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DEFAULTS AND RETURNS ON HIGH YIELD BONDS:  
THE YEAR 2002 IN REVIEW AND THE MARKET OUTLOOK

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**New York University  
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**Report on**

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Review and the Market Outlook**

**By**

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## **Defaults and Returns on High Yield Bonds: The Year 2002 in Review and the Market Outlook**

**Edward I. Altman  
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Gaurav Bana**

- **In 2002, the high yield bond market experienced record corporate bond defaults and corporate bankruptcies and the default rate in the high yield bond market easily topped the previously high record year of 1991.**
- **A record \$96.9 billion of US straight corporate high yield bonds defaulted resulting in a 12.8% dollar denominated default rate – considerably greater than 1991’s 10.3%. The fourth quarter’s default rate of 1.82% was, however, a noticeable reduction.**
- **Large corporate bankruptcies with liabilities greater than \$100 million dropped in number from 2001’s record year but the total liabilities of those 122 filings were \$337 billion – more than \$100 billion greater than last year; 38 filings topped \$1 billion in 2002, bringing the last two years total to 77.**
- **Telecom and other communications companies led the way in both defaults and bankruptcies with more than 52% of defaulted dollars and 36% of the bankruptcies emanating from this still troubled sector. Without WorldCom, telecom’s accounted for 31% of remaining defaulted dollar amounts.**
- **Fallen Angels defaults accounted for 44% of the total dollar defaults with 13 defaulting issuers having been accorded investment grade upon issuance. \$158.5 billion investment grade bonds were downgraded to non-investment grade status in 2002.**
- **Default recoveries continued at persistently low average levels, weighed down by the enormous supply of new defaults and communication firms’ 16.6% average recovery.**
- **The size of the Defaulted and Distressed Public and Private debt markets zoomed to record levels of \$942 billion (face value) and \$512 billion (market value) as of year-end 2002.**
- **High Yield Bond returns also suffered in 2002, with absolute returns slightly negative –1.43% and the return spread vs. 10-year Treasuries lower at –16.19%.**
- **The outlook for 2003 is considerably brighter with reduced default rates, perhaps to about 7.5%, which should help to propel returns to above average annual levels. Indeed, the return spread for January 2003 was +4.61%.**

## Executive Summary

The year 2002 was remarkably difficult on many fronts for most financial markets. For the high yield bond market, it was again a year of record amounts of defaults which contributed to low recovery rates and slightly negative absolute returns. The default rate registered a massive 12.8%, based on \$757 billion outstanding. Despite these record default totals and rates, the market's decline was orderly with little panic and actually ended the year with reduced defaults and highly positive returns in the fourth quarter.

Default amounts registered its fourth consecutive record year and almost topped \$100 billion (\$97.9 billion) for the first time. This total was more than 52% higher than last year's record. Combined with a near record low recovery rate of 25 cents on the dollar, weighed down by Telecom's average recovery rate of 16%, loss rates from defaults reached record levels of about 10% -- even adjusted for fallen angel default recoveries. The pervasive influence of WorldCom's massive default had a profound effect on both the default and recovery rates. Without WorldCom, the year's default rate would have been 9.27% -- a differential of about 3.5%.

This report documents and comments upon the high yield bond market's risk and return performance over the period 1971-2002. We will present traditional, dollar-denominated default rates as well as our own mortality rate statistics. Default rate analysis will be complemented by discussion on corporate bankruptcies and the immense impact of fallen angels on the high yield market. We conclude with our annual estimate of the size of the distressed debt market and our forecast for defaults in 2003. Our analysis will include an update on our default recovery forecasting model which was extremely accurate in estimating 2002's recovery rate of about 25%.

Based on the fourth quarter's reduction in default rate to 1.82% and our aging-mortality conceptual framework, we are predicting a reduction in the dollar denominated default rate to 7.5-8.0%, as much as 5% less than 2002 (but still far above the average rate). This should help provide a more attractive environment for high yield debt new issues and returns in 2003.

In 2002, there was \$65.6 billion in new high yield bond issuance, down from 2001's \$88.2 billion. We expect new issuance in 2003 to escalate unless the economic/political scene motivates another flight to quality in our financial markets.

## Default Levels and Rates

In 2002, a record \$96.86 billion of U.S. and Canadian high yield bonds defaulted or restructured under distressed conditions. This amount comprised a record 344 issues from 112 defaulting companies and resulted in a record default rate of 12.80%. This compares to \$63.61 billion on 335 issues from 156 companies in 2001. A list of 2002 defaults appears in Appendix A.<sup>1</sup> The 2002 default rate is considerably higher than last year's rate (9.80%), above the historic weighted average annual rate from 1971-2002 of 5.45% per year (3.2% arithmetic average rate), and is also far above the median annual rate (1.80%) over the same 31-year period - (Figure 1). It should be noted that the weighted average annual default rate jumped by 113 basis points in 2002 due to the record high default rate and current size of the high yield market. The face value of defaults reached record levels, more than 52% greater than the previous record of 2001. In addition, the default rate was about 3% greater than last year's rate and 2.5% greater than the previous record set in 1991. Of course, the high yield market is now about four times larger than it was in 1991. The default rate calculation is based on a mid-year population of high yield bonds, estimated to be \$757.0 billion. The default rate in 2002 provides a four-year string of record defaults each year, which followed a six-year period of below average rates. We are fairly confident, however, that this consecutive default rate trend will not continue in 2003.

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<sup>1</sup> We do not include emerging market defaults in these calculations. All defaults were U.S., Canada, Australia, or offshore U.S. dollar denominated issues from domestic companies. European company defaults totaling 17.7 billion euros (based on 43.7 billion euros outstanding at the start of the year, a 40.5% default rate) are not included. Telecom defaults accounted for well over 90% of these defaults. In addition, consistent with our past approach, we do not include those issues that missed interest payments in 2002 but cured their delinquencies within the typical 30-day grace period.

## Quarterly Defaults

In Appendix B and Figure 2, we present default rates on a quarterly basis from 1990 to 2002. It can be observed that the quarterly default levels and rates in 2002 were relatively high but with a noticeable decline in the fourth quarter to \$13.77 billion and a 1.82% rate. As noted in our earlier reports, quarterly rates are usually not indicative of trends except possibly back in the 1990-1991 period when default rates skyrocketed to record levels over several consecutive quarters. Yet in 2001 and 2002, each quarter's default rate was at least 2.0% until the fourth quarter of 2002.

## Comparing Default Rates

There has been some discussion in recent years about how the Altman-NYU Salomon Center default rate calculations differ from Moody's (New York) results. Analysts point out that the Moody's Speculative grade, issuer denominated rate has been consistently higher. This comparison can be seen in the last two columns of Appendix B. These results represent our 12-month moving average (or to be precise, last-four-quarter) default rates compared with Moody's 12-month moving average rate. One can observe that Moody's rate is, for the most part, higher since 1992, until the second quarter of 2002.<sup>2</sup> Our calculation is essentially a domestic default rate calculation. This differential changed directions in Q2-2002 with Moody's 10.3% 12-month moving average rate compared to our rate of 11.7%. The differential was even greater by the end of 2002. It should be noted that Moody's comparable dollar denominated 12-month rate ended the year at a near record 16.0% as a result of the spate of large dollar amount defaults.

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<sup>2</sup> There are some differences in the two calculations, e.g., we do not include cured defaults, and Moody's rated population is somewhat different, but these are minor compared to the issuer vs. dollar denominated methodology.

Moody's is now (January 2003) predicting a 6.9% global speculative default rate by the end of 2003.

In order to analyze the differences in these two calculations, we constructed a moving four-quarter Altman/SC rate and compared it to Moody's 12-month moving averages, at the relevant quarterly dates. As noted above, Moody's rates are, for the most part higher. But, when we ran a correlation of these absolute quarterly rates over the sample period (49 observations), we find that the correlation is extremely high (0.93). In other words, both default rate measures are depicting very similar trends and directions of default rates.

### **Default Rates and Macroeconomic Activity**

Most high yield bond market observers expect that the nation's economic performance impacts defaults considerably, especially in recessions. Figure 3 shows the relationship between default rates and the five economic recessions since 1972. Note that, in all cases, the default rate peaked at or soon after the recession ended and, in most instances, began to rise at the start of the recession. While we are not certain that the current default rate has peaked, our fourth quarter results indicate that it has and, if so, that peaking in 2002-Q3 is consistent with past experience. In the last two recessions, however, the default rate actually started to increase prior to the onset of the recession, especially in the most recent one when we observed that the default rate began its ascent in 1999, about two years before the recession started.

As we have noted before, the increased default rate in 1999 followed the benign credit cycle of 1993-1998, when default rates were extremely low and credit quality of

new issues was lax, especially in 1996-1998. This manifested in higher and earlier defaults in 1999.

Can we conclude that the default rate in the high yield market is no longer a coincident or lagging indicator, but a leading indicator of economic activity? Do higher risk companies now experience pain more quickly than the overall economy? Perhaps so, but in any event it is clear that we cannot expect too much of a decline in default rates as long as the economy is mired in an economic recession or even a soft recovery. The year 2002 corroborated this relationship as we officially emerged from the short recession of 2001, but default rates continued to surge.

### **Bankruptcies**

Consistent with record levels of defaults, 2002 also experienced an incredible level of Chapter 11 bankruptcy filings. Figure 4 shows that the number of filings with liabilities greater than \$100 million was 122 in 2002, with total liabilities reaching an incredible \$337.5 billion. And, the number of filings in excess of \$1 billion in liabilities was 38 -- about the same as in 2001, which was a record year. Indeed, since January 2001 there have been 77 bankruptcies with liabilities greater than \$1 billion! (see Appendix C for a complete list). The "class of 2002" was topped by two companies whose enormous liability size swelled the total by \$123 billion (Conseco and WorldCom). In 2002, 36% of bankrupt liabilities were Telecom related and at least 24% from alleged fraud related debacles (WorldCom, Adelphia and Global Crossing).

One interesting question that we are often asked about is the relationship between the timing of a default on a bond issue and the actual bankruptcy filing date (if any). Figure 5 shows this timing based on 339 bankruptcies over the period 1987-2002. Note



that the majority of companies (62%) defaulted at the same time as their Chapter 11 filing. Still, the average lag between default and bankruptcy was about 2.7 months with 75% of the firms defaulting/filing within 2.5 months and a few others defaulting in over one year. Of course, there are many companies that default on their obligations and subsequently restructure outside of the bankruptcy courts. This seems to be less frequent of late with the advent of “prepackaged” Chapter 11’s in recent years.

### **Industry Defaults**

We continue to observe pockets of defaults in either chronically or newly ailing industrial sectors. Figure 6 list defaults by major industrial sector since 1970 and Appendix D lists the 2002 defaults by primary business activity. In 2002, in addition to general manufacturing and miscellaneous industries (22 and 25 defaulting issuers), defaulting companies were dominated by telecom/communication firms (26); as noted earlier, telecoms alone accounted for 52% of all defaulting dollars in 2002, about the same as in 2001. Other hard-hit major sectors were energy (8); transportation (7); and leisure/entertainment, financial services and retailing (all 5). Some particularly hard hit categories within the major sectors were textiles (5), cable TV and services (4), glass, steel and airlines (3 each).

### **Timing of Defaults**

We have always emphasized the importance of defaults on the high yield debt markets and added the associative variable of the timing of default. This has been particularly useful in our mortality rate statistics report (see our discussion at a latter point) and in our analysis of the impact of the benign credit cycle, particularly new issuance in 1995-1998. Since 1999, we noted an explosion of defaults particularly in the

earlier years after issuance, i.e., years 1-3. In 2001, we noticed a slight diminution in the 1-3 year from issuance cumulative rate (59% compared to 1999 (68%) and 2000 (69%) -- see Figure 7.

In 2002, we observe an even more dramatic drop in this cumulative, first three-year proportion to 41%. Indeed, this proportion is about equal to the average over the historical period 1989-2002, so we conclude that the timing of defaults has returned to a more normal chronology and the bad cohort from the benign credit cycle has probably run its course.

Some of the main companies contributing to defaults in 2002 in years one and two after issuance are Adelphia, Consec, Global Crossing, Kmart, NTL, United International, US Airlines, Williams Communications and WorldCom -- many of which were fallen angel defaults.

### **Fallen Angels and Defaults**

The most recent surge in defaults has been punctuated by a resurgence in interest and concern about the fallen angel phenomena -- downgrades from investment grade to speculative grade and the attendant drop in bond prices -- many times preceding the actual downgrade. What is even more disturbing is the amount and perhaps the proportion of these fallen angels that then go on to default -- some of them very quickly. The dollar amounts of these recent downgrades and defaults have been staggering, causing an unprecedented interest in default and credit analysis among investment grade investors and analysts.

Over the past two years, a massive amount of \$61 billion in 2001 and \$158.5 billion in 2002 of investment grade bonds have lost their prized rating and have plunged

to “junk” status and, in some cases, continued rapidly to default. Indeed, the prominent WorldCom debacle saw its bonds go from A- to BBB (Baa) and then to Ba in May 2002. Within just two months of the decline to junk status, this huge bond issuing company defaulted on about \$30 billion of bonds, catching investors in investment grade, high yield and distressed debt wondering how so many seemingly sophisticated investors could have been mistaken.

As we have tried to demonstrate in a recent paper (Corporate Distress Prediction Models in a Basel II Environment,” Salomon Smith Barney High Yield Report (September 24, 2002), even with the fraudulent earnings (but not free cash flow) revelations, WorldCom did not “look like” a failing company, although it looked distinctly non-investment grade long before its downgrades. We believe it went bankrupt despite its huge size because it lost its credibility and ability to refinance its enormous debt load. This is little solace to those investors who experienced a recovery amount of \$12-14 per bond, even if they purchased these bonds at \$40 just a few months earlier.

Figure 8 shows that 39% of defaulting issues in 2002 were investment grade when they were originally issued, comprising 43% of defaulted dollars over this part year. Figure 9 lists the 13 fallen angel defaulting companies (we have combined the two Conseco issuers) and their associated bond amounts at face value. The dollar value default rate in 2002 on fallen angel bonds was a huge 20.3% (see Figure 13), with WorldCom leading the way. The base for this calculation is the total amount of fallen angel bonds outstanding as of the beginning of the year, corrected for WorldCom’s debt which “arrived” in May. Without WorldCom, the fallen angel default rate in 2002 would have been about 8.5%.

These aggregate fallen angel default statistics are indeed impressive but do they address an even more important question for high yield investors? Are fallen angels less than, equal to or more risky as to possible default than are high yield bonds in general and original issue non-investment grade issuers in particular? To be sure, fallen angel companies are typically larger and more prominent corporations. But, are they more or less at risk of default? And, since fallen angels enter the high yield market at a discount from par price levels, what is the expected net recovery rate for high yield investors? These and related questions will now be addressed.

Figure 10 shows the annual default rate calculations for fallen angel issuers from 1985-2002. Note that we concentrate here on issuers, rather than our usual dollar denominated default calculations, since our data source is Standard & Poor's *CreditPro* database which only analyzes the rating history of bond issuers. The aggregate amounts of bonds outstanding, stratified by ratings at various points in time, were not available (except in our 2002 calculation, as discussed). We will therefore compare the fallen angel statistics with default rates on original issue high yield bond issuers as well as on the entire high yield population. The issuer vs. dollar denominated rate for the entire market is also shown.

We observe in Figure 10 that the weighted (by number of issuers outstanding) average annual fallen angel default rate over the period 1985-2002 is 4.19% per year, somewhat lower than the rate on original issue speculative grade bonds (5.15%) and all speculative grade bonds (4.90%). The dollar denominated average annual default rate, heavily weighted by 2002's record rate, is the highest at 5.60% (from Figure 1). We should note that the calculation of the fallen angel default rate for each year was

complicated by the fact that it is possible for a bond issuer to be investment grade at the start of the year, fall to non-investment grade sometime during the year and then tumble to default less than 12 months after becoming a fallen angel. To adjust for this possibility, our calculation for each year is the average of the next 12 months default rates calculated from the beginning of each month. Hence, an issuer like WorldCom, which went from investment grade to default within one year, will be counted. This technique is slightly different from S&P's technique which observes the one-year rate based on the base of bond issuers outstanding at the start of each year (see S&P's new study on fallen angels, by B. Brady, "Fallen Angels: To Rise No More?" January 24, 2003 and Moody's annual default report (February 2003).

From Figures 10 and 11, we can observe that fallen angel (FA) annual default rates tend to mirror the default rate on original issue high yield bonds quite closely with a correlation coefficient of 0.79. In some years, e.g., 1992, 1993, 1997, and 2000, the comparative rates are extremely close. Note also, that the original issue speculative grade rate is, in most years, extremely close to that of the "all" speculative grade rate. And, when the all speculative grade rate (both issuer and dollar denominated) is relatively high in some years (e.g., 1990, 1991, 2001), the fallen angel issuer rate is comparatively lower. For 2002, however, we were able to calculate a dollar denominated fallen angel (FA) default rate based on the amount of FA debt outstanding as of 12/31/01 and the subsequent dollar FA defaults (including WorldCom). This rate was indeed quite a bit higher than the issuer rate (20.2% vs. 6.59%) and greater than the original issuer high yield bond rate (8.55%). So, it is apparent that the fallen angel risk escalated dramatically in 2002.

Since all fallen angels do not have the same rating and the rating composition of fallen angel issuers may be different from that of original issue high yield issuers in any given period, we compared the 12-month default rates of double-B, single B and triple C FAs vs. their original issuer counterparts. Figure 12 breaks down the fallen angel default rate each year and for the entire sample period, by the major rating categories. Not surprisingly, we find that the expected hierarchical default rate increases as the rating class lowers from BB (1.23% per year) to B (7.01% per year) to CCC (10.22% per year). These fallen angel average annual rates are actually slightly larger (although not statistically significantly larger) than their original issuer speculative grade counterparts (comparison in last two rows), except for the CCC rating. So, we can conclude with even more certainty, that the expected fallen angel default rate is quite similar to that of original issuer speculative grade bond issuers.

### **Default Losses and Recoveries at Default**

Default losses (Figure 13) also rose dramatically in 2002 to 10.16% (unadjusted for fallen angels) and were substantially greater than the arithmetic annual average (2.51%) and the weighted average (4.10%) over the period 1978-2002 (Figure 14). The 2002 loss rate is more than double the historic weighted average annual loss rate. The large difference in arithmetic vs. weighted average rates is primarily a result of the last two years' much above average default rates and much below average recovery rates. The 2002 compilation of the weighted average rate is now almost one percent (94 bp) greater than it was just one year ago. We will return to this benchmark loss rate when we discuss returns on high yield bonds, net of defaults, later in this report.

Figure 13 shows the 2002 loss rate, which includes the loss of one-half of the annual coupon, as well as the weighted average (by amount of the defaulted bond) recovery rate. The latter is based on the average prices just after default from a number of dealer quotes. In 2002, the average recovery rate (25.3%) was again below the historic averages or median (39.40%). The enormous new supply of defaulting securities and the continued influence of below average recoveries from Telecom defaults (see Figures 18 and 19 below) were the primary factors causing below average recoveries. More on the supply/demand equation for defaulted debt at a later point.

Before leaving our default loss calculations, we again must comment upon and analyze the importance of fallen angel defaults. While the recovery rate indicated in the “unadjusted” column is the actual recovery for those investors who purchased at par value, it is certain that high yield investors purchased fallen angel bonds at a significant discount from par and the effective recovery is probably much greater than on original issue high yield bonds. Indeed, as indicated in the “only fallen angel” column of Figure 13, we see that the fallen angel average price at default in 2002 was \$20.17 and the weighted average price at downgrade was just \$59.29. This results in an average effective recovery for high yield investors in 2002 on fallen angel defaults of 37.91%. Including a FA default rate of 20.2%, we conclude that the loss rate for fallen angels was 13.4% in 2002.

Figure 15 shows that the historic fallen angel weighted average price at downgrade (\$75.67) was much higher than the 2002 figure and the average effective recovery was also much greater at 72%. Hence, the fallen angel loss rate in 2002 was much greater than fallen angel defaults in the past. This reflects the enormous price

declines of original issue investment grade defaults in the last year and also the influence of one large defaulting fallen angel issuer, i.e., WorldCom. Most fallen angel defaults sold at prices after default above the weighted average (\$20.19) price in 2002, but WorldCom's lower recovery reduced the overall average.

When we adjust for the influence of fallen angel defaults and their higher net recovery for high yield investors, the adjusted loss rate in 2002 was 9.26% - about 90 bp below the unadjusted rate.

Figure 16 shows our usual table of recovery rates by seniority. We observe that the senior secured median recovery (\$52.81), based on 37 issues in 2002, has returned to close to the historic average. The senior unsecured 2002 average (\$21.82) however, was again well below average (\$41.99 median). No doubt, WorldCom's influence was present in this category. We again observed the total disappearance of what used to be known as "subordinated" bonds.

### **Recovery Rate Model**

We now return to the supply/demand equation on defaulted public bonds. As we discussed in last year's annual report, we postulate that the relatively low recovery rate in 2002 is primarily a function of the huge supply of new defaults relative to the much smaller (but growing) amount of dedicated funds under management by distressed debt investors. Another clear factor is the enormous amount (more than \$50 billion) of Telecom defaulted bonds in 2002.

We can now update our database on default rates and recovery rates in order to observe their correlation and to enhance our econometric model to explain recovery



rates.<sup>3</sup> Figure 17 shows the bivariate relationship between the supply of defaults and the recovery based on prices just after default. We specify four functional relationships (linear, log-linear, quadratic, and power function) between the two variables. With the addition of 2001-2002 data, the linear model's  $R^2$  increases materially to 0.55 (from 0.45) and the log-linear (our favorite) increases from 0.58 to 0.67. The latter is an impressive explanatory power result.

If we plug-in the actual 12.8% 2002 default rate, the estimated recovery varies from 20.0% (linear) to 29.5% (quadratic), with the log-linear and power functions' estimates extremely close to the actual recovery rate. We would expect average recovery rates to climb to about 30% in 2003 if default rates drop to the 7-8% level range.

### **Telecom Defaults and Recoveries**

Just as in 2001, telecommunication and other communication firms (e.g., cable TV) were very large contributors to our default statistics in 2002. In 2001, telecom defaults contributed 55% of the defaults and in 2002 the proportion was also above half at 52%. Figure 18 lists the communication industry defaults from 1996-2002 with recovery rates on each issue in the last column. Figure 19 summarizes the average recovery rates on these defaults from 1998-2002. Note that the weighted average recovery rate in both 2001 and 2002 were 16-16.5% and the weighted average for the entire five-year sample period is 17.6%.

### **Other Default Statistics**

In Figure 20, we list the average price just after default stratified by original rating. Earlier we observed that fallen angel defaults tend to sell at significantly higher

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<sup>3</sup> E. Altman, B. Brady, A. Resti and A. Sironi, "The Link Between Default and Recovery Rates: Implications for Credit Risk Models and Procyclicality," NYU Salomon Center Working Paper, S-02-9 and the **International Swaps & Derivatives Association**, January 2002

recovery rates than do their original issue high yield counterparts. This is substantiated in Figure 20 where we observe that for the three A-rated categories, the arithmetic and weighted average prices at default are all significantly higher than the various B-rated categories. We do observe, however, a noticeable drop in the average prices of the A category from \$66.70/\$71.46 in last year's 2001 compilation to \$55.37/\$48.93 in 2002. In addition, there was an enormous decline in the average recovery for original issue triple B bonds from \$47.36/\$48.92 in 2001 to \$41.39/\$27.38 in 2002. The pervasive impact of WorldCom again is clear, although the declines in general reflect lower recent recoveries across the entire rating spectrum. It is interesting to note that our latest statistics show very little difference between average recoveries for ratings from triple B to triple C.

Figure 21 depicts the average price at default stratified by the number of years after issuance that the default takes place. Once again, we notice there is absolutely no significant difference in recoveries based on how quickly or delayed the default takes place after the year of issuance. This is perhaps surprising since the intuition might be that if a default occurs quickly, there would be only a short time for the firm's asset values to decline in value.

Figure 22 shows the rating distribution of defaults in our database from 1978-2002 at various points in time prior to default. In particular we observe the rating distributions at original issuance, one year prior and six months prior to default. The metric we use is number of issues.

We observe that 22.9% of the defaulting issues were investment grade at birth, a fairly large increase over the 19.3% in our compilation last year. This reflects that 125 of

the 321 issues (39%) defaulting in 2002, for which we were able to ascertain original ratings), were originally rated investment grade. The proportion of bond issues rated investment grade at one year and six months prior also rose to 11 percent and 10.5% at these junctures. We are sure that the proportion of issuers that were investment grade at these relatively near points to default were smaller since fallen angel defaults tend to be larger companies with numerous issues outstanding (e.g., Kmart, WorldCom). Still, these are the largest proportions within one year of default that we have ever observed.

### **Mortality Rates and Losses**

Updated mortality rates and losses for 1971-2002 are reported in Figures 23 and 24. This default analytical methodology was first developed in 1989<sup>4</sup> and has been widely used by academics as well as practitioners, because it includes the impact of bond aging and is based on original issue cohorts stratified by bond rating at birth. In addition to defaults, our mortality data is adjusted for other “disappearances,” like calls, merger redemptions, etc. In addition to the cumulative mortality rate over the first ten years after issuance, our data provides the marginal default experience in each of the ten years. It should be clearly noted that our perspective is based on the original issuance date and, as such, the marginal rates should not be interpreted as a contingent probability of default from a specific year after issuance to the next year. Still, the aging effect is clearly apparent as to the probability of default for each year as estimated from the original issuance date. Since our data is based on defaulting dollars, we can expect profound effects from 2002’s extraordinary year.

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<sup>4</sup> E. Altman, “Measuring Corporate Bond Mortality and Performance,” The Journal of Finance, September 1989, pp. 909-922.

The most important result of this year's compilation is the significant increases in mortality rates for almost all rating categories, with particular relevance for the triple-B rating class. Note that the five-year cumulative mortality rate for BBBs surged from 2.50% from 1971-2001 to 7.35% when we include 2002. For the same five-year horizon, A-rated bonds increased from 0.20% to 0.26%, BB rated bonds from 9.27% to 12.39% and B-rated bonds from 24.04% to 29.10%.

We still observe a profound aging effect, especially in the first three to four years for original issue high yield bonds. For example, BB bonds' marginal mortality rates are 1.23%, 2.62% and 4.53% in the first three years while B-rated bonds advance from 3.19% to 7.14%, 7.85%, and 8.74% in years 1-4, before leveling off and then declining. Although the mortality percentages are clearly higher this year than ever before, the marginal rates continue to be lower in the first and second years after issuance than in years three and four, in some cases, especially for non-investment grade bonds.

Finally, we note a type of aging anomaly for our BBB cohort, with the second year's marginal rate (3.42%) higher than years three and four and even higher than BBs second year marginal rate (2.62%). This is, once again, primarily the impact of the enormous WorldCom defaults emanating from its BBB original rating.

Mortality losses, presented in Figure 24, portray a similar story to that of the mortality rate update. In addition to the impact of record defaults in 2002, continued relatively low recoveries resulted in even higher mortality loss differences from prior year compilations.

## Returns and Spreads

The other main measures for analyzing high yield bond performance are returns (and spreads) as well as the promised yields to maturity. We have observed an extremely volatile return and yield picture throughout 2002 in this very challenging period. Total returns ended the year at a modest negative level (at  $-1.53\%$ ) after being as low as  $-9.30\%$  as of September 30. At that time, the return spread was an all time low at  $-24.70\%$  and the promised yield was almost an all time high at 1,010 bp above ten-year U.S. Treasuries. As of year-end, the return spread “dropped” to a negative  $-16.19\%$  and the yield spread to 856 bp (Figure 25). Clearly, in the face of record defaults, a flight to quality and continued corporate credibility lapses, high yield investors suffered along with investors in equities and other risky asset classes. Still, a slight negative absolute annual return and a fourth quarter comeback, along with a noticeable drop in the default rate, are promising signs going into 2003. Indeed, the absolute return for January 2003 was  $+3.72\%$  resulting in a  $4.61\%$  spread over ten-year Treasuries. The yield spread dropped to  $7.84\%$ .

The large negative return spread in 2002 resulted in the historical arithmetic and compound annual averages both falling to a 114 b.p. spread over 10-year Treasuries. This is consistent with an average yield spread of 501 bp and an average loss from defaults of  $-4.10\%$  (Figure 14) over the period 1978-2002. We are impressed with this logical, but still remarkable, relationship between promised yield spreads minus observed losses from defaults coming very close to observed return spreads.

A relevant question from these important statistics, listed in Figure 25, is whether a 114 bp spread is an appropriate equilibrium level or is it too low for our high yield bond

market. We believe that the equilibrium level return spread should be closer to 2% than 1% considering the fact that high yield bond investors must be compensated for the unexpected losses from defaults and downgrades, as well as the expected default levels. The year 2002 is an excellent example of when actual defaults are much greater than expected (since all analysts that we are familiar with, including our own estimates, forecasted default rates for 2002 of less than 10%).

Finally, high yield bonds are certainly less liquid than US Treasuries, especially as they migrate toward default. This is clearly the case for investment grade bonds as well. Perhaps this is the reason that bonds rated AA, A, and BBB as of year-end 2002 were yielding the highest spread vs. Treasuries that we have ever observed at 1.20%, 1.66% and 3.05%, respectively (from the *S&P Bond Guide*, January 2003).

If we are correct that a 114 bp return spread is unusually low, then we can expect a correction in the coming year or so to a more rational level. This bodes well for expected returns for high yield investors.

Figure 26 shows that an investment of \$1,000 in 1977 in high yield bonds would be worth \$10,824 as of the end of 2002, compared to \$8,349 for a \$1,000 investment in 10-year Treasuries.

### **Size of the Distressed and Defaulted Public and Private Debt Markets**

The distressed and defaulted public debt proportion of the straight (non-convertible) high yield and defaulted corporate debt markets in the United States comprised about 40% of the total market (Figure 27). To repeat, the total market for this computation includes all bonds outstanding, that is, performing bonds as well as the cumulative par value of defaults. We estimate this total market size to be \$975 billion as

of December 31, 2002. Distressed debt is again defined as those issues selling at 1,000 bp or more over ten-year US Treasuries – greater than 13.82% yield-to-maturity as of December 31, 2002. The proportion of distressed debt was 21% of the total market and about 25% of the performing (non-defaulted high yield market). This proportion is slightly below last year's percentage and considerably lower than year-end 2000. Still, a distressed ratio of above 20% is indicative of a relatively high subsequent default rate. Although with risk-free interest rates at the lowest level (3.82%) for the entire history (1977-present) of our time series (Figure 25), a distressed ratio based on a 13.8% criterion is perhaps less reason for concern than is typically the case.

From Figure 28, we estimate the size of the defaulted and distressed public and private debt markets as of year-end 2002 as well as year-end 2001 and over the entire period 1990-2002, as shown in Figure 29. The enormous new supply of public bond defaults in 2002, less emergencies from Chapter 11 of \$26 billion, results in the highest on record dollar amount of defaulted debt still outstanding at \$187.7 billion as of year-end 2002. Combined with over \$200 billion of distressed debt, the face value of public distressed and defaulted debt swelled to a record \$392.5 billion (and \$140 billion estimated market value).

We utilized a private/public debt ratio of 1.40 to estimate the size of the private defaulted and distressed population as of year-end 2002. This is down from a 1.65 ratio as of year-end 2001. We have made this adjustment to reflect the results of an updated sample of balance sheet analysis, which indicates that U.S. firms tapped the public bond markets relatively more than loans and other private placements in the late 1990's and in 2000. This was especially true of investment grade issuers. The resulting size of the

private debt markets shown in Figure 28 was also at a record level despite the drop in the public/private debt ratio (\$550 billion face value).

In total, the public and private, defaulted and distressed debt markets reached an enormous estimated level of \$942 billion (face value) and \$513 billion market value. One can quibble about our precise estimating procedure, but it is undeniable that the distressed debt “vulture investing” market, broadly defined, is at an all time high level. Indeed, the face value of this market in the United States is larger than all but seven countries’ annual GDP!

### **Default Forecast for 2003**

We believe the dollar denominated default rate peaked in the third quarter of 2002 and we have already commented upon the drop in the fourth quarter’s rate to 1.82% (see Appendix B). Combining our mortality rate expectations with the size of the distressed debt market as of year-end, results in an estimated 7.50%-8.00% default rate in 2003. This is considerably below last year’s record rate but still quite a bit above the historic average for high yield bonds. Our forecast is certainly subject to error, especially with an uncertain, vulnerable economy in an environment as well as with several potentially destabilizing political and other non-economic factors.



**FIGURE 1**

**HISTORICAL DEFAULT RATES - STRAIGHT BONDS ONLY  
EXCLUDING DEFAULTED ISSUES FROM PAR VALUE OUTSTANDING  
1971 - 2002 (\$ MILLIONS)**

<b>YEAR</b>	<b>PAR VALUE OUTSTANDING (a)</b>	<b>PAR VALUE DEFAULTS</b>	<b>DEFAULT RATES</b>	
2002	\$757,000	\$96,858	12.795%	
2001	\$649,000	\$63,609	9.801%	
2000	\$597,200	\$30,295	5.073%	
1999	\$567,400	\$23,532	4.147%	
1998	\$465,500	\$7,464	1.603%	
1997	\$335,400	\$4,200	1.252%	
1996	\$271,000	\$3,336	1.231%	
1995	\$240,000	\$4,551	1.896%	
1994	\$235,000	\$3,418	1.454%	
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	5.778%	
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%	
			<b>Standard Deviation</b>	
<b>ARITHMETIC AVERAGE DEFAULT RATE</b>		<b>1971 TO 2002</b>	<b>3.249%</b>	<b>3.201%</b>
		<b>1978 TO 2002</b>	<b>3.616%</b>	<b>3.455%</b>
		<b>1985 TO 2002</b>	<b>4.561%</b>	<b>3.611%</b>
<b>WEIGHTED AVERAGE DEFAULT RATE (b)</b>		<b>1971 TO 2002</b>	<b>5.453%</b>	
		<b>1978 TO 2002</b>	<b>5.488%</b>	
		<b>1985 TO 2002</b>	<b>5.597%</b>	
<b>MEDIAN ANNUAL DEFAULT RATE</b>		<b>1971 TO 2002</b>	<b>1.802%</b>	

**Notes**

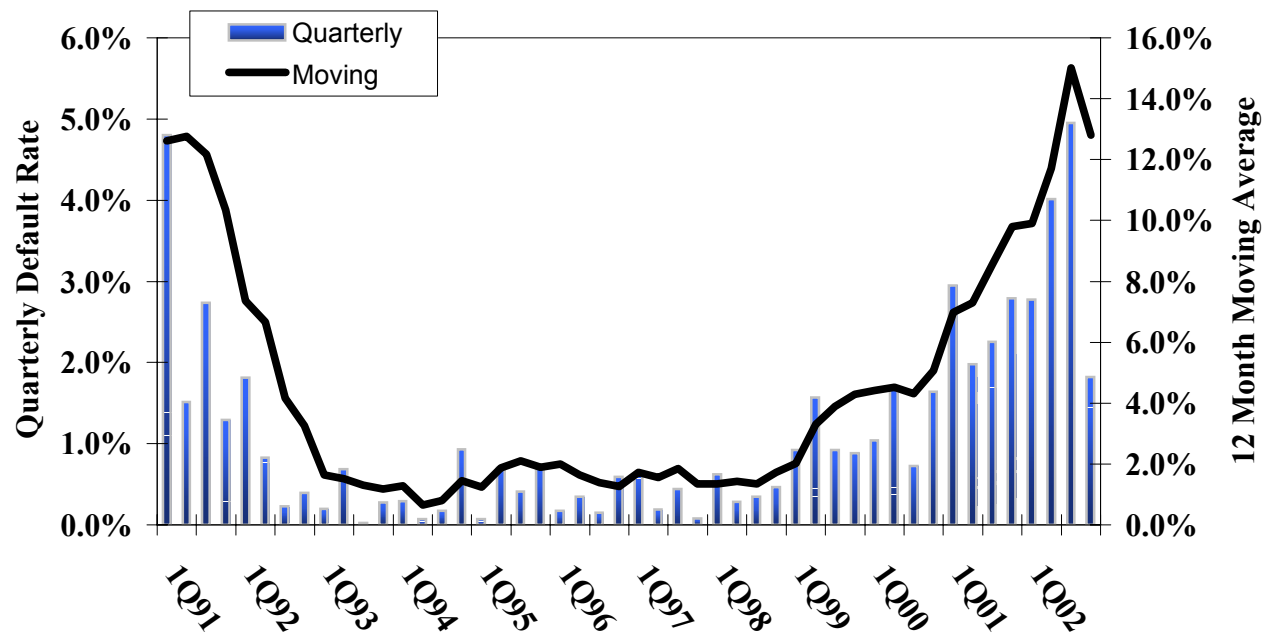
(a) As of mid-year.

(b) Weighted by par value of amount outstanding for each year.

Source: Authors' Compilations and Salomon Smith Barney Estimates

**FIGURE 2**

**QUARTERLY DEFAULT RATE AND 12-MONTH MOVING AVERAGE  
1991-2002**

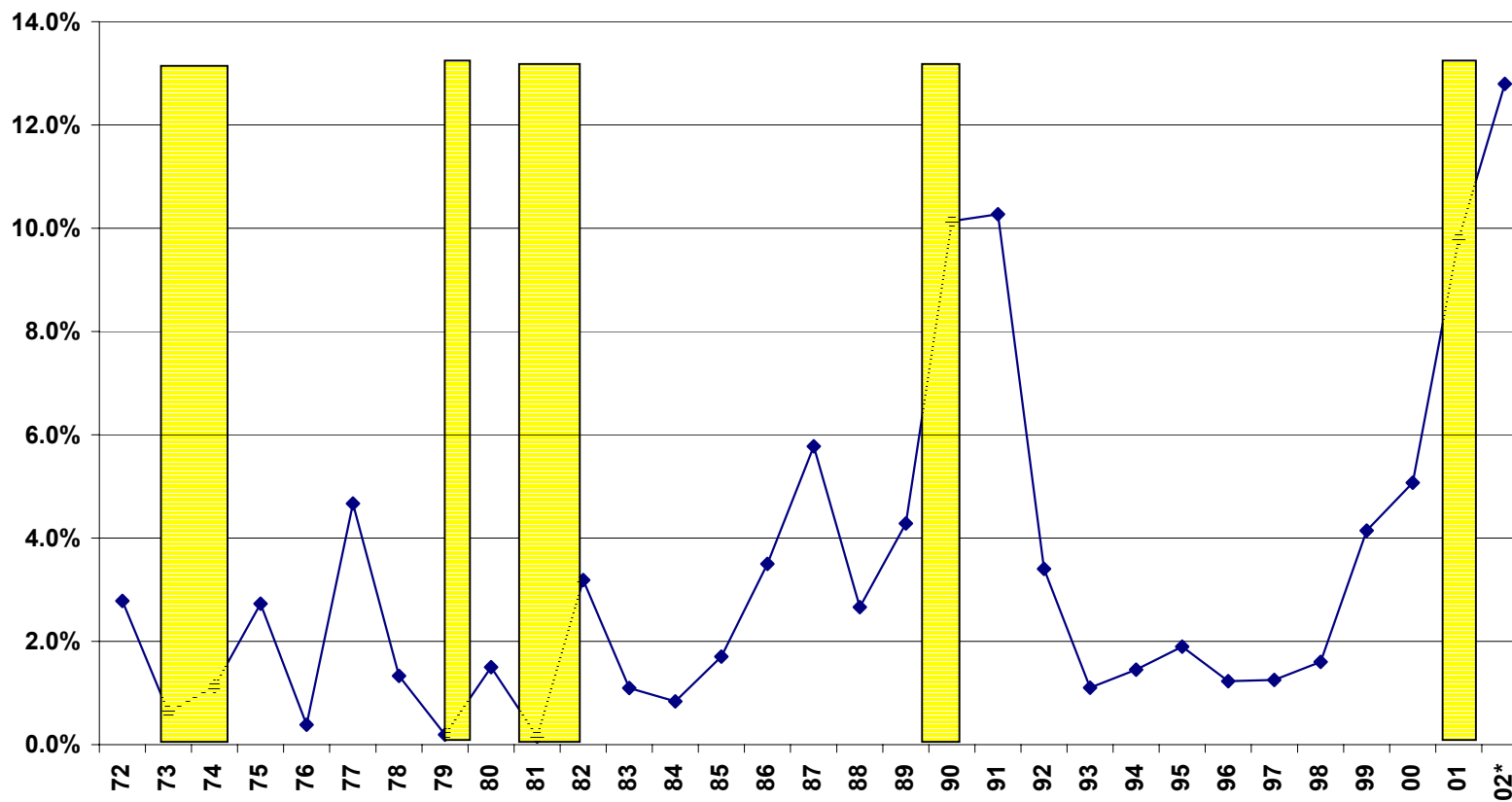


Source: Authors' Compilations and Salomon Smith Barney Estimates

### FIGURE 3

## HISTORICAL DEFAULT RATES AND RECESSION PERIODS IN THE US

### HIGH YIELD BOND MARKET 1972 - 2002



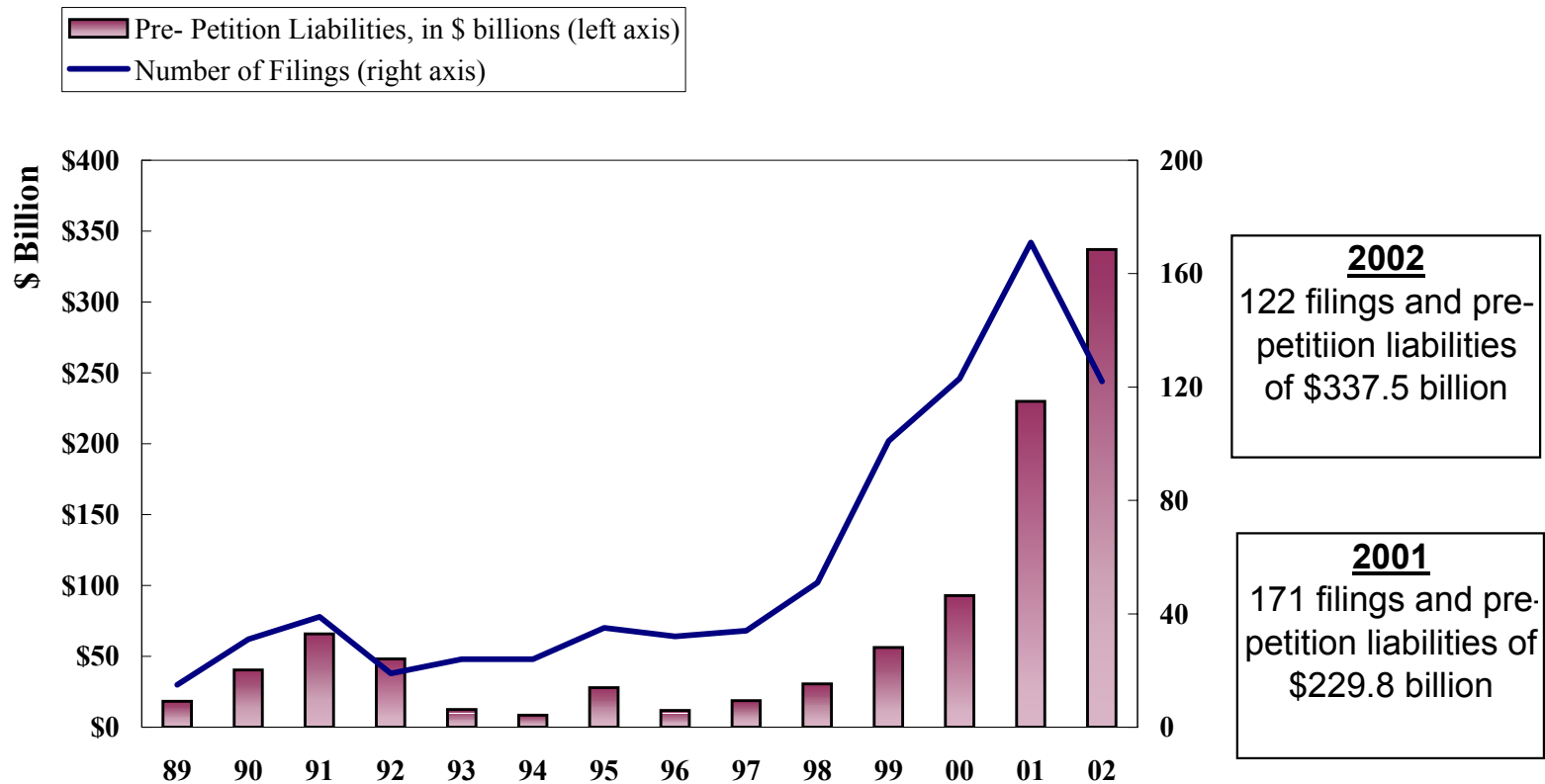
\* 12 months moving average as of December 31, 2002

**Periods of Recession: 11/73 - 3/75, 1/80 - 7/80, 7/81 - 11/82, 7/90 - 3/91, 4/01 - 12/01**

Source: Figure 1 & Nat'l Bureau of Economic Research Data

**FIGURE 4**

**TOTAL LIABILITIES\* OF PUBLIC COMPANIES FILING  
FOR CHAPTER 11 PROTECTION  
1989-2002**

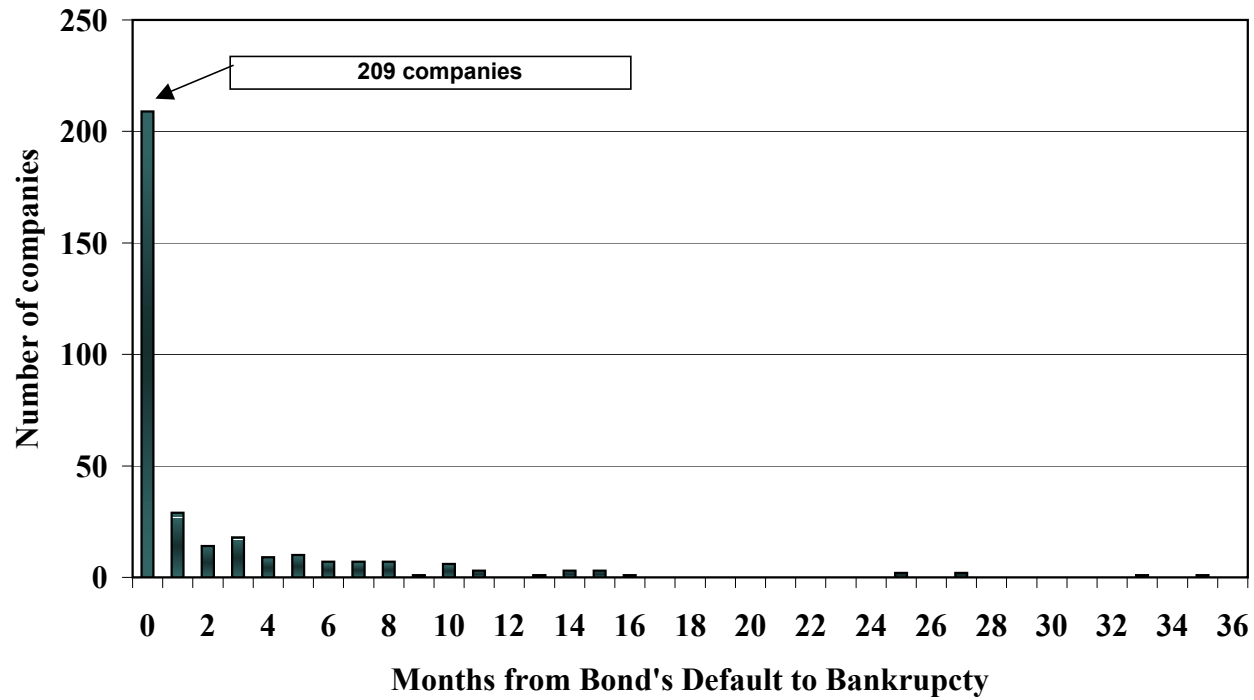


\*: Minimum \$100 million in liabilities

Source: NYU Salomon Center Bankruptcy Filings Database

Source: Appendix C

**FIGURE 5**  
**DEFAULT-BANKRUPTCY LAG**  
 (IN MONTHS)  
 1987-2002



<b>SUMMARY STATISTICS</b>	
<b>Observations:</b>	<b>339 companies</b>
<b>Mean Lag</b>	<b>2.68 months</b>
<b>Std. Deviation</b>	<b>7.33 months</b>
<b>Percentile 25</b>	<b>0 months</b>
<b>Percentile 75</b>	<b>2.5 months</b>
<b>Percentile 95</b>	<b>11.2 months</b>

**FIGURE 6**  
**CORPORATE BOND DEFAULTS BY INDUSTRY**  
**(NUMBER OF COMPANIES)**

<u>INDUSTRY</u>	<u>1970-82</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>Total</u>
Auto/Motor Carrier	3							3	3					1				1			1	12
Conglomerates	0					1	3	1	1	3	3								1		-	13
Energy	3	3	5	7	12	2	4			4	2	3					1	13	1		8	69
Financial Services	4	1	1	1			4	11	7	14	3	2	1	2	1	2	6	1	6	4	5	76
Leisure/Entertainment	0					2	4	4	8	2	4	3	4	3	1	5	5	8	9	6	5	73
General Manufacturing	9	1	1	2	6	3	3	1	5	8	8	7	3	8	6	7	6	16	23	43	22	188
Health Care	0					1	2		2	1	1	1		2			2	8	6	3	4	33
Miscellaneous Industries	3	1	2	6	3	1			4	4	3	1	1	1		3	3	16	34	38	25	149
Real Estate/Construction	7		1	1		1	1	3	7	5	1			2	1	2	1	4	6	4	3	50
REIT	11	1									1										1	14
Retailing	6	1					1	2	6	15	6	4	5	6	3	6	6	12	7	12	5	103
Communications	7	2	2	1	1	3	1		3	4	1	1	3	2	2	1	6	11	8	39	26	124
Transportation (non auto)	4	2		1	1			1	1	2			2			2	1	8	5	7	7	44
Utilities						1	1				1				1	1			1		-	6
<b>Total</b>	<b>57</b>	<b>12</b>	<b>12</b>	<b>19</b>	<b>23</b>	<b>15</b>	<b>24</b>	<b>26</b>	<b>47</b>	<b>62</b>	<b>34</b>	<b>22</b>	<b>19</b>	<b>28</b>	<b>15</b>	<b>29</b>	<b>37</b>	<b>98</b>	<b>107</b>	<b>156</b>	<b>112</b>	<b>954</b>

Source: Author's compilations

FIGURE 7

DISTRIBUTION OF YEARS TO DEFAULT FROM ORIGINAL ISSUANCE DATE  
(By Year of Default)  
(1989 - 2002)

Years to Default	1989		1990		1991		1992		1993/1994		1995		1996	
	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total
1	4	6	3	3	0	0	0	0	3	8	1	3	2	8
2	12	18	25	23	18	13	0	0	6	16	9	28	3	13
3	15	23	23	21	26	19	7	13	5	14	7	22	3	13
4	13	20	18	17	29	21	10	19	2	5	3	9	8	33
5	1	2	23	21	35	26	8	15	4	11	1	3	1	4
6	7	11	5	5	10	7	12	22	8	22	2	6	5	21
7	7	11	5	5	4	3	5	9	7	19	2	6	0	0
8	2	3	4	4	10	7	4	7	0	0	2	6	0	0
9	1	2	1	1	3	2	0	0	0	0	4	13	0	0
10	3	5	1	1	2	1	8	15	2	5	1	3	2	8
<b>Total</b>	<b>65</b>	<b>100</b>	<b>108</b>	<b>100</b>	<b>137</b>	<b>100</b>	<b>54</b>	<b>100</b>	<b>37</b>	<b>100</b>	<b>32</b>	<b>100</b>	<b>24</b>	<b>100</b>

Years to Default	1997		1998		1999		2000		2001		2002		1989-2002	
	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total	No. of Issues	% of Total
1	5	20	2	6	32	26	19	10	40	12	29	8	140	9
2	4	16	5	15	37	30	51	28	69	21	51	15	290	19
3	4	16	10	30	15	12	56	31	87	26	61	18	319	21
4	9	36	3	9	14	11	14	8	65	19	56	16	244	16
5	3	12	10	30	7	6	13	7	27	8	45	13	178	12
6	0	0	2	6	8	6	5	3	14	4	21	6	99	7
7	0	0	1	3	10	8	12	7	21	6	8	2	82	5
8	0	0	0	0	2	2	4	2	5	1	7	2	40	3
9	0	0	0	0	0	0	3	2	4	1	12	3	28	2
10	0	0	0	0	0	0	6	3	3	1	54	16	82	5
<b>Total</b>	<b>25</b>	<b>100</b>	<b>33</b>	<b>100</b>	<b>125</b>	<b>100</b>	<b>183</b>	<b>100</b>	<b>335</b>	<b>100</b>	<b>344</b>	<b>100</b>	<b>1502</b>	<b>100</b>

Source: Authors' Compilations

**FIGURE 8****DEFAULTS BY ORIGINAL RATING  
(INVESTMENT GRADE VS. NON-INVESTMENT GRADE)  
By Year**

	<b>Defaulted Issues*</b>	<b>% Originally Rated Investment Grade</b>	<b>% Originally Rated Non-Investment Grade</b>
2002	321	39%	61%
2001	258	14%	86%
2000	142	16%	84%
1999	87	13%	87%
1998	39	31%	69%
1997	20	0%	100%
1996	24	13%	88%
1995	29	10%	90%
1994	16	0%	100%
1993	24	0%	100%
1992	59	25%	75%
1991	163	27%	73%
1990	117	16%	84%
1989	66	18%	82%
1988	64	42%	58%
1987	31	39%	61%
1986	55	15%	85%
1985	26	4%	96%
1984	14	21%	79%
1983	7	43%	57%
1982	20	55%	45%
1981	1	0%	100%
1980	4	25%	75%
1979	1	0%	100%
1978	1	100%	0%
1977	2	100%	0%
<b>Total</b>	<b>1591</b>	<b>23%</b>	<b>77%</b>

\* Where we could find an original rating from either S&P or Moody's.

Source: Authors' Compilations from S&P and Moody's records.



## FIGURE 9

### FALLEN ANGEL DEFAULTS 2002

<b>Company with issues that were downgraded from Investment Grade</b>	<b>Outstanding Amount (\$ MM)</b>
<b>WorldCom</b>	<b>25,549.0</b>
<b>Conseco Inc.</b>	<b>3,240.6</b>
<b>Kmart, Corp.</b>	<b>2,844.6</b>
<b>NRG Energy</b>	<b>2,200.0</b>
<b>US Airlines</b>	<b>2,087.0</b>
<b>UAL Group (United)</b>	<b>1,873.0</b>
<b>AT&amp;T Canada Inc.</b>	<b>1,344.6</b>
<b>PG&amp;E National Energy Group</b>	<b>1,000.0</b>
<b>Teleglobe Holdings(US) Corp</b>	<b>1,000.0</b>
<b>Global Crossing, Ltd.</b>	<b>620.0</b>
<b>Oakwood Homes</b>	<b>310.0</b>
<b>Covanta Energy Corp./Ogden</b>	<b>260.0</b>
<b>Amerco / Uhaul</b>	<b>100.0</b>
<b>Total:</b>	<b>42,428.9</b>

\* Only those issues of the issuer that were rated BBB- or above on issuance have been considered

Source: Appendix A and rating agency records

**FIGURE 10**  
**FALLEN ANGEL(FA) VS ORIGINAL ISSUE & ALL HIGH YIELD DEFAULT RATES**  
**1985-2002**  
**(Issuer Based)**

<b>Year</b>	<b>Fallen Angel Average 12 Month Default Rate*</b>	<b>Original Issue Speculative Grade Default Rates*</b>	<b>All Speculative Grade Bond Default Rates*</b>	<b>Altman Dollar Weighted Average Default Rates</b>
2002	6.59%	8.55%	8.32%	12.79%
2001	8.46%	10.14%	10.99%	9.81%
2000	7.01%	7.10%	7.03%	5.07%
1999	4.01%	5.10%	4.62%	4.15%
1998	3.31%	2.75%	2.23%	1.60%
1997	2.04%	2.10%	1.71%	1.25%
1996	1.38%	2.00%	1.71%	1.23%
1995	0.25%	3.90%	3.07%	1.90%
1994	0.00%	2.31%	1.70%	1.45%
1993	1.72%	1.99%	1.79%	1.10%
1992	4.50%	5.48%	5.45%	3.40%
1991	7.53%	10.86%	11.66%	10.27%
1990	5.77%	8.30%	8.20%	10.14%
1989	3.74%	4.93%	5.33%	4.29%
1988	4.25%	3.39%	3.95%	2.66%
1987	4.36%	2.92%	2.41%	5.78%
1986	2.46%	6.29%	4.78%	3.50%
1985	6.77%	4.06%	3.24%	1.71%
<b>Arithmetic Average</b>	4.12%	5.12%	4.90%	4.56%
<b>Weighted Average(By number of issuers)</b>	4.19%	5.15%	5.10%	5.60%
<b>Standard Deviation</b>	2.55%	3.40%	3.06%	3.61%

Source: Author Compilation from Standard & Poor's "Credit Pro" Database

\*Each year's figure is based on the one year average of the 12 months for that year.

**FIGURE 11**  
**Fallen Angel(FA) vs Original Issue(OI) & All High Yield Default Rates**  
**1985-2002**

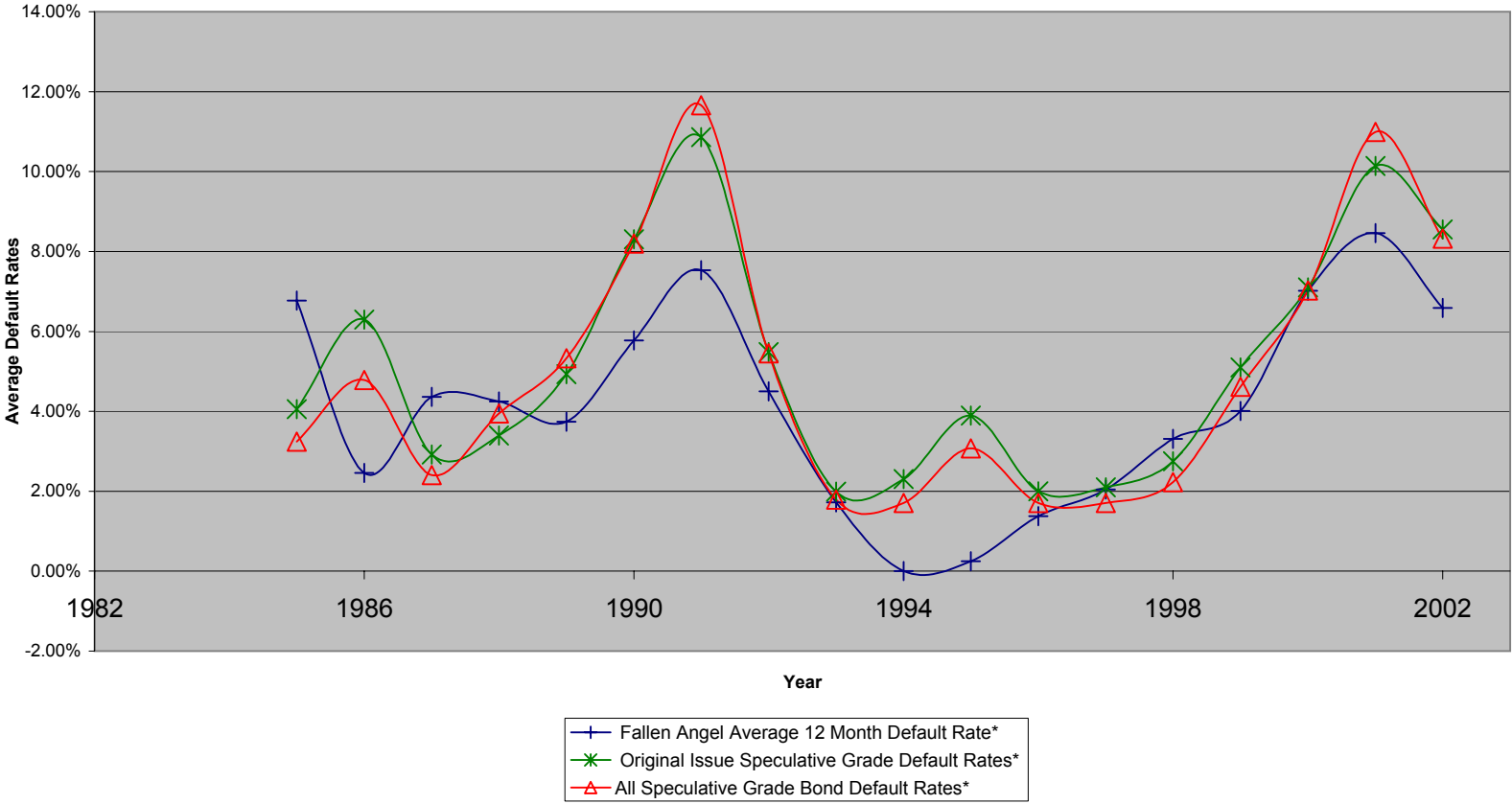


FIGURE 12

**Annual Fallen Angel(FA) One Year Default Rates By Rating\* : 1985-2002**  
**(As a % of All Fallen Angel Issuers of the Same Rating)**

<b>Year</b>	<b>BB</b>	<b>B</b>	<b>CCC</b>
2002	3.08%	16.67%	23.53%
2001	4.24%	14.29%	0.00%
2000	1.85%	9.09%	16.67%
1999	1.11%	7.69%	0.00%
1998	0.00%	14.29%	0.00%
1997	1.19%	6.45%	0.00%
1996	0.00%	3.13%	0.00%
1995	1.10%	0.00%	0.00%
1994	0.00%	0.00%	0.00%
1993	1.12%	0.00%	20.00%
1992	0.00%	11.54%	45.45%
1991	1.41%	18.18%	0.00%
1990	0.00%	0.00%	0.00%
1989	0.00%	6.06%	25.00%
1988	1.75%	15.15%	20.00%
1987	0.00%	3.57%	0.00%
1986	0.00%	0.00%	33.33%
1985	5.26%	0.00%	0.00%
<b>Average Annual(FA) One Year Default Rates</b>	1.23%	7.01%	10.22%
<b>Average Annual(OI) One Year Default Rates</b>	1.13%	5.70%	24.02%

Source: Author Compilation from Standard & Poor's "Credit Pro" Database

\*Each year's figure is based on the one year average of the 12 months for that year.

\*\*OI = original issue high yield bonds.

**FIGURE 13**  
**2002 DEFAULT LOSS RATE**

	<b>Unadjusted for Fallen Angels</b>	<b>Only Fallen Angels</b>	<b>All except Fallen Angels</b>	<b>Price Adjusted for Fallen Angels</b>
<b><i>BACKGROUND DATA</i></b>				
AVERAGE DEFAULT RATE, 2002	12.795%	20.284%	9.936%	12.795%
AVERAGE PRICE AT DEFAULT (a)	25.317%	20.172%	28.446%	32.450%
AVERAGE PRICE AT DOWNGRADE		59.792%		
AVERAGE RECOVERY	25.317%	37.908%	28.446%	32.450%
AVERAGE LOSS OF PRINCIPAL	74.683%	62.092%	71.554%	67.550%
AVERAGE COUPON PAYMENT	9.369%	8.261%	10.564%	9.589%
 <b><i>DEFAULT LOSS COMPUTATION</i></b>				
DEFAULT RATE	12.795%	20.284%	9.936%	12.795%
X LOSS OF PRINCIPAL	<u>74.683%</u>	<u>62.092%</u>	<u>71.554%</u>	<u>67.550%</u>
DEFAULT LOSS OF PRINCIPAL	9.556%	12.594%	7.109%	8.643%
 DEFAULT RATE	12.795%	20.284%	9.936%	12.795%
X LOSS OF 1/2 COUPON	<u>4.684%</u>	<u>4.130%</u>	<u>5.282%</u>	<u>4.794%</u>
DEFAULT LOSS OF COUPON	0.599%	0.838%	0.525%	0.613%
 <b>DEFAULT LOSS OF PRINCIPAL AND COUPON</b>	<b>10.155%</b>	<b>13.432%</b>	<b>7.634%</b>	<b>9.256%</b>

(a) If default date price is not available, end-of-month price is used.

Source: Author's Compilations and various dealer quotes.

**FIGURE 14**  
**DEFAULT RATES AND LOSSES (a)**  
**(1978 - 2002)**

YEAR	PAR VALUE OUTSTANDING (a) (\$ MMs)	PAR VALUE OF DEFAULT (\$ MMs)	DEFAULT RATE (%)	WEIGHTED PRICE AFTER DEFAULT (\$)	WEIGHTED COUPON (%)	DEFAULT LOSS (%)
2002	\$757,000	\$96,858	12.79%	25.3	9.37%	10.15% (b)
2001	\$649,000	\$63,609	9.80%	25.5	9.18%	7.76%
2000	\$597,200	\$30,295	5.07%	26.4	8.54%	3.95%
1999	\$567,400	\$23,532	4.15%	27.9	10.55%	3.21%
1998	\$465,500	\$7,464	1.60%	35.9	9.46%	1.10%
1997	\$335,400	\$4,200	1.25%	54.2	11.87%	0.65%
1996	\$271,000	\$3,336	1.23%	51.9	8.92%	0.65%
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	\$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	\$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%	72.0	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%
<b>ARITHMETIC AVERAGE 1978-2002:</b>			<b>3.62%</b>	<b>\$42.3</b>	<b>11.06%</b>	<b>2.51%</b>
<b>WEIGHTED AVERAGE 1978-2002:</b>			<b>5.49%</b>			<b>4.10%</b>

**Notes**

(a) Excludes defaulted issues

(b) Default loss rate adjusted for fallen angels is 9.256% in 2002

Source: Authors' Compilations

Source: Figure 1 and 9

**FIGURE 15**  
**Fallen Angels: An Analysis Of Recovery Rates And Loss Rates On Default**

**SUMMARY STATISTICS**

	<b>Price at Default</b>	<b>Price at Downgrade</b>	<b>% Recovery</b>	<b>Years to default</b>
Mean	54.43	75.67	0.72	2.00
Median	53.44	76.94	0.75	1.79
Standard Deviation	19.1%	11.7%	25.6%	1.64%

**Analysis by Year of Default**

	<b>Price at Default</b>	<b>Price at Downgrade</b>	<b>% Recovery</b>	<b>Years to default</b>	<b># of Data points</b>	<b>Fallen Angels (\$ MM)</b>
1982 Average	38.59	52.94	72.9%	0.54	10	498
1983 Average	71.17	89.08	79.9%	6.11	3	47
1984 Average	70.54	85.25	82.7%	1.79	3	47
1985 Average	36.63	67.75	54.1%	1.25	1	21
1986 Average	44.78	77.40	57.9%	3.54	10	317
1987 Average	71.85	82.77	86.8%	1.80	11	2,905
1988 Average	53.49	75.95	70.4%	3.77	22	741
1989 Average	53.39	66.75	80.0%	0.07	10	1,155
1990 Average	35.70	76.48	46.7%	2.41	17	1,516
1991 Average	67.28	86.92	77.4%	1.16	37	1,902
1992 Average	79.13	94.45	83.8%	3.04	7	133
1995 Average	69.00	67.06	102.9%	0.00	2	125
1999 Average	30.43	84.64	35.9%	2.56	7	1,013
2000 Average	29.46	80.76	36.5%	0.80	13	2,300
2001 Average <sup>1</sup>	86.00	62.72	137.1%	0.33	17	3,825
2002 Average	33.38	59.79	55.8%	2.90	113	42,429
<b>Arithmetic Average</b>	<b>54.43</b>	<b>75.67</b>	<b>71.9%</b>	<b>2.00</b>	<b>170</b>	<b>57531.4</b>
<b>Weighted Average <sup>2</sup></b>	<b>40.81</b>	<b>64.29</b>	<b>63.5%</b>	<b>2.45</b>		
<b>Median</b>	<b>53.44</b>	<b>76.94</b>	<b>75.2%</b>	<b>1.79</b>		
<b>SD</b>	<b>19.1%</b>	<b>11.7%</b>	<b>25.6%</b>	<b>1.64%</b>		

1 - Includes FINOVA as a fallen angel

2 - Weighted by \$ outstanding

**Analysis by Seniority**

	<b>Price at Default</b>	<b>Price at Downgrade</b>	<b>% Recovery</b>	<b>Years to default</b>	<b>Default Loss</b>	<b># of Data points</b>
Senior Secured Average	44.23	63.57	70.9%	2.45	34.5%	63
Senior Unsecured	49.59	72.68	69.5%	2.19	35.1%	209
Subordinate (Sr. and Jr.)	30.34	68.85	55.1%	1.93	49.9%	11
<b>Weighted Average</b>	<b>40.81</b>	<b>64.29</b>	<b>63.5%</b>	<b>2.45</b>	<b>35.5%</b>	<b>283</b>

FIGURE 16

WEIGHTED AVERAGE RECOVERY RATES ON DEFAULTED DEBT  
BY SENIORITY PER \$100 FACE AMOUNT (1978-2002)

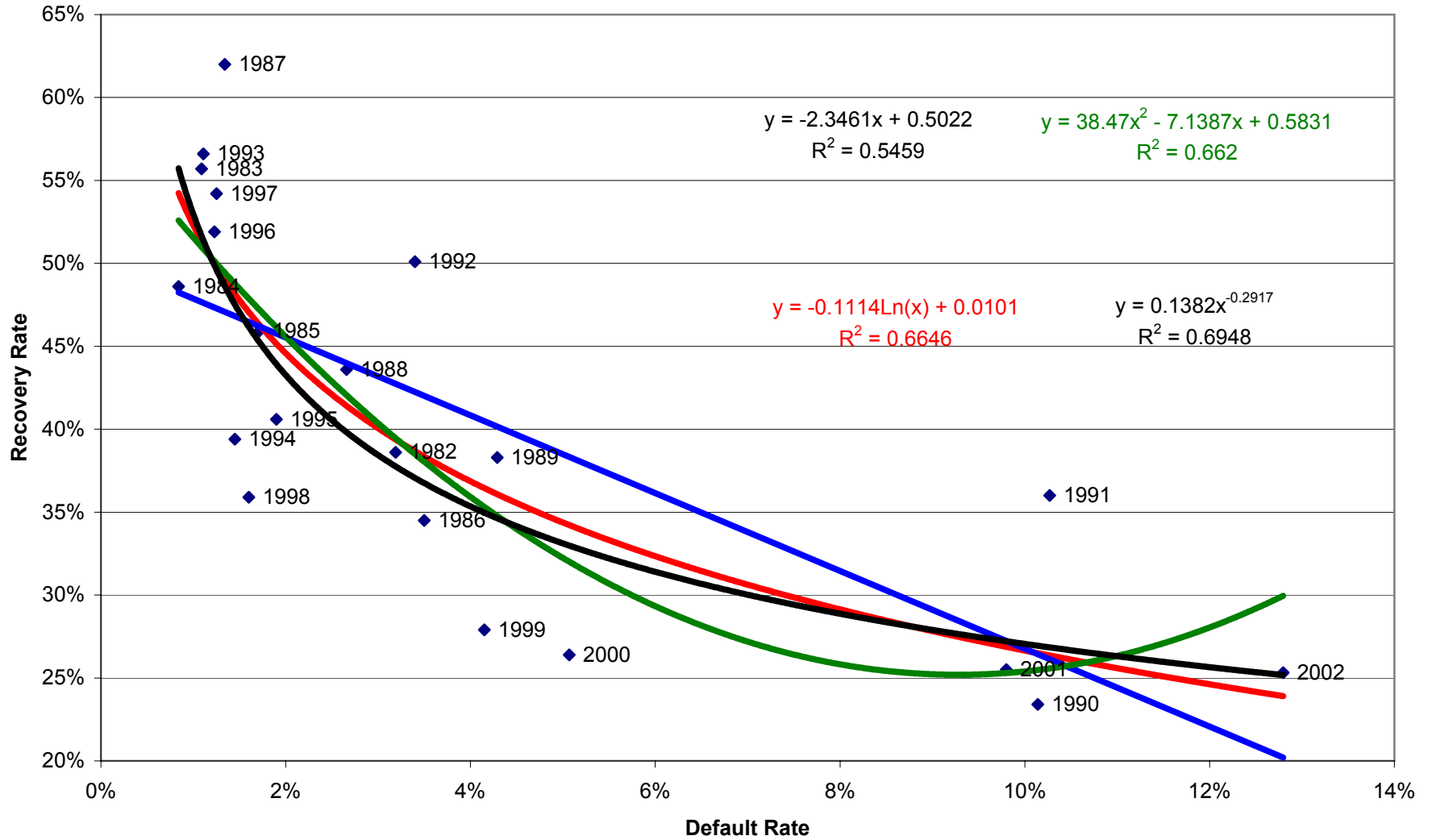
Default Year	Senior Secured		Senior Unsecured		Senior Subordinated		Subordinated		Discount and Zero Coupon		All Seniorities	
	No.	\$	No.	\$	No.	\$	No.	\$	No.	\$	No.	\$
2002	37	\$52.81	254	\$21.82	21	\$32.79	0	\$0.00	28	\$26.47	340	\$25.32
2001	9	\$40.95	187	\$28.84	48	\$18.37	0	\$0.00	37	\$15.05	281	\$25.48
2000	13	\$39.58	47	\$25.40	61	\$25.96	26	\$26.62	17	\$23.61	164	\$25.83
1999	14	\$26.90	60	\$42.54	40	\$23.56	2	\$13.88	11	\$17.30	127	\$31.14
1998	6	\$70.38	21	\$39.57	6	\$17.54	0	0.00	1	\$17.00	34	\$37.27
1997	4	\$74.90	12	\$70.94	6	\$31.89	1	\$60.00	2	\$19.00	25	\$53.89
1996	4	\$59.08	4	\$50.11	9	\$48.99	4	\$44.23	3	\$11.99	24	\$51.91
1995	5	\$44.64	9	\$50.50	17	\$39.01	1	\$20.00	1	\$17.50	33	\$41.77
1994	5	\$48.66	8	\$51.14	5	\$19.81	3	\$37.04	1	\$5.00	22	\$39.44
1993	2	\$55.75	7	\$33.38	10	\$51.50	9	\$28.38	4	\$31.75	32	\$38.83
1992	15	\$59.85	8	\$35.61	17	\$58.20	22	\$49.13	5	\$19.82	67	\$50.03
1991	4	\$44.12	69	\$55.84	37	\$31.91	38	\$24.30	9	\$27.89	157	\$40.67
1990	12	\$32.18	31	\$29.02	38	\$25.01	24	\$18.83	11	\$15.63	116	\$24.66
1989	9	\$82.69	16	\$53.70	21	\$19.60	30	\$23.95			76	\$35.97
1988	13	\$67.96	19	\$41.99	10	\$30.70	20	\$35.27			62	\$43.45
1987	4	\$90.68	17	\$72.02	6	\$56.24	4	\$35.25			31	\$66.63
1986	8	\$48.32	11	\$37.72	7	\$35.20	30	\$33.39			56	\$36.60
1985	2	\$74.25	3	\$34.81	7	\$36.18	15	\$41.45			27	\$41.78
1984	4	\$53.42	1	\$50.50	2	\$65.88	7	\$44.68			14	\$50.62
1983	1	\$71.00	3	\$67.72			4	\$41.79			8	\$55.17
1982			16	\$39.31			4	\$32.91			20	\$38.03
1981	1	\$72.00									1	\$72.00
1980			2	\$26.71			2	\$16.63			4	\$21.67
1979							1	\$31.00			1	\$31.00
1978			1	\$60.00							1	\$60.00
<b>Total/Average</b>	<b>172</b>	<b>\$52.86</b>	<b>806</b>	<b>\$33.62</b>	<b>368</b>	<b>\$29.67</b>	<b>247</b>	<b>\$31.03</b>	<b>130</b>	<b>\$20.40</b>	<b>1723</b>	<b>\$32.93</b>
<b>Median</b>		<b>\$ 55.75</b>		<b>\$41.99</b>		<b>\$31.91</b>		<b>\$31.00</b>		<b>\$17.50</b>		<b>\$39.44</b>

Source: Authors' Compilations from Various Dealer Quotes



# FIGURE 17 RECOVERY RATE/DEFAULT RATE ASSOCIATION

Dollar Weighted Average Recoery Rates to Dollar Weighted Average Default Rates



Source: Altman, Brady, Resti and Sironi (2002), and NYU Salomon Ceter Default database.

FIGURE 18

RECOVERY RATES FOR TELECOMMUNICATIONS AND E-COMMERCE INDUSTRIES\*  
1996 - 2002

Issuer	Bond	Coupon	Issue Size	Default Date	Default Price (\$)
@Track Communications	SrSubNts '11/07	9.375	250.00	11/1/1996	54.20
360Networks, Inc.	SrSubNts '12/03	10.250	210.00	11/1/1996	44.19
360Networks, Inc.	Senior Discount Notes	14.000	285.80	1/24/1997	4.50
360Networks, Inc.	Senior Notes 4/15/03	13.000	100.00	4/15/1998	30.00
Advanced Radio Telecomm	Senior Notes 10/15/04	14.000	125.00	4/15/1998	28.50
Arch Wireless, Inc.	Senior Discount Notes	NA	207.00	6/30/1998	17.00
Arch Wireless, Inc.	Senior Notes	12.000	12.00	7/30/1998	24.00
Arch Wireless, Inc.	Senior Notes	12.250	275.00	7/30/1998	24.00
Arch Wireless, Inc.	Senior Secured Discount Notes	NA	139.00	9/3/1998	10.00
Arch Wireless, Inc.	Senior Notes	13.500	150.00	9/28/1998	30.00
AT&T Canada Inc.	Senior Discount Notes	NA	250.00	9/28/1998	3.00
AT&T Canada Inc.	Guaranteed Senior Notes	12.000	125.00	1/15/1999	35.00
AT&T Canada Inc.	Senior Discount Notes	NA	85.60	2/10/1999	34.00
BTI Telecom, Corp.	Senior Notes	13.000	150.00	2/11/1999	10.00
CAI Wireless Systems, Inc.	Senior Discount Notes	NA	175.10	2/11/1999	9.57
CAI Wireless Systems, Inc.	Senior Discount Notes	NA	123.70	2/18/1999	9.00
Call - Net Enterprises, Inc.	Senior Subordinated Notes	9.875	105.00	4/16/1999	7.00
Call - Net Enterprises, Inc.	Senior Subordinated Notes	14.000	98.40	6/9/1999	25.00
Call - Net Enterprises, Inc.	Eurobonds	15.250	107.10	7/1/1999	47.00
Call - Net Enterprises, Inc.	Senior Notes	15.000	460.00	7/1/1999	44.00
Call - Net Enterprises, Inc.	Senior Notes	13.000	0.30	7/15/1999	19.00
CellNet Data Systems	Senior Notes	10.875	350.00	7/15/1999	19.00
CellNet Data Systems	Senior Notes	11.250	5.60	7/15/1999	19.00
Classic Cable, Inc.	Senior Notes	14.000	500.00	7/15/1999	19.00
Classic Cable, Inc.	Senior Unsecured Discount Notes	13.875	79.10	10/27/1999	13.00
Classic Cable, Inc.	Senior Notes	11.500	200.00	10/28/1999	33.00
Convergent Communications, Inc.	Senior Notes	13.000	225.00	10/28/1999	33.00
Covad Communications Group, Inc.	Senior Subordinated Notes	10.125	400.00	2/1/2000	39.70
Covad Communications Group, Inc.	Senior Subordinated Notes	8.875	300.00	2/1/2000	39.70
Covad Communications Group, Inc.	Senior Subordinated Notes	10.000	500.00	2/1/2000	39.70
Dolphin Telecom, PLC	Senior Discount Notes	NA	452.60	2/4/2000	17.34
Dolphin Telecom, PLC	Senior Discount Notes	NA	223.30	2/4/2000	12.63
e.spire Communications, Inc.	Senior Discount Notes	NA	370.40	5/17/2000	56.70
e.spire Communications, Inc.	Senior Secured Notes	13.250	265.00	5/17/2000	45.00
e.spire Communications, Inc.	Senior Discount Notes	NA	289.80	5/17/2000	24.80
e.spire Communications, Inc.	Senior Subordinated Accrual Notes	12.750	165.30	5/17/2000	6.75
Energis PLC	Senior Notes	14.000	170.00	8/15/2000	15.00
Exodus Communications, Inc.	Senior Subordinated Notes	12.375	120.00	9/28/2000	64.75
Exodus Communications, Inc.	Senior Discount Notes	13.500	584.30	11/14/2000	12.00
Exodus Communications, Inc.	Senior Discount Notes	NA	521.61	11/14/2000	12.00
Exodus Communications, Inc.	Senior Discount Notes	NA	151.72	11/14/2000	8.00
Flag Telecom Holdings, Ltd.	Senior Discount Notes	NA	393.97	11/14/2000	8.00
Flag Telecom Holdings, Ltd.	Senior Discount Notes	NA	320.04	11/14/2000	8.00
Flag Telecom Holdings, Ltd.	Senior Notes	10.875	150.00	12/15/2000	28.00
Focal Communication Corp	Senior Notes	11.000	68.60	12/15/2000	3.00
Focal Communication Corp	Senior Notes	10.750	325.00	1/16/2001	13.00
Focal Communication Corp	Senior Notes	11.500	300.00	1/16/2001	12.50
Focal Communication Corp	Senior Notes	11.375	500.00	1/16/2001	12.50
Focal Communications, Corp.	Senior Notes	11.250	325.00	1/16/2001	8.00
Focal Communications, Corp.	Senior Notes	12.875	400.00	1/16/2001	14.00
FWT, Inc.	Senior Notes - Yankee	8.000	175.00	2/8/2001	38.00
Galaxy Telecomm L.P.	Senior Notes - Yankee	9.375	450.00	2/8/2001	36.00
Geotek Communications, Inc.	Senior Discount Notes - Yankee	NA	244.60	2/8/2001	32.60
Global Crossing, Ltd.	Senior Discount Notes - Yankee	NA	358.60	2/8/2001	31.61
Global Crossing, Ltd.	Senior Discount Notes - Yankee	NA	282.40	2/8/2001	31.36
Global Crossing, Ltd.	Guaranteed Senior Notes	13.750	125.00	2/15/2001	38.00
Global Crossing, Ltd.	Senior Notes, Ser. D	11.625	75.00	3/1/2001	13.00
Global Crossing, Ltd.	Senior Notes, Ser. B	11.625	150.00	3/1/2001	13.00
Global Crossing, Ltd.	Guaranteed Senior Notes	9.125	200.00	3/1/2001	3.25
Global Crossing, Ltd.	Guaranteed Senior Notes	12.875	100.00	3/1/2001	2.00
Global Crossing, Ltd.	Senior Subordinated Notes	11.000	227.35	3/15/2001	17.00
Global Crossing, Ltd.	Senior Subordinated Notes	10.375	134.97	3/15/2001	17.00
Global Crossing, Ltd.	Senior Subordinated Notes	9.750	171.34	3/15/2001	17.00
Global Telesystems, Inc.	Guaranteed Senior Notes - Yankee	12.250	300.00	3/16/2001	8.00
Global Telesystems, Inc.	Guaranteed Senior Notes - Yankee	10.500	200.00	3/16/2001	8.00
Global Telesystems, Inc.	Guaranteed Senior Notes - Yankee	NA	278.00	3/16/2001	1.00
Global Telesystems, Inc.	Guaranteed Senior Notes - Yankee	12.000	100.00	3/16/2001	1.00

FIGURE 18

**RECOVERY RATES FOR TELECOMMUNICATIONS AND E-COMMERCE INDUSTRIES\***  
1996 - 2002

<b>Issuer</b>	<b>Bond</b>	<b>Coupon</b>	<b>Issue Size</b>	<b>Default Date</b>	<b>Default Price (\$)</b>
Globalstar LP	Guaranteed Senior Notes - Yankee	9.875	175.00	3/16/2001	1.00
Globalstar LP	Senior Notes	11.000	1050.00	3/21/2001	10.00
Globalstar LP	Senior Notes	11.500	350.00	3/21/2001	9.00
Globalstar LP	Senior Subordinated Notes	10.500	600.00	3/21/2001	9.00
GST Telecommunications, Inc.	Senior Subordinated Notes	10.000	600.00	3/21/2001	9.00
GST Telecommunications, Inc.	Senior Notes	13.750	220.00	3/22/2001	30.00
GST Telecommunications, Inc.	Senior Discount Notes	13.000	190.00	3/22/2001	25.00
GST Telecommunications, Inc.	Senior Discount Notes	NA	119.70	3/22/2001	24.00
Heartland Wireless Communications, Inc	Senior Discount Notes	NA	305.80	3/22/2001	15.94
Heartland Wireless Communications, Inc	Senior Notes	14.000	135.00	3/30/2001	15.00
ICG Communications Corp.	Senior Notes	12.250	350.00	4/2/2001	5.00
ICG Communications Corp.	Senior Notes	13.250	300.00	4/4/2001	5.00
ICG Communications Corp.	Senior Discount Notes	14.000	8.73	4/15/2001	102.50
ICG Communications Corp.	Senior Notes	12.750	639.75	4/15/2001	1.38
ICG Communications Corp.	Senior Notes	12.500	325.00	4/15/2001	1.38
ICO Global Comm. Services, Inc.	Senior Discount Notes	NA	551.40	4/15/2001	0.42
ICO Global Comm. Services, Inc.	Senior Subordinated Notes	10.000	7.13	4/18/2001	92.00
Impsat Fiber Networks, Corp.	Senior Notes	13.000	160.00	4/19/2001	10.00
Impsat Fiber Networks, Corp.	Senior Secured Notes	12.000	91.65	5/1/2001	25.00
Impsat Fiber Networks, Corp.	Senior Discount Notes	12.500	410.20	5/2/2001	12.19
In-Flight Phone Corp.	Senior Notes	11.500	200.00	5/2/2001	11.00
International Wireless Communications	Senior Notes	11.500	269.45	5/2/2001	11.00
Ionica Group PLC	Senior Notes	11.250	400.00	5/2/2001	11.00
Ionica Group PLC	Senior Notes	13.500	150.00	5/2/2001	2.00
Iridium LLC/Capital Corp.	Senior Notes	11.500	300.00	5/21/2001	2.00
Iridium LLC/Capital Corp.	Senior Discount Notes	NA	372.66	5/21/2001	0.59
Iridium LLC/Capital Corp.	Senior Notes	9.500	125.00	5/23/2001	35.00
Iridium LLC/Capital Corp.	Senior Notes	14.000	100.00	5/23/2001	35.00
ITC DeltaCom, Inc.	Senior Notes	13.000	130.00	5/23/2001	21.00
ITC DeltaCom, Inc.	Senior Notes	13.750	147.00	5/23/2001	21.00
ITC DeltaCom, Inc.	Senior Discount Notes	10.875	164.16	5/23/2001	20.00
Knology Holdings	Senior Discount Notes	15.000	207.27	5/23/2001	20.00
KPN Qwest	Senior Discount Notes	NA	271.01	5/23/2001	5.83
McLeodUSA, Inc.	Senior Notes	12.500	175.00	6/15/2001	3.00
McLeodUSA, Inc.	Senior Subordinated Notes	11.875	92.97	6/15/2001	17.00
McLeodUSA, Inc.	Senior Notes	12.000	500.00	6/28/2001	2.50
McLeodUSA, Inc.	Senior Notes	13.000	600.00	6/28/2001	2.00
McLeodUSA, Inc.	Guaranteed Senior Notes	13.000	300.00	7/2/2001	20.00
McLeodUSA, Inc.	Senior Discount Notes	NA	149.31	7/6/2001	39.15
McLeodUSA, Inc.	Senior Discount Notes	NA	340.64	7/6/2001	39.04
McLeodUSA, Inc.	Senior Discount Notes	NA	215.30	7/27/2001	2.00
Metricom, Inc.	Senior Discount Notes	NA	221.50	7/27/2001	1.00
Metrocall, Inc.	Guaranteed Senior Notes	9.375	150.00	8/1/2001	46.00
Metrocall, Inc.	Guaranteed Senior Notes	9.875	91.50	8/1/2001	45.00
Metrocall, Inc.	Senior Notes	12.750	325.00	8/2/2001	11.00
Metrocall, Inc. - Pronet	Senior Subordinated Notes	14.000	300.00	8/2/2001	3.00
Metromedia Fiber Network, Inc.	Senior Discount Notes	NA	240.50	8/2/2001	7.21
Metromedia Fiber Network, Inc.	Senior Notes	12.500	215.00	8/7/2001	24.00
Metromedia International	Senior Subordinated Notes	12.000	425.00	8/7/2001	19.00
Microcell Telecommunications	Senior Discount Notes	NA	218.22	8/7/2001	16.37
Microcell Telecommunications	Senior Notes	9.875	105.00	8/15/2001	20.00
Mobilemedia Communications	Senior Notes	11.500	264.60	8/15/2001	20.00
Mobilemedia Communications	Senior Notes	10.000	650.00	8/15/2001	26.50
Motient, Corp. (American Mobile Satellite)	Senior Notes	10.000	750.00	8/15/2001	26.00
Mpower Holding, Corp.	Guaranteed Senior Notes	10.500	225.00	9/1/2001	52.00
Mpower Holding, Corp.	Guaranteed Senior Subordinated	10.500	125.00	9/17/2001	26.00
Netia Holdings +	Senior Notes	10.750	375.00	9/26/2001	13.00
Netia Holdings +	Senior Notes	11.250	275.00	9/26/2001	13.00
Netia Holdings +	Senior Notes	11.625	998.70	9/26/2001	13.00
Nextel International, Inc.	Senior Notes	11.625	1.30	9/26/2001	13.00
Nextel Intl Inc	Guaranteed Senior Notes	12.250	334.75	10/1/2001	30.33
Nextel Intl Inc	Senior Notes	13.250	225.00	10/10/2001	34.36
Nextel Intl Inc	Senior Notes	13.250	150.00	10/10/2001	34.36
Nextel Intl Inc	Senior Notes	11.875	180.00	10/10/2001	33.35
Nextel Intl Inc	Senior Notes	10.500	250.00	10/12/2001	25.50
NorthPoint Communications, Inc.	Senior Notes	11.875	275.00	10/31/2001	30.33
NTL, Inc.	Senior Discount Notes	NA	235.20	10/31/2001	25.30

FIGURE 18

RECOVERY RATES FOR TELECOMMUNICATIONS AND E-COMMERCE INDUSTRIES\*  
1996 - 2002

Issuer	Bond	Coupon	Issue Size	Default Date	Default Price (\$)
NTL, Inc.	Senior Notes	12.000	160.00	11/15/2001	28.75
NTL, Inc.	Senior Discount Notes	14.000	45.45	11/15/2001	16.00
NTL, Inc.	Senior Discount Notes	14.000	447.42	11/15/2001	16.00
NTL, Inc.	Senior Discount Notes	NA	1220.99	11/15/2001	16.00
NTL, Inc.	Senior Notes	9.000	335.00	12/1/2001	17.00
NTL, Inc.	Senior Notes	9.625	400.00	12/1/2001	17.00
Optel, Inc.	Senior Notes	10.500	1.83	12/1/2001	17.00
Optel, Inc.	Senior Notes	10.500	398.17	12/1/2001	17.00
Orbcomm Global LP	Senior Notes	10.750	675.00	12/1/2001	17.00
Orbital Imaging Corp.	Senior Notes	10.750	500.00	12/1/2001	17.00
Orbital Imaging Corp.	Senior Notes	12.500	350.00	12/1/2001	17.00
Paging Network, Inc.	Senior Notes	12.750	150.00	12/1/2001	17.00
Paging Network, Inc.	Senior Discount Notes	NA	334.02	12/1/2001	11.50
Paging Network, Inc.	Senior Discount Notes	NA	572.58	12/1/2001	11.50
Pathnet Telecommunications, Inc.	Senior Discount Notes	NA	457.18	12/1/2001	11.50
PhoneTel Tech	Senior Notes	8.125	500.00	12/4/2001	24.00
PSINet, Inc.	Senior Notes	8.375	300.00	12/4/2001	24.00
PSINet, Inc.	Senior Notes	9.250	225.00	12/4/2001	24.00
PSINet, Inc.	Senior Notes	9.500	300.00	12/4/2001	24.00
PSINet, Inc.	Senior Notes	11.375	750.00	12/4/2001	24.00
Rhythms NetConnections, Inc.	Senior Notes	11.500	210.00	12/4/2001	22.00
Rhythms NetConnections, Inc.	Senior Notes	12.000	150.00	12/4/2001	22.00
Rhythms NetConnections, Inc.	Senior Discount Notes	NA	491.06	12/4/2001	21.00
RSL Communications PLC	Guaranteed Senior Notes	12.125	123.44	12/15/2001	7.25
RSL Communications PLC	Senior Notes	12.275	195.00	12/15/2001	7.25
RSL Communications PLC	Senior Notes	13.750	298.28	12/15/2001	7.25
RSL Communications PLC	Guaranteed Senior Notes	10.250	199.50	12/15/2001	17.19
RSL Communications PLC	Guaranteed Senior Notes	11.250	192.05	12/15/2001	17.19
RSL Communications PLC	Guaranteed Senior Notes	13.125	94.90	12/15/2001	17.19
RSL Communications PLC	Notes	6.000	200.00	1/28/2002	15.00
Source Media, Inc.	Guaranteed Senior Notes	8.700	998.12	1/28/2002	15.00
Spectrasite Holdings	Senior Notes	8.700	1.88	1/28/2002	15.00
Startec Global Communications Corp.	Notes	9.000	100.00	1/28/2002	15.00
Talton Holdings	Guaranteed Senior Notes	9.125	900.00	1/28/2002	15.00
Teleglobe Holdings(US) Corp	Notes	9.300	20.00	1/28/2002	15.00
Teleglobe Holdings(US) Corp	Senior Notes	9.500	0.60	1/28/2002	15.00
Telegroup, Inc.	Guaranteed Senior Notes	9.625	800.00	1/28/2002	15.00
TeleHub Network Services Corp.	Notes	7.250	300.00	1/28/2002	11.00
Telesystem International Wireless, Inc.	Guaranteed Senior Notes	9.500	1099.40	1/28/2002	9.25
Telesystem International Wireless, Inc.	Senior Notes	12.750	650.00	2/1/2002	7.00
Teletrac, Inc.	Senior unsecured notes	9.75%	200.00	3/15/2002	NA
Telex Communications, Inc.	Senior Notes	9.750	1300.00	4/1/2002	41.00
Teligent, Inc.	Senior Notes	10.000	400.00	4/1/2002	41.00
Teligent, Inc.	Senior Notes	11.500	625.00	4/1/2002	41.00
United International Holdings, Inc.	Senior Notes	11.500	1050.00	4/1/2002	41.00
United International Holdings, Inc.	Senior Notes	11.875	500.00	4/1/2002	41.00
United International Holdings, Inc.	Senior Notes	12.375	450.00	4/1/2002	41.00
USN Communications	Senior Notes	12.750	277.80	4/1/2002	41.00
Velocita Corp/PF Net Communications Limited	Senior Notes	13.000	380.56	4/8/2002	NA
Velocita Corp/PF Net Communications Limited	Senior Notes	13.000	56.12	4/8/2002	NA
Versatel Telecom NV	Senior Notes	8.250	426.60	4/12/2002	28.58
Versatel Telecom NV	Senior Notes	8.250	3.40	4/12/2002	28.58
Versatel Telecom NV	Senior Notes	11.675	300.00	4/12/2002	28.58
Viatel, Inc.	Senior Notes	10.700	500.00	4/22/2002	16.00
Viatel, Inc.	Senior Notes	10.875	1500.00	4/22/2002	16.00
Viatel, Inc.	Senior Notes	11.700	575.00	4/22/2002	16.00
Viatel, Inc.	Senior Notes	11.875	5.09	4/22/2002	16.00
Viatel, Inc. - Econophone	Senior Notes	11.875	419.91	4/22/2002	16.00
WebLink Wireless	Senior unsecured notes	11.000	115.00	4/24/2002	NA
WebLink Wireless	Senior Notes	9.750	125.00	5/14/2002	NA
Williams Communications Group, Inc.	Guaranteed Senior Notes	7.200	600.00	5/15/2002	32.00
Williams Communications Group, Inc.	Guaranteed Senior Notes	7.700	400.00	5/15/2002	32.00
Williams Communications Group, Inc.	Senior Notes	8.125	450.00	5/23/2002	2.06
Williams Communications Group, Inc.	Senior Discount Notes	12.125	729.67	5/24/2002	33.00
Williams Communications Group, Inc.	Senior Discount Notes	12.125	0.33	5/24/2002	33.00
Winstar Communications, Inc.	Senior Discount Notes	12.125	0.33	5/24/2002	33.00
Winstar Communications, Inc.	Senior Discount Notes	12.125	0.33	5/24/2002	33.00
Winstar Communications, Inc.	Guaranteed Senior Notes	14.000	147.50	5/30/2002	33.00
Winstar Communications, Inc.	Senior Notes	8.875	160.00	6/25/2002	NA
Winstar Communications, Inc.	Senior Notes	11.000	130.00	6/25/2002	NA
Wireless One, Inc.	Senior Notes	13.750	56.60	7/20/2002	NA
Wireless One, Inc.	Senior Notes	13.750	168.40	7/20/2002	NA
World Access, Inc.	Bonds	8.250	4600.00	7/21/2002	14.00
WorldCom	Notes	7.500	4000.00	7/21/2002	14.00
WorldCom	Senior Notes	6.400	2250.00	7/21/2002	14.00
WorldCom	Notes	6.950	1750.00	7/21/2002	14.00

FIGURE 18

RECOVERY RATES FOR TELECOMMUNICATIONS AND E-COMMERCE INDUSTRIES\*  
1996 - 2002

Issuer	Bond	Coupon	Issue Size	Default Date	Default Price (\$)
WorldCom	Notes	6.500	1500.00	7/21/2002	14.00
WorldCom	Notes	6.750	1250.00	7/21/2002	14.00
WorldCom	Notes	8.000	1250.00	7/21/2002	14.00
WorldCom	Notes	8.250	1250.00	7/21/2002	14.00
WorldCom	Senior Notes	7.750	1100.00	7/21/2002	14.00
WorldCom	Notes	7.375	1000.00	7/21/2002	14.00
WorldCom	Notes	7.375	1000.00	7/21/2002	14.00
WorldCom	Notes	7.875	1000.00	7/21/2002	14.00
WorldCom	Senior Notes	6.250	600.00	7/21/2002	14.00
WorldCom	Senior Notes	7.550	600.00	7/21/2002	14.00
WorldCom	Senior Notes	6.500	500.00	7/21/2002	14.00
WorldCom	Debentures	7.125	500.00	7/21/2002	14.00
WorldCom	Senior Notes	7.250	500.00	7/21/2002	14.00
WorldCom	Senior Notes	7.750	300.00	7/21/2002	14.00
WorldCom	Debentures	7.750	240.00	7/21/2002	14.00
WorldCom	Notes	18.500	1512.00	7/21/2002	14.00
WorldCom	Senior Notes	10.000	9.00	7/21/2002	14.00
WorldCom/Brooks Fiber	Senior Discount Notes	11.250	319.94	7/21/2002	14.00
WorldCom/Intermedia	Senior Discount Notes	11.250	319.94	7/21/2002	14.00
WorldCom/Intermedia	Senior Discount Notes	11.250	319.94	7/21/2002	14.00
WorldCom/Intermedia	Senior Sub Notes	12.250	246.22	7/21/2002	14.00
WorldCom/Intermedia	Senior Notes	8.600	198.58	7/21/2002	14.00
WorldCom/Intermedia	Senior Notes	8.500	123.89	7/21/2002	14.00
WorldCom/Intermedia	Senior Notes	9.500	122.58	7/21/2002	14.00
WorldCom/Intermedia	Senior Notes	8.875	116.81	7/21/2002	14.00
WorldCom/Intermedia	Debentures	7.750	450.00	7/21/2002	14.00
WorldCom/MCI	Debentures	7.500	400.00	7/21/2002	14.00
WorldCom/MCI	Senior Notes	6.950	300.00	7/21/2002	14.00
WorldCom/MCI	Debentures	8.250	200.00	7/21/2002	14.00
WorldCom/MCI	Senior unsecured notes	7.650	998.64	9/15/2002	\$16.00
XO Communications, Inc.	Senior unsecured notes	7.625	250.00	9/15/2002	\$16.00
XO Communications, Inc.	Senior unsecured notes	7.150	96.00	9/15/2002	\$16.00
XO Communications, Inc.	Senior Discount Notes	12.000	200.00	9/15/2002	18.00
XO Communications, Inc.	Senior Discount Notes	11.875	379.90	9/19/2002	36.25
XO Communications, Inc.	Senior Discount Notes	10.500	210.63	9/30/2002	NA
XO Communications, Inc.	Senior Notes	11.875	114.5	12/19/2002	NA
XO Communications, Inc.	Senior Notes	11.875	114.5	12/19/2002	NA
XO Communications, Inc.	Senior Notes	11.875	114.5	12/19/2002	NA
XO Communications, Inc.	Senior Discount Notes	12.125	269.6	12/19/2002	NA
XO Communications, Inc.	Senior Discount Notes	14.000	418.0	12/30/2002	NA
XO Communications, Inc.	Senior Discount Notes	12.000	270.0	12/30/2002	NA

82  
42

40			
<b>81 Firms</b>	<u>95532.65</u>	Average Price	<u>\$ 18.67</u>
<b>251 Issues</b>		Weighted Average Price	<u>\$ 17.26</u>
		Standard Deviation	<u>\$ 14.03</u>

50387.78      52.0%

**FIGURE 19**

**AVERAGE RECOVERY RATES FOR TELECOM FIRMS: 1998 - 2002 BY YEAR**

<b>YEAR</b>	<b>NUMBER OF ISSUES</b>	<b>AVERAGE RECOVERY PRICE</b>	<b>WEIGHTED AVERAGE</b>
1998	8	\$20.81	\$18.84
1999	16	\$23.47	\$25.58
2000	18	\$24.50	\$24.69
2001	118	\$18.69	\$16.07
2002	88	\$19.38	\$16.56
	248	\$19.73	\$17.57

\* Includes Wireless Equipment and Satellite Telecommunication Companies in addition to Telecommunication Service Companies.

Source: Authors' compilation from various Dealer Quotes.

FIGURE 20

AVERAGE PRICE AFTER DEFAULT BY ORIGINAL BOND RATING  
(1971 - 2002)

Rating	<i>No. of Observations</i>	<i>Average Price</i>	<i>Weighted Average Price</i>	<i>Median Price</i>	<i>Std. Dev.</i>	<i>Minimum Price</i>	<i>Maximum Price</i>
	No. of Obs.	Average Price	Wgt'd. Avg. Price	Median Price	Std. Dev.	Min. Price	Max. Price
AAA	7	\$68.34	\$76.99	\$71.88	\$20.82	\$32.00	\$97.00
AA	22	\$57.01	\$75.01	\$54.00	\$25.12	\$17.80	\$99.88
A	102	\$55.37	\$48.93	\$55.32	\$26.77	\$5.25	\$100.00
BBB	219	\$41.39	\$27.38	\$39.00	\$22.65	\$3.00	\$103.00
BB	156	\$34.57	\$29.99	\$32.30	\$21.95	\$2.06	\$107.75
B	842	\$30.90	\$27.02	\$25.30	\$22.51	\$0.42	\$112.00
CCC	165	\$36.62	\$32.50	\$29.63	\$27.58	\$0.59	\$103.25
Total/Avg.	1513 <sup>a</sup>	\$35.65	\$29.57	\$31.74	\$24.53	\$0.42	\$112.00

\*Total amount defaulted: \$264.5 billion

Source: Authors' Compilation

## FIGURE 21

### AVERAGE PRICE AT DEFAULT BY NUMBER OF YEARS AFTER ISSUANCE (1971 - 2002)

<b>Years To Default</b>	<b>No. of Observations</b>	<b>Average Price</b>
<b>1</b>	<b>137</b>	<b>\$29.66</b>
<b>2</b>	<b>295</b>	<b>\$30.18</b>
<b>3</b>	<b>330</b>	<b>\$27.39</b>
<b>4</b>	<b>260</b>	<b>\$33.74</b>
<b>5</b>	<b>190</b>	<b>\$33.31</b>
<b>6</b>	<b>127</b>	<b>\$43.99</b>
<b>7</b>	<b>87</b>	<b>\$34.43</b>
<b>8</b>	<b>51</b>	<b>\$30.43</b>
<b>9</b>	<b>35</b>	<b>\$36.97</b>
<b>10</b>	<b>82</b>	<b>\$35.73</b>
<b>All</b>	<b>1594</b>	<b>\$32.29</b>

Source: Authors' Compilation



**FIGURE 22**

**RATING DISTRIBUTION OF DEFAULTED ISSUES (a)  
AT VARIOUS POINTS PRIOR TO DEFAULT  
(1971-2002)**

	ORIGINAL RATING		RATING 6m BEFORE DEFAULT		RATING 12 m BEFORE DEFAULT	
	Number	%	Number	%	Number	%
AAA	5	0%	0	0%	0	0%
AA	27	1.7%	0	0.0%	0	0.0%
A	115	7.1%	12	0.9%	14	1.1%
BBB	228	14.1%	127	9.6%	120	9.9%
<b>Total Investment Grade</b>	<b>375</b>	<b>22.9%</b>	<b>139</b>	<b>10.5%</b>	<b>134</b>	<b>11.0%</b>
BB	174	10.8%	190	14.4%	184	15.1%
B	882	54.5%	630	47.7%	566	46.5%
CCC	176	10.9%	320	24.2%	278	22.8%
CC	10	0.6%	31	2.3%	45	3.7%
C	1	0.1%	8	0.6%	7	0.6%
D	0	0.0%	4	0.3%	4	0.3%
<b>Total Non Investment Grade</b>	<b>1243</b>	<b>77.1%</b>	<b>1183</b>	<b>89.5%</b>	<b>1084</b>	<b>89.0%</b>
<b>Total</b>	<b>1618</b>	<b>100%</b>	<b>1322</b>	<b>100%</b>	<b>1218</b>	<b>100%</b>

(a) Based on S&P Bond Ratings

Source: Author's Compilation

Figure 23

MORTALITY RATES BY ORIGINAL RATING - ALL RATED CORPORATE BONDS (a)

(1971 - 2002)

Years after issuance

		1	2	3	4	5	6	7	8	9	10
<b>AAA</b>	Marginal	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%
	Cumulative	0.00%	0.00%	0.00%	0.00%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
<b>AA</b>	Marginal	0.00%	0.00%	0.33%	0.17%	0.00%	0.00%	0.00%	0.00%	0.03%	0.02%
	Cumulative	0.00%	0.00%	0.33%	0.50%	0.50%	0.50%	0.50%	0.50%	0.53%	0.55%
<b>A</b>	Marginal	0.01%	0.10%	0.02%	0.09%	0.04%	0.10%	0.05%	0.20%	0.11%	0.06%
	Cumulative	0.01%	0.11%	0.13%	0.22%	0.26%	0.36%	0.41%	0.61%	0.72%	0.78%
<b>BBB</b>	Marginal	0.25%	3.42%	1.52%	1.44%	0.92%	0.57%	0.80%	0.26%	0.17%	0.35%
	Cumulative	0.25%	3.66%	5.13%	6.49%	7.35%	7.88%	8.62%	8.85%	9.01%	9.33%
<b>BB</b>	Marginal	1.23%	2.62%	4.53%	2.15%	2.49%	1.14%	1.67%	0.67%	1.76%	3.78%
	Cumulative	1.23%	3.82%	8.17%	10.15%	12.39%	13.39%	14.83%	15.40%	16.89%	20.03%
<b>B</b>	Marginal	3.19%	7.14%	7.85%	8.74%	6.22%	4.28%	3.88%	2.39%	2.07%	0.87%
	Cumulative	3.19%	10.10%	17.16%	24.40%	29.10%	32.14%	34.77%	36.33%	37.65%	38.19%
<b>CCC</b>	Marginal	6.70%	14.57%	16.16%	11.28%	3.36%	10.26%	5.35%	3.25%	0.00%	4.18%
	Cumulative	6.70%	20.29%	33.17%	40.71%	42.70%	48.58%	51.33%	52.92%	52.92%	54.88%

(a) Rated by S&P at Issuance

Based on 1,513 issues

Source: Standard & Poor's (New York) and Author's Compilation

Figure 24

MORTALITY LOSSES BY ORIGINAL RATING - ALL RATED CORPORATE BONDS (a)

(1971 - 2002)

Years after issuance

		1	2	3	4	5	6	7	8	9	10
<b>AAA</b>	<b>Marginal</b>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	<b>Cumulative</b>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>AA</b>	<b>Marginal</b>	0.00%	0.00%	0.06%	0.06%	0.00%	0.00%	0.00%	0.00%	0.03%	0.02%
	<b>Cumulative</b>	0.00%	0.00%	0.06%	0.12%	0.12%	0.12%	0.12%	0.12%	0.15%	0.17%
<b>A</b>	<b>Marginal</b>	0.00%	0.03%	0.01%	0.04%	0.02%	0.06%	0.01%	0.04%	0.08%	0.00%
	<b>Cumulative</b>	0.00%	0.03%	0.04%	0.08%	0.10%	0.16%	0.17%	0.21%	0.29%	0.29%
<b>BBB</b>	<b>Marginal</b>	0.19%	2.53%	1.12%	0.93%	0.62%	0.38%	0.48%	0.16%	0.11%	0.25%
	<b>Cumulative</b>	0.19%	2.72%	3.80%	4.70%	5.29%	5.65%	6.10%	6.25%	6.36%	6.59%
<b>BB</b>	<b>Marginal</b>	0.74%	1.57%	3.40%	1.55%	1.38%	0.80%	1.03%	0.29%	0.95%	1.80%
	<b>Cumulative</b>	0.74%	2.30%	5.62%	7.08%	8.37%	9.10%	10.03%	10.30%	11.15%	12.75%
<b>B</b>	<b>Marginal</b>	2.23%	5.36%	6.14%	6.38%	4.73%	2.66%	2.40%	1.67%	1.17%	0.67%
	<b>Cumulative</b>	2.23%	7.47%	13.15%	18.69%	22.54%	24.60%	26.41%	27.64%	28.48%	28.96%
<b>CCC</b>	<b>Marginal</b>	4.52%	11.44%	12.97%	9.02%	2.53%	8.31%	4.28%	2.64%	0.00%	3.12%
	<b>Cumulative</b>	4.52%	15.44%	26.41%	33.05%	34.74%	40.16%	42.73%	44.24%	44.24%	45.98%

(a) Rated by S&P at Issuance

Based on 1,329 issues

Source: Standard & Poor's (New York) and Author's Compilation

**FIGURE 25**

**ANNUAL RETURNS, YIELDS AND SPREADS  
ON TEN-YEAR TREASURY (TREAS)  
AND HIGH YIELD (HY) BONDS (a)  
(1978 - 2002)**

YEAR	RETURN(%)			PROMISED YIELD(%)		
	HY	TREAS	SPREAD	HY	TREAS	SPREAD
2002	(1.53)	14.66	(16.19)	12.38	3.82	8.56
2001	5.44	4.01	1.43	12.31	5.04	7.27
2000	(5.68)	14.45	(20.13)	14.56	5.12	9.44
1999	1.73	(8.41)	10.14	11.41	6.44	4.97
1998	4.04	12.77	(8.73)	10.04	4.65	5.39
1997	14.27	11.16	3.11	9.20	5.75	3.45
1996	11.24	0.04	11.20	9.58	6.42	3.16
1995	22.40	23.58	(1.18)	9.76	5.58	4.18
1994	(2.55)	(8.29)	5.74	11.50	7.83	3.67
1993	18.33	12.08	6.25	9.08	5.80	3.28
1992	18.29	6.50	11.79	10.44	6.69	3.75
1991	43.23	17.18	26.05	12.56	6.70	5.86
1990	(8.46)	6.88	(15.34)	18.57	8.07	10.50
1989	1.98	16.72	(14.74)	15.17	7.93	7.24
1988	15.25	6.34	8.91	13.70	9.15	4.55
1987	4.57	(2.67)	7.24	13.89	8.83	5.06
1986	16.50	24.08	(7.58)	12.67	7.21	5.46
1985	26.08	31.54	(5.46)	13.50	8.99	4.51
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:**

1978-2002	10.63	9.49	1.14	12.85	7.84	5.01
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**COMPOUND ANNUAL AVERAGE:**

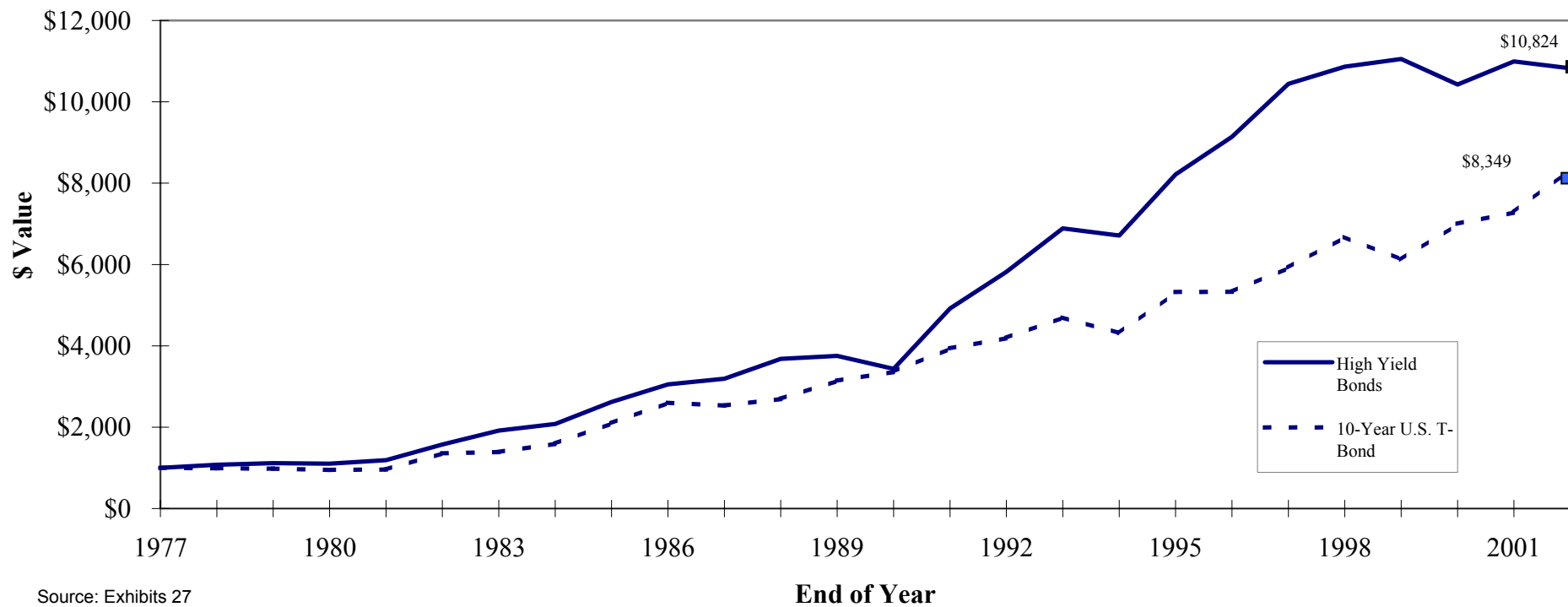
1978-2002	10.00	8.86	1.14
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(a) End of year yields.

Source: Salomon Smith Barney Inc.'s High Yield Composite Index

# FIGURE 26

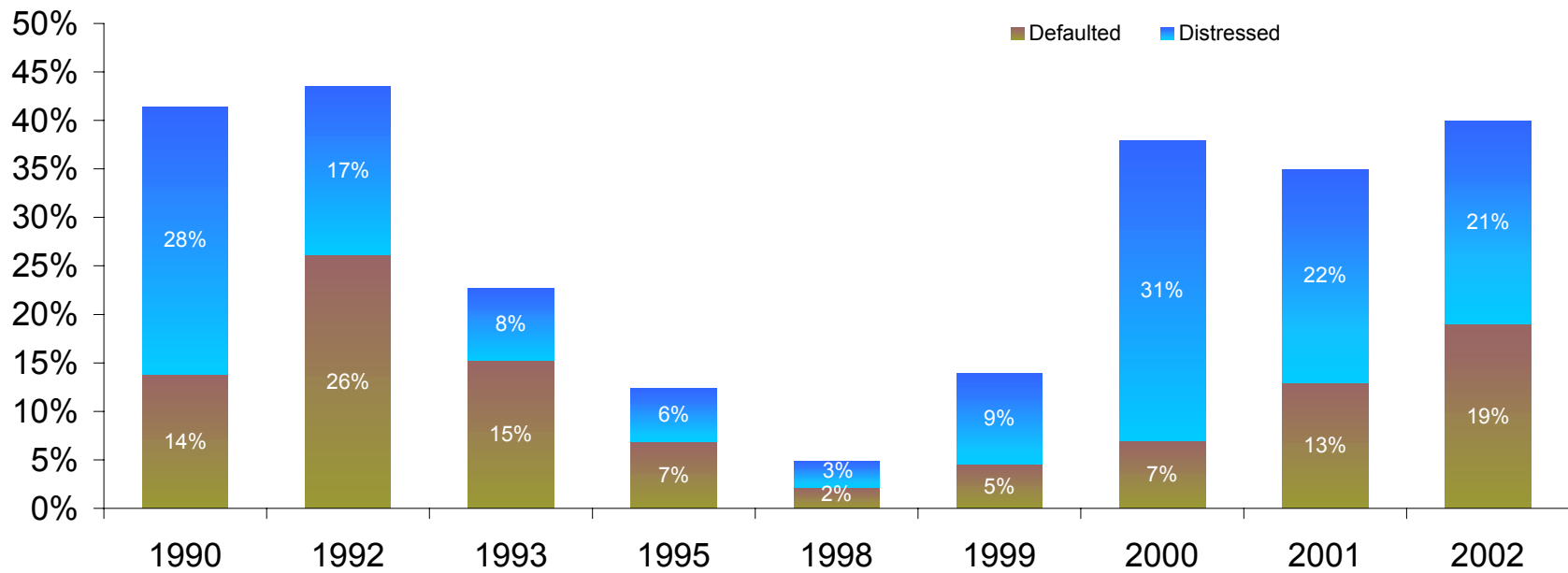
## CUMULATIVE VALUE OF \$1000 INVESTMENT: 1978-2002 High Yield Bonds vs. 10 Year US T Bonds



Source: Exhibits 27

**FIGURE 27**

**DISTRESSED (a) AND DEFAULTED DEBT AS A  
PERCENTAGE OF TOTAL HIGH YIELD DEBT MARKET  
1990-2002 (b)**



(a) Defined as yield-to-maturity spread greater than or equal to 1000bp over comparable Treasuries

(b) Some years not available as no survey results available

Source: Salomon Smith Barney and NYU Salomon Center

**FIGURE 28**

**ESTIMATED FACE AND MARKET VALUES OF DEFAULTED AND DISTRESSED DEBT  
2001-2002 (\$ billion)**

	<u>Face Value</u>		<u>Market Value</u>			
	12/31/2001	12/31/2002	12/31/2001	xFace Value	12/31/2002	xFace Value
<b><u>Public Debt</u></b>						
Defaulted	\$ 96.3	\$ 187.7 <sup>(1)</sup>	\$ 24.1	0.25	\$ 37.5	0.20
Distressed	\$ 160.6	\$ 204.7	\$ 80.3	0.50	\$ 102.4	0.50
<b>Total Public</b>	<b>\$ 256.9</b>	<b>\$ 392.5</b>	<b>\$ 104.4</b>		<b>\$ 139.9</b>	
<b><u>Private Debt</u></b>						
Defaulted	\$ 158.9	\$ 262.8	\$ 95.3	0.60	\$ 157.7	0.60
Distressed	\$ 265.0	\$ 286.6	\$ 198.8	0.75	\$ 215.0	0.75
<b>Total Public</b>	<b>\$ 423.9</b>	<b>\$ 549.5</b>	<b>\$ 294.1</b>		<b>\$ 372.7</b>	
<b>Total Public and Private</b>	<b>\$ 680.8</b>	<b>\$ 941.9</b>	<b>\$ 398.5</b>		<b>\$ 512.6</b>	

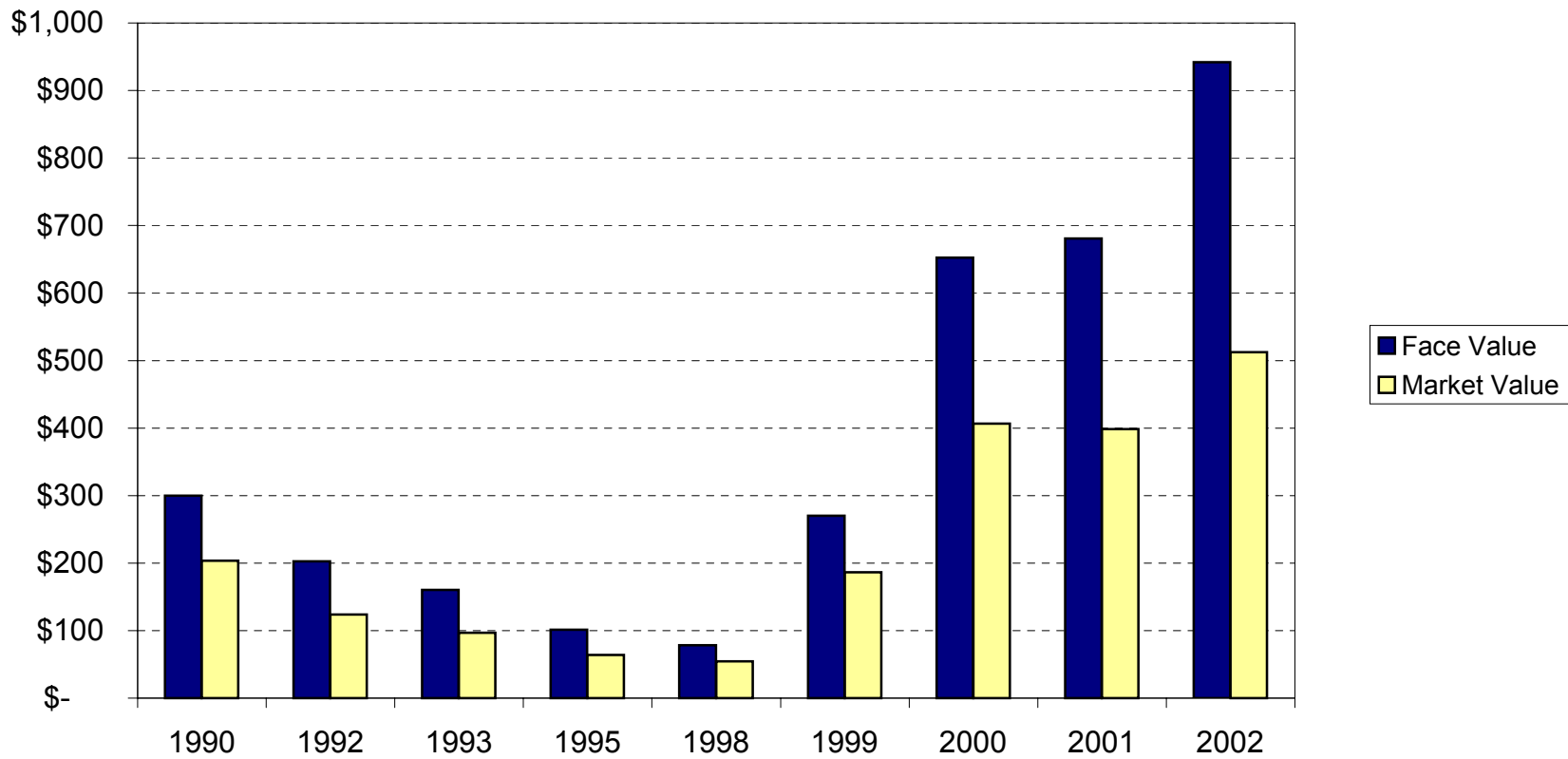
(1) Calculated using: (2001 defaulted population) + (2002 defaults) - (2002 Emergences)

(2) For 12/31/01, we use a private/public ratio of 1.65.

(3) For 12/31/02, we use a private/public ratio of 1.40.

Sources: Estimated by Professor Edward Altman, NYU Stern School of Business from Salomon Smith Barney's High Yield Bond Database, NYU Salomon Center Defaulted Bond and Bank Loan Databases.

**FIGURE 29**  
**SIZE OF THE DEFAULTED AND DISTRESSED DEBT MARKET (\$ Billions)**



Source: Author's compilation



## APPENDIX A

## 2002 DEFAULTED CORPORATE STRAIGHT DEBT

Company	Bond Issue	Coupon (%)	Maturity Date	Outstanding	
				Amount (\$ MM)	Default Date
AALFostergrant Inc.	Guaranteed Senior Notes	10.750	7/15/2006	51.9	1/15/2002
Adelphia Business Solutions, Inc.	Senior Notes	12.250	9/1/2004	250.0	3/1/2002
Adelphia Business Solutions, Inc.	Senior Subordinated Notes	12.000	11/1/2007	300.0	3/27/2002
Adelphia Business Solutions, Inc.	Senior Discount Notes	13.000	4/15/2003	326.9	3/27/2002
Adelphia Communications Corp.	Senior Notes	8.875	1/15/2007	250.0	5/15/2002
Adelphia Communications Corp.	Senior Notes	10.250	11/1/2006	500.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	10.250	6/15/2011	1000.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	9.375	11/15/2009	496.0	5/15/2002
Adelphia Communications Corp.	Senior Notes	7.875	5/1/2009	300.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	7.500	1/15/2004	100.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	7.750	1/15/2009	300.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	8.125	7/15/2003	150.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	8.375	2/1/2008	299.4	6/25/2002
Adelphia Communications Corp.	Senior Notes	8.375	12/15/2004	100.0	5/15/2002
Adelphia Communications Corp.	Senior Notes	9.250	10/1/2002	325.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	10.500	7/15/2004	150.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	9.500	2/15/2004	31.8	6/25/2002
Adelphia Communications Corp.	Notes	9.875	3/1/2005	130.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	10.875	10/1/2010	750.0	6/25/2002
Adelphia Communications Corp.	Senior Notes	9.875	3/1/2007	350.0	6/25/2002
Advanced Glassfiber Yarns LLC	Senior subordinated notes	9.875	1/15/2009	150.0	7/15/2002
Advanced Lighting Technologies	Senior Notes	8.000	3/15/2008	100.0	9/15/2002
Advantica Restaurant Group, Inc.	Senior Notes	11.250	1/15/2008	529.6	3/1/2002
AEI Resources, Inc.	Senior Subordinated Notes	11.500	12/15/2006	150.0	2/28/2002
AEI Resources, Inc.	Guaranteed Senior Notes	10.500	12/15/2005	200.0	2/28/2002
Aetna Industries, Inc.	Senior Notes	11.875	10/1/2006	85.0	2/11/2002
Amerco / Uhaul	Bonds	7.135	10/15/1949	100.0	10/15/2002
AmeriKing/National Restaurant	Senior Notes	13.000	5/15/2008	50.0	12/4/2003
AmeriKing/National Restaurant	Senior Notes	10.750	11/15/2007	50.0	12/4/2003
Anchor Glass Container Corp.	Senior Notes	11.250	4/1/2005	150.0	4/15/2002
Anchor Glass Container Corp.	Senior Notes	9.875	3/15/2008	50.0	3/15/2002
Anker Coal Group Inc.	Senior secured secon priority notes series B	14.250	9/1/2007	92.5	4/1/2002
Archibald Candy, Corp.	Guaranteed Senior Notes	10.250	7/1/2004	170.0	1/1/2002
Asia Global Crossing	Senior Notes	13.375	10/15/2010	408.0	11/17/2002
AT&T Canada Inc.	Senior unsecured notes	7.150	9/23/2004	96.0	9/15/2002
AT&T Canada Inc.	Senior unsecured notes	7.625	3/15/2005	250.0	9/15/2002
AT&T Canada Inc.	Senior unsecured notes	7.650	9/15/2006	998.6	9/15/2002
Atlantic Express Transportation Corp.	Company Guarantee	10.750	2/1/2004	120.0	8/1/2002
Atlantic Express Transportation Corp.	Company Guarantee	10.750	2/1/2004	120.0	8/1/2002
Atlantic Express Transportation Corp.	Company Guarantee	10.750	2/1/2004	120.0	8/1/2002
Avado Brands Inc.	Senior Subordinate Notes	11.750	6/15/2009	100.0	6/4/2002
Avado Brands Inc./ Apple South	Senior Notes	9.750	6/1/2006	125.0	6/1/2002
Bayou Steel Corp	Secured Notes	9.500	5/15/2008	120.0	11/15/2002
BGF Industries	Senior Subordinated Notes	10.250	1/15/2009	100.0	7/16/2002
Big City Radio	Company Guarantee	11.250	3/15/2005	175.0	9/15/2002
Budget Group, Inc.	Senior Notes	9.125	4/1/2006	400.0	4/1/2002
Carrier1 International S.A.	Senior unsecured notes	13.250	2/15/2009	160.0	2/12/2002
Carrier1 International S.A.	Senior unsecured notes	13.250	2/15/2009	160.0	2/12/2002
Century Communications	Senior Discount Notes	0.000	1/15/2008	605.0	6/10/2002
Century Communications	Senior Discount Notes	0.000	1/15/2008	605.0	6/10/2002
Century Communications	Senior Notes	8.375	12/15/2007	100.0	6/10/2002
Century Communications	Senior Notes	8.375	11/15/2017	100.0	5/15/2002
Century Communications	Senior Notes	8.750	10/1/2007	225.0	6/10/2002
Century Communications	Senior Notes	8.875	1/15/2007	250.0	5/15/2002
Century Communications	Senior Notes	9.500	3/1/2005	250.0	6/10/2002
Century Communications	Senior Discount Notes	0.000	3/15/2003	444.0	6/10/2002
Completel Europe, NV	Guaranteed Senior Notes	14.000	2/15/2009	147.5	5/30/2002
Condor Systems Ltd.	Company Guarantee	11.875	5/1/2009	99.9	7/29/2002
Conseco Inc	Company Guarantee	10.750	6/15/2009	362.4	12/17/2002
Conseco Inc	Company Guarantee	9.000	4/15/2008	400.1	12/17/2002
Conseco Inc	Company Guarantee	9.000	4/15/2008	399.2	12/17/2002
Conseco Inc	Company Guarantee	10.750	6/15/2009	362.4	12/17/2002
Conseco Inc.	Notes	9.000	10/15/2006	150.8	10/15/2002
Conseco Inc.	Company Guarantee	8.750	8/9/2006	366.3	9/12/2002
Conseco Inc.	Notes	8.500	10/15/1949	301.3	10/15/2002
Conseco Inc.	Notes	6.400	2/10/2003	235.1	9/12/2002
Conseco Inc.	Senior Notes	8.125	2/15/2003	142.3	9/12/2002
Conseco Inc.	Company Guarantee	6.400	2/10/2004	44.8	9/12/2002
Conseco Inc.	Company Guarantee	8.750	8/9/2006	366.3	10/15/2002
Conseco Inc.	Notes	8.750	2/9/2004	421.7	9/12/2002
Contour Energy (Kelley)	Company Guarantee	10.300	4/15/2003	100.0	7/15/2002
Contour Energy (Kelley)	Company Guarantee	14.000	10/15/2006	30.0	7/15/2002
Contour Energy (Kelley)	Senior Subordinated Notes	10.375	10/15/2006	125.0	7/15/2002
Contour Energy (Kelley)	Company Guarantee	10.375	4/15/2003	125.0	7/15/2002
Contour Energy Company	Senior Subordinated Notes	10.375	10/15/2006	125.0	4/15/2002
Covanta Energy Corp./Ogden	Senior unsecured debentures	5.750	3/1/2022	75.0	3/1/2002
Covanta Energy Corp./Ogden	Senior unsecured debentures	6.000	3/1/2022	85.0	3/1/2002
Covanta Energy Corp./Ogden	Senior unsecured debentures	9.250	3/1/2022	100.0	3/1/2002
Desa International, Inc.	Guaranteed Senior Notes	9.875	12/15/2007	130.0	1/8/2002
Divya Systems	Senior Discount Notes	12.625	3/1/2008	448.7	5/29/2002
Divya Systems	Senior Discount Notes	13.000	5/15/2006	0.0	5/29/2002
Divya Systems	Senior Discount Notes	13.000	5/15/2006	47.0	5/29/2002

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## 2002 DEFAULTED CORPORATE STRAIGHT DEBT

Company	Bond Issue	Coupon (%)	Maturity Date	Outstanding	
				Amount (\$ MM)	Default Date
Diva Systems	Senior Discount Notes	13.000	5/15/2006	47.0	5/29/2002
Doe Run Resources Corp.	Guaranteed Senior Notes	11.250	3/15/2005	200.0	3/15/2002
Doe Run Resources Corp.	Guaranteed Senior Notes	11.250	3/15/2005	50.0	3/15/2002
Doe Run Resources Corp.	Guaranteed Senior Notes	float	3/15/2003	55.0	3/15/2002
Doman Industries, Ltd. <sup>2</sup>	Senior Notes	12.000	7/1/2004	160.0	9/15/2002
Doman Industries, Ltd. <sup>2</sup>	Senior Notes	8.750	3/15/2004	388.0	9/15/2002
Doman Industries, Ltd. <sup>2</sup>	Senior Notes	8.750	3/15/2004	388.0	3/15/2002
Encompass Services Corp.	Company Guarantee	10.500	5/1/2009	335.0	11/19/2002
Energis PLC	Senior unsecured notes	9.750	6/15/2009	200.0	3/15/2002
Eott Energy Partners	Company Guarantee	11.000	10/1/2009	235.0	10/1/2002
Evenflo, Co.	Senior Notes	11.750	8/15/2006	110.0	2/15/2002
Exide Technologies, Inc.	Senior Notes	10.000	4/15/2005	300.0	4/14/2002
Flag Telecom Holdings, Ltd.	Senior Notes	11.675	3/30/2010	300.0	4/12/2002
Flag Telecom Holdings, Ltd.	Senior Notes	8.250	1/30/1998	3.4	4/12/2002
Flag Telecom Holdings, Ltd.	Senior Notes	8.250	1/30/2008	426.6	4/12/2002
Florsheim Group, Inc.	Senior Notes	12.750	9/1/2002	18.5	3/1/2002
Focal Communication Corp	Senior Notes	11.875	1/15/2010	114.5	12/19/2002
Focal Communication Corp	Senior Notes	11.875	1/15/2010	114.5	12/19/2002
Focal Communication Corp	Senior Notes	11.875	1/15/2010	114.5	12/19/2002
Focal Communication Corp	Senior Discount Notes	12.125	2/15/2008	269.6	12/19/2002
Formica, Corp.	Senior Subordinated Notes	10.875	3/1/2009	215.0	3/5/2002
Frontiervision/ Adelphia Comuncations	Senior Discount Notes	11.875	9/15/2007	89.2	6/25/2002
Frontiervision/ Adelphia Comuncations	Senior Discount Notes	11.875	9/15/2007	231.5	6/25/2002
Frontiervision/ Adelphia Comuncations	Senior Subordinated Notes	11.000	10/15/2006	200.0	6/25/2002
Galey & Lord, Inc.	Senior Subordinated Notes	9.125	3/1/2008	0.5	2/19/2002
Galey & Lord, Inc.	Guaranteed Senior Notes	9.125	3/1/2008	299.5	2/19/2002
Galey & Lord, Inc.	Senior Subordinated Notes	9.125	3/1/2008	0.5	2/19/2002
Gaylord Container Corp.	Senior subordinated notes	9.875	2/15/2008	40.9	3/4/2002
Gaylord Container Corp.	Senior unsecured subordinated notes	9.875	2/15/2008	40.9	3/4/2002
Gaylord Container Corp.	Senior unsecured subordinated notes	9.750	6/15/2007	3.4	3/4/2002
GenTek Inc	Company Guarantee	11.000	8/1/2009	200.0	8/1/2002
Glasstech Holding Company	Senior Notes	12.750	7/1/2004	70.0	1/30/2002
Global Crossing, Ltd.	Senior Notes	8.700	8/1/2007	1.9	1/28/2002
Global Crossing, Ltd.	Guaranteed Senior Notes	8.700	8/1/2007	998.1	1/28/2002
Global Crossing, Ltd.	Guaranteed Senior Notes	9.125	11/15/2006	900.0	1/28/2002
Global Crossing, Ltd.	Guaranteed Senior Notes	9.500	11/15/2009	1099.4	1/28/2002
Global Crossing, Ltd.	Senior Notes	9.500	11/15/2009	0.6	1/28/2002
Global Crossing, Ltd.	Guaranteed Senior Notes	9.625	5/15/2008	800.0	1/28/2002
Global Crossing, Ltd.	Notes	9.000	8/15/2021	100.0	1/28/2002
Global Crossing, Ltd.	Notes	9.300	6/1/2004	20.0	1/28/2002
Global Crossing, Ltd. / Frontier Corp	Notes	6.000	10/15/2003	200.0	1/28/2002
Global Crossing, Ltd. / Frontier Corp	Notes	7.250	5/15/2004	300.0	1/28/2002
Globix, Corp.	Senior Notes	12.500	2/1/2010	600.0	2/1/2002
Globix, Corp.	Senior Notes	13.000	5/1/2005	1.0	3/1/2002
Golden Northwest Aluminum Inc.	Company Guarantee	12.000	12/15/2006	150.0	12/15/2002
Grant Geophysical Inc	Company Guarantee	9.750	2/15/2008	43.6	8/15/2002
Heafner Tire Group, Inc.	Guaranteed Senior Notes	10.000	5/15/2008	150.0	3/26/2002
Holley Pref Prod	Company Guarantee	12.250	9/15/2007	150.0	9/23/2002
HQ Global Holdings, Inc.	Senior Notes	13.500	8/15/2007	0.1	3/13/2002
HQ Global Holdings, Inc.	Senior Notes	13.500	8/15/2007	125.0	3/13/2002
Hudson Respiratory Care, Inc.	Senior subordinated notes	9.125	4/15/2008	115.0	4/15/2002
Insilco Holding, Co.	Guaranteed Senior Notes	12.000	8/15/2007	120.0	2/15/2002
IT Group, Inc.	Guaranteed Senior Notes	11.250	4/1/2009	225.0	1/16/2002
ITC DeltaCom, Inc.	Senior Notes	9.500	11/15/2006	100.0	5/14/2002
ITC DeltaCom, Inc.	Senior Notes	9.750	11/15/2008	125.0	5/14/2002
ITC DeltaCom, Inc.	Senior Notes	8.875	3/1/2008	160.0	6/25/2002
ITC DeltaCom, Inc.	Senior Notes	11.000	6/1/2007	130.0	6/25/2002
Kaiser Aluminum Corp.	Senior Notes	10.875	10/15/2006	50.0	2/12/2002
Kaiser Aluminum Corp.	Senior Notes	10.875	10/15/2006	175.0	2/12/2002
Kaiser Aluminum Corp.	Senior Notes	9.875	2/15/1949	177.0	2/12/2002
Kaiser Aluminum Corp.	Senior Subordinated Notes	12.750	2/1/2003	400.0	2/1/2002
Kasper ASL, Ltd.	Senior Notes	13.000	3/31/2004	110.0	2/5/2002
Key3Media Group Inc	Company Guarantee	11.250	6/15/2011	290.0	12/17/2002
Kmart, Corp.	Notes	9.440	7/1/2018	20.9	1/22/2002
Kmart, Corp.	Senior Secured Notes	8.800	7/1/2010	96.6	1/22/2002
Kmart, Corp.	Notes	7.390	7/30/2003	2.0	1/22/2002
Kmart, Corp.	Notes	7.330	7/31/2002	9.9	1/22/2002
Kmart, Corp.	Notes	7.470	7/31/2002	3.0	1/22/2002
Kmart, Corp.	Notes	7.540	7/28/2004	5.0	1/22/2002
Kmart, Corp.	Notes	7.490	7/29/2002	1.0	1/22/2002
Kmart, Corp.	Notes	7.550	7/27/2004	11.0	1/22/2002
Kmart, Corp.	Notes	7.500	7/24/2002	3.0	1/22/2002
Kmart, Corp.	Notes	7.500	7/16/2002	1.0	1/22/2002
Kmart, Corp.	Notes	7.490	7/16/2002	7.0	1/22/2002
Kmart, Corp.	Notes	7.750	7/8/2003	1.0	1/22/2002
Kmart, Corp.	Notes	7.720	7/8/2002	5.0	1/22/2002
Kmart, Corp.	Notes	7.770	7/2/2002	20.0	1/22/2002
Kmart, Corp.	Notes	7.760	7/2/2002	3.0	1/22/2002
Kmart, Corp.	Notes	7.750	7/1/2002	2.0	1/22/2002
Kmart, Corp.	Notes	7.790	7/8/2004	2.0	1/22/2002
Kmart, Corp.	Notes	7.760	7/1/2002	2.0	1/22/2002
Kmart, Corp.	Notes	7.720	6/25/2002	7.5	1/22/2002
Kmart, Corp.	Notes	7.740	6/25/2002	6.0	1/22/2002

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2002 DEFAULTED CORPORATE STRAIGHT DEBT

Company	Bond Issue	Coupon (%)	Maturity Date	Outstanding	
				Amount (\$ MM)	Default Date
Kmart, Corp.	Notes	7.910	12/30/2003	1.5	1/22/2002
Kmart, Corp.	Notes	8.130	12/16/2003	5.0	1/22/2002
Kmart, Corp.	Notes	8.100	12/16/2002	10.0	1/22/2002
Kmart, Corp.	Notes	8.850	12/15/2011	22.0	1/22/2002
Kmart, Corp.	Notes	8.960	12/10/2019	22.0	1/22/2002
Kmart, Corp.	Notes	8.930	11/29/2016	1.0	1/22/2002
Kmart, Corp.	Notes	8.920	11/1/2013	10.0	1/22/2002
Kmart, Corp.	Notes	9.000	12/1/2020	10.0	1/22/2002
Kmart, Corp.	Notes	8.170	11/26/2004	5.0	1/22/2002
Kmart, Corp.	Notes	8.180	11/24/2003	4.0	1/22/2002
Kmart, Corp.	Notes	9.000	12/1/2003	6.0	1/22/2002
Kmart, Corp.	Notes	8.190	11/24/2003	16.0	1/22/2002
Kmart, Corp.	Notes	8.200	11/24/2003	6.0	1/22/2002
Kmart, Corp.	Notes	8.250	11/21/2006	2.0	1/22/2002
Kmart, Corp.	Notes	8.260	11/20/2006	1.5	1/22/2002
Kmart, Corp.	Notes	8.250	11/20/2006	5.0	1/22/2002
Kmart, Corp.	Notes	8.280	11/15/2006	5.0	1/22/2002
Kmart, Corp.	Pass Thru Certificates	9.350	12/20/2002	68.4	1/22/2002
Kmart, Corp.	Pass Thru Certificates	8.540	1/2/2015	128.1	1/22/2002
Kmart, Corp.	Pass Thru Certificates	8.990	7/5/2010	65.3	1/22/2002
Kmart, Corp.	Pass Thru Certificates	9.780	1/5/2020	82.0	1/22/2002
Kmart, Corp.	Senior Notes	9.875	6/15/2008	430.0	1/22/2002
Kmart, Corp.	Senior Notes	9.375	2/1/2006	400.0	1/22/2002
Kmart, Corp.	Senior Notes	8.375	12/1/2004	300.0	1/22/2002
Kmart, Corp.	Lease Certificates	6.000	1/1/2008	28.6	1/22/2002
Kmart, Corp.	Notes	12.550	7/1/2010	1.3	1/22/2002
Kmart, Corp.	Senior Notes	12.500	3/1/2005	100.0	1/22/2002
Kmart, Corp.	Senior Notes	7.950	2/1/2023	300.0	1/22/2002
Kmart, Corp.	Senior Notes	7.750	10/1/2012	200.0	1/22/2002
Kmart, Corp.	Senior Notes	8.375	7/1/2022	100.0	1/22/2002
Kmart, Corp.	Senior Notes	8.250	1/1/2022	100.0	1/22/2002
Kmart, Corp.	Notes	8.125	12/1/2006	200.0	1/22/2002
Knology Holdings	Senior Discount Notes	11.875	10/15/2007	379.9	9/19/2002
KPN Qwest	Senior Notes	8.125	6/1/2009	450.0	5/23/2002
Logix Communications Enterprises, Inc.	Senior Notes	12.250	6/15/2008	86.9	2/28/2002
Mattress Discounters Corp.	Senior unsecured notes	12.625	7/15/2007	140.0	7/15/2002
Metromedia International	Senior Discount Notes	10.500	9/30/2007	210.6	9/30/2002
Microcell Telecommunications	Senior Discount Notes	14.000	6/1/2006	418.0	12/30/2002
Microcell Telecommunications	Senior Discount Notes	12.000	6/1/2009	270.0	12/30/2002
Millenium Seacarriers, Inc.	Guaranteed Senior Notes	12.000	7/15/2005	100.0	1/15/2002
Mpower Holding, Corp.	Senior Notes	13.000	4/1/2010	380.6	4/8/2002
Mpower Holding, Corp.	Senior Notes	13.000	10/1/2004	56.1	4/8/2002
National Steel Corp.	1st. Mortgage	9.875	3/1/2009	300.0	3/6/2002
National Steel Corp.	1st. Mortgage	8.375	8/1/2006	64.5	3/6/2002
Neon Communications, Inc.	Senior Notes	12.750	8/15/2008	180.0	2/15/2002
Nextel International, Inc.	Senior Notes	12.750	8/1/2010	456.0	2/1/2002
Nextel Intl Inc	Senior Discount Notes	12.125	4/15/2008	696.8	5/24/2002
Nextel Intl Inc	Senior Discount Notes	12.125	4/15/2008	0.3	5/24/2002
Nextel Intl Inc	Senior Discount Notes	12.125	4/15/2008	0.3	5/24/2002
Nextel Intl Inc	Senior Discount Notes	12.125	4/15/2008	0.3	5/24/2002
NRG Energy Inc.	Senior Notes	7.750	4/1/2011	350.0	11/1/2002
NRG Energy Inc.	Senior Notes	8.625	4/1/1931	500.0	11/1/2002
NRG Energy Inc.	Senior unsecured notes	8.250	9/15/2010	350.0	9/15/2002
NRG Energy Inc.	Senior Notes	8.700	3/15/2005	250.0	11/22/2002
NRG Energy Inc. - NRG South Central Generating LLC	Senior secured bonds series A	8.962	3/15/2016	450.8	9/15/2002
NRG Energy Inc. - NRG South Central Generating LLC	Senior secured bonds series B	9.479	9/15/2024	300.0	9/15/2002
NTL Inc / Diamond Cable Communications PLC	Senior unsecured notes	9.125	2/1/2008	109.9	4/1/2002
NTL Inc / Diamond Cable Communications PLC	Senior unsecured discount notes	10.750	2/15/2007	404.4	4/1/2002
NTL Inc / Diamond Cable Communications PLC	Senior unsecured discount notes	11.750	12/15/2005	518.6	4/1/2002
NTL Inc / Diamond Cable Communications PLC	Senior unsecured discount notes	13.250	9/30/2004	267.5	4/1/2002
NTL, Inc.	Senior Notes	12.375	10/1/2008	450.0	4/1/2002
NTL, Inc.	Senior Notes	11.500	10/1/2008	625.0	4/1/2002
NTL, Inc.	Senior Notes	9.750	4/1/2008	1299.0	4/1/2002
NTL, Inc.	Senior Notes	11.875	10/1/2010	500.0	4/1/2002
NTL, Inc.	Senior Notes	10.000	2/15/2007	400.0	4/1/2002
NTL, Inc.	Senior Notes	11.500	2/1/2006	1050.0	4/1/2002
NTL, Inc. / Intl Cable Tel	Senior Notes	12.750	4/15/2005	277.8	4/1/2002
Oakwood Homes	Senior Notes	7.875	3/1/2004	130.0	11/15/2002
Oakwood Homes	Senior Notes	8.125	3/1/2009	183.0	11/15/2002
Olympus Communications/ Adelphia Comm	Senior Notes	10.625	11/15/2006	200.0	5/15/2002
Orius, Corp.	Guaranteed Senior Notes	12.750	2/1/2010	150.0	2/1/2002
Outsourcing Solutions	Senior Subordinated Notes	11.000	11/1/2006	100.0	11/1/2002
Panaco Inc,	Senior Notes	10.625	10/1/2004	99.5	7/16/2002
Pentacon, Inc	Guaranteed Senior Notes	12.250	4/1/2009	100.0	4/1/2002
PG&E National Energy Group	Senior Notes	10.375	5/16/2011	1000.0	11/14/2002
Pinnacle Holdings	Senior Discount Notes	10.000	3/15/2008	315.4	5/21/2002
Polymer Group, Inc.	Guaranteed Senior Notes	8.750	3/1/2008	200.0	1/2/2002
Polymer Group, Inc.	Guaranteed Senior Notes	9.000	7/1/2007	400.0	1/2/2002
Pueblo Xtra International Inc.	Senior unsecured notes series B	9.500	8/1/2003	55.4	8/1/2002
Pueblo Xtra International Inc.	Senior unsecured notes	9.500	8/1/2003	121.9	8/1/2002
Reunion Industries	Senior Notes	13.000	5/1/2003	25.0	11/18/2002
Roma Restaurant Holdings Inc.	Company Guarantee	12.000	7/1/2006	57.0	7/1/2002
Seven Seas Petroleum Inc.	Senior Notes	12.000	11/7/2004	22.5	12/27/2002

## APPENDIX A

## 2002 DEFAULTED CORPORATE STRAIGHT DEBT

Company	Bond Issue	Coupon (%)	Maturity Date	Outstanding	
				Amount (\$ MM)	Default Date
Seven Seas Petroleum Inc.	Senior Notes	12.500	5/15/2005	110.0	12/27/2002
SF Holdings Group Inc.	Senior secured notes	12.75%	3/15/2008	144.0	3/1/2002
Simonds Industries, Inc.	Guaranteed Senior Notes	10.250	7/1/2008	100.0	1/1/2002
Spectrasite Holdings	Senior Notes	12.500	11/15/2010	200.0	9/15/2002
Spectrasite Holdings	Senior Discount Notes	12.875	3/15/2010	559.8	9/15/2002
Spectrasite Holdings	Senior Discount Notes	11.250	4/15/2009	586.8	9/15/2002
Spectrasite Holdings	Senior Discount Notes	12.000	7/15/2008	200.0	9/15/2002
Talton Holdings	Senior unsecured notes	11.000	6/30/2007	115.0	7/1/2002
Teleglobe Holdings(US) Corp	Guaranteed Senior Notes	7.200	7/20/2009	600.0	5/15/2002
Teleglobe Holdings(US) Corp	Guaranteed Senior Notes	7.700	7/20/2029	400.0	5/15/2002
TransTexas	Company Guarantee	15.000	3/15/2005	200.0	11/14/2002
Tri-Union	Company Guarantee	12.500	6/1/2006	110.0	6/1/2002
Tri-Union	Company Guarantee	12.500	6/1/2006	110.0	6/1/2002
Tri-Union	Company Guarantee	12.500	6/1/2006	110.0	6/1/2002
UAL Group	Debentures	9.750	8/15/2021	250.0	12/9/2002
UAL Group	Pass thru certificates	7.730	7/1/2010	325.3	12/9/2002
UAL Group	Pass thru certificates	6.201	9/1/2008	263.6	12/9/2002
UAL Group	Pass thru certificates	6.932	9/1/2011	150.2	12/9/2002
UAL Group	Pass thru certificates	6.071	3/1/2013	261.6	12/9/2002
UAL Group	Pass thru certificates	7.032	10/1/2010	274.3	12/9/2002
UAL Group	Pass thru certificates	7.811	10/1/2009	266.7	12/9/2002
UAL Group	Pass thru certificates	7.762	10/1/2005	148.6	12/9/2002
UAL Group	Pass thru certificates	8.030	7/1/2011	186.4	12/9/2002
UAL Group	Debentures	11.210	5/1/2014	371.0	12/9/2002
United Intl Holdings, Inc.	Senior Notes	11.500	2/1/2010	300.0	2/1/2002
United Intl Holdings, Inc.	Senior Notes	11.250	2/1/2010	600.0	2/1/2002
United Intl Holdings, Inc.	Senior Notes	10.875	8/1/2009	800.0	2/1/2002
United Intl Holdings, Inc.	Senior Discount Notes	10.750	2/15/2008	1375.0	2/1/2002
United Pan-Europe Communications NV	Discount Debentures	13.75	2/1/2010	1000.0	2/1/2002
United Pan-Europe Communications NV	Discount Debentures	13.375	8/1/2009	478.0	2/1/2002
United Pan-Europe Communications NV	Discount Debentures	12.5	8/1/2009	735.0	2/1/2002
US Airlines	Debentures	10.670	5/1/2004	370.2	12/9/2002
US Airways Group Inc. - ETC Repackaging Trust, Series	Equipment trust certificates series	NA	7/18/2010	14.3	8/11/2002
US Airways Group Inc.	Pass thru certificates	7.890	3/1/2019	466.4	8/11/2002
US Airways Group Inc.	Pass thru certificates	7.076	3/20/2021	443.2	8/11/2002
US Airways Group Inc. - ETC Repackaging Trust, Series	Equipment trust certificates series C	9.503	7/18/2010	6.6	8/11/2002
US Airways Group Inc. - Piedmont Aviation Inc.	Equipment trust certificates series ABC	12.000	7/15/2010	29.1	7/15/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 D	10.450	1/15/2011	10.7	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 C	10.450	1/15/2011	10.8	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1989 A	9.330	1/1/2006	168.8	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 A	10.450	1/15/2011	10.8	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 E	10.450	1/15/2011	10.9	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1988 A - D	10.050	7/15/2010	7.8	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 B	10.450	1/15/2011	10.0	8/11/2002
US Airways Group Inc. - US Airways Inc.	Equipment trust certificates series 1987 F	10.450	1/15/2011	10.8	8/11/2002
Velocita Corp/PF Net Communications Limited	Senior Notes	13.750	5/15/2010	56.6	7/20/2002
Velocita Corp/PF Net Communications Limited	Senior Notes	13.750	5/15/2010	168.4	7/20/2002
Venture Holdings Trust	Senior subordinated notes	12.000	6/1/2009	125.0	12/1/2002
Venture Holdings Trust	Company Guarantee	11.000	6/1/2007	125.0	12/1/2002
Verado Holdings, Inc.	Senior Discount Notes	13.000	4/15/2008	364.5	2/15/2002
Viasystems Group Inc.	Senior subordinated notes series B	9.750	6/1/2007	100.0	6/1/2002
Viasystems Group Inc.	Senior subordinated notes	9.750	6/1/2007	400.0	6/1/2002
Viewest Corp	Senior Sub Notes	12.500	3/10/2007	84.0	9/10/2002
Weirton Steel, Corp.	Senior Notes	11.375	7/1/2004	125.0	1/2/2002
Williams Communications Group, Inc.	Senior Notes	10.700	10/1/2007	500.0	4/22/2002
Williams Communications Group, Inc.	Senior Notes	10.875	10/1/2009	1500.0	4/22/2002
Williams Communications Group, Inc.	Senior Notes	11.875	8/1/2010	5.1	4/22/2002
Williams Communications Group, Inc.	Senior Notes	11.875	8/1/2010	419.9	4/22/2002
Williams Communications Group, Inc.	Senior Notes	11.700	8/1/2008	575.0	4/22/2002
Windsor Woodmont Black Hawk Resort Corp.	Senior secured first mortgage notes	13.000	3/15/2005	100.0	9/15/2002
WKI Holdings	Senior Subordinated Notes	9.625	5/1/2008	200.0	5/1/2002
WorldCom	Senior Notes	7.250	5/15/2008	500.0	7/21/2002
WorldCom	Notes	6.750	5/15/2008	1250.0	7/21/2002
WorldCom	Notes	6.500	5/15/2004	1500.0	7/21/2002
WorldCom	Notes	7.500	5/15/2011	4000.0	7/21/2002
WorldCom	Bonds	8.250	5/15/1931	4600.0	7/21/2002
WorldCom	Notes	7.375	1/15/2003	1000.0	7/21/2002
WorldCom	Notes	7.875	5/15/2003	1000.0	7/21/2002
WorldCom	Notes	8.000	5/15/2006	1250.0	7/21/2002
WorldCom	Notes	8.250	5/15/2010	1250.0	7/21/2002
WorldCom	Senior Notes	6.250	8/15/2003	600.0	7/21/2002
WorldCom	Notes	6.950	8/15/2028	1750.0	7/21/2002
WorldCom	Senior Notes	6.400	8/15/2005	2250.0	7/21/2002
WorldCom	Senior Notes	7.750	4/1/2027	300.0	7/21/2002
WorldCom	Senior Notes	7.550	4/1/2004	600.0	7/21/2002
WorldCom	Senior Notes	7.750	4/1/2007	1100.0	7/21/2002
WorldCom	Debentures	7.750	3/15/2024	240.0	7/21/2002
WorldCom	Notes	7.375	1/15/2006	1000.0	7/21/2002
WorldCom	Senior Notes	6.500	4/15/2010	500.0	7/21/2002
WorldCom	Debentures	7.125	6/15/2027	500.0	7/21/2002
WorldCom/Brooks Fiber	Senior Notes	10.000	6/1/2007	9.0	7/21/2002
WorldCom/Intermedia	Senior Sub Notes	12.250	3/1/2009	246.2	7/21/2002
WorldCom/Intermedia	Senior Notes	9.500	3/1/2009	122.6	7/21/2002

**APPENDIX A**

**2002 DEFAULTED CORPORATE STRAIGHT DEBT**

<b>Company</b>	<b>Bond Issue</b>	<b>Coupon (%)</b>	<b>Maturity Date</b>	<b>Outstanding Amount (\$ MM)</b>	<b>Default Date</b>
WorldCom/Intermedia	Senior Notes	8.600	6/1/2008	198.6	7/21/2002
WorldCom/Intermedia	Senior Notes	8.500	1/15/2008	123.9	7/21/2002
WorldCom/Intermedia	Senior Notes	8.875	11/1/2007	116.8	7/21/2002
WorldCom/Intermedia	Senior Discount Notes	11.250	7/15/2007	319.9	7/21/2002
WorldCom/Intermedia	Senior Discount Notes	11.250	7/15/2007	319.9	7/21/2002
WorldCom/Intermedia	Senior Discount Notes	11.250	7/15/2007	319.9	7/21/2002
WorldCom/MCI	Debentures	8.250	1/20/2023	200.0	7/21/2002
WorldCom/MCI	Debentures	7.500	8/20/2004	400.0	7/21/2002
WorldCom/MCI	Debentures	7.750	3/23/2025	450.0	7/21/2002
WorldCom/MCI	Senior Notes	6.950	8/15/2006	300.0	7/21/2002
York Research Corp	Senior Secured Notes	12.000	10/30/2007	150.0	6/7/2002
Ziff Davis Media	Company Guarantee	12.000	7/15/2010	250.0	7/15/2002

Less: <sup>a</sup> Outstanding Amounts in Grace Period

-388.0

<b>Total</b>	<b>96,857.8</b>
<b>Total Number of Issues</b>	<b>344</b>
<b>Total Number of Companies</b>	<b>112</b>

\* Coupon is in grace period.

**APPENDIX B**

**QUARTERLY HIGH YIELD DEBT MARKET DEFAULT RATE COMPARISON:  
ALTMAN AND MOODY'S 1990-2002**

QUARTER		PAR VALUE DEBT OUTSTANDING (\$BILLIONS)	DEBT DEFAULTED BY QUARTER (\$BILLIONS)	QUARTERLY DEFAULT RATES (%)	ALTMAN/NYU-SC 12M MOVING AVERAGE	MOODY'S 12M MOVING AVERAGE
1990	1Q	\$185.00	\$4.16	2.25%		6.51%
	2Q	\$185.00	2.51	1.36%		7.93%
	3Q	\$181.00	6.01	3.32%		8.99%
	4Q	\$181.00	<u>5.67</u>	3.13%	10.14%	9.74%
			<u>\$18.35</u>			
1991	1Q	\$182.00	\$8.74	4.80%	12.67%	12.28%
	2Q	\$182.00	2.75	1.51%	12.73%	13.00%
	3Q	\$183.00	5.01	2.74%	12.18%	11.97%
	4Q	\$183.00	<u>2.36</u>	1.29%	10.31%	10.42%
			<u>\$18.86</u>			
1992	1Q	\$183.20	\$3.33	1.82%	7.35%	7.76%
	2Q	151.10	1.26	0.83%	6.52%	6.19%
	3Q	163.00	0.37	0.23%	4.84%	5.58%
	4Q	151.89	<u>0.59</u>	0.39%	3.40%	5.16%
			<u>\$5.55</u>			
1993	1Q	\$193.23	\$0.38	0.20%	1.71%	4.98%
	2Q	193.23	1.33	0.69%	1.39%	4.59%
	3Q	206.91	0.05	0.03%	1.22%	4.23%
	4Q	190.42	<u>0.52</u>	0.27%	1.10%	3.84%
			<u>\$2.29</u>			
1994	1Q	\$232.60	\$0.67	0.29%	1.35%	3.14%
	2Q	230.00	0.16	0.07%	0.60%	2.02%
	3Q	235.00	0.41	0.17%	0.76%	2.33%
	4Q	235.00	<u>2.18</u>	0.93%	1.45%	2.07%
			<u>\$3.42</u>			
1995	1Q	\$240.00	\$0.17	0.07%	1.24%	1.40%
	2Q	240.00	1.68	0.70%	1.85%	2.39%
	3Q	240.00	0.98	0.41%	2.09%	2.70%
	4Q	240.00	<u>1.72</u>	0.72%	1.90%	3.65%
			<u>\$4.55</u>			
1996	1Q	\$255.00	\$0.44	0.17%	2.01%	3.80%
	2Q	\$255.00	\$0.89	0.35%	1.58%	3.08%
	3Q	\$271.00	\$0.41	0.15%	1.36%	2.29%
	4Q	\$271.00	<u>1.59</u>	0.59%	1.23%	1.93%
			<u>\$3.34</u>			
1997	1Q	\$296.00	\$1.85	0.63%	1.75%	1.85%
	2Q	\$318.40	\$0.60	0.19%	1.51%	1.89%
	3Q	\$335.40	\$1.48	0.44%	1.74%	2.40%
	4Q	\$335.40	<u>0.27</u>	0.08%	1.25%	2.17%
			<u>\$4.20</u>			
1998	1Q	\$379.00	\$2.37	0.63%	1.41%	2.66%
	2Q	\$425.70	\$1.22	0.29%	1.41%	2.99%
	3Q	\$465.50	\$1.62	0.35%	1.29%	2.75%
	4Q	\$481.60	<u>2.26</u>	0.47%	1.60%	3.81%
			<u>\$7.46</u>			
1999	1Q	\$515.00	\$4.76	0.92%	2.05%	3.87%
	2Q	\$537.20	\$8.42	1.57%	3.31%	5.12%
	3Q	\$567.40	\$5.24	0.92%	3.85%	5.91%
	4Q	\$580.00	<u>5.11</u>	0.88%	4.15%	5.77%
			<u>\$23.53</u>			
2000	1Q	\$584.00	\$6.06	1.04%	4.28%	5.69%
	2Q	\$595.60	\$9.97	1.67%	4.52%	5.52%
	3Q	\$597.50	\$4.32	0.72%	4.27%	5.23%
	4Q	\$608.15	<u>9.95</u>	1.64%	5.07%	5.65%
			<u>\$30.29</u>			
2001	1Q	\$613.20	\$18.07	2.95%	6.96%	7.42%
	2Q	\$648.60	\$12.82	1.98%	7.37%	7.92%
	3Q	\$649.00	\$14.65	2.26%	8.56%	9.17%
	4Q	\$647.70	<u>18.07</u>	2.79%	9.80%	11.11%
			<u>\$63.67</u>			
2002	1Q	\$669.00	\$18.54	2.77%	9.89%	11.24%
	2Q	\$674.00	\$27.07	4.02%	11.71%	10.29%
	3Q	\$757.00	\$37.48	4.95%	15.01%	9.01%
	4Q	\$756.30	<u>13.77</u>	1.82%	12.79%	7.22%
			<u>\$96.86</u>			

Source: Altman (1990 - 2002), Salomon Smith Barney and Moody's (New York).

APPENDIX C

Chapter 11 filings in 2002 (YTD)  
List by liability size - liabilities greater than \$100 million

CONSECO INC.	Dec-02	\$56,639
WORLDCOM INC.	Jul-02	\$45,984
UAL CORPORATION	Dec-02	\$22,164
CONSECO FINANCE CORP.	Dec-02	\$20,279
ADELPHIA COMMUNIATIONS CORP.	Jun-02	\$17,349
GLOBAL CROSSING, LTD.	Jan-02	\$14,639
NTL, INC.	May-02	\$14,134
NRG ENERGY	Nov-02	\$10,657
US AIRWAYS GROUP	Aug-02	\$10,640
KMART, CORP.	Jan-02	\$10,263
UNITED PAN-EUROPE COMMUNICATIONS NV	Dec-02	\$10,086
WILLIAMS COMMUNICATIONS GROUP, INC.	Apr-02	\$7,154
XO COMMUNICATIONS, INC.	Jun-02	\$5,851
MCLEOD USA, INC.	Jan-02	\$4,419
BUDGET GROUP	Aug-02	\$4,334
METROMEDIA FIBER NETWORK, INC	May-02	\$4,007
GLOBALSTAR, LP	Feb-02	\$3,328
KAISER ALUMINUM, CORP.	Feb-02	\$3,129
GENUITY INC.	Nov-02	\$3,102
FLAG TELECOM HOLDINGS, LTD.	Apr-02	\$3,047
COVANTA ENERGY, CORP.	Apr-02	\$3,031
NEXTEL INTERNATIONAL Inc.	May-02	\$3,000
AEI RESOURCES, INC.	Feb-02	\$2,746
EXIDE TECHNOLOGIES, INC.	Apr-02	\$2,524
SPECTRASITE HOLDINGS, INC.	Nov-02	\$2,482
FARMLAND INDUSTIES	May-02	\$2,352
CENTURY COMMUNICATIONS CORP	Jun-02	\$2,230
NATIONAL STEEL CORP.	Mar-02	\$2,119
HIGHLANDS INSURANCE GROUP, INC.	Nov-02	\$1,979
ASIA GLOBAL CROSSING LTD.	Nov-02	\$1,869
DADE BEHRING HOLDINGS INC	Aug-02	\$1,809
ENCOMPASS SERVICES CORPORATION	Nov-02	\$1,725
ADELPHIA BUSINESS SOLUTIONS, INC.	Mar-02	\$1,654
GENTEK	Oct-02	\$1,307
IMPSAT FIBER NETWORKS, INC.	Jun-02	\$1,216
IT GROUP, INC.	Jan-02	\$1,087
EOTT ENERGY PARTNERS	Oct-02	\$1,062
WKI HOLDING COMPANY, INC	May-02	\$1,002
PINNACLE HOLDINGS	May-02	\$951
METROCALL	Jun-02	\$937
STOCKWALK GROUP, INC.	Feb-02	\$903
FORMICAM, CORP.	Mar-02	\$817
OXFORD AUTOMOTIVE, INC.	Jan-02	\$771
FRONTLINE CAPITAL GROUP	Jun-02	\$760
GALEY & LORD, INC.	Feb-02	\$755
CONSOLIDATED FREIGHTWAYS CORPORATION	Sep-02	\$733
SLI INC.	Sep-02	\$726
GLOBIX, CORP.	Mar-02	\$717
ORIOUS CORPORATION	Nov-02	\$705
OAKWOOD HOMES CORPORATION	Nov-02	\$684
GILAT SATELLITE NETWORKS LTD.	Nov-02	\$681
SPECIAL METALS, CORP.	Mar-02	\$667
BIRMINGHAM STEEL CORP	Jun-02	\$654
PEREGRINE SYSTEMS INC	Sep-02	\$614
MOTIENT, CORP.	Jan-02	\$610
FOCAL COMMUNICATIONS CORPORATION	Dec-02	\$606
APW LTD	May-02	\$588
ANCHOR GLASS CONTAINER, CORP.	Apr-02	\$578
GENEVA STEEL HOLDINGS	Sep-02	\$571
MPOWER HOLDING, CORP.	Apr-02	\$518
BENEDEK COMMUNICATIONS, CORP.	Mar-02	\$515
LEINER HEALTH PRODUCTS, INC.	Feb-02	\$497
TOKHEIM CORPORATION	Nov-02	\$465
KNOLOGY BROADBAND	Sep-02	\$455
KELLSTROM INDUSTRIES, INC.	Feb-02	\$444
INSILCO TECHNOLOGIES INC.	Dec-02	\$418

APPENDIX C

Chapter 11 filings in 2002 (YTD)  
List by liability size - liabilities greater than \$100 million

GUILFORD MILLS, INC.	Mar-02	\$410
ADVANCED GLASSFIBER YARNS, LLC	Dec-02	\$408
PHYCOR, INC.	Jan-02	\$407
MED DIVERSIFIED INC.	Nov-02	\$407
ZILOG, INC.	Feb-02	\$382
VISKASE COMPANIES, INC.	Nov-02	\$372
DESA HOLDINGS CORP	Jun-02	\$361
DIVA SYSTEMS	May-02	\$338
PRANDIUM, INC	May-02	\$337
VERADO HOLDINGS, INC.	Feb-02	\$335
TRANSTEXAS GAS CORPORATION	Nov-02	\$329
AMERICAN HOME PATIENT	Aug-02	\$322
VELOCITA	Jul-02	\$313
COHO ENEREGY, INC.	Feb-02	\$305
COMPLETEL EUROPE,NV	May-02	\$298
USINTERNETWORKING, INC.	Jan-02	\$291
US AGGREGATES, INC.	Mar-02	\$290
AMERIKING INC.	Dec-02	\$275
CONTOUR ENERGY CO.	Jul-02	\$272
UNION ACCEPTANCE CORPORATION	Nov-02	\$263
KASPER ASL, LTD.	Feb-02	\$255
NETWORK PLUS, CORP.	Feb-02	\$251
NEON COMMUNICATIONS INC.	Jun-02	\$246
LOGIX COMMUNICATIONS ENTERPRISES, INC.	Feb-02	\$238
HARVARD INDUSTRIES, INC.	Jan-02	\$234
PHYAMERICA PHYSICIAN GROUP, INC.	Nov-02	\$231
JACOBSON STORES, INC.	Jan-02	\$225
YORK RESEARCH CORP	Jun-02	\$217
BIRCH TELECOM	Aug-02	\$215
ARCHIBALD CANDY CORP	Jun-02	\$213
MATTRESS DISCOUNTERS CORPORATION	Oct-02	\$204
SEVEN SEAS PETROLEUM INC.	Dec-02	\$199
PENTACON	May-02	\$191
NEWCOR, INC.	Feb-02	\$187
HCI DIRECT, INC.	Apr-02	\$180
PANACO INC.	Jul-02	\$170
INTERNATIONAL FIBERCOM, INC.	Feb-02	\$169
PSC INC.	Nov-02	\$163
PROVELL, INC	May-02	\$162
WINDSOR WOODMONT BLACK HAWK RESORT CORP.	Nov-02	\$160
FLORSHEIM GROUP, INC.	Mar-02	\$157
INTERLIANT	Aug-02	\$146
PRESIDENT CASINOS, INC.	Jun-02	\$142
ICH CORP.	Feb-02	\$137
NEXTCARD INC.	Nov-02	\$134
QUESTRON TECHNOLOGY, INC.	Feb-02	\$131
NEW POWER HOLDINGS, INC.	Jun-02	\$117
EARTHCARE, CO.	Apr-02	\$105
TELEGLOBE HOLDINGS(US) CORP.	May-02	\$100
AETNA INDUSTRIES, CORP.	Feb-02	\$100
HOULIHAN'S RESTAURANTS, INC.	Jan-02	\$100
NAPSTER, INC	Jun-02	\$100
VANGUARD AIRLINES INC.	Aug-02	\$100

\$337,370

Telecoms	\$120,685
% Telecom	36%
# Telecom	31

Note: Financial Insititutions are not included in this list.

Source: Authors' Compilations



APPENDIX D  
DEFAULTS BY INDUSTRY  
2002

COMPANY	INDUSTRY	COMPANY	INDUSTRY
AAI Fostergrant, Inc.	Wholesale Commercial Supplies	Insilco Holding, Co.	Electronic Components
Adelphia Business Solutions, Inc.	Cable TV	Interliant	Managed infrastructure solutions
Advanced Glassfiber Yarns LLC	Textile	IT Group, Inc.	Waste Management
Advantica Restaurant Group, Inc.	Retail - Restaurants	ITC DeltaCom, Inc.	Telecom Services
AEI Resources, Inc.	Mining	Kaiser Aluminium, Corp.	Aluminum Products
Aetna Industries, Inc.	Automotive - Parts	Kasper ASL, Ltd.	Textiles - Products
American Home Patient	Diagnostic equipment	Kmart, Corp.	Retail - Variety Stores
AmeriKing	Retail eating place	Knology Broadband	Telecom Services
Anchor Glass Container, Corp.	Glass - Products	Logix Communications Enterprises, Inc.	Telecom Services
Anker Coal Group Inc.	Mining	Mattress Discounters Corp.	Home furnishings
Archibald Candy, Corp.	Confectionery Products	Med Diversified Inc.	Computer programing & data processing
Asia Global Crossing	Telecom	Millenium Seacarriers, Inc.	Deep Sea Transportation
AT&T Canada Inc.	Telecom	Mpower Holding, Corp.	Telecomm Services
Atlantic Express Transportation Corp.	Transport Services	National Steel, Corp.	Steel - Producers
Avado Brands Inc.	Retail - Restaurants	Neon Communications, Inc.	Telecomm Equipment
BGF Industries	Textile Fabrics	NextCard Inc.	Personal Credit Institution
Birch telecom	Telecomm Services	Nextel International, Inc.	Telecomm Services
Budget Group	Auto rental and leasing	NRG Energy	Energy
Budget Group, Inc.	Services - Auto Rental & Leasing	NTL, Inc.	Cable TV
Carrier1 International S.A.	Telecomm Services	Oakwood Homes Corporation	Mobile Homes
Completel Europe, NV	Telecomm Services	Orius, Corp.	Electrical Services
Condor Systems	Navigation, Guidance, Aeronautical Systems	Panaco	Oil & Natural Gas
Conseco Finance Corporation	Asset Backed Securities	Pentacon, Inc	Wholesale Hardware
Conseco Inc	Insurance	Peregrine Systems	Supply Chain Management Software
Consolidated Freightways Corp.	Road transportation	Phyamerica Physician Group, Inc.	Healthcare: Specialty Outpatient Services
Contour Energy Company	Natural Gas Transmission	Pinnacle Holdings	REIT
Covanta Energy Corp./Ogden	Power Generation & Producer	Polymer Group, Inc.	Textiles - Products
Dade Behring Holdings Inc.	IV fluid manufacturer / Health Care	Prandium	Retail - Restaurants
Desa International, Inc.	Heating Equipment	PSC INC.	Computer peripheral equipment
Diva Systems	Cable TV	Pueblo Xtra International Inc.	Food - Retail
Doe Run Resources, Corp.	Metal Mining	Seven Seas Petroleum Inc.	Oil & Gas Exploration
Doman Industries, Ltd.	Paper Products	SF Holdings Group Inc.	Paperboard containers & Boxes
Energis PLC	Telecomm Services	Sheldahl, Inc	Technology - PCBs
Encompass Services Corporation	Construction special Trade Contractors	Simonds Industries, Inc.	Metalworking Machinery & Equip.
EOTT Energy Partners	Wholesale Oil transport	SLI Inc.	Lighting Systems
Evenflo, Co.	Miscellaneous Manufacturer	Spectrasite	Communication services
Exide Technologies, Inc.	Electrical Storage	Taltom Holdings	Telecom
Flag Telecom Holdings, Ltd.	Telecomm Services	Teleglobe Holdings(US) Corp	Telecomm Services
Florsheim Group, Inc.	Retailer - Footwear	Tokheim Corporation	Refrigeration and Service Industry Machinery
Focal Communications Corp.	Communication	Transtexas Gas Corporation	Crude Petroleum and Natural Gas
Formica, Corp.	Plastic Products	United Pan-Europe Communications NV	Cable Services
Galey & Lord, Inc.	Textiles - Mills	Union Acceptance Corporation	Personal Credit Institutions
Gaylord Container Corp.	Paperboard containers & Boxes	US Airways Group	Airlines
Geneva Steel Holdings	Steel - Producers	UAL Corporation	Airlines
Gentek Inc	Auto Parts	Vanguard Airlines	Airlines
Genuity Inc.	Computer programing & data processing	Velocita	Telecomm Services
GILAT Satellite Networks Ltd.	Communications Equipment	Verado Holdings, Inc.	Internet Services
Glasstech Holding Company	Glass - Products	Viasystems Group Inc.	Technology - PCBs
Global Crossing, Ltd.	Telecomm Services	Weirton Steel, Corp.	Steel - Producers
Globix Corp.	Internet Services	Williams Communications Group, Inc.	Telecomm Services
Grant Geophysical Inc	Seismic measurement	Windsor Woodmont Black Hawk Resort Corp.	Casino
Heafner Tire Group, Inc.	Tires Manufacturer	WKI Holdings	Glass Products
Highlands Insurance Group	Insurance	WorldCom / MCI	Telecomm Services
Holley Pref Prod	Miscellaneous Manufacturer	Viskase Companies Inc.	Plastics
HQ Global Holdings, Inc.	Operator Non-residential Buildings	York Research Corp	Power Generation & Producer
Hudson Respiratory Care, Inc.	Surgical and Medical Instruments	Ziff Davis Media	Publishing

# of Firms 112

# of Communications Firms 26

Source: Author's Compilations