New York University Salomon Center
Leonard N. Stern School of Business

Special Report on

Defaults and Returns in the High-Yield Bond Market: The Year 2007 in Review and Outlook

By

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With

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Acknowledgments

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Executive Summary

The year 2007 was a challenging one for investors in high-yield bonds. Despite a continuation of near-record-low default rates and near-record-high recovery rates on those defaults that did take place, returns were relatively poor, and returns versus risk-free Treasury bonds were negative. A market that was incredibly liquid for almost the entire first-half of the year reversed itself and became much less so with spreads more than doubling in the second half, as investors for the first time in five years required a greater-than-historical average yield-to-maturity spread by year-end. The contagion from the devastating effects of the subprime mortgage market meltdown resulted in a flight to quality from most risky debt markets, and the high-yield and distressed debt markets were no exceptions.

Default rates fell again to just 0.51%, 25bp less than last year and the lowest since 1981, when the market was just $17 billion in the amount outstanding. The US and Canadian dollar-denominated default rate was based on a mid-year market size of $1.075 trillion, up by about $82 billion from one year earlier. The fourth-quarter default rate was 0.18%, slightly higher than any of the three previous quarters' rates, but still an unusually low rate, especially with credit markets in such turmoil.

The annual dollar-denominated S&P/LCD default rate on leveraged loans decreased again in 2007 to just 0.26% at year-end, down from 1.1% in 2006 and 3.0% in 2005. The 2007 rate was the lowest since this metric's inception in December 1998. Ironically, the leveraged-loan rate actually fell during the last several months of the year, even though storm clouds were building and most analysts were expecting a significant jump in defaults of both high-yield bonds and leveraged loans.

Default losses on high-yield bonds were just 0.20% based on a weighted average recovery rate just after default of 66.6%. The latter was a slight increase from the near-record-high rate of 2006 and was the highest recovery rate since 1987, when the Texaco-dominated recovery rate was the highest ever. Our regression-based recovery rate model was quite accurate in estimating 2007's result, given the unusually low default rate.

Returns on high-yield bonds were considerably lower than last year and barely positive as the market fell in the second half of the year and closed up by 1.83%. The excess return versus 10-Yr US Treasuries was a negative 7.95%, inferior compared to a 2.21% historic average, but not as low as a half-dozen other years in our 30-year time series. Yield-to-maturity spreads versus 10-Yr US Treasuries increased to 5.66% by year-end, 255bp greater than one year earlier, and was above the historical average spread for the first time since 2002.

One measure of the potential increase in defaults going forward is the distress ratio (bonds yielding more than 1,000bp above the risk-free rate), which increased dramatically to 10.4% as of year-end 2007 from record low levels just six months earlier, and from just 1.7% at year-end 2006.

This ratio actually increased further in the first 15 days of January 2008, when it exceeded 15% of the high-yield market and was greater than the historical average for the first time in a long time. This reflects the market's concern for many issuers and also the enormous about-face in market liquidity.

The face value size of the distressed and defaulted debt markets increased significantly to $867 billion from about $626 billion one year earlier, completely due to the increase in distressed debt -- both public and private. The market value estimate also increased to about $708 billion, although the prices of existing distressed and defaulted bonds fell. Investors in bonds and bank loans faced a very challenging year in 2007, as our Combined Index of these two asset classes fell by 3.30%, the lowest annual performance since 2000.

New high-yield issuance in 2007 ended the year at a near-record level of $141 billion, although almost $100 billion was issued in the first six months of the year. Fallen angels exceeded rising stars by about a three-to-one ratio.

Based on our mortality rate methodology of new issuance in the last ten years, stratified by original bond rating, the Altman forecast for the high-yield bond market's default rate in 2008 is 4.64% and 5.05% for 2009. Our estimates are in line with year-end yield spreads and forecasts from the major ratings agencies.

Defaults, Default Rates, and Recoveries

High-yield bond default rates continued to fall in 2007 to almost record-low levels despite the turnaround of investor required rates of returns after mid-year. The dollar-denominated US and Canadian default rate registered a mere 0.51%, the lowest level since 1981, and about 25bp below last year's miniscule rate. The 2007 rate is based on a market size of $1.075 trillion, which itself was up by 8.2% from one year earlier. In all, there was $5.5 billion of defaults, the lowest dollar amount since 1997 (Figure 1).

In the fourth quarter of 2007, the default rate was 0.18%, higher than any other quarter in 2007, and about the same as the last quarter of 2006 (Appendix A). Indeed, only three issuers defaulted in the fourth quarter, paced by Tembec's default restructuring of $1.2 billion. Other sizeable defaults during the entire year were Pacific Lumber, Bally Total Fitness, In-Sight Health Services, Delco Remy, Ziff Davis Media and Movie Gallery. In all, there were 19 issuers and 35 issues that defaulted in 2007 (Appendix B). This compares to 23 issuers and 52 issues in 2006. The average defaulting issuer in 2007 had $156 million outstanding, compared to $329 million in 2006 and $1.06 billion in 2005.

Each quarter of 2007 registered a default rate of under 0.20%, and since the fourth quarter of 2003 our quarterly default rates generally have been below 0.50%, except for the last two quarters of 2005 (Figure 2, and Appendix A). Hence, in terms of default rates, the high-yield market was still in a benign cycle, which has now lasted over four years. However, all indications are that this benign condition is soon to end (see below).

In 2007, Standard & Poor's and Moody's issuer-denominated default rates were 0.97% and 0.90%, respectively, and the issuer rates were once again above the dollar-denominated rates. For example, Altman's dollar rate was only 0.51%, Moody's dollar rate was 0.60%, and Fitch's dollar rate was 0.40%. For leveraged loans, the S&P/LCD last 12-months dollar-denominated rate was also a miniscule 0.26%. The leveraged loan rate at the end of 2007 was the lowest since S&P/LCD started compiling this rate in December 1998 (Figure 3).

Figure 4 shows the default rates compared to U.S. recessionary periods. We see a coincidence between the recent low default rates and the continuation of a robust, nonrecessionary environment. We observe the impact that recessions have on default rates, especially in the last two recessions of 1991 and 2001. Despite the fact that default rates increased for two years or so before the last two recessions, it is clear that they peak near the end, or soon after the end, of a recession. With so much talk about a possible recession in the United States in 2008 or 2009, the increase in default rates is even more likely than from a forecast based solely on the fundamental condition of individual issues in the high-yield market.

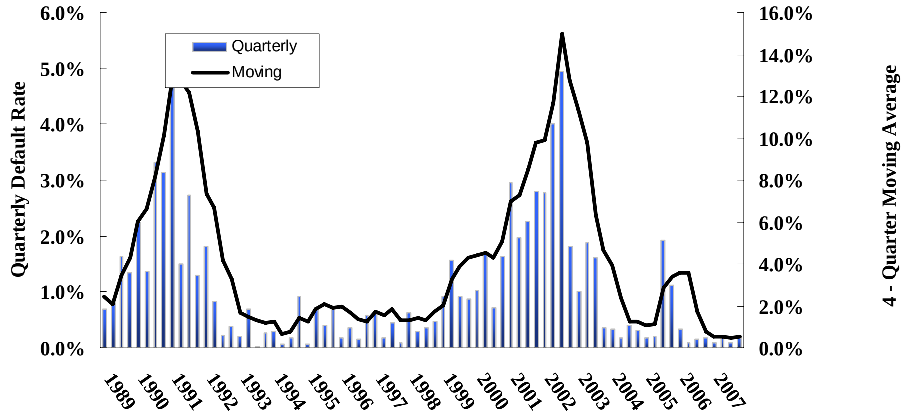
Figure 1. Historical Default Rates — Straight Bonds Only Excluding Defaulted Issues from Par Value Outstanding, 1971 – 2007 ($ Millions)

Year	Par Value Outstanding ($)[a]	Par Value Defaults ($)	Default Rates (%)
2007	1,075,400	5,473	0.509
2006	993,600	7,559	0.761
2005	1,073,000	36,209	3.375
2004	933,100	11,657	1.249
2003	825,000	38,451	4.661
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

		%	Standard Deviation (%)
Arithmetic Average Default Rate	**1971 to 2007**	**3.096**	**3.061**
	1978 to 2007	**3.365**	**3.272**
	1985 to 2007	**4.029**	**3.435**
Weighted Average Default Rate[b]	**1971 to 2007**	**3.863**	
	1978 to 2007	**3.874**	
	1985 to 2007	**3.910**	
Median Annual Default Rate	**1971 to 2007**	**1.708**	

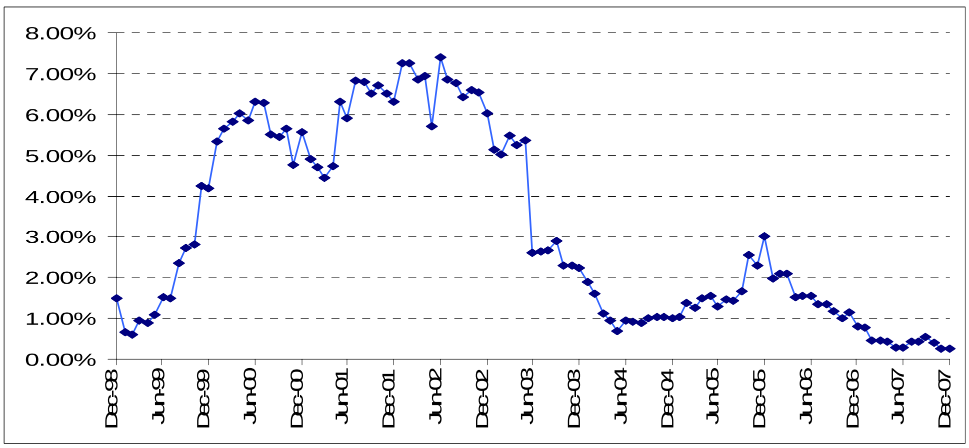
[a] As of midyear. [b] Weighted by par value of amount outstanding for each year.
Sources: Authors' compilations and Citigroup Estimates.

Figure 2. Quarterly Default Rate and Four-Quarter Moving Average 1991 – 2007



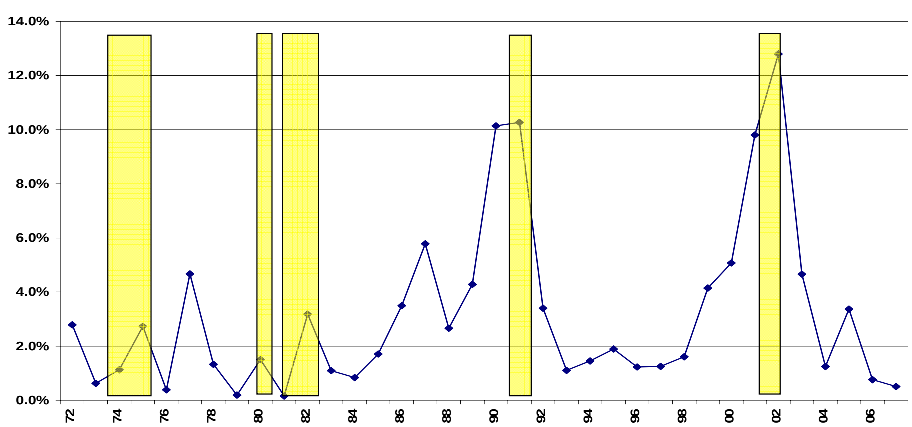
Sources: Authors' compilations.

Figure 3. S&P Leveraged Loan Index 12 Month Moving Average Default Rate 1998 – 2007



Source: Standard & Poor's LCD.

Figure 4. Historical Default Rates and Recession Periods in the US High Yield Bond Market, 1972 – 2007

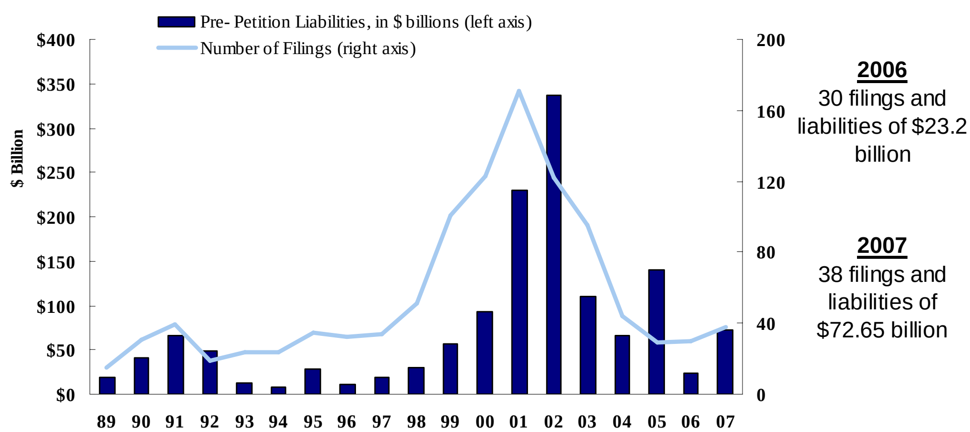


Periods of Recession: 11/73 - 3/75, 1/80 - 7/80, 7/81 - 11/82, 7/90 - 3/91, 4/01 - 12/01. Source: Figure 1 and National Bureau of Economic Research.

Bankruptcies

The number of Chapter 11 filings with liabilities greater than $100 million was 38 in 2007, eight more than 2006. The total amount of liabilities jumped to over $72 billion, still far below 2003 and 2005, but almost triples the level of last year (Figure 5).

Figure 5. Liabilities[a] of Public Companies Filing for Chapter 11 Protection, 1989-2007



[a] Minimum $100 million in liabilities

Source: Appendix C and NYU Salomon Center Bankruptcy Filings Database

The number of billion dollar bankruptcies in 2007 increased slightly to eight from the very low figure of five last year, but remained below the total of eleven for 2004 and ten in 2005. Not surprisingly, the larger bankruptcies were in the mortgage banking sector (Appendix C) with the top five bankruptcies all financial firms. (We discuss recovery rates on defaults in the financial sector later in this report).

For the first year since 2000, the number of all business chapter filings in 2007 increased from the prior year. Figure 6 shows that the number of filings was 78 in 2007, 38 of which had total liabilities greater than $100 million, with the average of total liabilities at $1.9 billion.

Figure 6. Historical Bankruptcy Filings 1980-2007

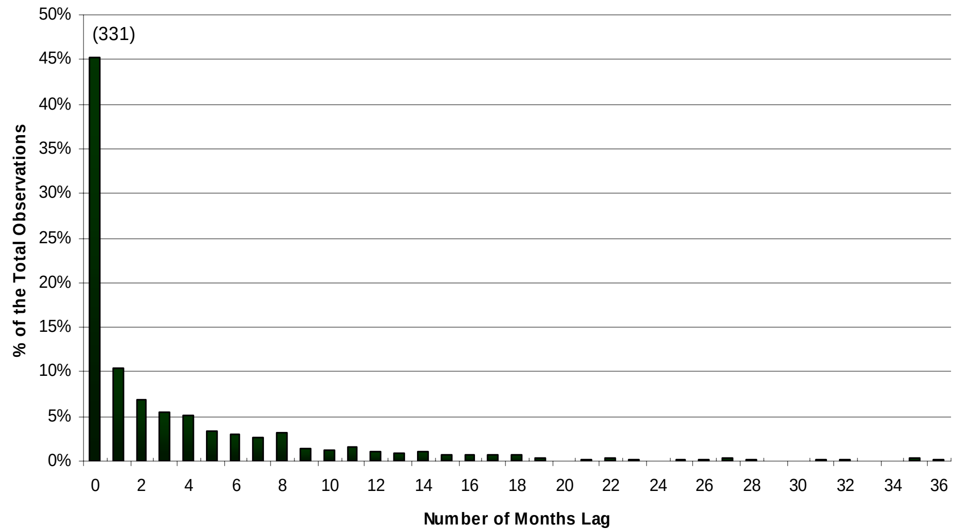
Year	Total Filings(a)	Total Filings (b) (> $100 million)	Total Filings (b) (>$1 billion)	Total Liabilities(b) ($ mn) (> 100 million)	Average Liabilities(b) ($ mn) (> 100 million)
1980	62	4	0	746.0	186.5
1981	74	6	1	3960.0	660.0
1982	84	12	3	7113.0	592.8
1983	89	14	3	13674.0	976.7
1984	121	12	0	3440.0	286.7
1985	149	14	2	8605.2	614.7
1986	149	11	3	9335.4	850.5
1987	112	12	1	25421.0	2118.4
1988	122	14	2	6905.0	493.2
1989	135	22	10	33538.9	1524.5
1990	115	35	10	41115.1	1174.7
1991	123	51	11	81157.9	1591.3
1992	91	37	14	64224.1	1735.8
1993	86	37	4	17701.1	478.4
1994	70	24	1	8396.0	349.8
1995	85	32	7	27153.0	848.5
1996	86	32	0	11687.0	365.2
1997	83	36	5	18865.9	524.1
1998	122	56	6	32038.3	572.1
1999	145	109	19	70957.1	651.0
2000	179	136	23	98895.8	727.2
2001	263	170	39	22993.1	1352.5
2002	220	135	41	336611.7	2493.4
2003	172	102	26	115171.8	1129.1
2004	92	44	11	39549.7	898.9
2005	86	34	10	141525.2	4162.5
2006	66	32	5	23917.3	747.4
2007	78	38	8	72642.7	1911.7
TOTAL	**3259**	**1261**	**265**	**1,544,299.2**	**1,224.7**

(a) Represents both Chapters 7 and 11 Filings; 72 Chapter 11 Filings in 2007 (Source: New Generation Research)

(b) Filings with Total Liabilities greater than $100 million and greater than $1 billion (Source: NYU Salomon Center Bankruptcy Filings Database)

In Figure 7, we compare the date of default with the Chapter 11 filing date for firms that both defaulted on bonds and went bankrupt going back to 1981. Based on 732 observations from the NYU Salomon Center Master Default and Bankruptcy Databases, there were 331 instances (45%) in which both events occurred on the same date. This is a lower figure than we had previously recorded, reflecting a much larger sample. Note that in the remaining 55% of the cases, the lag between the default date and bankruptcy date varied considerably, with decreasing levels as the two dates became greater in their distance from each other. Of course, some defaulting issuers never formally file for bankruptcy as their problems get settled out-of-court.

Figure 7. Time Differential between Default and Bankruptcy Filing* (1981 – 2007)



*Based on 732 observations
Source: NYU Salomon Center Default and Bankruptcy Filings Databases

Industry Defaults

Figures 8 and 9 list the industry affiliation of defaults by number and dollar amount, respectively, from 1990-2007. In 2007, seven of the 19 bond issuers that defaulted were general manufacturers with no dominant industry, four were from the communications and media sector, and three were retailers (See Appendix D for a finer distinction of these industry classifications.) While, by far, the greatest incidence of bankruptcies in 2007 was from the financial sector, (see our prior bankruptcy discussion), none of these companies had bonds outstanding.

Figure 9 shows corporate bond defaults across industries by dollar amount. The dollar amounts of bond defaults in 2007 mirror the industry classification of the number of defaulting issuers that we saw in Figure 8. As in the past, we observe that the Communications and Media sector far outdistanced all other sectors in dollars of defaulting issues over the last 18 years, primarily the result of the telecom meltdown in the period from 2000-03.

Figure 8. Corporate Bond Defaults by Industry (Number of Companies)

Industry	1970–1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Auto/Motor Carrier	6	3					1				1			1			**4**	3		19
Conglomerates	5	1	3	3								1			1	1				15
Energy	35		4	2	3		1			1	13	1		8	9		**1**		**1**	79
Financial Services	21	7	14	3	2	1	2	1	2	6	1	6	4	5	6	2	**3**	2		88
Leisure/Entertainment	9	8	2	4	3	4	3	1	5	5	8	9	6	5	6			3		81
General Manufacturing	26	5	8	8	7	3	8	6	7	6	16	23	43	22	13	17	**12**	6	**7**	243
Health Care	4	2	1	1	1		2			2	8	6	3	4	3		**2**		**1**	40
Miscellaneous Industries	16	4	4	3	1	1	1		3	3	16	34	38	25	16	6	**1**	4	**3**	179
Real Estate/Construction	14	7	5	1			2	1	2	1	4	6	4	3		2	**1**			53
REIT	12			1										1						14
Retailing	10	6	15	6	4	5	6	3	6	6	12	7	12	5	5	3	**2**	2	**3**	118
Communications	17	3	4	1	1	3	2	2	1	6	11	8	39	26	21	6	**3**	2	**4**	160
Transportation (non auto)	9	1	2			2			2	1	8	5	7	7	6	2	**5**	1		58
Utilities	2			1				1	1			1		0	0					6
Total	**186**	**47**	**62**	**34**	**22**	**19**	**28**	**15**	**29**	**37**	**98**	**107**	**156**	**112**	**86**	**39**	**34**	**23**	**19**	**1,153**

Source: Authors' compilations.

Figure 9. Corporate Bond Defaults by Industry (Amounts in $ Millions)

Industry	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Auto/Motor Carrier	468	90				215		300	100	430	120	3,737	285		280	3,573	2,692		12,290
Conglomerates													100	690	275				1,065
Energy		60	103	600		75	100			3,812	217	4,200	4,085	11,857		8,895		50	34,054
Financial Services	928	696	536		78	687	700	66	689	375	1,968	5,062	3,803	1,079	110	541	156		17,474
Leisure/Ent	498	1,191	159		138	435	293		245	1,100	2,891	3,437	21,242	633	1,286	6,861	715		41,124
General Manufacturing	2,675	3,695	488	118		616	641	123	247	2,092	2,507	3,138	2,455	2,108	225	1,396	1,486	2,379	26,390
Health Care	18	1,120				75			125	2,214	1,715	692	115	3,843		360		520	10,797
Miscellaneous Industries	1,968	4,911	1,378	1,056	317	1,286	832	461	1,290	7,615	8,352	9,715	5,594	4,494	1,977	569	409	1,396	53,620
R/E /Construction	2,605	417	113	49	75	190		258	383	385	252	1,110	1,088	77	1,783	174			8,959
Retailing	4,443	2,937	1,489	18	2,814	395	164	2,504	1,241	2,052	3,081	1,586	4,092	877	749	1,059	332	363	30,196
Communication							460	286	1,549	2,980	5,983	34,827	47,953	7,603	2,551	150	1,496	765	106,604
Transport (non auto)	1,028	1,452			301	562			1,125	310	2,890	1,430	4,711	2,086	2,421	12,376	272		30,964
Utilities		1,452	617	85			275	202		75			1,150	1,417					5,273
Total	14,631	18,021	4,883	1,926	3,723	4,536	3,465	4,200	6,994	23,440	29,976	68,934	96,673	36,764	11,657	35,954	7,559	5,473	373,336

Source: Authors' compilations.

Age of Defaults

Figure 10 shows the age distribution of defaults in 2007 and for the period 1989-2007. Note the return to the traditional pattern of increasing relative frequency of defaults for the first three to four years after issuance and lower levels thereafter, with a few exceptions. In 2007, the exception is the eighth year after issuance, primarily due to fallen-angel issues (five), when 14% of all issues defaulted. Again, as in 2006, a very small proportion (3%) defaulted during the first year after issuance.

Figure 10. Distribution of Years to Default from Original Issuance Date (by Year of Default), 1989–2007

	1990		1991		1992		1993/1994		1995		1996		1997		1998		1999	
Years to Default	**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**	**No. of Issues**	**No. of Issues**	**No. of Issues**	**No. of Issues**
1	3	3	0	0	0	0	3	8	32	26	2	8	5	20	2	6	32	26
2	25	23	18	13	0	0	6	16	37	30	3	13	4	16	5	15	37	30
3	23	21	26	19	7	13	5	14	15	12	3	13	4	16	10	30	15	12
4	18	17	29	21	10	19	2	5	14	11	8	33	9	36	3	9	14	11
5	23	21	35	26	8	15	4	11	7	6	1	4	3	12	10	30	7	6
6	5	5	10	7	12	22	8	22	8	6	5	21	0	0	2	6	8	6
7	5	5	4	3	5	9	7	19	10	8	0	0	0	0	1	3	10	8
8	4	4	10	7	4	7	0	0	2	2	0	0	0	0	0	0	2	2
9	1	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	1	2	1	8	15	2	5	0	0	2	8	0	0	0	0	0	0
Total	**108**	**100**	**137**	**100**	**54**	**100**	**37**	**100**	**125**	**100**	**24**	**100**	**25**	**100**	**33**	**100**	**125**	**100**

	2000		2001		2002		2003		2004		2005		2006		2007		1989-2007	
Years to Default	**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**	**No. of Issues**	**% of Total**	**No. of Issues**	**% of Total**
1	19	10	40	12	29	8	18	9	8	10	16	9	2	4	1	3	185	9
2	51	28	69	21	51	15	30	15	7	9	13	7	4	8	1	3	345	17
3	56	31	87	26	61	18	26	13	8	10	9	6	6	12	6	17	374	18
4	14	8	65	19	56	16	23	11	6	8	22	12	5	10	9	26	309	15
5	13	7	27	8	45	13	40	20	10	13	14	8	4	8	3	9	249	12
6	5	3	14	4	21	6	20	10	16	21	17	9	9	17	4	11	165	8
7	12	7	21	6	8	2	25	12	9	12	13	7	6	12	2	6	137	7
8	4	2	5	1	7	2	3	1	6	8	11	6	7	13	5	14	72	4
9	3	2	4	1	12	3	5	2	1	1	5	3	6	12	1	3	46	2
10	6	3	3	1	54	16	13	6	6	8	64	34	3	6	3	9	171	8
Total	**183**	**100**	**335**	**100**	**344**	**100**	**203**	**100**	**77**	**100**	**184**	**100**	**52**	**100**	**35**	**100**	**2053**	**100**

Source: Authors' compilations.

Fallen Angel Defaults

Fallen angel defaults accounted for two of the 19 defaulting issuers and resulted in a fallen-angel issuer default rate of 0.86% (See Figure 11). These two issuers, Pacific Lumber and Pope & Talbot, had four issues representing 11% of the 35 in 2007 (Figure 12). This is less than one-half of the historic average (26%). The arithmetic average fallen-angel default rate over the period 1985-2007 of 3.73% per year is somewhat below the historical average for original issue defaults in the high-yield bond market. This differential, however, is not statistically significant due to a standard deviation of the two rates of around 250 bps per year.

Figure 11. Fallen Angels Vs Original Issue and All High Yield Default Rates*

Year	Fallen Angel Average 12 Month Default Rate	Original Issue Speculative Grade Default Rates	All Speculative Grade Bond Default Rates	Altman Dollar Weighted Annual $ Default Rates
2007	0.86%	1.00%	0.97%	0.51%
2006	1.40%	1.23%	1.26%	0.76%
2005	2.74%	3.70%	2.48%	3.37%
2004	0.83%	2.65%	2.23%	1.25%
2003	5.88%	5.46%	5.53%	4.66%
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%
Arithmetic Average	3.73%	4.78%	4.53%	4.03%
Standard Deviation	2.45%	2.69%	2.97%	3.44%

*All Standard &Poor's issuer based except for Altman Rates

Source: Author Compilation and Standard &Poor's

Figure 12. Defaults by Original Ratings (Investment Grade versus Non-Investment Grade), by Year

	Total # Defaulted Issues[a]	% Originally Rated Investment Grade	% Originally Rated Non-Investment Grade
2007	35	11	89
2006	52	13	87
2005	184	49	51
2004	79	19	81
2003	203	33	67
2002	322	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
Total	**2,145**	**26%**	**74%**

[a] Where we could find an original rating from either S&P or Moody's.
Sources: Authors' compilations from Standard & Poor's and Moody's records.

Default Losses and Recoveries

The weighted-average recovery rate (based on market prices just after defaults) on high-yield bond defaults increased again in 2007 to 66.6%, just slightly above the 65.3% of 2006. The 2007 full-year rate is almost 10% below the three-quarter figure of 75.8% and as much as 20% below the mid-year figure. So, while the full 2007 recovery rate is almost the highest on record, it has come down a great deal from earlier in the year. The default loss rate in 2007, including the loss of 0.025% (2.5 bps) from lost coupons, was slightly less than 20bp at 0.194% (Figure 13). This is the lowest loss rate since 1981, when the rate was 0.15%. Over the 30-year period from 1978-2007, the average annual loss rate on high-yield bond defaults is 2.27%, 2.64% on a weighted-average basis (Figure 14). The 227bp average annual loss rate is down 7bp from one year earlier.

Figure 13. 2007 Default Loss Rate

	Unadjusted for Fallen Angels (%)	Only Fallen Angels (%)	All except Fallen Angels (%)	Price Adjusted for Fallen Angels (%)
Background Data				
Average Default Rate	0.509	0.858	0.476	0.531
Average Price At Default[a]	66.646	82.222	63.883	66.526
Average Price At Downgrade[a]	95.000	95.000		
Average Recovery	66.646	86.550	63.883	67.150
Average Loss Of Principal	33.354	13.460	36.117	32.850
Average Coupon Payment	9.639	7.578	9.986	9.639
Default Loss Computation				
Default Rate	0.509	0.858	0.476	0.531
X Loss Of Principal	33.354	13.450	36.117	32.850
Default Loss of Principal	0.170	0.115	0.172	0.175
Default Rate	0.509	0.858	0.476	0.531
X Loss of 1/2 Coupon	4.820	3.789	4.993	4.820
Default Loss of Coupon	0.025	0.033	0.024	0.026
Default Loss of Principal and Coupon	**0.194**	**0.148**	**0.196**	**0.200**

[a] If default date price is not available, end-of-month price is used.

Note: Average Default Rate of "Only Fallen Angels" is based on # of issuers.
Sources: Authors' compilations and various dealer quotes.

Figure 14. Default Rates and Losses,[a] 1978–2007 (Dollars in Millions)

Year	Par Value Outstanding[a] ($)	Par Value of Default ($)	Default Rate (%)	Weighted Price After Default ($)	Weighted Coupon (%)	Default Loss (%)[b]
2007	1,075,400	5,473	0.51	66.6	9.64	0.19
2006	993,600	7,559	0.76	65.3	9.33	0.30
2005	1,073,000	36,209	3.37	61.1	8.61	1.46[b]
2004	933,100	11,657	1.25	57.7	10.30	0.59[b]
2003	825,000	38,451	4.66	45.5	9.55	2.76[b]
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
Arithmetic Average 1978–2007			**3.37**	**45.15**	**10.80**	**2.27**
Weighted Average 1978–2007			**3.82**			**2.64**

[a] Excludes defaulted issues. [b] Default loss rate adjusted for fallen angels is 9.3% in 2002, 1.82% in 2003, 0.59% in 2004, 1.56% in 2005, 0.039% in 2006 and 0.20% in 2007.
Sources: Authors' compilations and Figures 1 and 13.

Figure 15 lists the average recovery rate by seniority for the period 1978-2007. While the senior-secured class displayed the highest recovery (87.2%) and its rate was considerably above the historical mean and median, the usual hierarchy between senior and senior-subordinated unsecured bond recoveries was reversed, with the latter showing a much higher average recovery (64.0%) compared to both its historical average and even the senior-unsecured (47.7%). Obviously, these rates are issue specific, especially for small samples, which was the case in 2007. The historic 30-year median for all high-yield bond defaults increased slightly to 41.8%, as did the arithmetic average of 37.54%. These latter statistics are based on a sample of almost 2200 defaults.

Figure 15. Weighted Average Recovery Rates on Defaulted Debt by Seniority per $100 Face Amount, 1978 - 2007

	Senior Secured			Senior Unsecured			Senior Subordinated			Subordinated			Discount and Zero Coupon			All Seniorities	
Default Year	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**$**
2007	10	**35**	87.24	10	**36**	47.70	6	**21**	63.98	2	**7**	46.53	0	**0**	0.00	28	66.65
2006	9	**18**	90.60	26	**52**	60.90	8	**16**	50.24	1	**2**	60.33	6	**12**	78.31	50	65.32
2005	67	**54**	76.50	44	**36**	45.88	7	**6**	32.67	0	**0**	0.00	5	**4**	74.21	123	62.96
2004	27	**39**	63.67	33	**48**	56.77	2	**3**	37.44	0	**0**	0.00	7	**10**	43.06	69	57.72
2003	57	**28**	53.51	108	**53**	45.40	29	**14**	35.98	1	**0**	38.00	8	**4**	32.27	203	45.78
2002	37	**11**	52.81	254	**75**	21.82	21	**6**	32.79	0	**0**	0.00	28	**8**	26.47	340	26.25
2001	9	**3**	40.95	187	**67**	28.84	48	**17**	18.37	0	**0**	0.00	37	**13**	15.05	281	25.62
2000	13	**8**	39.58	47	**29**	25.40	61	**37**	25.96	26	**16**	26.62	17	**10**	23.61	164	26.74
1999	14	**11**	26.90	60	**47**	42.54	40	**31**	23.56	2	**2**	13.88	11	**9**	17.30	127	32.20
1998	6	**18**	70.38	21	**62**	39.57	6	**18**	17.54	0	**0**	0.00	1	**3**	17.00	34	40.46
1997	4	**16**	74.90	12	**48**	70.94	6	**24**	31.89	1	**4**	60.00	2	**8**	19.00	25	57.61
1996	4	**17**	59.08	4	**17**	50.11	9	**38**	48.99	4	**17**	44.23	3	**13**	11.99	24	45.44
1995	5	**15**	44.64	9	**27**	50.50	17	**52**	39.01	1	**3**	20.00	1	**3**	17.50	33	41.77
1994	5	**23**	48.66	8	**36**	51.14	5	**23**	19.81	3	**14**	37.04	1	**5**	5.00	22	39.44
1993	2	**6**	55.75	7	**22**	33.38	10	**31**	51.50	9	**28**	28.38	4	**13**	31.75	32	38.83
1992	15	**22**	59.85	8	**12**	35.61	17	**25**	58.20	22	**33**	49.13	5	**7**	19.82	67	50.03
1991	4	**3**	44.12	69	**44**	55.84	37	**24**	31.91	38	**24**	24.30	9	**6**	27.89	157	40.67
1990	12	**10**	32.18	31	**27**	29.02	38	**33**	25.01	24	**21**	18.83	11	**9**	15.63	116	24.66
1989	9	**12**	82.69	16	**21**	53.70	21	**28**	19.60	30	**39**	23.95				76	35.97
1988	13	**21**	67.96	19	**31**	41.99	10	**16**	30.70	20	**32**	35.27				62	43.45
1987	4	**13**	90.68	17	**55**	72.02	6	**19**	56.24	4	**13**	35.25				31	66.63
1986	8	**14**	48.32	11	**20**	37.72	7	**13**	35.20	30	**54**	33.39				56	36.60
1985	2	**7**	74.25	3	**11**	34.81	7	**26**	36.18	15	**56**	41.45				27	41.78
1984	4	**29**	53.42	1	**7**	50.50	2	**14**	65.88	7	**50**	44.68				14	50.62
1983	1	**13**	71.00	3	**38**	67.72				4	**50**	41.79				8	55.17
1982				16	**80**	39.31				4	**20**	32.91				20	38.03
1981	1	**100**	72.00													1	72.00
1980				2	**50**	26.71				2	**50**	16.63				4	21.67
1979										1	**100**	31.00				1	31.00
1978				1	**100**	60.00										1	60.00
Total/ Average	**342**	**16%**	**$60.45**	**1027**	**47%**	**$36.95**	**420**	**19%**	**$31.08**	**251**	**11%**	**$31.30**	**156**	**7%**	**$25.98**	**2,196**	**$37.54**
Standard Dev*			**$17.69**			**$13.72**			**$14.47**			**$17.78**			**$20.70**		**$14.28**
Median			**$59.47**			**$45.64**			**$34.00**			**$31.96**			**$19.41**		**$41.77**

*Standard deviations are calculated based on the yearly averages

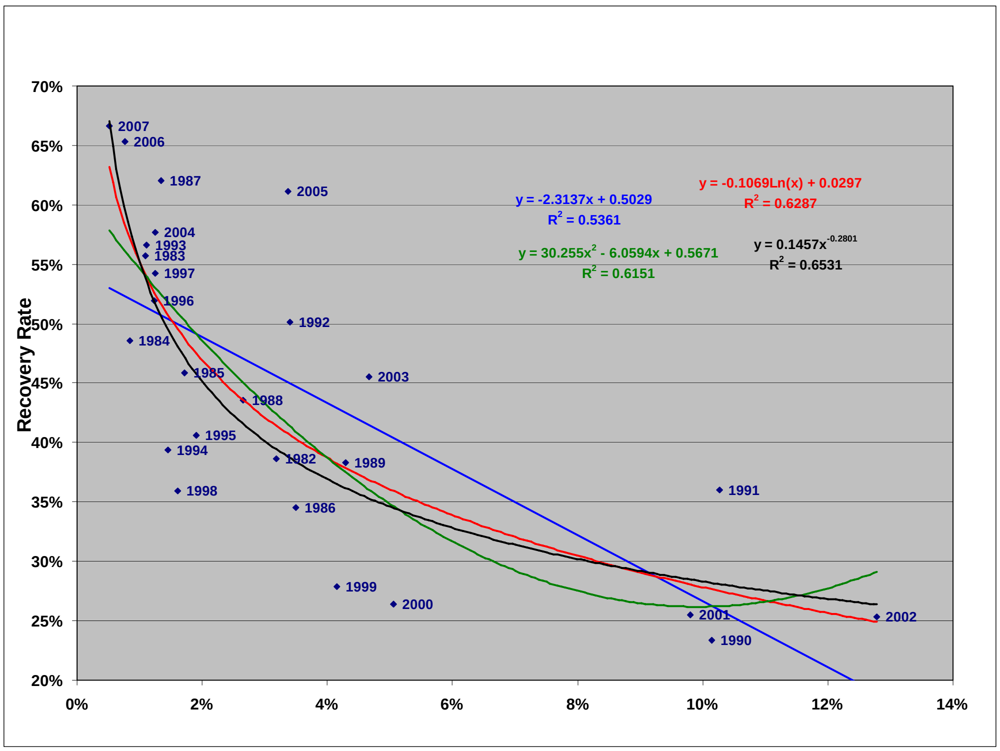
Sources: Authors' compilations from various dealer quotes.

Forecasted Recovery vs. Actual

The 2007 weighted-average recovery rate of 66.6% was slightly above what our log-linear regression default/recovery rate forecasting model predicted (Figure 16) and about the same exact rate that the power-function regression model predicted. The more simplistic linear model's forecast was considerably below the actual and appears to be inappropriate when the default rate is considerably below the historical average, as was the case in recent years (2006 and 2007).

The extremely high recovery rates in 2006 and 2007 are likely to diminish as the default rate rises - - as we expect to happen in the next two years.

Figure 16. Recovery Rate/Default Rate Association

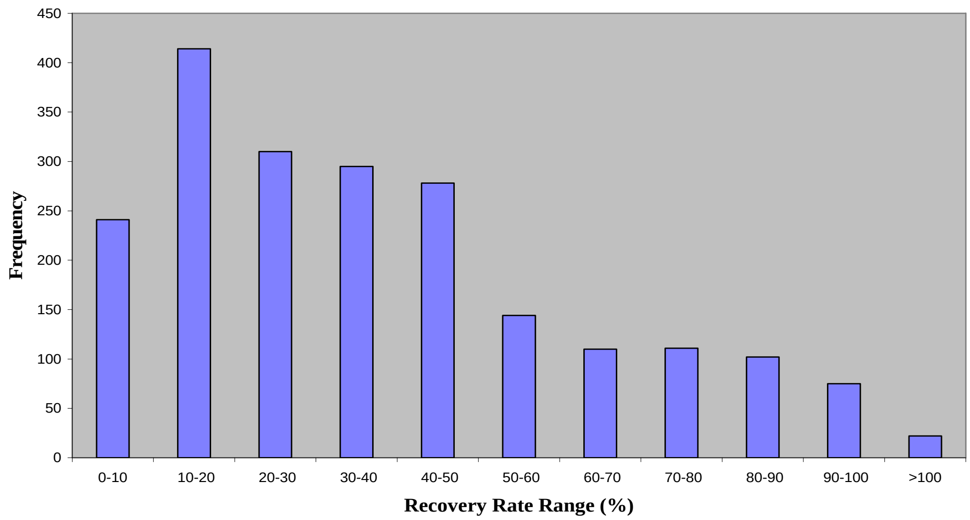


Source: Altman Defaulted Bond Database, NYU Salomon Center and Altman, Resti and Sironi, *Journal of Business*, November 2005.

Related Recovery Statistics

The recovery rate on corporate bonds has a fairly high variance in terms of the wide spectrum of possible outcomes, with a standard deviation of annual rates of around 25%. Figure 17 shows the frequency distribution of individual issue recovery rates on over 2,000 corporate bond defaults of all seniorities since 1971. Note that the modal value is actually only in the 10-20% range and the vast majority in the 0-50% range. Of course, in the most recent years when the demand for distressed securities far outweighed the marginal increase in defaults, recovery rates have been far above historical averages. We do not expect this anomaly to continue, especially as the supply/demand imbalance returns to more usual levels.

Figure 17. Corporate Bond Default Recovery Rate Frequency (Based on number of Issues 1971 - 2007)



Number of Observations = 2102

Source: NYU Salomon Center Default Database

Figure 18 shows the average price at default based on the number of years after issuance. Although we observe some aging effect with the recovery rate increasing as the years to default increases, there really is not a great deal of difference between the first and fifth years (32-38%) and again between the sixth through tenth years (39-45%). The latter period is more likely to comprise fallen-angel defaults than the former.

Figure 18. Average Price at Default by Number of Years after Issuance (1971-2007)

Years to Default	No. of Observations	Average Price ($)
1	165	32.90
2	337	33.80
3	395	32.09
4	319	37.80
5	240	36.21
6	207	44.74
7	144	41.38
8	79	41.00
9	50	40.82
10	146	38.73
All	2,054	36.69

Source: NYU Salomon Center Default Database

Figure 19. Average Price after Default by Original Bond Rating

Rating	No. of Observations	Average Price ($)*	Weighted Price($)	Median Price($)	Std. Dev($)	Minimum Price($)	Maximum Price($)
AAA	14	82.55	92.87	95.00	21.92	32.00	106.13
AA	29	65.68	76.84	60.00	26.69	17.80	103.00
A	135	54.70	49.98	55.38	27.04	2.00	100.00
BBB	388	42.14	34.04	42.50	23.49	1.00	103.00
BB	207	36.29	31.98	34.75	21.78	1.00	107.75
B	1062	34.52	33.64	29.38	24.75	0.42	112.00
CCC	222	37.55	37.41	29.25	28.72	0.59	106.75
Total	2057	38.52	35.69	33.50	25.91	0.42	112.00

*With both Price and Original Rating available.

Source: NYU Salomon Center Default Database

Figure 19 shows the recovery rate by original rating for the entire high-yield default bond database over the last 38 years. As expected, the higher the original rating, the greater the recovery rate, but only in the investment grade original rating range -- that is, among fallen angels. In actuality, this phenomenon is true for the relatively small number of A to AAA levels. Once we get below A, the weighted-average recovery rate varies narrowly, 32-37%. We do observe, however, that the *median* recovery rates follow a continuous drop in recovery rates as the original rating falls, except for the B and CCC original ratings (both around 29%).

Earlier we showed that seniority makes a big difference in the expected recoveries. It is also true that the likelihood that an investment grade issue at birth will have a senior priority (secured or unsecured) is greater than what one would expect from noninvestment-grade original issue bonds. Figure 20 shows the recovery rate by seniority, contingent upon whether the original issue was rated investment grade or not. You could also read the results from this table as investment grade vs. noninvestment-grade issuance, contingent on seniority. One reason for the disparity is the high ratings associated with secured debt – like aircraft leases.

Figure 20. Recovery Rates By Seniority and By Original Rating, Corporate Bond Defaults (1971 - 2007 by Issue)

Seniority	Original Rating	# of Issues	Mean Price ($)	Weighted Price($)	Median Price ($)	STD	Minimum Price ($)	Maximum Price ($)
Senior Secured	Investment Grade	137	55.61	60.58	50.50	25.77	7.00	106.13
	Non-Investment Grade	232	43.24	42.57	38.00	29.29	1.00	106.75
	All	413	47.55	48.43	44.00	28.23	1.00	106.75
Senior Unsecured	Investment Grade	325	45.33	35.07	43.50	25.44	2.00	100.50
	Non-Investment Grade	481	35.79	34.40	31.50	23.31	1.00	100.00
	All	918	39.68	34.87	35.88	24.67	1.00	100.50
Senior Subordinated	Investment Grade	15	38.91	36.36	28.00	27.44	1.00	83.75
	Non-Investment Grade	378	33.16	30.02	28.00	24.22	0.50	107.75
	All	422	33.11	30.08	28.00	24.20	0.50	107.75
Subordinated	Investment Grade	11	37.59	25.99	35.50	31.30	2.00	103.00
	Non-Investment Grade	201	32.23	28.75	28.83	22.53	1.00	112.00
	All	226	32.45	28.67	29.13	22.82	1.00	112.00
Discount	Investment Grade	1	13.63	13.63			13.63	13.63
	Non-Investment Grade	93	27.68	27.66	18.00	25.45	0.42	102.50
	All	123	26.67	26.84	18.00	23.38	0.42	102.50

Source: NYU Default Database

From Figure 20, we can see considerable differences between investment grade and noninvestment-grade bonds for the two most senior priority classes, but little difference exists when the bonds are subordinated. Likewise, as seniority is reduced, we see a reduction in recoveries for the investment-grade issues but not much difference for the noninvestment-grade securities.

Finally, in Figure 21, we break down recoveries by seniority for different major industrial sectors. The sectors are the same as itemized earlier when we observed the incidence of defaults by industrial sectors (Figures 8 and 9). The overall weighted-average recovery rates are highest for energy (52.6%), utilities (51.8%) and leisure/entertainment (49.3%), and lowest for the healthcare (32.4%), real estate/construction (28.8%), and communications (27.1%) sectors. The rest vary between 33-45%. The real estate/construction sector results are quite relevant to the expected default recoveries in the coming year or two.

Figure 21. Recovery Rates by Industry and By Seniority (1971 - 2007)

Industry	Seniority	# of Issues	Mean Price ($)	Weighted Price($)	Median Price ($)	STD	Minimum Price ($)	Maximum Price ($)
Auto/Motor Carrier	Senior Secured	14	30.70	25.56	24.00	23.75	7.00	92.00
	Senior Unsecured	36	35.32	44.36	20.00	26.47	6.50	92.50
	Senior Subordinated	17	27.68	20.48	27.00	18.57	3.00	71.00
	Subordinated	4	34.28	26.71	27.00	21.26	18.00	65.13
	Senior Sub +Sub	21	28.93	21.27	27.00	18.73	3.00	71.00
	All	71	35.62	35.04	27.00	23.74	3.00	92.50
Conglomerates	Senior Unsecured	3	44.92	47.94	53.38	14.65	28.00	53.38
	Senior Subordinated	1	71.00	71.00			71.00	71.00
	Subordinated	2	11.50	15.19	11.50	9.19	5.00	18.00
	Senior Sub +Sub	3	31.33	22.52	18.00	34.96	5.00	71.00
	All	167	38.13	40.93	40.69	25.10	5.00	71.00
Energy	Senior Secured	36	63.83	65.62	70.13	32.70	2.00	104.50
	Senior Unsecured	70	43.41	45.52	43.50	21.40	10.00	86.38
	Senior Subordinated	28	37.16	46.16	34.69	23.70	1.00	107.75
	Subordinated	25	25.56	25.51	21.25	12.40	9.50	55.00
	Discount	1	45.26	45.26			45.26	45.26
	Senior Sub +Sub	53	31.69	41.98	28.00	19.92	1.00	107.75
	All	160	44.13	52.60	37.38	26.53	1.00	107.75
Financial Services	Senior Secured	15	34.48	24.32	14.00	25.17	14.00	94.00
	Senior Unsecured	75	45.28	51.16	35.00	31.41	1.00	100.00
	Senior Subordinated	19	33.13	30.40	28.00	24.15	1.00	92.00
	Subordinated	19	27.51	22.91	30.00	27.60	1.00	103.00
	Senior Sub +Sub	38	30.32	27.29	29.00	25.74	1.00	103.00
	All	128	39.57	40.56	33.00	29.76	1.00	103.00
Leisure & Entertainment	Senior Secured	28	55.95	60.69	53.25	26.51	7.00	106.00
	Senior Unsecured	18	51.44	54.89	45.25	28.92	3.75	100.00
	Senior Subordinated	30	31.55	30.52	22.50	26.95	4.00	99.00
	Subordinated	21	46.17	55.78	36.50	29.79	7.00	112.00
	Discount	2	18.88	20.74	18.88	9.73	12.00	25.76
	Senior Sub +Sub	51	37.57	38.44	29.00	28.79	4.00	112.00
	All	99	44.91	49.32	39.00	29.11	3.75	112.00
General Mfg	Senior Secured	62	40.70	39.57	39.25	25.24	1.75	106.75
	Senior Unsecured	150	39.09	36.71	36.63	22.03	3.00	99.50
	Senior Subordinated	125	32.71	29.52	28.50	23.81	0.75	106.00
	Subordinated	65	34.95	27.87	32.00	21.15	2.00	90.88
	Discount	11	19.04	31.23	12.00	24.04	0.75	66.50
	Senior Sub +Sub	190	33.48	29.00	29.00	22.90	0.75	106.00
	All	413	36.22	33.52	32.00	23.28	0.75	106.75
Healthcare	Senior Secured	2	91.25	97.38	91.25	10.25	84.00	98.50
	Senior Unsecured	12	46.90	49.61	55.50	15.38	8.75	56.00
	Senior Subordinated	31	25.58	21.77	18.00	23.37	2.00	86.00
	Subordinated	10	23.77	17.57	23.50	13.41	4.75	39.00
	Discount	2	21.05	27.07	21.05	18.32	8.09	34.00
	Senior Sub +Sub	41	25.14	21.07	18.00	21.23	2.00	86.00
	All	57	31.89	32.39	29.00	24.25	2.00	98.50
Misc Industries	Senior Secured	30	43.80	45.87	40.75	27.61	5.00	93.50
	Senior Unsecured	50	50.40	53.97	48.50	26.41	8.00	99.00
	Senior Subordinated	31	37.02	37.81	28.00	26.00	1.00	96.00
	Subordinated	8	38.67	17.59	34.07	23.53	4.00	88.00
	Discount	5	4.37	4.27	4.03	2.79	0.75	8.00
	Senior Sub +Sub	39	37.36	36.36	30.00	25.22	1.00	96.00
	All	124	42.85	44.90	39.50	27.34	0.75	99.00
Real Estate & Construction	Senior Secured	5	44.60	41.26	40.00	34.91	3.00	82.50
	Senior Unsecured	18	40.06	31.65	30.00	27.45	6.00	100.50
	Senior Subordinated	18	30.67	22.82	17.50	29.37	2.00	95.50
	Subordinated	11	35.98	25.21	21.88	33.65	2.00	98.25
	Discount	3	13.61	20.97	13.63	12.40	1.21	26.00
	Senior Sub +Sub	29	32.69	23.55	19.50	30.58	2.00	98.25
	All	55	35.14	28.83	25.50	29.38	1.21	100.50
Retailing	Senior Secured	26	44.95	38.24	43.50	25.57	2.50	90.00
	Senior Unsecured	146	46.47	46.89	43.50	19.93	3.00	98.50
	Senior Subordinated	73	31.04	28.15	24.00	21.61	0.50	87.90

Retailing (cont.)	**Subordinated**	**36**	**27.27**	**25.44**	**20.00**	**18.96**	**3.38**	**70.00**
	Discount	**3**	**35.85**	**35.51**	**20.00**	**33.26**	**13.48**	**74.06**
	Senior Sub +Sub	**109**	**29.79**	**27.57**	**23.00**	**20.76**	**0.50**	**87.90**
	All	**284**	**39.82**	**36.29**	**41.00**	**22.31**	**0.50**	**98.50**
Communications & Media	**Senior Secured**	**47**	**38.49**	**35.23**	**33.00**	**29.90**	**1.00**	**99.00**
	Senior Unsecured	**244**	**29.28**	**25.32**	**23.75**	**20.97**	**1.38**	**95.75**
	Senior Subordinated	**42**	**39.45**	**32.65**	**37.35**	**25.61**	**3.00**	**97.00**
	Subordinated	**15**	**34.53**	**38.73**	**25.63**	**26.53**	**6.50**	**89.00**
	Discount	**95**	**28.50**	**26.94**	**20.00**	**23.40**	**0.42**	**102.50**
	Senior Sub +Sub	**57**	**38.16**	**33.27**	**33.00**	**25.70**	**3.00**	**97.00**
	All	**443**	**31.23**	**27.14**	**24.00**	**23.46**	**0.42**	**102.50**
Transport (non-auto)	**Senior Secured**	**121**	**50.23**	**60.59**	**44.00**	**26.49**	**2.00**	**106.13**
	Senior Unsecured	**69**	**28.22**	**26.96**	**23.75**	**18.69**	**6.00**	**99.00**
	Senior Subordinated	**5**	**44.45**	**24.75**	**45.50**	**28.07**	**13.00**	**83.75**
	Subordinated	**8**	**29.89**	**20.50**	**26.06**	**21.63**	**10.00**	**65.50**
	Senior Sub +Sub	**13**	**35.49**	**21.81**	**39.25**	**24.29**	**10.00**	**83.75**
	All	**203**	**41.80**	**44.73**	**33.50**	**26.03**	**2.00**	**106.13**
Utilities	**Senior Secured**	**27**	**56.57**	**39.27**	**56.25**	**24.69**	**2.00**	**99.88**
	Senior Unsecured	**27**	**78.34**	**65.03**	**84.00**	**18.34**	**28.88**	**98.63**
	Senior Subordinated	**2**	**43.88**	**52.92**	**43.88**	**36.95**	**17.75**	**70.00**
	Subordinated	**2**	**44.00**	**44.00**	**44.00**	**0.00**	**44.00**	**44.00**
	Discount	**1**	**68.00**	**68.00**			**68.00**	**68.00**
	Senior Sub +Sub	**4**	**43.94**	**51.51**	**44.00**	**21.33**	**17.75**	**70.00**
	All	**59**	**65.87**	**51.83**	**77.00**	**24.36**	**2.00**	**99.88**

Source: NYU Default Database

Financial Sector Recovery Rates

Since the recent credit market crisis has revolved around the financial sector, even though there have not been any recent defaulting financial institutions with publicly held bonds, we thought it instructive to look at the average recovery rates for financials. Figure 22 lists the average and weighted-average recovery rates for various subcategories of financial sector defaults. Note that the overall average recovery is very similar for financials (about 40%) as it is for all defaults (see our earlier statistics in Figures 15, 18, and 19). But, if we exclude one important outlier (FINOVA), the arithmetic average for all financials decreases significantly to 31%, while the weighted average decreases to 26% (see footnote to Figure 22). Within the various financial industry subsectors, the weighted-average recovery rates are highest for security brokers and dealers and mortgage bankers, with most of the rest quite low, at below 20%. For a complete list of financial sector defaults from 1975-2007, see Appendix E, including individual issuers. It should be noted that the total sample size of financial sector defaults is not large (46), and the subsector samples are all less than ten.

Figure 22. Financial Service Sector Default Recovery Rates (1975 - 2007)

Sector	# of Issuers	# of Issues	Average Recovery	Weighted Average Recovery
Banks	7	20	26.91	19.87
Mortgage Bankers	7	17	44.97	37.75
Accident, Health & Life Insurance	7	19	26.95	19.79
Fire, Marine & Casualty Insurance	9	15	26.05	21.31
Savings Institutions	4	9	13.28	18.67
Investors	3	4	24.00	23.51
Security Brokers & Dealers	2	8	43.59	42.30
Miscellaneous Credit Institutions*	7	31	70.17	68.52
All Financial Sectors*	46	123	39.61	40.90

*Removing FINOVA defaults from calculations (19 issues, Recovery Rate of 86 for all issues) results in an Average Recovery of 38.97 and a Weighted Average Recovery of 30.69 in the Miscellaneous Credit Institutions Sector as well as an Average Recovery of 31.13 and Weighted Average Recovery of 26.38 in all Sectors.

Source: NYU Salomon Center Default Database

For Individual Issues and Issuers, see Appendix E.

Mortality Rates and Losses

Updated mortality statistics are reported in Figures 23 and 24. This default measurement includes the impact of bond aging by adjusting the base population over time for such disappearances as defaults, calls, and other noncredit-related events. Results are calculated based on the rating at birth and the amount of issuance. Similar statistics for cumulative default rates can be found from rating agency compilations, only the base is usually the number of issuers and the calculation is not based on the rating at birth. These agency-calculated cumulative default rates are based on the number of issuers as of the beginning of the same year in a certain rating category, regardless of when they were issued. Hence, they are not affected by aging, and the statistics are more appropriate for seasoned portfolios. Of late, Moody's has incorporated the aging factor in some of their research.

Figure 23. Mortality Rates By Original Rating – All Rated Corporate Bonds* (1971 - 2007)

Years after issuance

		1	2	3	4	5	6	7	8	9	10
AAA	Marginal	0.00%	0.00%	0.00%	0.00%	0.04%	0.02%	0.01%	0.00%	0.00%	0.00%
	Cumulative	0.00%	0.00%	0.00%	0.00%	0.04%	0.06%	0.07%	0.07%	0.07%	0.07%
AA	Marginal	0.00%	0.00%	0.29%	0.13%	0.02%	0.02%	0.00%	0.00%	0.04%	0.01%
	Cumulative	0.00%	0.00%	0.29%	0.42%	0.44%	0.46%	0.46%	0.46%	0.51%	0.51%
A	Marginal	0.01%	0.07%	0.02%	0.05%	0.05%	0.08%	0.05%	0.21%	0.08%	0.04%
	Cumulative	0.01%	0.08%	0.10%	0.15%	0.20%	0.28%	0.33%	0.54%	0.62%	0.66%
BBB	Marginal	0.31%	3.08%	1.29%	1.21%	0.70%	0.29%	0.23%	0.17%	0.11%	0.38%
	Cumulative	0.31%	3.38%	4.63%	5.78%	6.44%	6.71%	6.93%	7.08%	7.19%	7.54%
BB	Marginal	1.13%	2.39%	4.28%	2.22%	2.48%	1.24%	1.63%	1.09%	1.69%	3.42%
	Cumulative	1.13%	3.49%	7.62%	9.69%	11.90%	13.01%	14.42%	15.36%	16.79%	19.63%
B	Marginal	2.78%	6.72%	7.28%	8.44%	5.98%	4.30%	3.91%	2.36%	1.94%	0.95%
	Cumulative	2.78%	9.22%	15.83%	22.93%	27.54%	30.65%	33.36%	34.93%	36.20%	36.80%
CCC	Marginal	7.88%	15.31%	18.68%	11.67%	4.10%	9.32%	5.75%	5.65%	0.82%	4.66%
	Cumulative	7.88%	21.98%	36.56%	43.96%	46.26%	51.37%	54.07%	56.68%	57.02%	59.02%

*Rated by S&P at issuance based on 1,990 issues

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

Figure 24. Mortality Losses by Original Rating – All Rated Corporate Bonds* (1971 - 2007)

Years after issuance

		1	2	3	4	5	6	7	8	9	10
AAA	Marginal	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%
	Cumulative	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%
AA	Marginal	0.00%	0.00%	0.05%	0.04%	0.01%	0.01%	0.00%	0.00%	0.02%	0.00%
	Cumulative	0.00%	0.00%	0.05%	0.09%	0.10%	0.11%	0.11%	0.11%	0.13%	0.13%
A	Marginal	0.00%	0.03%	0.01%	0.03%	0.03%	0.04%	0.02%	0.03%	0.05%	0.00%
	Cumulative	0.00%	0.03%	0.04%	0.07%	0.10%	0.13%	0.15%	0.19%	0.24%	0.24%
BBB	Marginal	0.22%	2.16%	1.02%	0.44%	0.42%	0.20%	0.09%	0.10%	0.06%	0.22%
	Cumulative	0.22%	2.36%	3.37%	3.79%	4.19%	4.29%	4.38%	4.47%	4.52%	4.73%
BB	Marginal	0.66%	1.39%	2.48%	1.25%	1.44%	0.63%	0.91%	0.47%	0.84%	1.23%
	Cumulative	0.66%	2.04%	4.46%	5.62%	7.00%	7.61%	8.44%	8.87%	9.64%	10.75%
B	Marginal	1.79%	4.70%	4.87%	5.46%	3.88%	2.36%	2.53%	1.32%	1.02%	0.70%
	Cumulative	1.79%	6.34%	10.91%	15.78%	18.19%	19.06%	19.93%	22.15%	22.95%	23.46%
CCC	Marginal	5.28%	11.02%	13.45%	8.40%	2.87%	6.99%	4.31%	4.37%	0.49%	2.98%
	Cumulative	5.28%	15.71%	27.16%	33.18%	35.11%	39.74%	42.26%	44.79%	45.07%	46.69%

*Rated by S&P at issuance based on 1,805 issues, Source: Standard & Poor's (New York) and Author's Compilation

As expected, due to the relatively low default rates in 2007 and the relatively "longer-to-default" recent experience, mortality statistics are generally lower than as of year-end 2006. For example, the one- and five-year B rated category had cumulative rates of 2.78% and 27.54% through 2007 versus 2.84% and 27.82% in 2006 (Figure 23). This reduction in rates is relatively small since the 2007 contribution is small in comparison to the entire time series going back to 1971. We will utilize our mortality rate statistics in our default rate forecasts found at the end of this report.

Mortality losses in Figure 24 indicate a similar story to that of our mortality rate statistics. Most are lower than at the end of 2006, despite slightly higher absolute recoveries in 2007.

Returns and Spreads

Up to this point, our report has painted a sanguine picture of risks in the high-yield bond market, with exceptionally low default rates and equally exceptionally high recoveries on those few defaults in 2007. Nothing further from reality now faces investors, as credit markets have been in turmoil since mid-June 2007, primarily due to the contagion effect from the subprime mortgage market debacle. As a result, high-yield investors, along with all risky fixed-income and related credit markets, have suffered. Returns, which were a modest 2.66% at the end of the second quarter and as much as 200bp higher earlier in the year, fell to 1.83% by year-end. Excess returns over 10-Yr Treasury bonds plummeted from a positive 311bp at mid-year to a negative 795bp by year-end (Figure 25), as the flight to quality took effect. Ten-year Treasuries rallied by over 1,000bp in the last six months of 2007.

The spread between the yield-to-maturity on high-yield bonds vs. 10-Yr Treasuries increased by 252bp from 314bp at mid-year to a year-end total of 566bp. By late January, the yield spread (as of January 22) further increased to 698bp. For quite some time, the yield-spread had been below the historic average of 4.83%, but just recently for the first time since 2002, the spread leapt above the historic average, indicating that investors have materially changed their required return and their expected risk, including default risk. The absolute yield-to-maturity on Citi's composite high-yield index approached 10% at year-end and exceeded that level by mid-January, reminiscent of the 1998-2002 period.

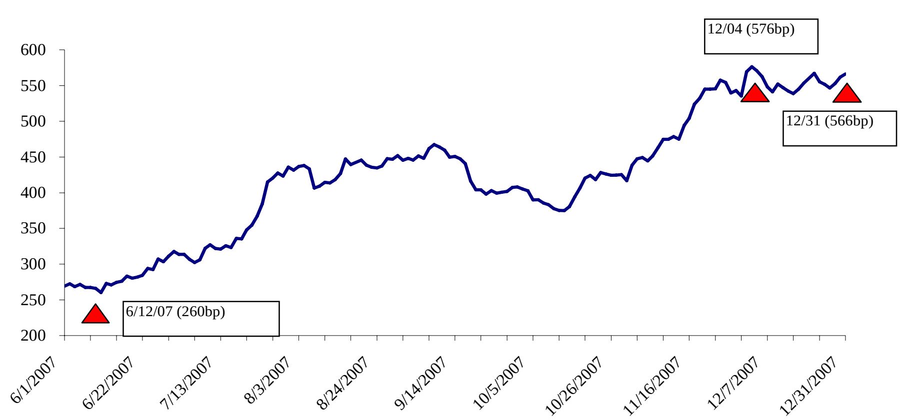
Figure 26 shows the spread based on yield-to-maturity trend from its all-time low of 260bp on June 12, 2007 to a year-end figure of 566bp, more than doubling in less than six months. In conclusion, investors are no longer expecting that the market's benign condition, in terms of defaults and recoveries, will continue. Indeed, just about every forecast of defaults going forward calls for a significant increase (see our forecast at the end of the report).

Figure25. Annual Returns, Yields And Spreads on Ten-Year Treasury (Treas) and High Yield (HY) Bonds,[a] 1978–2007

	Return (%)			Yield to Maturity (%)		
Year	**HY**	**Treas**	**Excess Returns**	**HY**	**Treas**	**Spread**
2007	1.83	9.77	(7.95)	9.69	4.03	5.66
2006	11.85	1.37	10.47	7.82	4.70	3.11
2005	2.08	2.04	0.04	8.44	4.39	4.05
2004	10.79	4.87	5.92	7.35	4.21	3.14
2003	30.62	1.25	29.37	8.00	4.26	3.74
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						
1978–2007	10.76	8.55	2.21	12.09	7.25	4.83
Standard Deviation	12.03	11.44	12.00	2.95	2.65	2.01
Compound Annual Average						
1978–2007	10.16	8.00	2.16			

[a] Year-end yields.
Source: Citigroup's High Yield Composite Index

Figure26. YTM Spread Between High-Yield Bonds & Ten-Year Treasury Notes, June 1, 2007– December 31, 2007



Source: Citigroup Yieldbook Index Data

New Issues and Other Changes in the High Yield Market

New high-yield bond issuance in 2007 was very close to the 2006 level, with $141.2 billion of new issue dollars – compared to $144.0 billion last year. Almost $100 billion was issued in the first six months of 2007 ($96.7 billion). Despite the turmoil in financial markets in general and specifically in the noninvestment-grade corporate bond market, new high-yield issuance in the fourth quarter was a respectable $32.9 billion, close to the average for the first three quarters and significantly more than new issuance in the third quarter ($11.6 billion).

When including other changes in the amount and composition of the high-yield bond market for the entirety of 2007, the size of the market increased to $1.090 trillion, up from $1.054 trillion one year earlier. Calls and other repurchases, including maturities, amounted to $126 billion and along with fallen angels ($36.7 billion), rising stars ($11.3 billion), and defaults and other minor changes, the resultant total market size at year-end, was $1.090 trillion (See Figure 27).

Figure27. Market Changes in 2007 and Size of the High-Yield Bond Market (in $ billion)

Size of Market (as of December, 2006)	$	1,053.9
New Issues	$	141.2
Fallen Angels	$	36.7[a]
Rising Stars	$	(11.3)[b]
Defaults	$	(5.5)
Calls	$	(72.6)
Repurchases	$	(34.2)
Maturities	$	(19.3)
S.F., PIK Adj.	$	0.8[c]
Size of Market (as of December, 2007)	$	1,089.9

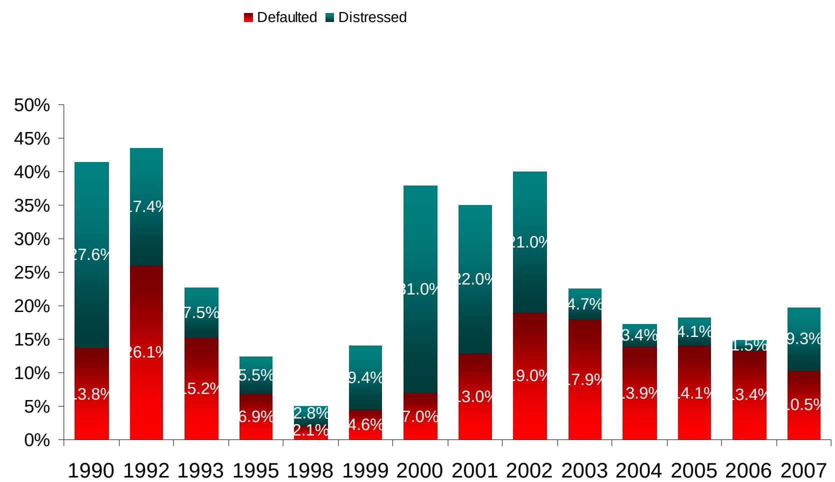
[a]First downgrade to non-investment grade from either Moody's or S&P, [b]Must be investment grade with both Moody's and S&P, [c]Estimate

Source: Citigroup and NYU Salomon Center

Proportion and Size of the Distressed and Defaulted Public and Private Debt Markets

The distressed and defaulted debt proportion of the high-yield plus defaulted debt markets in the United States comprised about 19.8 % as of December 31, 2007, up considerably from the 14.9% proportion one year earlier (See Figure 28).Without question, the cause of this significant increase is the staggering growth of distressed debt (bonds selling at 1,000 bps or more above the risk-free, 10-Yr US Treasury bond rate). Indeed, this so-called "distress ratio" jumped from just 1.7% of the high-yield bond market or 1.5% of high-yield plus defaulted bonds as of year-end 2006 to 10.4% of the high-yield market and 9.3% of the high-yield ($1,089.9 billion) plus defaulted bond ($127.3 billion) markets, as of year-end 2007.

Figure 28. Distressed[a] and Defaulted Debt as a Percentage of Total High Yield plus Defaulted Debt Market [b], 1990–2007[c]



a Defined as yield-to-maturity spread greater than or equal to 1000 bps over comparable Treasuries.

[b] $1089.9 billion as of 12/31/2007

c Some years not available as no survey results available. .
Source: NYU Salomon Center.

Since the distressed ratio is an important indicator of the vulnerability of the high-yield market to future defaults, we now find that investors are indeed concerned about an imminent increase in defaults. The average distressed ratio as of year-end 1990-2007 is approximately 12.0% of the high-yield debt market. So, as of year-end 2007, the distress ratio was just below the historical average. This ratio actually increased further in the first 15 days of January 2008, when it exceeded 15% of the high-yield market and was greater than the historical average for the first time in a long time. The defaulted bond segment actually dropped considerably in 2007, ending the year at 10.5% of high-yield plus defaulted debt, down from 13.4% one year earlier.

Figure 29. Estimated Face and Market Values of Defaulted and Distressed Debt, 2005–2007 (Dollars in Billions)

	Face Value ($)			Market Value ($)			
	31 Dec 05	31 Dec 06	30 Dec 07	31 Dec 05	31 Dec 06	30 Dec 07	Market/Face Ratio[d]
Public Debt							
Defaulted	163.5	156.2	127.3[a]	89.9	101.5	76.4	0.60
Distressed	49.3	17.9	113.6[b]	34.5	13.4	85.2	0.75
Total Public	**212.8**	**174.1**	**240.9**	**124.5**	**115.0**	**161.6**	
Private Debt							
Defaulted	359.8	406.1	331.0[c]	287.8	365.5	281.4[c]	0.85
Distressed	108.5	46.6	295.3[c]	97.6	44.3	265.7[c]	0.90
Total Private	**468.2**	**452.7**	**626.3**	**385.4**	**409.7**	**547.1**	
Total Public and Private	**681.1**	**626.8**	**867.2**	**509.9**	**524.7**	**708.7**	

[a] Calculated using: (2006 defaulted population) + (2007 defaults) - (2007 Emergences) – (Distressed Restructurings). [b] Based on 10.42% of size of high-yield market ($1,089.9 billion). [c] Based on a private/public ratio of 2.6. [d] The market/face value ratio was 0.65 for public defaulted debt, 0.75 for public distressed debt, 0.90 for private defaulted debt and 0.95 for private distressed debt in 2006. Source: Estimated by Professor Edward Altman, NYU Stern School of Business, from NYU Salomon Center Defaulted Bond and Bank Loan Databases, Professor Altman's estimates.

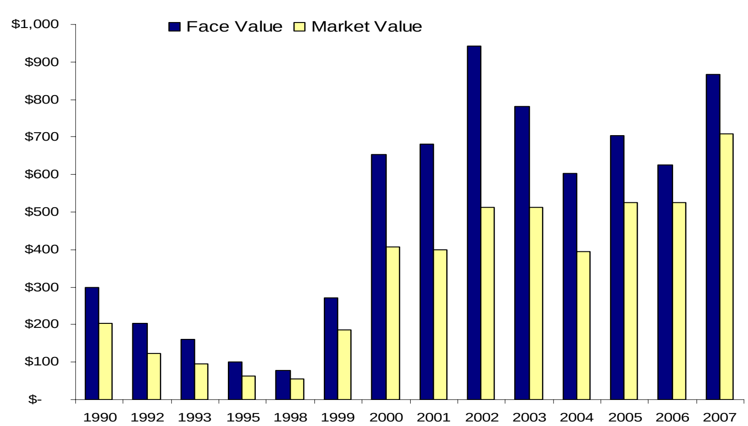
Figure 29 shows our estimates of the amounts of public and private, defaulted and distressed debt outstanding. Public defaulted bonds totaled $127.3 billion, mainly reflecting the amount of new defaults in 2007, reduced by distressed restructurings from recent years, and the amount of bonds from companies emerging from bankruptcy (Appendix F). The total face value of defaulted bonds dropped by almost $30 billion in 2007. Distressed debt, however, increased in one year from about $18 billion in 2006 to almost $114 billion, close to a $100 billion increase.

We continue to use a private-to-public debt ratio of 2.6 times to estimate the amounts of defaulted and distressed private debt (mainly bank loans, mortgages, and trade debt). We expect this ratio to increase after the next cycle of defaults since leveraged loans became such an important part of noninvestment-grade firm financing in recent years.

Applying the 2.6 ratio to our public debt totals, we estimate that the face value of private defaulted and distressed debt is $626 billion. The total face value of public and private, defaulted and distressed debt as of December 31, 2007 is an estimated $867.2 billion (Figure 29). This is an impressive increase of about $240 billion from one year earlier. Figure 30 shows that the total face value of distressed and defaulted debt is at the closest level to the record amount of $942 billion as of year-end 2002.

We have revised downward our market-to-face value ratios of defaulted and distressed debt so as to recognize the fall in prices of outstanding distressed debt. This is based on the Altman NYU Salomon Center Indexes of portfolios of defaulted bonds and bank loans and our estimate for private debt. Applying these market-to-face value ratios to our face value totals results in a total market value estimate of $708.7 billion (Figure 29). This is a substantial increase over the 2006 total, completely caused by the enormous increase in the distressed debt segment.

Figure30. Size of the Defaulted and Distressed Debt Market, 1990–2007 (Dollars in Billions)



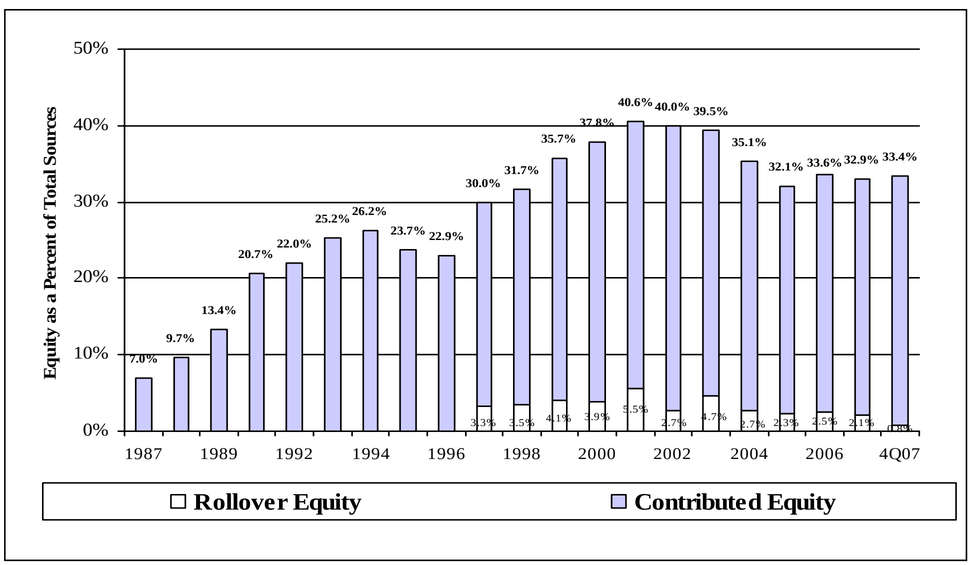
Source: Authors' compilations.

Recent LBO Activity and Credit Risk Related Trends

For several years prior to the credit crunch of 2007, which started last summer, the volume of LBO activity was enormous. For the last four years, at least 650 LBOs with EBITDA greater than $20 million and with financing involving a leveraged loan were completed (S&P LCD data). The volume of these deals approximated $800 billion. A relatively small number of these deals involved public bond financing, especially in 2006 and 2007, when private leveraged loans were the financing of choice. Still, we feel that it is important to assess the risk of those deals that we were able to monitor, based on their publicly available financial information, since LBO vulnerability could be a crucial factor in the near future.

To date, the number of defaults from recent LBOs has been miniscule (just two, Autocam and Pliant) and advocates of the good credit quality of these transactions point to the relatively high proportion of equity financing in the capital structures and low interest rates. Figure 31 shows that the equity proportion has been 32-35% since 2004. The importance of a conservative capital structure and the consequences of excessive proportions of debt in highly leveraged transactions (HLTs) from the late 1980s are generally thought to have been contributing factors to the credit market meltdown of 1990 and 1991. Indeed, about half of all defaults in the record default period to that point were due to ill-fated HLTs, primarily LBOs.

Figure 31. Average Equity Contribution to Leveraged Buyouts, 1987–2007



Equity includes common equity and preferred stock as well as holding company debt and seller note proceeds downstreamed to the operating company as common equity; Rollover Equity prior to 1996 is not available; There were too few deals in 1991 to form a meaningful sample.

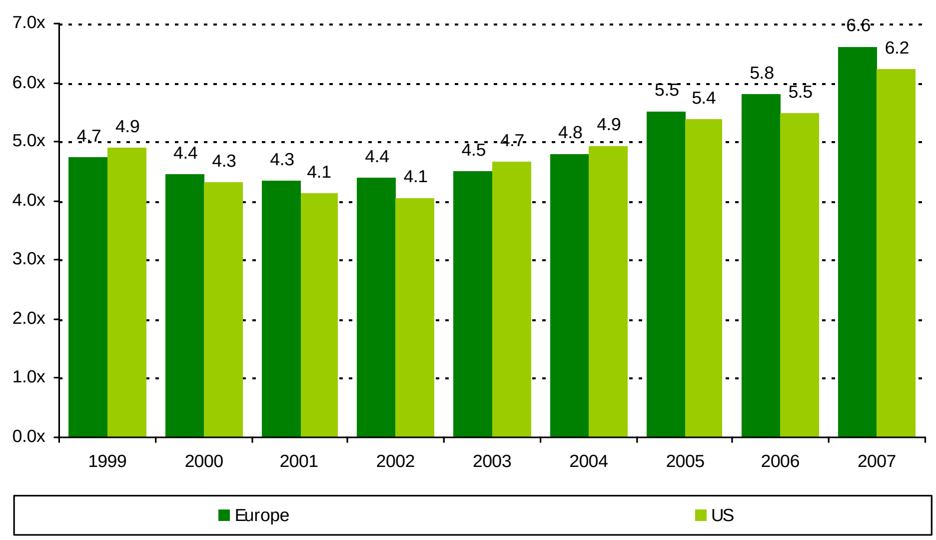
Source: Standard & Poor's LCD.

Perhaps the debt/equity ratio argument misses the point somewhat, since firms do not default mainly due to their capital structure. Defaults occur when the firm is unable to service its debt, regardless of the debt/equity proportion, although the latter may indicate a firm's ability to refinance debt obligations.

Note that the ratio of debt to a proxy for cash flow has increased fairly sharply of late, especially in 2006 and 2007 when the ratio approached and then exceeded the generally considered danger point of six times in the United States and Europe.

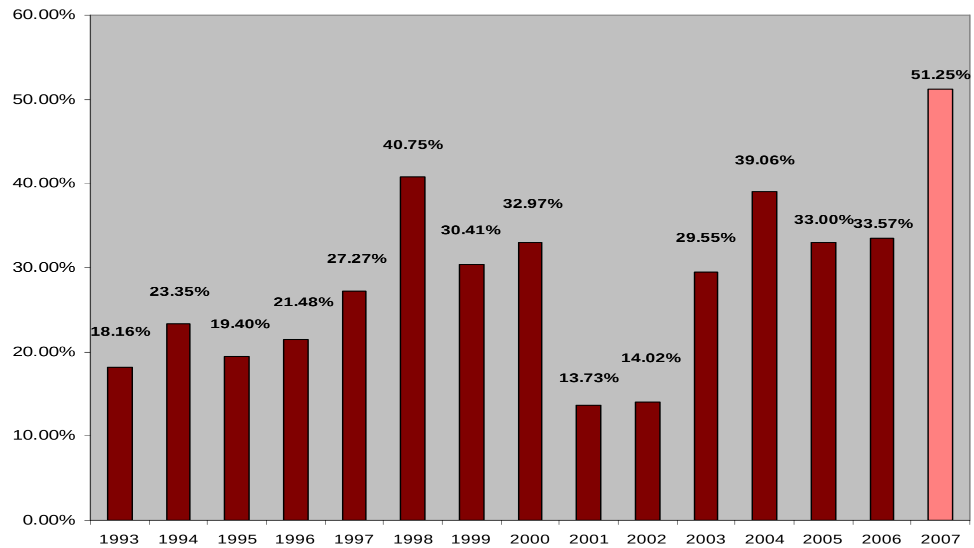
Since the results in Figure 32 are averages, it can be assumed that about one-half of the distribution is above the average. These high Debt/EBITDA figures, no doubt, affected the unusually high percentages of very low-rated new issues in 2004-07, when over 40% received a B- or lower bond rating from S&P in terms of the number of issues and a similar proportion in new issue dollars, especially in 2007. Indeed, this ratio exceeded 50% in 2007 (See Figure 33). To be clear, these seemingly very low-quality new issues have not as of yet resulted in the usual increased level of defaults in years two to four after issuance (see our discussion of mortality rates earlier in the report). While the amount of high-yield bonds, in general, that will mature in the next several years is not great, an enormous amount of leveraged loans are set to mature starting in 2008 and most have cross-default clauses if debt cannot be refinanced (See Figure 34).

Figure 32. Average Total Debt Leverage Ratio for LBOs: Europe and U.S. with EBITDA of €/$50M or More, 1999–2007



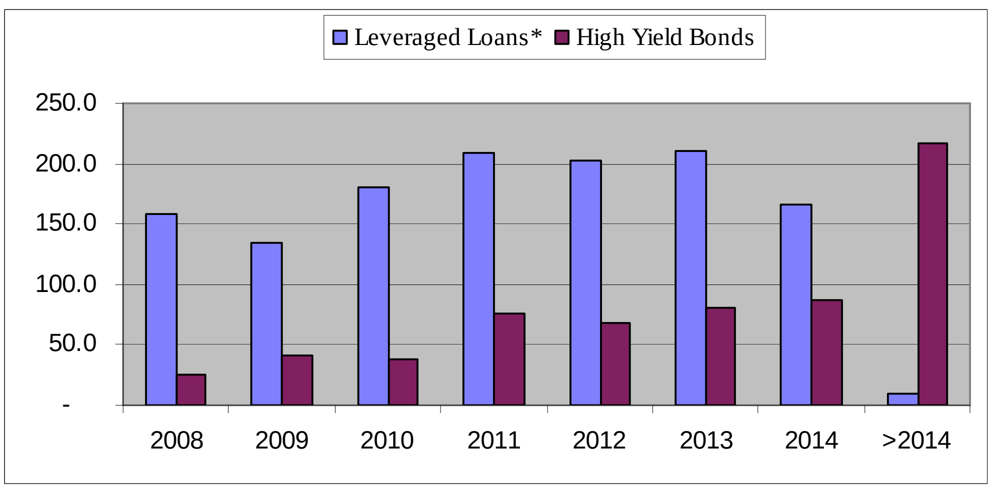
Source: Standard & Poor's LCD.

Figure 33. Percentage of New High-Yield Issues Rated B- or Below Based on Amount of Issuance



Source: Standard & Poor's Global Fixed Income Research.

Figure 34. Below- Investment-Grade Debt Maturity Schedule (U.S.)



*Includes Term Loans, Revolvers, and Other Loans; Assumes Revolvers are Fully Drawn.

Source: DealLogic, Fitch Ratings

Measuring the Risk of Default of LBOs with Z"-Scores

To the extent that we have been able to find data, we have tracked the post-LBO performance of transactions involving the "classes of 2004 to 2007." We assess the Z"-Scores of LBOs from just prior to the LBO transaction, to the first annual financial statement after the deal was completed and for as many years thereafter through the last 12-months ending June 2007.

The Z"-Score is a robust variation of the classic Altman Z-Score approach. The latter is familiar to most analysts and available on many standard software and electronic information packages. The Altman Z"-Score was adapted in 1995[1] and further tested in 2005[2]. It is appropriate, in our opinion, for analyzing non-manufacturing as well as manufacturing industrials and public as well as private firms. Since all LBOs are private after the transaction, and many are non-manufacturers, the Z"-Score model, with a constant term of 3.25, was used to evaluate the LBOs in our sample. To review the model, we stipulate that:

$$Z'' = 3.25 + 6.56\, X_1 + 3.26\, X_2 + 6.72\, (X_3) + 1.05\, (X_4)$$

Where:

X_1 = Current Assets-Current Liabilities/Total Assets (TA)

X_2 = Returned Earnings/TA

X_3 = EBIT (Operating Income)/TA

X_4 = Book Value Equity/Total Liabilities

The use of a 3.25 constant results in a scoring system whereby a score of approximately zero (0), or below, signifies a defaulting firm profile. The scores, as shown in Figure 35, indicate the bond rating equivalents (BREs) of each firm's Z"-Score profile. These BREs may or may not be the same as the rating agencies' assessments.

It should be pointed out that a scoring system's BRE represents a current "point-in-time" estimate of a firm's likelihood of default. A rating from one of the major rating agencies representing their "through-the-cycle" assessment is a longer term assessment, and, thereby, less likely to be as accurate in the short run. Recent tests by Altman and Rijken show this to be the case.[3]

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[1] E. Altman and J. Hartzell, 1995, "Emerging Market Corporate Bonds-A Scoring System" , Salomon Brothers, Emerging Markets Corporate Bond Research, NY, May 15.

[2] E. Altman, 2005, "An Emerging Market Credit Scoring System for Corporate Bonds", **Emerging Markets Review**, #6, 311-323. This model can also be found in E. Altman and E. Hotchkiss, 2005, **Corporate Financial Distress and Bankruptcy**, J. Wiley & Sons.

[3] E. Altman and H. Rijken, 2006, "A Point in Time Perspective Through-the-Cycle Ratings", **Financial Analysts Journal**, vol. 62, #1, 54-68.

Figure 35. U.S. Bond Rating Equivalent Based On Adjusted Z”-Score Model

Z” = 3.25 + 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4

US Equivalent Rating	Average Z” Score	Sample Size
AAA	8.15	8
AA+	7.62	-
AA	7.36	18
AA-	7.00	15
A+	6.85	24
A	6.65	42
A-	6.40	38
BBB+	6.25	38
BBB	5.85	59
BBB-	5.65	52
BB+	5.25	34
BB	4.95	25
BB-	4.75	65
B+	4.50	78
B	4.15	115
B-	3.75	95
CCC+	3.20	23
CCC	2.50	10
CCC-	1.75	6
D	0.00	14

Source: Altman and Hartzell (1995) and Altman and Hotchkiss (2005).

Figure 36 shows the average Z”-Scores and BREs of LBOs from 2004-07 and their path from just prior to the transaction (t-1) to post-transaction years, until the last-12-months (t +1 to LTM). Our sample consists of LBOs where the EBITDA is greater than $50 million and data was available. As expected, the pre-transaction Z”-Scores and BREs are higher than (less default likely) than just after, although the deterioration was less than we expected. For example, the class of 2004 LBOs had an average score of 5.77 at t-1 versus 5.26 at t+1. What is of interest is that the average Z” Score for the class of 2004 for the LTM (4.49) was higher than the class of 2005’s at the same point (4.31), which is higher than the class of 2006’s at LTM (3.82).

This trend for the class of 2004 to 2006 is not visible, however, for the 2007 class of LBOs, although the latter’s sample is very small (15 firms) and is a very small percentage of the total LBO sample with EBITDA greater than $50 million in 2007 (92). Therefore, it appears that the quality of LBOs became weaker as time went on from 2004 to 2006, with LTM average BREs of B+ for 2004s to B- for 2006s. The 2007 LBOs give mixed signals, with an increased level of Debt/EBITDA in that year of 6.2 (Figure 32), but a higher average Z”-Score (5.14). Again, the 2007 Z”-Score sample is very small.

Figure 36. Z”-Scores for LBOs (2004-2007)

Z" Scores For 2004 LBOs

	t-1		Launch Year (t)		2005 t+1		2006 t+2		LTM 6/30/2007	
Number of LBOs*	-		45		43		42		42	
Average Deal Size	-		$1.3B		-		-		-	
Average Z" Score (BREs)**	5.77	(BBB)	5.26	(BB+)	4.58	(B+)	4.60	(B+)	4.49	(B+)
Median Z" Score	5.23		4.82		4.64		4.66		4.68	
Z" Score Std. Dev.	2.17		1.07		0.94		1.01		1.16	

Total LBOs with EBITDA >$50M = 68

Z"-Scores For 2005 LBOs

	t-1		Launch Year (t)		2006 t+1		LTM 6/30/2007	
Number of LBOs*	-		38		35		33	
Average Deal Size	-		$2.4B		-		-	
Average Z" Score (BREs)**	6.57	(A)	4.38	(B+)	4.15	(B)	4.31	(B)
Median Z" Score	6.36		4.69		4.56		4.6	
Z" Score Std. Dev.	2.98		2.23		2.24		2.19	

Total LBOs with EBITDA >$50M = 71

Z"-Scores For 2006 LBOs

	t-1		Launch Year (t)		LTM 6/30/2007	
Number of LBOs*	-		23		23	
Average Deal Size	-		$4.1B		-	
Average Z" Score (BREs)**	6.49	(A-)	4.63	(BB-)	3.82	(B-)
Median Z" Score	6.39		4.30		3.94	
Z" Score Std. Dev.	2.05		2.01		1.50	

Total LBOs with EBITDA >$50M = 95

Z"-Scores For 2007 LBOs

	t-1		Launch Year (LTM)	
Number of LBOs*	15		15	
Average Deal Size	-		$5.6B	
Average Z" Score (BREs)**	6.92	(A+)	5.14	(BB+)
Median Z" Score	5.76		4.11	
Z" Score Std. Dev.	3.32		2.75	

Total LBOs with EBITDA >$50M = 92

*With sufficient data to calculate Z"-Scores, **BRE = Bond Rating Equivalent

Source: Standard & Poor’s LCD, Capital IQ and Author's Compilation

We tested the significance of the change in average Z”-Scores between the post-launch financial period (t+1) and at the LTMs for the classes of 2004, 2005, and 2006. In the case of the classes of 2004 and 2006, the decrease in the average Z”-Scores as of the LTM was significant at about the 0.05 significance level, but the class of 2005 did not show this deterioration (Figure 37). There was not enough post-transaction experience to test for the change for the class of 2007. Hence, it appears that there has been serious deterioration in the average LBO from at least two of the last four years of LBO transactions.

Figure 37. Testing the Significance of the Change in Credit Quality of LBOs from the Launch Year to the Most Recent Period, (Class of 2004 – 2006 LBOs)

LBO Year	2004	2005	2006
Sample size (Launch year/LTM)	45 / 42	38 / 33	23 / 23
Z" Scores Average (Launch year/LTM)	5.26 / 4.49	4.38 / 4.31	4.63 / 3.82
Z" Scores Std Dev (Launch year/LTM)	3.07 / 1.16	5.23 / 2.19	2.01 / 1.50
T-test (difference between year of launch average and LTM year average)*	1.56	0.07	1.55
t-value with 0.05 significance level	1.64	1.64	1.64
Vulnerable % Launch (number of firms)	11.5% (5)	18.4% (7)	21.7% (5)
Vulnerable % LTM (number of firms)	19.0% (8)	27.3% (9)	43.5% (10)

*Formula to calculate t-test:

$$t = \frac{\bar{X}_T - \bar{X}_C}{\sqrt{\frac{var_T}{n_T} + \frac{var_C}{n_C}}}$$

Summary of Findings:

1. Based on t-test at the 0.05 significance level, there is an appreciable decrease between the Z" averages in the post-launch year vs. LTM (2004 & 2006)
2. The percentage of LBOs that are vulnerable (CCC+ and below) increased from launch year to LTM
3. The percentage of LBOs that are vulnerable increased from 2004 to 2006

Source: Author compilations based on data from Capital IQ financial statements.

Although the average BREs for each class of LBOs were above the default profile, and more than expected, the number of "vulnerable" LBOs as of LTM was not insignificant. Figure 38 shows that the number of LBOs with BREs of CCC+ or lower was 28 out of a sample of 107, as of June 30 2007. These "vulnerable" firms had public, high-yield bonds outstanding of $91 billion as of June 30, 2007. Three of the 28 vulnerable firms had a D-rating profile. Of the 28, the most vulnerable industries are communications, services and leasing, and healthcare.

Fridson (2008)[4] also has analyzed LBOs, from 2002-2007. He reports that based on the distressed ratio, the current (in 2008) LBO population with publicly held debt outstanding displayed a higher level of financial distress than the full sample of high-yield bond issuers.

The two defaulted LBOs (in 2006 and 2007) were Autocam and Pliant. Both had a financial profile (Z"-Score) which indicated that they were in the "D" rating category prior to default (Figure 39).

Our sample of LBOs for which we are able to calculate Z"-Scores is relatively small compared to the total LBO population in the 2004-2007 period. Indeed, the data for firms with publicly traded debt, hence reporting financial statements, relative to the total LBOs with EBITDA greater than $50 million were: 45/133 = 34% (2004), 32/134 = 24% (2005), 23/175 = 13% (2006); and only 15/207 = 7% (2007). Relative to LBOs with EBITDA greater the %50 million, however, our samples are 45/68 = 66% (2004), 32/71 = 45% (2005), 23/95 = 24% (2006) and 15/92 = 16% (2007). No doubt, again, the popularity of the loan market over the public debt market for recent

[4] M. Fridson, "LBOs are Disproportionately Distressed", *Debt Investor*, vol. 4, #2, January 24, 2007, 1-5.

LBOs was noticeable (we are endeavoring to add to the sample by contacting several of the prominent private equity firms to acquire nonpublic audited data).

Figure 38. Vulnerable LBOs as of LTM in 2007: Class of 2004 – 2007 LBOs

(Based On Z"-Scores With Bond Rating Equivalents (BREs) of CCC+ or Below at LTM)

BRE	No. of Firms	% Total In Year	Bonds Outstanding ($B)
LBO Class of 2004			
CCC+	3	7.1%	$0.465
CCC	-	-	-
CCC-	5	11.9%	$1.959
D	-	-	-
Total	8	19.0% (8 of 42)	$2.424
LBO Class of 2005			
CCC+	6	18.8%	$27.339
CCC	-	-	-
CCC-	2	6.3%	$1.099
D	1	3.1%	$0.660
Total	9	27.3% (9 of 33)	$29.098
LBO Class of 2006			
CCC+	5	21.7%	$5.594
CCC	2	8.7%	$44.335
CCC-	-	-	-
D	2	8.7%	$2.807
Total	9	39.1% (9 of 23)	$52.736
LBO Class of 2007			
CCC+	2	13.3%	$6.798
CCC	-	-	-
CCC-	-	-	-
D	-	-	-
Total	2	13.3% (2 of 15)	$6.798
Grand Total	28	24.8% (28/113)	$91.056

Source: Author's Compilation

Figure 39. Recent Defaulted LBOs and Their Z"-Scores

	Launch Year	Default Date	Z"-Scores (BREs) FY02	FY03	FY04	FY05	FY06	LTM	LTM Date
Autocam	2004	12/15/2006			4.20 (B)	3.69 (CCC+)	- -	1.40 (D)	9/30/2006
Pliant	2002	1/5/2006	2.51 (CCC)	1.82 (CCC-)	1.36 (D)	(6.38) (D)	1.87 (CCC-)	1.55 (D)	9/30/2007

Source: Standard & Poor's LCD, Capital IQ and Author's Compilation

Debt/EBITDA Experience

The average Debt/EBITDA of LBOs shows a relatively poor credit risk level, for some years, that was between 5.2 and 5.5 times at the time of the transaction launch for the classes of 2004 and 2005, increasing to 6.8 for the class of 2006 and 7.1 for the small class of 2007 (see Figure 40). The classes of 2004 and 2005 displayed essentially the same average Debt/EBITDA from the post-launch period (t+1) to the LTMs level. Indeed, the median levels actually improved for both years. Hence, these first two years' average LBOs in our sample period demonstrate a more optimistic profile, based on this metric, than does the Z"-Score results. When we move to the class of 2006 LBOs, however, the deterioration in credit quality is noticeable between the first financial period after the launch (6.8) and the LTM average (8.1) and this deterioration is consistent with the decline in Z"-Scores and the large public debt amount of vulnerable LBOs ($52.7 billion).

Finally, the Purchase Price Multiple (PPM) based on total enterprise value/EBITDA, increased for all LBOs (not just the ones in our sample) from 2004 (7.4 times) to 2007 (10.2 times). The latter average figure was higher than at any time in history, including the "heady" years of the late 1980s (See Figure 41).

Figure 40. Debt/EBITDA for LBOs, 2004 – 2007

Debt/EBITDA For 2004 LBOs

	End of Launch Year (t)	2005 t+1	2006 t+2	LTM 6/30/2007
Number of LBOs*	45	43	41	42
Average Deal Size	$1.3B	-	-	-
Average Debt/EBITDA	5.5	5.3	4.9	5.4
Median Debt/EBITDA	5.7	5	4.4	4.7

Total LBOs with EBITDA >$50M = 68

Debt/EBITDA For 2005 LBOs

	(t)	2006 t+1		LTM
Number of LBOs*	38	35	-	33
Average Deal Size	$2.4B	-	-	-
Average Debt/EBITDA	5.2	6.7	-	5.3
Median Debt/EBITDA	5.7	5.8	-	4.8

Total LBOs with EBITDA >$50M = 71

Debt/EBITDA For 2006 LBOs

	(2006)	(LTM)
Number of LBOs*	23	23
Average Deal Size	$4.1B	-
Average Debt/EBITDA	6.8	8.1
Median Debt/EBITDA	7.0	6.5

Total LBOs with EBITDA >$50M = 95

Debt/EBITDA For 2007 LBOs

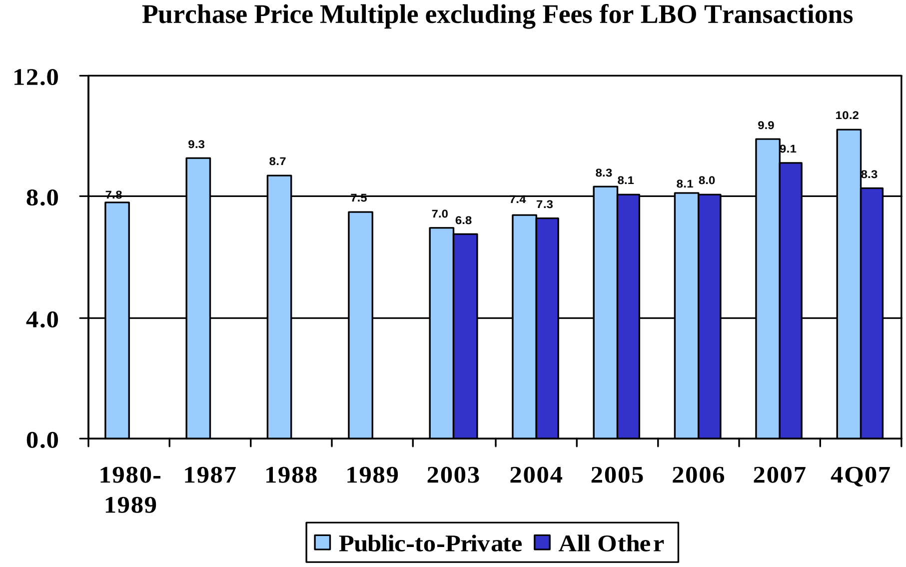
	(2007)
Number of LBOs*	15
Average Deal Size	$5.6B
Average Debt/EBITDA	7.1
Median Debt/EBITDA	6.7

Total LBOs with EBITDA >$50M = 92

*With sufficient data to calculate Z"-Scores, **BRE = Bond Rating Equivalent

Source: Standard & Poor's LCD, Capital IQ and Author's Compilation

Figure 41. Purchase Price Multiples



Source: Standard & Poor's LCD

Our Default and Recovery Forecast

We have discussed in our past reports and in a recent paper[5] why we believe today's default rates are so low and why recoveries are above average. Using our mortality rate estimates (Figure 23) and the past new issuance rating amounts, we expect defaults to increase in both 2008 and 2009 and the default rate to reach 4.64% in 2008 and 5.05% in 2009. These are both slightly above the historic average (3.1% arithmetic average and 3.9% weighted-average for the period 1971-2007). These rates imply about $53.1 billion of defaults in 2008 and $62.1 billion in 2009. As shown in Figure 41, our 2007 estimate was considerably above the actual, but our new estimates are reinforced by a considerably higher distressed ratio and higher yield spreads.

Implicit in the mortality rate forecast is the rating distribution of new issues. Again, Figure 33 shows the proportion of new issue amounts rated B- or below (including non-rated issues). Note that this proportion has been relatively high in recent years. In conclusion, our model, which does not factor in GDP forecasts or any other macroeconomic factors, is expecting a significant increase in defaults (and bankruptcies) in 2008.

[5] E.Altman, 2007, "Global Debt Markets in 2007: New Paradigm or Great Credit Bubble", **Journal of Applied Corporate Finance**, vol. 19, #3, 19-31.

Figure 42. Forecasts of Default and Recovery Rates in the High-Yield Bond Market, 2007 - 2009

Year	Default Rate	Default Amount ($ billion)	Recovery Rate*
2007 (Forecast)	2.50%	$27.5	59.4%
2007 (Actual)	0.51%	$5.5	66.6%
2008 (Forecast)	4.64%	$53.1	35.8%
2009(Forecast)	5.05%	$62.1	34.9%

*Based on the log-linear default/recovery rate regression (See Figure 16)

Source: Mortality Rates (Figure 23), All Corporate Bond Issuance and Authors' Estimates of Market Size in 2008 and 2009.

Appendix A

Figure 43. Quarterly Default Rate Comparison — Altman/SC and Moody's, High Yield Debt Market, 1989–2007 (Dollars in Billions)

Quarter		Par Value Debt Outstanding ($)	Debt Defaulted By Quarter ($)	Quarterly Default Rates (%)	Altman/NYU-SC 12M Moving Average (%)	Moody's 12M Issuer Based Moving Average (%)
1989	1Q	165.00	1.15	0.70	2.45	3.25
	2Q	172.00	1.40	0.81	2.11	2.70
	3Q	189.26	3.07	1.62	3.47	4.39
	4Q	185.00	2.49	1.35	4.29	5.93
			8.11			
1990	1Q	185.00	4.16	2.25	6.01	7.02
	2Q	185.00	2.51	1.36	6.61	8.71
	3Q	181.00	6.01	3.32	8.20	9.80
	4Q	181.00	5.67	3.13	10.14	10.92
			18.35			
1991	1Q	182.00	8.74	4.80	12.67	13.24
	2Q	182.00	2.75	1.51	12.73	13.99
	3Q	183.00	5.01	2.74	12.18	13.03
	4Q	183.00	2.36	1.29	10.31	10.97
			18.86			
1992	1Q	183.20	3.33	1.82	7.35	8.33
	2Q	151.10	1.26	0.83	6.52	6.54
	3Q	163.00	0.37	0.23	4.84	5.84
	4Q	151.89	0.59	0.39	3.40	5.73
			5.55			
1993	1Q	193.23	0.38	0.20	1.71	5.34
	2Q	193.23	1.33	0.69	1.39	4.93
	3Q	206.91	0.05	0.03	1.22	4.52
	4Q	190.42	0.52	0.27	1.10	3.79
			2.29			
1994	1Q	232.60	0.67	0.29	1.35	3.06
	2Q	230.00	0.16	0.07	0.60	1.90
	3Q	235.00	0.41	0.17	0.76	2.37
	4Q	235.00	2.18	0.93	1.45	2.11
			3.42			
1995	1Q	240.00	0.17	0.07	1.24	1.42
	2Q	240.00	1.68	0.70	1.85	2.41
	3Q	240.00	0.98	0.41	2.09	2.60
	4Q	240.00	1.72	0.72	1.90	3.56
			4.55			
1996	1Q	255.00	0.44	0.17	2.01	3.71
	2Q	255.00	0.89	0.35	1.58	3.00
	3Q	271.00	0.41	0.15	1.36	2.20
	4Q	271.00	1.59	0.59	1.23	1.95
			3.34			
1997	1Q	296.00	1.85	0.63	1.75	1.87
	2Q	318.40	0.60	0.19	1.51	1.92
	3Q	335.40	1.48	0.44	1.74	2.33
	4Q	335.40	0.27	0.08	1.25	2.20
			4.20			
1998	1Q	379.00	2.37	0.63	1.41	2.69
	2Q	425.70	1.22	0.29	1.41	3.12
	3Q	465.50	1.62	0.35	1.29	2.96
	4Q	481.60	2.26	0.47	1.60	3.83
			7.46			

Figure 43. Quarterly Default Rate Comparison — Altman/SC and Moody's, High Yield Debt Market, 1989–2007 (Dollars in Billions) (Continued)

Quarter		Par Value Debt Outstanding ($)	Debt Defaulted By Quarter ($)	Quarterly Default Rates (%)	Altman/NYU-SC 12M Moving Average (%)	Moody's 12M Issuer Based Moving Average (%)
1999	1Q	515.00	4.76	0.92	2.05	3.88
	2Q	537.20	8.42	1.57	3.31	5.08
	3Q	567.40	5.24	0.92	3.85	5.87
	4Q	580.00	5.11	0.88	4.15	5.80
			23.53			
2000	1Q	584.00	6.06	1.04	4.28	6.36
	2Q	595.60	9.97	1.67	4.52	6.61
	3Q	597.50	4.32	0.72	4.27	6.64
	4Q	608.15	9.95	1.64	5.07	7.03
			30.29			
2001	1Q	613.20	18.07	2.95	6.96	7.61
	2Q	648.60	12.82	1.98	7.37	7.88
	3Q	649.00	14.65	2.26	8.56	9.64
	4Q	647.70	18.07	2.79	9.80	10.60
			63.61			
2002	1Q	669.00	18.54	2.77	9.89	11.00
	2Q	674.00	27.07	4.02	11.71	10.03
	3Q	757.00	37.48	4.95	15.01	8.63
	4Q	756.30	13.77	1.82	12.80	6.96
			96.86			
2003	1Q	750.00	7.62	1.02	11.36	5.57
	2Q	774.50	14.54	1.88	9.79	5.80
	3Q	825.00	13.25	1.61	6.35	5.77
	4Q	856.00	3.04	0.36	4.66	5.48
			38.45			
2004	1Q	886.00	3.07	0.35	3.96	4.73
	2Q	919.60	1.75	0.19	2.38	4.01
	3Q	933.10	3.80	0.41	1.27	3.11
	4Q	948.50	3.04	0.32	1.25	3.01
			11.66			
2005	1Q	939.30	1.68	0.18	1.08	3.02
	2Q	952.00	1.87	0.20	1.11	2.42
	3Q	1,073.00	20.71	1.93	2.87	2.62
	4Q	1066.10	11.95	1.12	3.37	2.54
			36.21			
2006	1Q	1039.00	3.39	0.33	3.56	2.43
	2Q	1022.35	0.96	0.09	3.56	2.65
	3Q	993.60	1.47	0.15	1.74	2.46
	4Q	970.40	1.74	0.18	0.76	2.08
			7.56			
2007	1Q	1053.90	0.87	0.08	0.52	1.80
	2Q	1066.80	1.82	0.17	0.56	1.92
	3Q	1075.40	0.88	0.08	0.50	1.67
	4Q	1069.90	1.91	0.18	0.51	0.90
			5.47			

Sources: Altman (1990–2007), Citigroup, and Moody's.

Appendix B

Figure 44. Defaulted Corporate Straight Debt Issues — 2007 (Dollars in Millions)

Company	Bond Issue	Coupon (%)	Maturity Date	Outstanding Amount ($)	Default Date
Pacific Lumber Co./Scotia Pacific Co., LLC	Senior secured notes	6.55	1/20/2007	7.29	1/18/2007
Pacific Lumber Co./Scotia Pacific Co., LLC	Senior secured notes	7.11	1/20/2014	243.20	1/18/2007
Pacific Lumber Co./Scotia Pacific Co., LLC	Senior secured notes	7.71	1/20/2014	463.35	1/18/2007
Port Townsend Paper Corp.	Senior secured notes	11.00	4/15/2011	125.00	1/29/2007
Lexington Precision Corp.	Senior subordinated notes	12.00	8/01/2009	34.18	2/01/2007
Bally Total Fitness	Senior secured notes	10.50	7/15/2011	235.00	4/16/2007
Bally Total Fitness	Senior subordinated notes	9.88	10/15/2007	295.70	4/16/2007
Pac-West Telecomm	Senior unsecured notes	13.50	2/01/2009	24.52	4/30/2007
Pac-West Telecomm	Senior unsecured notes	13.50	2/01/2009	11.58	4/30/2007
North Atlantic Holding Co.	Senior discount notes	12.25	3/01/2014	32.99	5/09/2007
North Atlantic Trading Co.	Senior unsecured notes	9.25	3/01/2014	113.84	5/09/2007
InSight Health Services	Senior subordinated notes	9.88	11/01/2011	194.50	5/29/2007
InSight Health Services	Senior subordinated notes	9.88	11/01/2011	25.00	5/29/2007
InSight Health Services[a]	Senior secured notes	10.61	11/01/2001	300.00	5/29/2007
Delco Remy International, Inc.	Senior unsecured notes	8.63	12/15/2007	145.00	6/15/2007
Delco Remy International, Inc.	Senior subordinated notes	11.00	5/1/2009	165.00	6/15/2007
Delco Remy International, Inc.	Senior subordinated notes	9.38	4/15/2012	148.25	6/15/2007
Delco Remy International, Inc.[b]	Senior secured notes	9.36	4/15/2009	125.00	6/15/2007
Wornick Co.	Senior secured notes	10.88	7/15/2011	125.00	7/16/2007
TWC Holding LLC (Wornick Co.)	Senior unsecured notes	13.88	8/15/2011	26.00	7/16/2007
Hollinger, Inc.	Senior secured notes	11.88	3/01/2011	15.00	8/01/2007
Hollinger, Inc.	Senior secured notes	12.88	3/01/2011	79.40	8/01/2007
Nutritional Sourcing Corp.	Notes	10.13	8/01/2009	37.70	8/03/2007
Ziff Davis Media, Inc.	Senior subordinated notes	12.00	8/12/2009	149.99	8/15/2007
Ziff Davis Media, Inc.[c]	Senior secured notes	10.91	5/01/2012	205.00	8/15/2007
Fedders Corp.	Senior unsecured notes	9.88	3/01/2014	155.00	8/22/2007
Movie Gallery, Inc.	Senior unsecured notes	11.00	5/01/2012	325.00	9/15/2007
Hollywood Entertainment Corp.	Senior subordinated notes	9.63	3/15/2011	0.45	10/16/2007
Pope & Talbot, Inc.	Subordinated debentures	8.38	6/01/2013	75.00	10/29/2007
Pope & Talbot, Inc.	Senior unsecured notes	8.38	6/01/2013	60.00	10/29/2007
American Color Graphics, Inc.	Senior secured notes	10.00	6/15/2010	280.00	11/15/2007
Monitor Oil PLC[d]	Senior unsecured notes	19.07	3/23/2012	50.00	11/21/2007
Tembec Industries, Inc.	Senior unsecured notes	8.63	6/30/2009	350.00	12/19/2007
Tembec Industries, Inc.	Senior unsecured notes	8.50	2/01/2011	500.00	12/19/2007
Tembec Industries, Inc.	Senior unsecured notes	7.75	3/15/2012	350.00	12/19/2007
Total				**5,473**	
Total Number of Issues				**35**	
Total Number of Companies				**19**	

[a] FRN LIBOR + 525, [b] FRN LIBOR + 400, [C] FRN LIBOR + 600, [d.] FRN LIBOR + 1400

Note: Both Tekni-Plex, Inc. and Maax Holdings, Inc. failed to make coupon payments on 12/15/07. As they have a 30-day grace period in which to make payment, they have not been included in our list.

Source: Authors' compilations.

Appendix C

Figure 45. Chapter 11 Filings in 2007 — List by Liability Size, Liabilities Greater Than $100 Million (Dollars in Millions)

Company	Date of Filing	Liabilities $ (million)
New Century Financial Corp.	Apr-07	23,000
American Home Mortgage Investment Corp.	Aug-07	19,330
Delta Financial Corp.	Dec-07	7,108
Homebanc. Corp.	Aug-07	4,900
People’s Choice Financial Corp.[a]	Mar-07	4,369
Bally Total Fitness Holding Corp.	Jul-07	1,797
Movie Gallery, Inc.	Oct-07	1,452
Remy International, Inc.	Oct-07	1,266
Ownit Mortgage Solutions, LLC	Jan-07	819
First Magnus Financial Corp.	Aug-07	813
Pacific Lumber Co., The	Jan-07	720
Performance Transportation Services, Inc.[c]	Nov-07	712
Mortgage Lenders Network USA, Inc.	Feb-07	556
InSight Health Services Holdings	May-07	552
Levitt & Sons, LLC	Nov-07	499
Reliant Energy Channelview, LP	Aug-07	444
Citation Corp.[b]	Mar-07	360
Fedders Corp.	Aug-07	322
Galaxy Minerals, Inc.[b]	Jan-07	300
Neumann Homes	Nov-07	287
Nutritional Sourcing Corp.	Aug-07	267
Monitor Oil, PLC	Nov-07	255
Dunmore Homes, Inc.	Nov-07	250
PT Holdings Company, Inc. (Port Townsend Paper)	Jan-07	197
Pope & Talbot, Inc.	Nov-07	197
PLVTZ, Inc.[b]	Nov-07	178
Inphonic, Inc.	Nov-07	177
Bombay Co.	Sep-07	173
Tweeter Home Entertainment Group, Inc.	Jun-07	165
All American Semiconductor	Apr-07	163
Hancock Fabrics, Inc.	Mar-07	161
Roman Catholic Diocese of SD	Feb-07	153
L.I.D. Ltd.	Mar-07	144
Malden Mills Industries, Inc.	Jan-07	131
Medicor, Ltd.	Jun-07	126
Enesco Group, Inc.	Jan-07	102
Southstar Funding, LLC	Apr-07	100
Res Mae Mortgage Corp.[b]	Feb-07	100
Total		72,647

[a]Liabilities as of June 30, 2006,[b]Liabilities derived from total assets,[c]Amount owed to 20 largest creditors

Source: NYU Salomon Center database.

Appendix D

Figure 46. Defaults by Industry — 2007

Company	Industry
American Color Graphics, Inc.	Commercial Printing
Bally Total Fitness	Recreational Centers
Delco Remy International, Inc.	Auto/Truck Parts/Equipment
Fedders Corp.	Appliances
Hollinger, Inc.	Publishing - Newspapers
Hollywood Entertainment Corp.	Retail - Video Rental
InSight Health Services	MRI/Medical Diagnostics Imaging
Lexington Precision Corp.	Metal Processors & Fabricators
Monitor Oil PLC	Oil & Gas Exploration Services
Movie Gallery, Inc.	Retail - Video Rental
North Atlantic Holding Co., Inc.	Food, Beverage, & Tobacco
Nutritional Sourcing Corp.	Food-Retail
Pacific Lumber Co. / Scotia Pacific Co., LLC	Forest Products
Pac-West Telecomm	Telecom Services
Pope & Talbot, Inc.	Paper & Related Products
Port Townsend Paper Corp.	Containers - Paper/Plastic
Tembec Industries, Inc.	Pulp Mills
Wornick Co./TWC Holding, LLC	Food - Miscellaneous/Diversified
Ziff Davis Media, Inc.	Publishing - Periodicals

Source: Authors' compilations.

Appendix E

Figure 47. Financial Service Industry Defaults and Recoveries– 1975 - 2007

Issue	Seniority	Coupon	Maturity Date	Issue Size ($)MM	Default Date	Default Price	Financial Sector
BANKS							
InterFirst Corp.	Senior Unsecured	9.750	11/15/1999	26.00	5/1/1988	25.00	Banks
Interfirst Texas Finance N.V.	Senior Unsecured	6.750		100.00	5/18/1988	90.00	Banks
InterFirst Corp.	Senior Unsecured	12.750	10/1/1989	100.00	5/18/1988	22.00	Banks
First RepublicBank Corp.	Senior Unsecured	12.750	10/1/1989	100.00	6/13/1988	9.00	Banks
First RepublicBank	Senior Unsecured	7.350	5/1/2004	75.00	6/13/1988	27.00	Banks
First RepublicBank	Senior Unsecured	11.250	11/15/1999	100.00	6/13/1988	27.50	Banks
First RepublicBank	Senior Unsecured	9.750	11/15/1999	26.00	6/13/1988	17.00	Banks
First RepublicBank	Senior Unsecured	9.380	7/1/2001	65.00	7/1/1988	17.80	Banks
Texas American Bancshares	Senior Unsecured	15.500	3/15/1992	50.00	9/1/1988	20.00	Banks
MCorp (Southwest Bancshares)	Senior Unsecured	11.500	11/15/1992	49.00	10/1/1988	30.00	Banks
MCorp (Mercantile Texas)	Senior Unsecured	7.900	6/15/1999	35.00	10/1/1988	33.00	Banks
MCorp (Mercantile Texas)	Senior Unsecured	11.500	12/15/1989	50.00	10/1/1988	40.00	Banks
MCorp	Senior Unsecured	9.380	7/1/2001	29.00	10/1/1988	34.00	Banks
Bank of New England Corp.	Senior Unsecured	9.500	2/15/1996	150.00	10/15/1990	2.00	Banks
Bank of New England Corp.	Subordinated	8.375	7/15/1996	75.00	10/15/1990	1.00	Banks
Bank of New England Corp.	Subordinated	8.750	4/1/1999	200.00	10/15/1990	2.00	Banks
Bank of New England Corp.	Subordinated	9.875	9/15/1999	250.00	10/15/1990	2.00	Banks
One Bancorp	Subordinated	10.700	10/1/1998	40.00	12/1/1990	103.00	Banks
Southeast Banking Corp.	Senior Unsecured	11.250	4/15/1993	57.10	9/1/1991	33.00	Banks
Southeast Banking Corp.	Subordinated	10.250		99.20	9/1/1991	3.00	Banks
Wilshire Financial Services Group, Inc.	Senior Unsecured	13.000	1/1/2004	84.20	11/13/1998	N/A	Banks
Wilshire Financial Services Group, Inc.	Senior Unsecured	13.000	8/15/2004	100.00	11/13/1998	N/A	Banks
Total Defaults				**$ 1,860.50**			
Average Recovery at Default						**26.91**	
Weighted Average Recovery at Default						**19.87**	
MORTGAGE BANKERS							
First Mortgage Investors LP	Senior Unsecured	8.250		20.30	8/1/1977	51.00	Mortgage Bankers
Lomas Financial Corp.	Senior Unsecured	10.000		60.00	9/1/1989	100.00	Mortgage Bankers
Lomas Financial Corp.	Senior Unsecured	10.000		45.90	9/1/1989	99.00	Mortgage Bankers
Lomas Financial Corp.	Subordinated	10.750	7/1/1993	200.00	9/1/1989	36.50	Mortgage Bankers
Lomas Financial Corp.	Subordinated	11.375	10/15/1995	175.00	9/1/1989	34.88	Mortgage Bankers
Lomas Mortgage USA, Inc.	Senior Unsecured	9.750	10/1/1997	150.00	10/1/1995	72.00	Mortgage Bankers
Lomas Mortgage USA, Inc.	Senior Unsecured	10.250	10/1/2002	190.00	10/1/1995	69.10	Mortgage Bankers
Cityscape Financial Corp.	Senior Unsecured	12.750	6/1/2004	300.00	6/1/1998	42.00	Mortgage Bankers
Altiva Financial Corp.	Subordinated	12.500	12/1/2002	31.00	1/1/2000	30.00	Mortgage Bankers
ContiFinancial Corp.	Senior Unsecured	7.500	3/15/2002	200.00	3/30/2000	9.00	Mortgage Bankers
ContiFinancial Corp.	Senior Unsecured	8.125	4/1/2008	200.00	3/30/2000	9.00	Mortgage Bankers
ContiFinancial Corp.	Senior Unsecured	8.375	8/15/2003	300.00	3/30/2000	9.00	Mortgage Bankers
Imperial Credit Industries, Inc. - Credit Cap Tr I	Senior Unsecured	10.250	6/14/2002	70.00	5/10/2001	N/A	Mortgage Bankers
Imperial Credit Industries, Inc.	Senior Unsecured	9.750	1/15/2004	10.93	5/10/2001	N/A	Mortgage Bankers
Imperial Credit Industries, Inc.	Senior Unsecured	9.875	1/15/2007	165.94	5/10/2001	35.00	Mortgage Bankers
Imperial Credit Industries, Inc.	Senior Secured	12.000	6/30/2005	127.48	7/2/2001	50.00	Mortgage Bankers
AMRESCO, Inc.	Senior Subordinated	9.875	3/15/2005	185.65	7/2/2001	42.00	Mortgage Bankers
AMRESCO, Inc.	Senior Subordinated	10.000	1/15/2003	49.37	7/2/2001	38.00	Mortgage Bankers
AMRESCO, Inc.	Senior Subordinated	10.000	3/15/2004	127.31	7/2/2001	38.00	Mortgage Bankers
Delta Financial Corporation	Senior Secured	9.500	8/1/2004	150.00	8/23/2001	N/A	Mortgage Bankers
Total Defaults				**$ 2,758.88**			
Average Recovery at Default						**44.97**	
Weighted Average Recovery at Default						**37.75**	
SAVINGS INSTITUTIONS							
Financial Corp. of America	Subordinated	11.880	6/1/1998	23.10	9/1/1988	14.50	Savings Institution
Financial Corp of America	Subordinated	6.000	7/1/2010	6.60	10/1/1988	2.00	Savings Institution
Financial Corp of America	Senior Unsecured	6.000	11/1/1988	5.30	11/1/1988	1.00	Savings Institution
American Continental Corp.	Senior Unsecured	10.750	8/1/1990	31.10	4/13/1989	22.00	Savings Institution
American Continental Corp.	Senior Unsecured	12.000	6/1/2001	25.00	4/13/1989	24.00	Savings Institution
American Continental Corp.	Senior Subordinated	14.750	4/15/1995	10.90	4/13/1989	20.00	Savings Institution
Imperial Corp. of America	Subordinated	12.400	1/1/1997	40.00	2/1/1990	3.00	Savings Institution
Imperial Corp. of America	Senior Unsecured	12.400	1/1/1997	40.00	3/1/1990	3.00	Savings Institution
Meritor Savings Bank	Subordinated	12.000	9/1/1998	115.00	3/1/1991	30.00	Savings Institution
Total Defaults				**$ 297.00**			
Average Recovery at Default						**13.28**	
Weighted Average Recovery at Default						**18.67**	

Figure 47. Financial Service Industry Defaults and Recoveries– 1975 – 2007 (Continued)

Issue	Seniority	Coupon	Maturity Date	Issue Size ($)MM	Default Date	Default Price	Financial Sector
FIRE. MARINE & CASLTY INSURANCE							
Mission Insurance Group, Inc.	Senior Unsecured	9.000	12/1/2002	21.10	12/1/1985	36.63	Fire, Marine, Casualty Ins.
Mission Insurance Group, Inc.	Senior Unsecured	11.880		50.00	1/15/1986	5.25	Fire, Marine, Caslty Ins.
Home Group Funding, Inc.	Senior Unsecured	14.875	6/1/1999	76.00	1/15/1991	31.30	Fire, Marine, Caslty Ins.
Ambase Corp.	Senior Unsecured	11.750	4/15/2008	47.00	1/15/1991	46.50	Fire, Marine, Caslty Ins.
Ambase Corp.	Senior Subordinated	14.875	7/15/1998	59.80	1/15/1991	28.00	Fire, Marine, Caslty Ins.
Home Holdings, Inc.	Senior Unsecured	7.750	12/15/1998	100.00	1/15/1998	37.00	Fire, Marine, Caslty Ins.
Home Holdings, Inc.	Senior Unsecured	8.625	12/15/2003	178.78	1/15/1998	37.00	Fire, Marine, Caslty Ins.
Superior National Insurance	Senior Secured	10.750	12/1/2017	105.00	3/8/2000	45.00	Fire, Marine, Caslty Ins.
Reliance Group Holdings, Inc.	Senior Unsecured	9.000	11/15/2000	291.00	11/15/2000	10.00	Fire, Marine, Caslty Ins.
Reliance Group Holdings, Inc.	Senior Subordinated	9.750	11/15/2003	174.03	11/15/2000	4.75	Fire, Marine, Caslty Ins.
Lumbermens Mutual Casualty Co.	Senior Unsecured	8.300	12/1/2037	200.00	3/26/2003	13.00	Fire, Marine, Caslty Ins.
Lumbermens Mutual Casualty Co.	Senior Unsecured	8.450	12/1/2097	100.00	3/26/2003	13.00	Fire, Marine, Caslty Ins.
Lumbermens Mutual Casualty Co.	Senior Subordinated	9.150	7/1/2026	400.00	3/26/2003	13.00	Fire, Marine, Caslty Ins.
Trenwick Group Ltd. - Trenwick America Corp	Senior Unsecured	10.250	3/1/2004	75.00	4/1/2003	N/A	Fire, Marine, Caslty Ins.
Trenwick Group Ltd.	Senior Unsecured	6.700	4/1/2003	75.00	4/1/2003	N/A	Fire, Marine, Caslty Ins.
Trenwick Group Ltd.	Senior Secured	8.820	2/1/2037	110.00	8/20/2003	N/A	Fire, Marine, Caslty Ins.
Vesta Insurance Group, Inc.	Senior Unsecured	8.75	7/15/2025	56.00	7/15/2006	10.00	Fire, Marine, Caslty Ins.
Atlantic Mutual Insurance Co.	Subordinated	8.15	2/15/2028	100.00	8/15/2006	60.33	Fire, Marine, Caslty Ins.
Total Defaults				$ 2,218.71			
Average Recovery at Default						**26.05**	
Weighted Average Recovery at Default						**21.31**	
INVESTORS							
Baldwin United Corp.	Subordinated	10.000	7/20/2009	16.00	3/15/1983	40.00	Hldg & Other Inv.Off.
Financial Trustco Cap	Senior Subordinated	13.950	1/15/2001	60.00	2/15/1989	1.00	Investors, Nec
Financial Trustco Cap	Subordinated	15.875	10/15/1999	48.60	2/15/1989	5.00	Investors, Nec
Enstar Group, Inc.	Subordinated	9.500		75.00	1/1/1991	50.00	Investors, Nec
Equity Funding Corp. of America	Subordinated	7.500		23.70	7/1/1991	N/A	Investors, Nec
Total Defaults				**$ 223.30**			
Average Recovery at Default						**24.00**	
Weighted Average Recovery at Default						**23.51**	
SECURITY BROKERS & DEALERS							
Integrated Resources, Inc.	Senior Unsecured	10.000	5/1/1990	104.00	6/1/1989	60.13	Security B/Dealers
Integrated Resources, Inc.	Senior Unsecured	10.750	5/1/1992	50.00	6/1/1989	62.00	Security B/Dealers
Integrated Resources, Inc.	Senior Unsecured	11.125	5/1/1994	57.50	6/1/1989	60.75	Security B/Dealers
Integrated Resources, Inc.	Senior Subordinated	8.625	4/15/1997	63.40	6/1/1989	26.00	Security B/Dealers
Integrated Resources, Inc.	Senior Subordinated	10.750	4/15/1996	299.00	6/1/1989	26.63	Security B/Dealers
Integrated Resources, Inc.	Senior Subordinated	12.250	8/15/1998	100.00	6/1/1989	28.00	Security B/Dealers
Integrated Resources, Inc.	Senior Subordinated	13.125	7/15/1995	125.00	6/1/1989	31.00	Security B/Dealers
Refco, Inc.	Senior Secured	9.000	8/1/2012	390.00	10/18/2005	54.25	B/D & Exchanges
Total Defaults				**$ 1,188.90**			
Average Recovery at Default						**43.59**	
Weighted Average Recovery at Default						**42.30**	
ACCIDENT, HEALTH & LIFE INSURANCE							
California Life Corp.	Senior Unsecured	11.000	3/15/1998	20.00	3/1/1982	25.00	Life Insurance
Drum Financial Corp.	Senior Subordinated	12.875	9/15/1999	16.80	9/15/1989	35.58	Life, Propty,Caslty Ins.
First Capital Holdings Corp.	Senior Subordinated	13.000	5/15/1999	115.00	5/30/1991	6.50	Life Insurance
ICH Corp. (Southwestern Life Corp.)	Senior Subordinated	11.250	12/1/2003	91.20	10/15/1995	50.00	Accident & Health Ins.
ICH Corp. (Southwestern Life Corp.)	Senior Subordinated	11.250	12/1/1996	256.10	10/15/1995	50.00	Accident & Health Ins.
Westbridge Capital Corp.	Senior Subordinated	11.000	3/1/2002	20.00	1/15/1998	92.00	Accident & Health Ins.
PennCorp Financial Group, Inc.	Senior Subordinated	9.250	12/15/2003	150.00	1/10/2000	85.00	Life Insurance
Conseco, Inc.	Senior Unsecured	8.125	2/15/2003	142.30	9/12/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Unsecured	8.750	2/9/2004	421.71	9/12/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	8.750	8/9/2006	366.29	9/12/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	6.400	2/10/2004	44.81	9/12/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Unsecured	6.400	2/10/2003	235.06	9/12/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	8.750	8/9/2006	366.29	10/15/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Unsecured	9.000	10/15/2006	150.80	10/15/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Unsecured	8.500	10/15/2002	301.31	10/15/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	10.750	6/15/2009	362.43	12/17/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	9.000	4/15/2008	400.10	12/17/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	9.000	4/15/2008	399.20	12/17/2002	14.00	Accident & Health Ins.
Conseco, Inc.	Senior Secured	10.750	6/15/2009	362.43	12/17/2002	14.00	Accident & Health Ins.
Total Defaults				**$ 4,221.84**			
Average Recovery at Default						**26.95**	
Weighted Average Recovery at Default						**19.79**	

Figure 47. Financial Service Industry Defaults and Recoveries– 1975 – 2007 (Continued)

Issue	Seniority	Coupon	Maturity Date	Issue Size ($)MM	Default Date	Default Price	Financial Sector
MISCELLANEOUS CREDIT INSTITUTIONS							
GAC Properties Credit, Inc.	Senior Unsecured	11.000		43.70	11/15/1975	59.75	Short-term Business Credit
Gambles Credit Corp.	Senior Unsecured	9.375		60.00	4/1/1982	39.00	Short-term Business Credit
Del Norte Funding Corp.	Senior Secured	9.050	1/2/1993	7.50	1/8/1992	61.43	Miscellaneous
Del Norte Funding Corp.	Senior Secured	9.950	1/2/1998	25.80	1/8/1992	51.50	Miscellaneous
Del Norte Funding Corp.	Senior Secured	11.250	1/2/2014	158.40	1/8/1992	49.00	Miscellaneous
First Merchants Acceptance Corp.	Senior Unsecured	11.000	3/15/2005	14.40	7/11/1997	60.00	Misc Business Credit Inst.
First Merchants Acceptance Corp.	Subordinated	9.500	12/15/2006	51.80	7/11/1997	60.00	Misc Business Credit Institution
United Companies Financial Corp.	Senior Unsecured	9.350	11/1/1999	125.00	3/1/1999	25.00	Personal Credit Institution
United Companies Financial Corp.	Senior Unsecured	7.700	1/15/2004	100.00	3/1/1999	20.00	Personal Credit Institution
United Companies Financial Corp.	Subordinated	8.375	7/1/2005	150.00	3/1/1999	7.00	Personal Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.250	4/1/2001	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	5.875	10/15/2001	275.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.040	11/8/2002	350.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.125	3/15/2004	200.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.150	3/31/2003	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.250	11/1/2002	300.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.375	5/15/2005	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.500	7/28/2002	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.625	9/15/2001	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.750	3/9/2009	250.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	6.900	6/19/2004	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.125	5/1/2002	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.125	5/17/2004	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.250	11/8/2004	1150.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.250	7/12/2006	225.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.400	5/6/2006	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.400	6/1/2007	100.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	7.625	9/21/2009	250.00	2/27/2001	86.00	Misc Business Credit Institution
FINOVA Capital Corp.	Senior Unsecured	9.125	2/27/2002	175.00	2/27/2001	86.00	Misc Business Credit Institution
HomeGold Financial, Inc.	Senior Unsecured	10.750	9/15/2004	6.20	3/31/2003	N/A	Personal Credit Institution
DVI, Inc.	Senior Unsecured	9.875	2/1/2004	55.00	8/1/2003	17.50	Finance Lessors
DVI, Inc.	Senior Unsecured	9.875	2/1/2004	100.00	8/1/2003	17.50	Finance Lessors
Total Defaults				**$ 5,072.79**			
Average Recovery at Default						**70.17**	
Weighted Average Recovery at Default						**68.52**	
TOTAL FINANCIAL SECTOR DEFAULTS	**$ 17,841.92**						
TOTAL PRICED DEFAULTS	**$ 17,136.90**						
AVERAGE RECOVERY AT DEFAULT	**39.61**						
WEIGHTED AVERAGE RECOVERY AT DEFAULT	**40.90**						

Source :NYU Salomon Center Default Database

Appendix F

Figure 47. 2007 Emergences from Default (US Dollars in Millions)

First Quarter	Restructured Bonds ($)
Adelphia Communications Corp.	4,386
Anvil Holdings, Inc. (Anvil Knitwear)	130
FLYi, Inc.	59
Foamex International Inc.	501
GB Holdings, Inc.	44
Home Products International, Inc.	125
Total 1st Quarter	**5,245**
Second Quarter	
Allied Holdings, Inc.	150
Amtrol, Inc.	115
Delta Airlines, Inc.	8,683
Granite Broadcasting Corp.	405
Northwest Airlines Corp.	3,503
Total 2nd Quarter	***12,856***
Third Quarter	
InSight Health Services Holdings Corp.	520
Pillowtex Corp.	310
Portrait Corporation of America, Inc.	225
Premier Entertainment Biloxi, LLC	160
PT Holdings Company, Inc. (Port Townsend Paper)	125
Tower Automotive, Inc.	258
Total 3rd Quarter	***1,598***
Fourth Quarter	
Bally Total Fitness Holding Corp.	531
Collins & Aikman Corp.	915
Delta Woodside Industries, Inc, (Delta Mills)	32
Federal-Mogul Corp.	2,307
National Convenience Stores	40
Pac-West Telecomm, Inc.	36
Remy International, Inc.	583
Werner Holding Co. (DE), Inc.	135
Wickes, Inc.	63
Total 4th Quarter	***4,642***
Total	**24,341**

Sources: New Generation Research and NYU Salomon Center Defaulted Bonds Database.