q	201.00	NA	3.54	1.76%	NA
4Q	204.33 (est.)	NA	<u>2.41</u> 8.11	1.18%	NA
1990 1Q	\$209.23 (est.)	\$185.00 (est.)	\$4.16	1.99%	2.25%
2Q	209.62 (est.)	\$185.00 (est.)	2.51	1.20%	1.36%
3Q	210.00	\$181.00	6.01	2.86%	3.32%
4Q	210.00 (est.)	\$181.00 (est.)	<u>5.67</u> 18.35	2.70%	3.13%
1991 1Q	\$210.00 (est.)	\$182.00 (est.)	\$8.74	4.16%	4.80%
2Q	210.00 (est.)	\$182.00 (est.)	2.75	1.31%	1.51%
3Q	210.00	\$183.00	5.01	2.41%	2.74%
4Q	210.00	\$183.00 (est.)	<u>2.36</u> 18.86	1.13%	1.29%
1992 1Q	\$214.90	\$183.20	\$3.33	1.55%	1.82%
2Q	178.70	151.10	1.26	0.70%	0.83%
3Q	194.10	163.00	0.37	0.19%	0.23%
4Q	191.16	151.89	<u>0.59</u> 5.55	0.31%	0.39%
1993 1Q	\$224.90	\$193.23	\$0.38	0.17%	0.20%
2Q	224.90	193.23	1.33	0.59%	0.69%
3Q	234.73	206.91	0.05	0.02%	0.03%
4Q	211.87	190.42	<u>0.52</u> 2.29	0.25%	0.27%
1994 1Q	\$263.00	\$232.60	\$0.67	0.25%	0.29%
2Q	255.00	230.00	0.16	0.06%	0.07%
3Q	249.00	235.00	0.41	0.16%	0.17%
4Q	249.00 (est.)	235.00 (est.)	<u>2.18</u> 3.42	0.88%	0.93%
1995 1Q	251.00	240.00	\$0.17	0.07%	0.07%
2Q	251.00	240.00	1.68	0.67%	0.70%
3Q	251.00	240.00	0.98	0.39%	0.41%
4Q	251.00	240.00	<u>1.72</u> 4.55	0.68%	0.72%

Notes

(a) Par value at beginning of quarter; NA = Not Available.

APPENDIX C

CORPORATE BOND DEFAULTS BY INDUSTRY
(NUMBER OF COMPANIES)

INDUSTRY	1970-75	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total	
Airlines/Air Cargo	3							1	2						1	1	2				2		12
Auto/Motor Carrier						1		2							3	3							10
Conglomerates																	3	3					12
Energy	1			1				2	3	5	7	12	2	4	3		4	2	3			1	47
Financial Services	3				1	1	1	1	1	1	1			4	11	7	14	3	2	3	1	2	54
Leisure/Entertainment															4	4	2	4	3	4	3	3	34
General Manufacturing (a)	5	1						7	1	1	2	6	3	3	1	5	8	8	7	3	8	8	69
Health Care																2	1	1	1			2	10
Miscellaneous Industries	5	1				1	1	1	1	2	6	3	1			4	4	3	1	1	1	1	35
Ocean Carriers	1						1																4
Railroads	9																						10
Real Estate/Construction	5	1		1		1		2		1	1	1	1	1	3	7	5	1			2	2	32
REIT	1	3		1				1	1									1					13
Retailing	9			2				1	1						1	2	6	15	6	4	5	6	59
Telecom/Technology	9	1	1		1	2	1	1	2	2	1	1	3	1		3	4	1	1	1	3	2	39
Utilities													1	1									3
Total	51	7	8	5	3	5	4	17	12	12	19	23	15	24	26	47	62	34	22	19	23	415	

Note:

(a) Includes Consumer Goods.

