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Report on

Market Size, Investment Performance, and Expected New Supply of Defaulted Bonds & Bank Loans: 1987-1999

by

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Report Overview

This report presents results and discussion of the investment performance of those bonds and bank loans that have defaulted on their scheduled payments to creditors and continue trading while the issuing firm attempts a financial reorganization. Monthly total return measures are compiled based on the Altman-NYU Salomon Center Indexes of Defaulted Bonds and Defaulted Banks Loans, as well as an index that combines bonds and loans. These returns are compared to the total returns of common stocks and high yield corporate bonds. Returns are based on our market-weighted indexes and presented for the past year (1999), as well as for the last 13 years (for bonds) and four years for bank loans. We also estimate the expected supply of new defaulted debt in the United States for the coming three years.

Nineteen ninety-nine was a mixed year for investors in distressed debt securities. Although the Defaulted Public Bond Index increased by a respectable 11.34% in 1999, the positive rate of increase was mainly a function of the excellent performance over a three-month period in the earlier part of the year (February, March and April) when the size of the index was comprised of a relatively small number of securities and when the movement of a few issues had a significant influence on the Index. Still, the positive annual performance reversed the negative annual returns that we had observed in the prior two years. On a comparative note, our Defaulted Public Bond Index's return of 11.34% was slightly higher than Salomon Smith Barney's Bankrupt Bond Index return of 8.42%.

Defaulted bank loans did not fare as well, recording a slight increase for the year of 0.65%. Except for the initial year (1996) of our Bank Loan Index, performance has been lackluster in the past three years. Finally, the Combined Public Bond and Private Bank Loan Index recorded a positive annual return in 1999 of 4.45%, resulting in a basically flat performance over the four years of the combined index calculation period. Comparative returns for the thirteen-year period (1987-1999), show that common stocks strengthened its number one asset class return/risk position. High yield bonds, while performing relatively poorly in 1999 (+1.7%), maintained a slight average annual return advantage over defaulted bonds.

The two "bright" or positive factors related to the defaulted bond and bank loan markets in 1999 were the enormous increase in the supply of new defaulted issues and the record low average market value to face value ratio of the Index at the end of the year. The size of the Index more than doubled in number of issues and tripled in face and market values over the past twelve months as the default amount of high yield bonds reached a record high level in 1999 and the default rate went from 1.6% to over 4.0% (see our companion report on Defaults and Returns in the High Yield Bond Market). Based on our forecast of future defaults, we expect the number and amounts of the issues in both the Bond and Bank Loan indexes to continue to grow, albeit at a lower rate, in the next three years. Going forward, we suggest that this increased supply, and the relatively low market-to-face value ratio of defaulted bonds at the end of 1999, may present significant investment opportunities.

Introduction

This report on the performance of defaulted bonds and bank loans presents our annual update and analysis. For in-depth discussions of the supply and demand elements of defaulted and distressed securities, as well as their performance and other attributes, see Altman (1993-1999), (1991), (1993); Branch and Ray (1992); Altman & Eberhart (1994); Ward & Griepentrog (1993); Gilson (1995); Hotchkiss and Mooradian (1998); Reilly, Wright and Altman (1998); and Eberhart, Altman and Aggarwal (1999). Despite the lackluster performance of defaulted bonds and bank loans in the last several years, we are confident that this "asset class" will continue to attract an increasing amount of new capital and the supply of distressed and defaulted securities will continue to grow – a phenomena that manifested itself strongly over the past 12 months.

Monitoring Performance

In order to monitor the performance of defaulted debt securities, a measure called the Altman-NYU Salomon Center Defaulted Bond Index (A-NYU Index) was developed in 1990.[1] The sample period of our Index starts in January 1987 and, as of December 31, 1999, contained 83 issues (60 companies) with a market value of $4.1 billion and a face value of its component securities of $16.3 billion. This is a dramatic increase from the $1.4 and $5.5 billion amounts at the end of 1998. The number of issues in the Index is considerably larger than in the recent past and is more reminiscent of the size of the Index in 1993 and 1994. Indeed, the size of our Index, in terms of face value of public defaulted bonds, is close to that of the early 1990s. Figure 1 shows the size of the index at

[1] This index, originally developed in Altman's Foothill Report (1990) is maintained and published on a monthly basis at the NYU Salomon Center of the Leonard N. Stern School of Business. It is available, along with data and reports on high yield debt default rates and performance, from the Center (212/998-0701 or 212/998-0709).

year-end since its inception in December 1986. Note the variability in the number of issues from as low as 30 in 1986 to as high as 231 in 1992. In our report last year, we predicted that the size of the Index, as measured by market values and number of issues, would increase in the coming years as defaults begin to rise – and it did in a most spectacular way in 1999 (see our data at a later point in Figure 9).

One measure of the defaulted bond market's current relative health, and also its potential, is the ratio of the aggregate market value to face value of the component securities that comprise our indexes (last column of Exhibit 1). This ratio has ranged, at year-end, from a high of 0.74 in 1987 to its present low level of 0.25. In most years, this ratio varied between a fairly narrow range of about 0.40 to 0.52. Excellent returns in 1987 (+38.0%) resulted in the market/face ratio of 0.74, while the precipitous declines in 1989, 1990 and 1998 dropped the ratio to below 0.30. If you believe in the eventual "regression to the mean" phenomenon, as we do, then 1999's year-end low of 0.25 bodes well for future increases in the ratio and high investment returns. The 1999 extremely low ratio is especially interesting in that newly defaulted bonds' price levels generally average about 40% of face value for all bonds and 50% for senior unsecured corporates. And, the majority of our 83 bond index issues are "senior" in priority.

In 1999, however, the average price of bonds just after default dropped to below 30 cents on the dollar, and, despite the reasonably positive performance of our Public Bond Index in 1999 (11.3%), the market/face value ratio remained at its all time low of 0.25.

The A-NYU Index includes securities of companies at various stages of the reorganization process, either in bankruptcy or in a restructuring. Data on returns is compiled from just after default up to when the bankrupt firm either emerges from

Chapter 11, is liquidated, or until the default is "cured" or resolved through an exchange. Distressed restructuring company securities are also included. The Index includes issues of all seniorities, from senior-secured to junior-unsecured debt. A study by Altman & Eberhart (1994), updated by us for Standard & Poor's (Brand & Behar, 1998), assesses the performance of defaulted debt from the time of original issuance through default and then to emergence from bankruptcy. These studies concluded that the seniority of the issue is an extremely important determinant of the performance of defaulted debt for specific periods, not only from issuance to emergence but also from default to emergence. (Note that the A-NYU Index does not include convertible or international company issues).

An asset class related to defaulted debt securities is the equities of firms emerging from Chapter 11. Eberhart, Altman and Aggarwal (1999) have studied the performance of 131 of these emerging, "orphan" equities and concluded that the 200-day post-emergence performance has been significantly better than the market performance of common stocks in general, as compared to a sample of equities specifically matched to the emerging stocks. Since some number of distressed securities investors are investing in, or at least continue to hold, these equities and since their *expected* performance is linked to the values of debt securities while in reorganization, we will from time to time comment on their performance. A related study by Hotchkiss and Mooradian (1998) found that the active participation by “vulture” investors, (i.e., institutions who specialize in distressed securities), is associated with superior post-Chapter 11 performance of the emerging firm.

1999 Performance

As noted above, the Altman-NYU Salomon Center Index of defaulted bonds performed fairly well in 1999, increasing by 11.34% and reversing the two prior years of negative returns (Figure 2). Returns were actually excellent through the first half of the year (21%), but this was due to a relatively small number of issues (mainly wireless communication Chapter 11's) in an index that was still quite small in its size. The market performed poorly in the second half of the year (except in November), falling by over 8%, as the size of the index increased dramatically. The monthly returns for this past year, as well as for all of the prior 12 years, is shown in Appendix A. The Index rose from 221.9 at the end of 1998 to 247.0 at the end of 1999 (December 1986=100).

During 1999, there were several exceptionally good and several very poor months, as the index appeared to be quite volatile. The months with positive returns above 5% were March, April, and November while the corresponding poor months were August, September, and October. This compares with four months of ±5% returns in 1998 and none in 1997 (see our later discussion on highly volatile months in Figure 5). In contrast, the S&P 500 Stock Index only had three monthly observations with returns or losses exceeding 5% in 1999 and six in 1998 and 1997.

The overall performance of defaulted debt securities was again considerably lower than the total return of the S&P 500 Common Stock Index (+20.98% - assuming reinvestment of dividends) but considerably above the Salomon Smith Barney High Yield Bond Market Index (1.73%). On the other hand, "relatively safe" ten-year U.S. Government securities performed poorly, losing 8.41% in 1999, as Treasury yields increased by almost 200 bps in the last 12 months.

Thirteen Year Comparative Performance

In Figure 2, we observe the return on defaulted bonds as well as common stocks and high yield bonds for the entire thirteen-year sample period, 1987-1999. Note that the arithmetic average (9.37% per year) return for defaulted bonds is considerably less than the S&P 500 (18.80%) and slightly below the Salomon Smith Barney High Yield Bond Market Index for the same period. In five of the 13 years, defaulted bonds performed better than both of the other two indexes while in six years it performed the worst. And, the standard deviation of annual returns is largest for defaulted bonds. On a *monthly* basis, however, the volatility comparison (as measured by the standard deviation of returns) is considerably different with defaulted bond issues actually showing slightly lower volatility (4.16%) than common stocks (4.33%), but considerably higher than high yield bonds (1.76%). This latter comparison is understandable since high yield bonds pay a fairly steady fixed interest component each month while defaulted bonds do not.

We also calculate the Sharpe ratio for each of our Risky Asset indexes. This ratio compares the excess performance (if any) of an asset class compared to default risk free Treasury Bonds (in this case we use ten-year Treasuries) and then divides this excess return by a measure of the volatility of the asset class – the standard deviation. Again, the defaulted bond index performance compares unfavorably to the other two asset classes when we observe this measure of return/risk performance. The poorer relative Sharpe ratio measure is still evident when calculating monthly returns, but the differences are not as great.

Figure 3 graphs the monthly index levels for our three security classes for the entire sample period. We can observe that in March 1995, the S&P index level once again rose above the two others and remains solidly in that position. And, in mid-1997, the High Yield Bond Index nudged the Defaulted Bond Index out of second place.

Diversification Attributes: Risky Asset Returns Correlations

One of the potential strategies suggested by our analysis is to include defaulted debt in a larger portfolio of risky securities. A number of domestic pension funds and foreign portfolios have, in effect, taken this approach by allocating a proportion of their total investments to defaulted debt money managers. Almost all portfolio managers involved in the distressed market have been specialists in the sector, rather than investors in distressed bonds within broader-based portfolios. Therefore, the avenue of diversification appears to be primarily through the use of different investment managers. (There are some rare exceptions where a mutual fund combines investments in more traditional debt and equity securities with distressed securities). A number of "fund-of-funds" that have adopted this strategy have also chosen distressed securities managers with different styles including active, semi-active and passive approaches. A similar strategy, practiced by foreign closed-end funds, is to directly invest in a large number of private U.S. distressed securities investment funds. Instead of diversifying across asset classes, these funds have a strategy of investing in distressed security managers with different approaches.

Figure 4 demonstrates the correlation between the Altman-NYU Defaulted Bond Index and the other two risky asset classes -- common stocks and high yield bonds -- for the last 13 years. We see that the monthly return correlation is only 0.26 between defaulted debt and S&P equities. This is down, somewhat, from 0.28 in the 1987-1998 period. Since defaulted debt holders usually end up owning the equity of the emerged

Chapter 11 entity, unless they sell the debt just prior to emergence from restructuring, it is interesting to note the low correlation of returns between these two indexes. Furthermore, the quarterly correlations are even lower (0.23).

The correlation between high yield bonds and defaulted bonds is fairly high at about 0.56 (monthly) and 0.57 (quarterly). Interestingly, the correlations between high yield bonds and our Defaulted Loan Index (Figure 5) is significantly lower at 0.44 (monthly) while the correlation of loans and equities is actually negative, indicating an inverse relationship. The quarterly correlation of loans and equities is essentially zero.

We believe that the relatively high correlation of defaulted securities and risky bonds is partially a function of the operating performance of firms in general, the outlook for risky companies, and the overall confidence in the market for risky debt. Although these latter correlations are relatively high, it is also clear that the Defaulted Debt Index is more volatile -- in both good and bad years. Again, this is not surprising since high yield debt has a base return equal to the interest payments received in each period while virtually all defaulted bonds and most defaulted loans trade "flat" (without interest receipts). In addition, there is a great deal of uncertainty about what the reorganization plan will specify and how each class of creditors will be treated -- not to mention the possibility that the end-result will be a liquidation. Finally, there are several critical event dates during a bankruptcy reorganization (i.e., bankruptcy filing, post-default financing, filing of a reorganization plan and the actual plan confirmation/ liquidation) which can result in large swings in the price of debt issues.

We do observe that the relative volatility between defaulted debt and equity returns, when measured on a monthly basis, puts the former in a much more favorable light. This implies a greater degree of autocorrelation (strings of gains or losses) that can exacerbate annual return levels and volatility but not monthly return variability.

Correlations in Exceptional Months

The correlations listed in Figure 4 are for the entire period 1987-1999. Starting in last year's Annual Report, we thought it instructive to analyze the correlation between defaulted bonds and equities, and the correlations between defaulted bonds and high yield bonds, when the stock market performs exceptionally well or poorly. We selected an arbitrary criterion of ±5.0% monthly stock market return as a definition of an exceptional month. Over the 13-year sample period, there were 32 months when the stock market's performance exceeded this ±5% criteria (Figure 6). Note that there were six observations each in 1987 and 1997, none during the period 1992-1995, seven in 1998 and three in 1999. August 1998 stands out as the biggest one-month decline for our Defaulted Bond Index.

The correlations calculated (not shown) from the data for the exceptional months are all considerably higher than the correlations when they are measured over the entire 13-year period. For example, our defaulted bond index had a 0.46 correlation with the stock market compared to 0.26 for the entire period. And the S&P 500 Stock Index correlation with high yield bonds jumps from 0.53 to 0.61. This implies a type of contagion effect in these highly volatile months. The more liquid, and larger stock markets' extreme performance in these months impacts the performance of "fixed" income securities that are also perceived as risky and quite a bit less liquid. Despite the higher correlations during exceptional months, we also observe that in 14 of 32 months, the stock market and defaulted bond market moved in opposite directions. In the case of negative exceptional stock market months, however (6 instances), in two instances the defaulted bond market increased (November 1987 and August 1997) and in one instance (November 1987) the high yield bond index increased.

Defaulted Bank Loan Performance

In terms of rigorous analysis, a long neglected segment of the distressed securities market is the private debt of defaulting companies -- particularly bank debt. This neglect is in contrast to the market's increasing size and interest amongst investors and market makers who trade bank debt of distressed firms. We have attempted to fill this void by calculating an index of defaulted bank debt facilities.

Our Altman-NYU Salomon Center Index of Defaulted Bank Loans is also a market weighted index comprised of U.S. companies. The Index started with 17 facilities as of December 1995 (Figure 7) and at the end of 1999 had 45 (up from just 15 one year earlier). As of the end of 1999, the index had a face value of $12.9 billion and $6.8 billion in market value -- a market to face value of 0.53, down from 0.63 one-year earlier and 0.71 two years earlier. This compares with a 1999 market to face ratio of only 0.25 for our public bond index. The Bank Loan Index is comprised of only senior debt, much of which is secured; the Bond index, discussed earlier, is a mix of senior and subordinated debt. The 0.53 ratio is at the lowest level in the five-year history of our Index and noticeably lower than what is typical for defaulted bank loans (see Carty et al, 1998 and Miller & Keisman, 1999).

The performance of our Bank Loan Index was relatively poor in 1999, marginally gaining 0.65%. The index closed as of the end of 1999 at 109.9 (December 1995=100). Bank loans did not enjoy the early-in-the-year increases that defaulted bonds did. Indeed, in only seven of the 12 months in 1999, did our Defaulted Bond and Bank Loan Indexes have the same sign (+ or -) in terms of monthly returns. The monthly Defaulted Bank Loan Index, from its inception to the present, is shown in Appendix B.

Figure 8 shows that the four-year (1996-1999) Defaulted Bank Loan average return was 2.93% per year, considerably below the stock market's continued incredible performance and also below that of high yield bonds. Like defaulted bonds, the annual standard deviation for defaulted securities was the highest, and the monthly standard error was lower than the stock market's and above that of high yield bonds.

Combined Bond and Bank Loan Index

We have also created a Combined Defaulted Securities Index, which is calculated based on the market values and total returns of public bonds and private bank loans (see Appendix C). The Combined Index return was 4.45% in 1999, causing the cumulative four-year index to again exceed 100.0 – but just barely. With the three indexes, we now offer benchmark performance criteria for a more broadly defined distressed securities market.

New Supply of Distressed and Defaulted Securities

We can observe that there has been a considerable increase in the size of the public and private distressed debt market in the past year. From Figure 1, we see that the market value of our bond index in 1999 is now only slightly below what it was in 1990-1993 (except 1992). The number of issues, while considerably above the level of just one year ago (83 vs. 36), is still below the levels of the early 1990’s. The large increase in our Public Bond Index’s size came from the record amount of new defaults in 1999 of over $23 billion on a default rate of 4.15% of the high yield bond market (see Figure 9).

As for the future, we expect the market for distressed and defaulted securities to continue to increase considerably. The huge new issue supply of non-investment grade debt in the last seven years of over $560 billion should result in an increase of default amounts in the coming years. Although we do not expect the near-term default rates to approach the record years of 1990 and 1991, the net supply of distressed and defaulted issues will almost certainly increase. Indeed, based on our mortality rate estimation technique (Altman, 1989) and considering the last 10 years of new issuance in the corporate bond markets, we expect new public bond defaults of $60 billion and $24 billion (face values and market values) over the next three years (Figures 10 and 11). We also expect private defaulted debt (mainly bank loans) to add $144 billion (face value) and $100 billion (market value) to the defaulted debt aggregate totals.

The current level of 45 bank facilities from 23 companies in our Index is already larger than at any time in the past. We also anticipate that the market to face value ratio will rise from its current historically low level of 0.53.

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FIGURE 1

SIZE OF THE ALTMAN-NYU SALOMON CENTER DEFAULTED BOND INDEX (1986 - 1999)

Year End	Number of Issues	Number of Firms	Face Value ($ Billions)	Market Value ($ Billions)	Market / Face Ratio
1986	30	10	1.7	0.5	0.29
1987	53	18	5.7	4.2	0.74
1988	91	34	5.2	2.7	0.52
1989	111	35	8.7	3.4	0.39
1990	173	68	18.7	5.1	0.27
1991	207	80	19.6	6.1	0.31
1992	231	90	21.7	11.1	0.51
1993	151	77	11.8	5.8	0.49
1994	93	35	6.3	3.3	0.52
1995	50	27	5.0	2.3	0.46
1996	39	28	5.3	2.4	0.45
1997	37	26	5.9	2.7	0.46
1998	36	30	5.5	1.4	0.25
1999	83	60	16.3	4.1	0.25

FIGURE 2
ALTMAN-NYU SALOMON CENTER DEFAULTED BOND INDEX

COMPARISON OF RETURNS (1987 - 1999)

Year	**Altman-NYU Salomon Center Defaulted Bond Index**	**S&P 500 Stock Index**	**Salomon Smith Barney High Yield Market Index (1)**
1987	37.85%	5.26%	4.67%
1988	26.49%	16.61%	13.47%
1989	-22.78%	31.68%	2.75%
1990	-17.08%	-3.12%	-7.04%
1991	43.11%	30.48%	39.93%
1992	15.39%	7.62%	17.86%
1993	27.91%	10.08%	17.36%
1994	6.66%	1.32%	-1.25%
1995	11.26%	37.56%	19.71%
1996	10.21%	22.96%	11.29%
1997	-1.58%	34.36%	13.18%
1998	-26.91%	28.58%	3.60%
1999	11.34%	20.98%	1.74%
1987 - 1999 Arithmetic Average (Annual) Rate	9.37%	18.80%	10.56%
Standard Deviation	22.00%	13.51%	12.02%
1987 - 1999 Compounded Average (Annual) Rate	7.20%	18.07%	9.99%
Sharpe Ratio	0.10	0.86	0.28
1987 - 1999 Arithmetic Average (Monthly) Rate	0.67%	1.49%	0.81%
Standard Deviation	4.16%	4.33%	1.76%
1987 - 1999 Compounded Average (Monthly) Rate	0.58%	1.39%	0.80%

(1) High Yield Market Index was used for 1987 and 1988

FIGURE 3

DEFAULTED BOND, STOCK, AND HIGH YIELD BOND INDICES
1987-1999

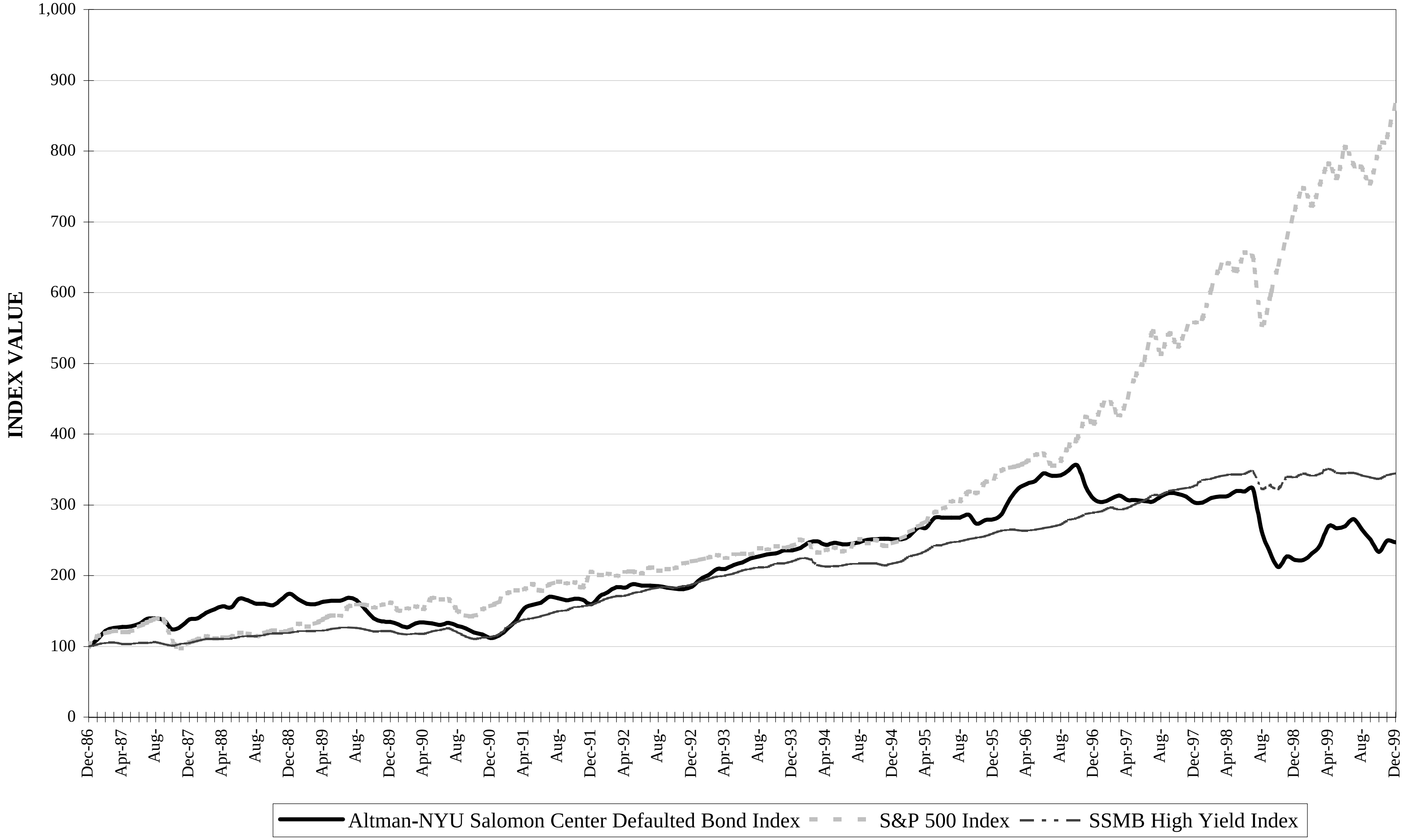

FIGURE 4

CORRELATION OF ALTMAN-NYU SALOMON CENTER INDEXES OF DEFAULTED BONDS WITH OTHER SPECULATIVE SECURITIES INDEXES 1987 - 1999

Correlation of Monthly Returns

	Altman-NYU Bond Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Index (1)
Altman-NYU Bond Index	100.00%	25.62%	55.56%
S&P 500 Stock Index		100.00%	52.76%
Salomon Smith Barney High Yield Index			100.00%

Correlation of Quarterly Returns

	Altman-NYU Bond Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Index (1)
Altman-NYU Bond Index	100.00%	23.31%	56.52%
S&P 500 Stock Index		100.00%	47.97%
Salomon Smith Barney High Yield Index			100.00%

(1) High Yield Market Index was used for 1987 and 1988

FIGURE 5

CORRELATION OF ALTMAN-NYU SALOMON CENTER INDEXES OF DEFAULTED LOANS WITH OTHER SPECULATIVE SECURITIES INDEXES 1996 - 1999

Correlation of Monthly Returns

	Altman-NYU Loan Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Index (1)	Altman-NYU Bond Index
Altman-NYU Loan Index	100.00%	-0.26%	43.59%	62.10%
S&P 500 Stock Index		100.00%	61.26%	14.26%
Salomon Smith Barney High Yield Index			100.00%	55.79%
Altman-NYU Bond Index				100.00%

Correlation of Quarterly Returns

	Altman-NYU Loan Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Index (1)	Altman-NYU Bond Index
Altman-NYU Loan Index	100.00%	3.96%	29.31%	79.25%
S&P 500 Stock Index		100.00%	76.36%	30.06%
Salomon Smith Barney High Yield Index			100.00%	40.10%
Altman-NYU Bond Index				100.00%

(1) High Yield Market Index was used for 1987 and 1988

FIGURE 6

CORRELATION BETWEEN INDEXES GIVEN A CHANGE IN S&P GREATER THAN 5%

Month	Bank Loan Index	Bond Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Index (1)
Jan-87		9.80%	13.47%	2.83%
Jun-87		2.90%	5.05%	1.38%
Jul-87		5.50%	5.07%	0.54%
Oct-87		-8.92%	-21.54%	-2.67%
Nov-87		3.22%	-8.24%	2.53%
Dec-87		7.53%	7.61%	1.33%
Jan-89		-4.47%	7.32%	1.50%
Apr-89		2.06%	5.19%	0.30%
Jul-89		2.46%	9.03%	0.47%
Jan-90		-2.91%	-6.71%	-3.03%
May-90		-1.23%	9.75%	2.63%
Aug-90		-3.03%	-9.04%	-3.87%
Nov-90		-2.69%	6.46%	2.02%
Feb-91		8.49%	7.15%	8.82%
Dec-91		-3.53%	11.44%	1.34%
Sep-96	0.79%	2.11%	5.63%	2.34%
Jan-97	1.88%	-1.54%	6.25%	0.75%
Apr-97	-6.63%	-2.13%	5.97%	0.71%
May-97	-1.93%	0.11%	6.88%	2.02%
Jul-97	0.45%	-0.23%	7.96%	2.29%
Aug-97	1.19%	2.27%	-5.60%	0.25%
Sep-97	2.41%	1.64%	5.48%	1.75%
Feb-98	-0.84%	2.96%	7.21%	0.68%
Mar-98	1.68%	0.82%	5.12%	1.08%
Aug-98	-6.27%	-18.25%	-14.46%	-6.70%
Sep-98	-6.16%	-11.21%	6.41%	1.23%
Oct-98	-7.88%	-9.48%	8.13%	-1.38%
Nov-98	5.44%	7.32%	6.06%	5.02%
Dec-98	-0.85%	-2.43%	5.76%	-0.07%
Jun-99	2.58%	1.00%	5.50%	-0.22%
Oct-99	-2.64%	-7.13%	6.33%	-0.68%
Dec-99	-0.12%	-0.92%	5.89%	0.84%

(1) High Yield Market Index was used for 1987 and 1988

FIGURE 7

SIZE OF THE ALTMAN-NYU SALOMON CENTER DEFAULTED BANK LOAN INDEX (1996 - 1999)

Year End	Number of Issues	Number of Firms	Face Value ($ Billions)	Market Value ($ Billions)	Market/ Face Ratio
1995	17	14	2.9	2.0	0.69
1996	23	22	4.2	3.3	0.79
1997	18	15	3.4	2.4	0.71
1998	15	13	3.0	1.9	0.63
1999	45	23	12.9	6.8	0.53

FIGURE 8
ALTMAN-NYU SALOMON CENTER
BANK LOAN INDEX

COMPARISON OF RETURNS
(1996 - 1999)

Year	Altman-NYU Salomon Center Bank Loan Index	S&P 500 Stock Index	Salomon Smith Barney High Yield Market Index
1996	19.56%	22.96%	11.29%
1997	1.75%	34.36%	13.18%
1998	-10.22%	28.58%	3.60%
1999	0.65%	20.98%	1.74%
1996 - 1999 Arithmetic Average (Annual) Rate	2.93%	26.72%	7.45%
Standard Deviation	12.33%	6.02%	5.63%
1996 - 1999. Compounded Average (Annual) Rate	2.39%	26.61%	7.34%
1996 - 1999 Arithmetic Average (Monthly) Rate	0.24%	2.08%	0.60%
Standard Deviation	2.96%	4.46%	1.59%
1996 - 1999 Compounded Average (Monthly) Rate	0.20%	1.99%	0.59%

APPENDIX A

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED PUBLIC BONDS AND BANK LOANS

Returns (1987 - 1999) and Comparison with
S&P 500 stock index and Salomon Smith Barney High Yield Market Index
(December 1986 = 100)

MONTH	PUBLIC BOND INDEX	PUBLIC BOND PERCENT RETURN	BANK LOAN PERCENT RETURN	S&P PERCENT RETURN	SSMB-HYMI PERCENT RETURN
JAN-87	109.80	9.80%		13.47%	
FEB-87	121.37	10.53%		3.95%	
MAR-87	125.95	3.77%		2.89%	
APR-87	127.52	1.25%		-0.89%	
MAY-87	128.09	0.44%		0.87%	
JUN-87	131.80	2.90%		5.05%	
JUL-87	139.05	5.50%		5.07%	
AUG-87	139.77	0.52%		3.73%	
SEP-87	136.35	-2.45%		-2.19%	
OCT-87	124.19	-8.92%		-21.54%	
NOV-87	128.19	3.22%		-8.24%	
DEC-87	137.85	7.53%		7.61%	
TOTAL 1987 RETURN		37.85%		5.26%	
JAN-88	139.84	1.44%		4.21%	
FEB-88	147.45	5.44%		4.66%	
MAR-88	152.01	3.10%		-3.09%	
APR-88	156.85	3.18%		1.11%	
MAY-88	155.42	-0.91%		0.87%	
JUN-88	166.94	7.41%		4.59%	
JUL-88	165.05	-1.14%		-0.38%	
AUG-88	160.40	-2.82%		-3.40%	
SEP-88	160.28	-0.07%		4.26%	
OCT-88	157.69	-1.61%		2.78%	
NOV-88	166.88	5.83%		-1.43%	
DEC-88	174.36	4.48%		1.75%	
TOTAL 1988 RETURN		26.49%		16.61%	

APPENDIX B

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED BANK LOANS

Returns (1996 - 1999) and Comparison with
S&P 500 Stock Index and Salomon Smith Barney High Yield Market Index
** Base of 100 starting December 1995 for Altman Index**

MONTH	BANK LOAN INDEX	BANK LOAN PERCENT RETURN	PUBLIC BOND PERCENT RETURN	S&P PERCENT RETURN
Jan-96	100.96	0.96%	2.51%	3.40%
Feb-96	103.79	2.80%	7.75%	0.93%
Mar-96	106.69	2.79%	4.54%	0.96%
Apr-96	106.68	-0.01%	1.98%	1.47%
May-96	111.88	4.87%	1.28%	2.58%
Jun-96	116.08	3.76%	3.31%	0.38%
Jul-96	117.68	1.38%	-1.09%	-4.42%
Aug-96	116.34	-1.14%	0.24%	2.11%
Sep-96	117.26	0.79%	2.11%	5.63%
Oct-96	119.24	1.69%	1.90%	2.76%
Nov-96	119.69	0.37%	-8.62%	7.56%
Dec-96	119.56	-0.10%	-5.10%	-1.98%
TOTAL 1996 RETURN		19.56%	10.21%	22.96%
Jan-97	121.81	1.88%	-1.54%	6.25%
Feb-97	124.73	2.40%	1.44%	0.78%
Mar-97	125.69	0.77%	1.74%	-4.11%
Apr-97	117.36	-6.63%	-2.13%	5.97%
May-97	115.10	-1.93%	0.11%	6.88%
Jun-97	119.23	3.60%	-0.57%	4.48%
Jul-97	119.77	0.45%	-0.23%	7.96%
Aug-97	121.20	1.19%	2.27%	-5.60%
Sep-97	124.12	2.41%	1.64%	5.48%
Oct-97	124.42	0.24%	-0.44%	-3.34%
Nov-97	123.90	-0.41%	-1.15%	4.63%
Dec-97	121.65	-1.82%	-2.58%	1.72%
TOTAL 1997 RETURN		1.75%	-1.58%	34.36%

APPENDIX C

COMBINED ALTMAN-NYU SALOMON CENTER DEFAULTED PUBLIC BOND AND BANK LOAN INDEXES (December 1995 = 100)

Date	Monthly Level	Return	Year-to-Date Return
Dec-95	100.0		
Jan-96	101.8	1.80%	1.80%
Feb-96	107.1	5.21%	7.09%
Mar-96	111.1	3.71%	11.05%
Apr-96	112.2	1.04%	12.23%
May-96	115.7	3.13%	15.74%
Jun-96	119.8	3.53%	19.82%
Jul-96	119.8	0.02%	19.84%
Aug-96	119.0	-0.67%	19.04%
Sep-96	120.8	1.47%	20.79%
Oct-96	123.0	1.80%	22.97%
Nov-96	118.3	-3.80%	18.29%
Dec-96	**115.6**	**-2.26%**	**15.62%**
Jan-97	116.2	0.48%	0.48%
Feb-97	118.6	2.04%	2.54%
Mar-97	119.9	1.15%	3.71%
Apr-97	114.6	-4.39%	-0.83%
May-97	113.7	-0.85%	-1.68%
Jun-97	115.4	1.51%	-0.19%
Jul-97	115.6	0.19%	-0.08%
Aug-97	117.5	1.72%	1.64%
Sep-97	119.8	2.01%	3.67%
Oct-97	119.7	-0.13%	3.54%
Nov-97	118.7	-0.79%	2.72%
Dec-97	**116.1**	**-2.22%**	**0.44%**
Jan-98	115.9	-0.20%	-0.20%
Feb-98	116.3	0.38%	0.18%
Mar-98	117.8	1.32%	1.50%
Apr-98	121.0	2.67%	4.21%
May-98	123.8	2.31%	6.61%
Jun-98	123.0	-0.66%	5.91%
Jul-98	123.6	0.51%	6.45%
Aug-98	109.2	-11.67%	-5.97%
Sep-98	100.0	-8.37%	-13.83%
Oct-98	91.5	-8.52%	-21.18%
Nov-98	97.2	6.20%	-16.29%
Dec-98	**95.7**	**-1.51%**	**-17.55%**
Jan-99	97.6	1.97%	1.97%
Feb-99	98.4	0.78%	2.77%
Mar-99	99.2	0.84%	3.63%
Apr-99	105.5	6.31%	10.16%
May-99	105.9	0.45%	10.66%
Jun-99	107.7	1.66%	12.49%
Jul-99	110.4	2.49%	15.29%
Aug-99	105.0	-4.87%	9.67%
Sep-99	103.3	-1.58%	7.94%
Oct-99	98.8	-4.34%	3.26%
Nov-99	100.4	1.59%	4.90%
Dec-99	**100.0**	**-0.43%**	**4.45%**

APPENDIX B

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED BANK LOANS

Returns (1996 - 1999) and Comparison with
S&P 500 Stock Index and Salomon Smith Barney High Yield Market Index
** Base of 100 starting December 1995 for Altman Index**

MONTH	BANK LOAN INDEX	BANK LOAN PERCENT RETURN	PUBLIC BOND PERCENT RETURN	S&P PERCENT RETURN
Jan-98	121.2	-0.38%	0.00%	1.11%
Feb-98	120.2	-0.84%	1.96%	7.21%
Mar-98	122.2	1.68%	0.82%	5.12%
Apr-98	127.3	4.19%	0.19%	1.01%
May-98	130.3	2.33%	2.27%	-1.72%
Jun-98	129.0	-0.99%	-0.28%	4.06%
Jul-98	128.9	-0.05%	1.15%	-1.07%
Aug-98	120.8	-6.26%	-18.25%	-14.46%
Sep-98	113.4	-6.16%	-11.21%	6.41%
Oct-98	104.5	-7.88%	-9.48%	8.13%
Nov-98	110.2	5.44%	7.32%	6.06%
Dec-98	109.2	-0.85%	-2.43%	5.76%
1998 YTD		-10.22%	-26.91%	28.58%
Jan-99	113.1	3.59%	0.22%	4.18%
Feb-99	112.0	-1.01%	3.91%	-3.11%
Mar-99	110.1	-1.70%	5.07%	4.00%
Apr-99	113.3	2.91%	11.15%	3.87%
May-99	115.5	1.92%	-1.14%	-2.36%
Jun-99	118.5	2.58%	1.00%	5.50%
Jul-99	120.0	1.31%	3.75%	-3.12%
Aug-99	114.2	-4.80%	-4.96%	-0.50%
Sep-99	115.7	1.29%	-5.33%	-2.74%
Oct-99	112.7	-2.64%	-7.13%	6.33%
Nov-99	110.1	-2.31%	6.75%	2.04%
Dec-99	109.9	-0.12%	-0.92%	5.89%
1999 YTD		0.65%	11.34%	20.98%

SSMB-HYMI PERCENT RETURN
1.47%
0.62%
-0.50%
-0.03%
0.56%
0.77%
0.65%
1.04%
2.34%
1.15%
1.92%
0.79%
11.29%
0.75%
1.70%
-1.03%
0.71%
2.02%
1.69%
2.29%
0.25%
1.75%
0.80%
0.51%
1.05%
13.18%

SSMB-HYMI PERCENT RETURN
2.26%
0.68%
1.08%
0.54%
0.27%
0.22%
0.80%
-6.70%
1.23%
-1.38%
5.02%
-0.07%
3.60%
1.50%
-0.84%
0.85%
2.09%
-1.57%
-0.22%
0.22%
-1.19%
-0.76%
-0.68%
1.57%
0.84%
1.74%

APPENDIX A

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED PUBLIC BONDS AND BANK LOANS

Returns (1987 - 1999) and Comparison with
S&P 500 stock index and Salomon Smith Barney High Yield Market Index
(December 1986 = 100)

MONTH	PUBLIC BOND INDEX	PUBLIC BOND PERCENT RETURN	BANK LOAN PERCENT RETURN	S&P PERCENT RETURN	SSMB-HYMI PERCENT RETURN
JAN-89	166.57	-4.47%		7.32%	1.75%
FEB-89	159.93	-3.99%		-2.49%	0.43%
MAR-89	159.60	-0.21%		2.33%	0.01%
APR-89	162.88	2.06%		5.19%	0.69%
MAY-89	164.53	1.01%		4.05%	1.70%
JUN-89	164.38	-0.09%		-0.57%	1.45%
JUL-89	168.43	2.46%		9.03%	0.45%
AUG-89	164.96	-2.06%		1.96%	-0.39%
SEP-89	152.03	-7.84%		-0.41%	-1.62%
OCT-89	139.26	-8.40%		-2.32%	-2.26%
NOV-89	135.58	-2.64%		2.04%	0.37%
DEC-89	134.64	-0.70%		2.40%	0.22%
TOTAL 1989 RETURN		-22.78%		31.68%	2.75%
JAN-90	130.72	-2.91%		-6.71%	-3.03%
FEB-90	127.03	-2.83%		1.29%	-1.10%
MAR-90	132.08	3.98%		2.65%	1.06%
APR-90	134.03	1.48%		-2.50%	-0.51%
MAY-90	132.37	-1.23%		9.75%	2.63%
JUN-90	130.12	-1.71%		-0.68%	1.86%
JUL-90	133.09	2.29%		-0.32%	1.73%
AUG-90	129.06	-3.03%		-9.04%	-3.87%
SEP-90	125.21	-2.99%		-4.87%	-5.13%
OCT-90	119.85	-4.28%		-0.43%	-3.54%
NOV-90	116.63	-2.69%		6.46%	2.02%
DEC-90	111.64	-4.27%		2.79%	1.01%
TOTAL 1990 RETURN		-17.08%		-3.12%	-7.04%
JAN-91	115.20	3.18%		4.36%	2.59%
FEB-91	124.97	8.49%		7.15%	8.82%
MAR-91	135.60	8.50%		2.42%	5.24%
APR-91	154.06	13.62%		0.24%	3.75%
MAY-91	158.67	2.99%		4.32%	0.71%
JUN-91	161.31	1.66%		-4.58%	2.10%
JUL-91	169.99	5.39%		4.66%	2.85%
AUG-91	167.79	-1.30%		2.37%	2.33%
SEP-91	165.36	-1.45%		-1.67%	0.67%
OCT-91	167.15	1.08%		1.34%	3.00%
NOV-91	165.61	-0.92%		-4.03%	0.95%
DEC-91	159.77	-3.53%		11.44%	1.34%
TOTAL 1991 RETURN		43.11%		30.48%	39.93%

APPENDIX A

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED PUBLIC BONDS AND BANK LOANS

Returns (1987 - 1999) and Comparison with
S&P 500 stock index and Salomon Smith Barney High Yield Market Index
(December 1986 = 100)

MONTH	PUBLIC BOND INDEX	PUBLIC BOND PERCENT RETURN	BANK LOAN PERCENT RETURN	S&P PERCENT RETURN	SSMB-HYMI PERCENT RETURN
JAN-92	171.04	7.06%		-1.86%	2.89%
FEB-92	176.52	3.21%		1.30%	2.93%
MAR-92	183.40	3.90%		-1.95%	1.48%
APR-92	182.90	-0.27%		2.94%	0.74%
MAY-92	187.59	2.57%		0.49%	1.87%
JUN-92	185.62	-1.05%		-1.49%	1.24%
JUL-92	186.09	0.25%		4.09%	1.85%
AUG-92	184.76	-0.72%		-2.05%	1.33%
SEP-92	183.03	-0.93%		1.18%	0.93%
OCT-92	181.53	-0.82%		0.35%	-1.22%
NOV-92	180.79	-0.41%		3.41%	1.38%
DEC-92	184.36	1.97%		1.23%	1.19%
TOTAL 1992 RETURN		15.39%		7.62%	17.86%
JAN-93	194.59	5.55%		0.84%	2.44%
FEB-93	200.59	3.09%		1.36%	1.89%
MAR-93	208.93	4.16%		2.11%	1.55%
APR-93	209.49	0.27%		-2.42%	0.77%
MAY-93	214.81	2.54%		2.68%	1.38%
JUN-93	218.68	1.80%		0.29%	2.23%
JUL-93	224.26	2.55%		-0.40%	0.98%
AUG-93	226.79	1.13%		3.79%	1.08%
SEP-93	229.73	1.30%		-0.77%	0.24%
OCT-93	231.21	0.64%		2.07%	1.94%
NOV-93	235.27	1.76%		-0.95%	0.54%
DEC-93	235.82	0.23%		1.21%	1.10%
TOTAL 1993 RETURN		27.91%		10.08%	17.36%
JAN-94	239.18	1.43%		3.40%	2.17%
FEB-94	246.84	3.20%		-2.71%	-0.46%
MAR-94	248.71	0.76%		-4.36%	-3.72%
APR-94	243.63	-2.04%		1.28%	-0.91%
MAY-94	246.53	1.19%		1.64%	0.35%
JUN-94	243.90	-1.06%		-2.45%	0.11%
JUL-94	245.06	0.47%		3.28%	0.98%
Aug-94	246.86	0.74%		4.10%	0.56%
Sep-94	250.31	1.40%		-2.45%	-0.26%
Oct-94	251.04	0.29%		2.25%	0.02%
Nov-94	252.28	0.50%		-3.64%	-1.10%
Dec-94	251.51	-0.30%		1.48%	1.12%
TOTAL 1994 RETURN		6.66%		1.32%	-1.25%

APPENDIX A

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED PUBLIC BONDS AND BANK LOANS

Returns (1987 - 1999) and Comparison with
S&P 500 stock index and Salomon Smith Barney High Yield Market Index
(December 1986 = 100)

MONTH	PUBLIC BOND INDEX	PUBLIC BOND PERCENT RETURN	BANK LOAN PERCENT RETURN	S&P PERCENT RETURN	SSMB-HYMI PERCENT RETURN
JAN-95	250.97	-0.22%		2.59%	1.44%
FEB-95	256.42	2.17%		3.90%	3.33%
MAR-95	267.27	4.23%		2.95%	1.04%
APR-95	267.51	0.09%		2.95%	2.35%
May-95	282.02	5.42%		4.00%	2.98%
June-95	281.51	-0.18%		2.32%	0.71%
July-95	282.02	0.18%		3.31%	1.20%
Aug-95	282.10	0.03%		0.25%	0.62%
Sept-95	286.47	1.55%		4.22%	1.16%
Oct-95	273.01	-4.70%		-0.36%	0.84%
Nov-95	278.39	1.97%		4.39%	0.91%
Dec-95	279.84	0.52%		1.93%	1.59%
TOTAL 1995 RETURN		11.26%		37.56%	19.71%
Jan-96	286.86	2.51%	0.96%	3.40%	1.47%
Feb-96	309.09	7.75%	2.80%	0.93%	0.62%
Mar-96	323.11	4.54%	2.79%	0.96%	-0.50%
Apr-96	329.51	1.98%	-0.01%	1.47%	-0.03%
May-96	333.71	1.28%	4.87%	2.58%	0.56%
Jun-96	344.77	3.31%	3.76%	0.38%	0.77%
Jul-96	340.99	-1.09%	1.38%	-4.42%	0.65%
Aug-96	341.81	0.24%	-1.14%	2.11%	1.04%
Sep-96	349.01	2.11%	0.79%	5.63%	2.34%
Oct-96	355.63	1.90%	1.69%	2.76%	1.15%
Nov-96	324.98	-8.62%	0.37%	7.56%	1.92%
Dec-96	308.40	-5.10%	-0.10%	-1.98%	0.79%
TOTAL 1996 RETURN		10.21%	19.56%	22.96%	11.29%
Jan-97	303.64	-1.54%	1.88%	6.25%	0.75%
Feb-97	308.02	1.44%	2.40%	0.78%	1.70%
Mar-97	313.37	1.74%	0.77%	-4.11%	-1.03%
Apr-97	306.69	-2.13%	-6.63%	5.97%	0.71%
May-97	307.03	0.11%	-1.93%	6.88%	2.02%
Jun-97	305.28	-0.57%	3.60%	4.48%	1.69%
Jul-97	304.59	-0.23%	0.45%	7.96%	2.29%
Aug-97	311.49	2.27%	1.19%	-5.60%	0.25%
Sep-97	316.60	1.64%	2.41%	5.48%	1.75%
Oct-97	315.20	-0.44%	0.24%	-3.34%	0.80%
Nov-97	311.57	-1.15%	-0.41%	4.63%	0.51%
Dec-97	303.53	-2.58%	-1.82%	1.72%	1.05%
TOTAL 1997 RETURN		-1.58%	1.75%	34.36%	13.18%

APPENDIX A

ALTMAN-NYU SALOMON CENTER INDEX
OF DEFAULTED PUBLIC BONDS AND BANK LOANS

Returns (1987 - 1999) and Comparison with
S&P 500 stock index and Salomon Smith Barney High Yield Market Index
(December 1986 = 100)

MONTH	PUBLIC BOND INDEX	PUBLIC BOND PERCENT RETURN	BANK LOAN PERCENT RETURN	S&P PERCENT RETURN	SSMB-HYMI PERCENT RETURN
Jan-98	303.5	0.00%	-0.38%	1.11%	2.26%
Feb-98	309.5	1.96%	-0.84%	7.21%	0.68%
Mar-98	312.0	0.82%	1.68%	5.12%	1.08%
Apr-98	312.6	0.19%	4.19%	1.01%	0.54%
May-98	319.7	2.27%	2.33%	-1.72%	0.27%
Jun-98	318.8	-0.28%	-0.99%	4.06%	0.22%
Jul-98	322.5	1.15%	-0.05%	-1.07%	0.80%
Aug-98	263.6	-18.25%	-6.26%	-14.46%	-6.70%
Sep-98	234.1	-11.21%	-6.16%	6.41%	1.23%
Oct-98	211.9	-9.48%	-7.88%	8.13%	-1.38%
Nov-98	227.4	7.32%	5.44%	6.06%	5.02%
Dec-98	221.9	-2.43%	-0.85%	5.76%	-0.07%
1998 YTD		-26.91%	-10.22%	28.58%	3.60%
Jan-99	222.3	0.22%	3.59%	4.18%	1.50%
Feb-99	231.0	3.91%	-1.01%	-3.11%	-0.84%
Mar-99	242.8	5.07%	-1.70%	4.00%	0.85%
Apr-99	269.8	11.15%	2.91%	3.87%	2.09%
May-99	266.7	-1.14%	1.92%	-2.36%	-1.57%
Jun-99	269.4	1.00%	2.58%	5.50%	-0.22%
Jul-99	279.5	3.75%	1.31%	-3.12%	0.22%
Aug-99	265.6	-4.96%	-4.80%	-0.50%	-1.19%
Sep-99	251.5	-5.33%	1.29%	-2.74%	-0.76%
Oct-99	233.5	-7.13%	-2.64%	6.33%	-0.68%
Nov-99	249.3	6.75%	-2.31%	2.04%	1.57%
Dec-99	247.0	-0.92%	-0.12%	5.89%	0.84%
1999 YTD		11.34%	0.65%	20.98%	1.74%