

*Journal of***APPLIED CORPORATE FINANCE**

A MORGAN STANLEY PUBLICATION

In This Issue: Private Equity, Capital Structure, and Payout Policy

Private Equity: Past, Present, and Future	8	<i>An Interview with Steve Kaplan, University of Chicago</i>
Global Debt Markets in 2007: New Paradigm or the Great Credit Bubble?	17	<i>Edward I. Altman, New York University</i>
The Return of the Recap: Achieving Private Equity Benefits as a Public Company	32	<i>Anil Shivdasani, University of North Carolina, and Adrián Zak, Citigroup</i>
Share Repurchases and the Need for External Finance	42	<i>Matthew T. Billett, University of Iowa, and Hui Xue, Kansas State University</i>
The New Wave of Hybrids—Rethinking the Optimal Capital Structure	56	<i>Kevin Ryan, Jonathan Ross, and Jacqueline Yen, Morgan Stanley</i>
The Influence of Credit Ratings on Corporate Capital Structure Decisions	65	<i>Darren J. Kisgen, Boston College</i>
What is the Market Value of a Dollar of Corporate Cash?	74	<i>Lee Pinkowitz and Rohan Williamson, Georgetown University</i>
Mind the Information Gap: Putting New Selection Criteria and Deal Structures to Work in M&A	82	<i>Roberto Ragozzino, University of Illinois at Chicago, and Jeffrey J. Reuer, University of North Carolina</i>
Estimating the Cost of Risky Debt	90	<i>Ian A. Cooper, London Business School, and Sergei A. Davydenko, University of Toronto</i>
How Good are Private Equity Returns?	96	<i>Robert M. Conroy and Robert S. Harris, Darden School, University of Virginia</i>
Big is Better: Growth and Market Structure in Global Buyouts	109	<i>Peter Cornelius, Broes Langelaar, and Maarten van Rossum, AlPInvest Partners</i>
The Convergence of Public and Private Equity Markets: Cyclical or Structural?	117	<i>Jason Draho, Morgan Stanley</i>

Global Debt Markets in 2007: New Paradigm or the Great Credit Bubble?

by Edward I. Altman, New York University¹

One of the most remarkable developments in finance in the past few decades has been the establishment of high-yield “junk” bonds, leveraged loans, and securities of distressed companies as legitimate alternative asset classes for many types of institutional investors. Thirty years ago, the high-yield bond market consisted almost entirely of “fallen angels”—bonds that were investment grade at birth but whose ratings were cut as the issuing companies’ fortunes sagged. And the market was tiny: Less than \$10 billion of such bonds were outstanding in the United States in 1978. But as shown in Figure 1, the market has enjoyed spectacular growth, with about \$1 trillion in high-yield bonds outstanding in the U.S. as of mid-2007.² And today the market is dominated not by fallen angels—despite the inclusion of GM and Ford in 2005—but by newly issued non-investment grade securities.

Companies in Europe and emerging markets now also routinely issue these securities, thanks to risk-return attributes that are perceived to be relatively favorable. Both public high-yield bonds and their private counterpart, leveraged loans, regularly attract new annual issuance of at least \$100 billion of bonds in the U.S. and increasing amounts abroad. Indeed, in each of the last three years in the U.S., the amount of leveraged loan issuance topped \$500 billion—and in 2006 it reached about €160 billion in Europe.³ These higher-risk loans are increasingly originated by non-bank financial institutions, and then typically channeled immediately into structured products, such as collateralized loan obligations (CLOs). While large banks have traditionally provided funds for these highly leveraged syndicated loans, in recent years increasing percentages have been provided by non-bank institutions, including the newest entrants into direct corporate lending—hedge funds. Both leveraged loans and high-yield bonds have in turn fueled the spectacular increase in leveraged buyouts by private equity funds in the U.S. and abroad.

Two key factors behind the spectacular growth of global liquidity and its channeling into increased corporate leverage

are the incredibly low default rates and the correspondingly low-yield spreads in our riskiest debt classes. Default rates on high-yield bonds and leveraged loans dropped to minuscule levels in the last year and a half, while in May and early June 2007 required yield spreads reached the lowest level in the entire history of non-investment grade bonds. But along with—and no doubt partly in response to—these low default and interest rate levels, the risk profile of new issuers in the non-investment grade markets has increased dramatically in the last few years, with extremely poor risk ratings, little or no protective covenants, and questionable security guarantees.

In another sign of the growth and maturity of speculative grade fixed-income debt securities as an asset class, a relatively new breed of distressed debt investors known as “vulture” funds has emerged as one of the fastest growing sectors of the burgeoning hedge fund and private equity field. Distressed debt is a subgroup of the high-yield bond market that I have defined as securities yielding at least 10% (1,000 basis points) above the risk-free rate benchmark.⁴ Also attracting considerable interest is defaulted debt, a subset of distressed securities that trade after the issuing firm has missed an interest payment or filed for bankruptcy. In the U.S. alone, I estimated that, as of June 30, 2007, the size of the distressed and defaulted debt markets was about \$550 billion in face value and \$470 billion in market value. (See Figure 2 for recent estimates of the size of the distressed debt market and Figure 3 for a time-series of such estimates since 1990.) A comparable if not larger amount of distressed securities is also finding investors in Asian markets, particularly non-performing loans of Japanese and Chinese banks, while investors in European markets are taking positions in the loans of German and Italian banks, among others. There are today at least 180 investment funds in the U.S., as well as another 40 or 50 in Europe, that specialize in investing in distressed securities (not counting proprietary trading desks at most investment banks). This compares to about 100 in

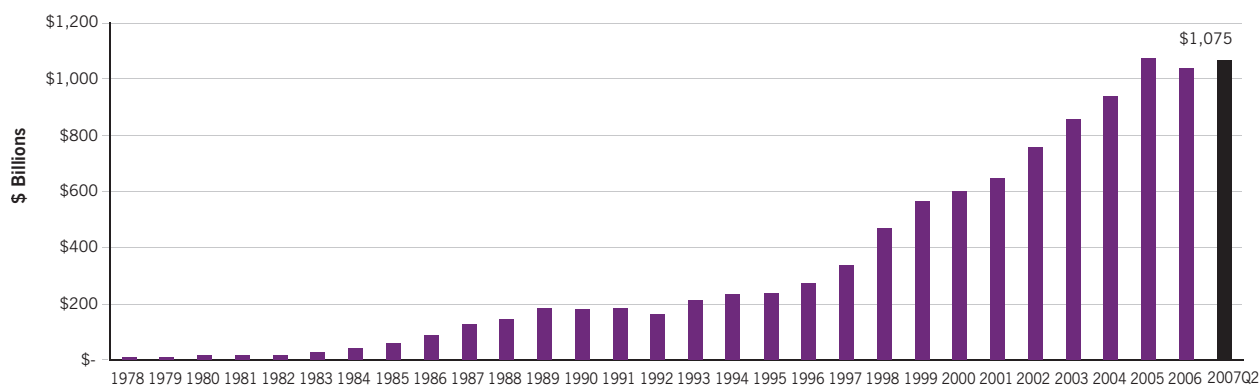
1. This is an updated and significantly revised version of my earlier working paper, E. Altman (2006), “Are Historically Based Default and Recovery Models Still Relevant in Today’s Credit Environment,” NYU Salomon Center Working Paper, October. I would like to thank a number of market participants and analysts for their helpful comments and data, especially Martin Fridson, Steve Miller and his staff at S&P, the staff at the NYU Salomon Center, and the editor of this journal, Don Chew.

2. Non-investment grade “junk” bonds are those that receive ratings from Standard & Poor’s and Fitch below BBB-, or Moody’s ratings below Baa3.

3. In the first six months of 2007, \$427 billion of leveraged loans were issued in the U.S. Leveraged loans are defined as loans of \$100 million or more to companies with non-investment grade bonds outstanding, or whose yield is at least 125 basis points (1.25%) over an appropriate risk-free benchmark.

4. Altman (1990).

Figure 1 **Size of the US High Yield Bond Market**
1978 – 2007 Q2 (Mid-year US\$ billions)



Source: NYU Salomon Center, Stern School of Business.

Figure 2 **Estimated Face and Market Values of Defaulted and Distressed Debt**
2005 – 2007 Q1 (\$ billions)

	Face Value			Market Value			Market/ Face Ratio
	12/31/05	12/31/06	6/30/07	12/31/05	12/31/06	6/30/07	
Public Debt							
Defaulted	\$163.5	\$156.2	\$140.8 ⁽¹⁾	\$89.9	\$101.5	\$98.5	0.70 ⁽⁴⁾
Distressed	\$49.3	\$17.9	\$ 12.8 ⁽²⁾	\$34.5	\$13.4	\$10.3	0.80 ⁽⁴⁾
Total Public	\$212.8	\$174.1	\$153.6	\$124.5	\$115.0	\$108.8	
Private Debt							
Defaulted	\$359.8	\$406.1	\$366.0 ⁽³⁾	\$287.8	\$365.5	\$329.4	0.90 ⁽⁴⁾
Distressed	\$108.5	\$46.6	\$33.4 ⁽³⁾	\$97.6	\$44.3	\$31.7	0.95 ⁽⁴⁾
Total Private	\$468.2	\$452.7	\$399.4	\$385.4	\$409.7	\$361.1	
Total Public and Private	\$681.1	\$626.8	\$553.0	\$509.9	\$524.7	\$469.9	

1. Calculated using: (2006 defaulted population) + (2007 defaults) - (2007 Emergences)

2. Based on 1.20% of the high yield bond market (\$1,069.3 billion)

3. Based on a private/public ratio of 2.6.

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

the U.S. in 2000 and about 60 in 1990, and probably just a few in Europe five years ago.

I estimate that these distressed debt funds now actively manage at least \$300 billion in the U.S. alone, up from about \$70-\$100 billion five years ago. And this means that the supply-demand (i.e., new defaults/distressed funds) dynamic

in distressed investing has reversed dramatically in recent years, accounting for soaring prices on defaulted assets and extremely low yields on still performing distressed loans and bonds.

The impressive growth in low-grade and distressed debt has spurred the development of statistics, analytics, and models that seek to explain and predict the size

Figure 3 **Size of the US Defaulted and Distressed Debt Market (\$ Billions)**
(1990-2007 1H)



Source: E. Altman estimates, NYU Salomon Center.

and risk-return trade-offs in these markets. Investors are constantly focusing on the outlook for these markets in order to develop strategies to attract new capital. Over the years, I have constructed numerous models and forecasts for the assessment of market dynamics of high-yield and distressed debt. Until very recently, these models have been quite accurate.⁵ As a result, forecasts of default and recovery rates on defaulted bonds based on my own (as well as others') mortality-actuarial methods and statistical regression techniques are now widely used by market participants and finance scholars.⁶

But, as can be readily seen by examining the history of high-yield bonds, markets are dynamic and constantly shifting. And there are of course times when even the most carefully constructed and tested forecasting models can be off the mark. The last few years have been one such period, though with perhaps an important difference. Many market observers today have raised the possibility that we now may be experiencing the beginning of a "new paradigm" in credit markets. The argument in brief (which I explore in more detail below) is that the recent development of hedging mechanisms like credit default swaps and CDOs, together with the increased liquidity and activism of hedge funds and private equity investors, may be leading to a more or less permanent decline in default rates and interest rate yield spreads (if not all the way down to today's levels, at least

well below historical averages).

In the pages that follow, I explore the questions of whether we have in fact entered a new era in credit markets and whether historically based estimates of default probabilities and recovery rates are still relevant for today's banks and hedge funds.

Changing Forces: Dramatic Reduction in Defaults

Traditional measures of default rates involve the comparison of the dollar amount of defaults from a particular market, such as the high-yield bond market, with the amount outstanding as of the beginning or the mid-point of a year. Figure 4, which shows our default rate calculation from 1971 through the second quarter of 2007, indicates that the weighted average default rate over the 36-year period has been about 4.65% per year. But in 2006, this dollar-denominated rate was a minuscule 0.76%, the lowest rate in 25 years; and for the first half of 2007 the rate dropped further to just 0.26%.⁷

Historically, the default rate has experienced spikes in periods when the economy was entering a recession or a slowdown. This was certainly the case in 1990-91 and again in 2001-2002. But in both of these periods, it's worth noting, the increase in default rates began several years before the recession. And as can be seen in Figure 5, it is clearly not necessary for the economy to experience a recession for the default rate to begin its climb toward problem levels.⁸

5. Our annual reports can be seen at the website of NYU Stern's Salomon Center for the Study of Financial Institutions.

6. For a discussion of my mortality-actuarial methods, see E. Altman (1989). For regression-based models for forecasting default rates and recovery rates, see E. Altman, B.

Brady, A. Resti and A. Sironi (2002, 2005) as well as Moody's models for forecasting default rates (1999) and analyzing recovery rates (2007), among others.

7. An alternative method, used by most rating agencies, involves the number of high-yield issuers rather than the dollar amount of the defaults—and this rate is also currently extremely low.

Figure 4 **Historical Default Rates – Straight Bonds Only,
Excluding Defaulted Issues From Par Value Outstanding**
1971–Q2 2007 (Dollars in Millions)

Year	Par Value Outstanding (a)(\$)	Par Value Defaults(\$)	Default Rates(%)	
2007 Q2	1,053,900	2,689	0.255	
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
<hr/>				
Arithmetic Average Default Rate		1971 to 2006	3.167%	3.072%
		1978 to 2006	3.464%	3.283%
		1985 to 2006	4.189%	3.428%
<hr/>				
Weighted Average Default Rate (B)		1971 to 2006	4.244%	
		1978 to 2006	4.258%	
		1985 to 2006	4.303%	
<hr/>				
Median Annual Default Rate		1971 to 2006	1.802%	

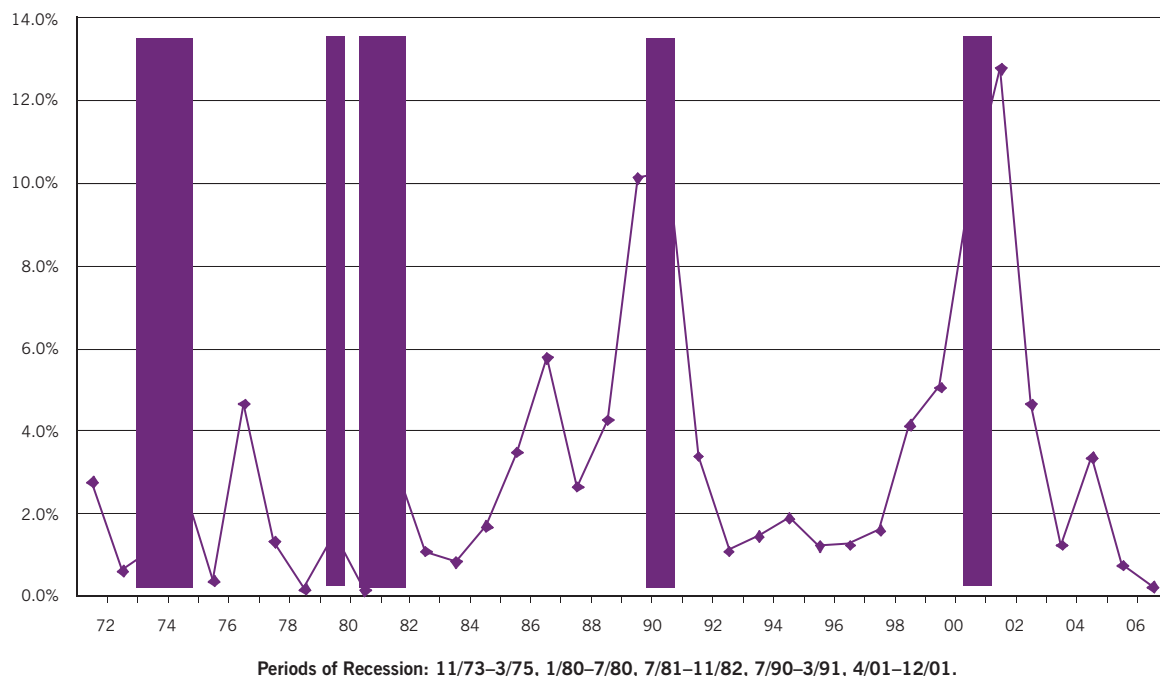
(a) As of mid-year.

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

Source: Authors' Compilations and Citigroup Estimates

* not including FINOVA debt

Figure 5 **Historical Default Rates and Recession Periods in the US**
High Yield Bond Market 1972–2007 Q2



Source: Figure 1 & National Bureau of Economic Research.

As noted above, the default rate since 2002 has been very low, especially in the last year and a half. And the actuarial-mortality rate approach that I developed in 1989 (which, as mentioned, has been quite accurate in most years) has consistently overestimated default rates in the last few years (with the exception of 2005). This technique uses the credit quality of new issues in the entire corporate bond market to estimate future defaults based on the historical incidence of defaults, in much the same way as insurance actuaries estimate life expectancy. As will be shown, the proportion of newly issued “junk” bonds rated B- or below (the so-called “bad cohort”) has risen sharply since 2003, which would normally indicate increased defaults two to four years after issuance. But the expected increase in defaults has not happened. Why not?

One possible reason is that rating agencies have become more stringent in their criteria for assigning the various credit ratings, especially in the aftermath of some criticisms of their performance in the 2001-02 credit debacle and huge default rates. Because of the tougher criteria, it is argued, low-rated companies today have better risk profiles than their earlier

counterparts. But while there is some evidence to back this assertion, it is by no means conclusive (as discussed later, recent EBITDA-interest coverage ratios would not support this argument).⁹

And Required Yields Have Fallen

Aiding the credit explosion has been the dramatic reduction in yield spreads that, at least until the end of May 2007, were being accepted by investors in the most risky debt markets. Indeed, as shown in Figure 6, the yield-to-maturity spread as of June 30, 2007 was 3.14% and went as low as 2.69% as of June 5, 2007, the lowest spread in the entire history of the high-yield bond market.¹⁰ (The option-adjusted spread, not shown, reached its low point—2.41% over ten-year U.S. Treasuries—also on the same date.)

Such low spreads could in fact be justified provided the current levels of very low default rates and high recoveries continue for some time. A simple analytical approach that I have found useful for understanding investor returns in risky debt markets is to subtract the average annual loss from

8. I have discussed this phenomenon in many of our annual updates on the high-yield market and Fridson (2006) has also provided commentary to this effect.

9. While most average ratios of low-rated companies in 2002-2004 were stronger than they were in 1998-2000, there are some notable exceptions (such as the EBITDA interest-coverage reported in S&P data).

10. In June 2007, (mainly in the last week of the month), yield-to-maturity spreads widened by 39bp, the first material increase since late 2005 and some pundits thought that this was perhaps a turning point in leverage finance (e.g., Fridson, 2007). Spreads widened even further to 428bp, as of July 31, 2007, 160 bp greater than it was less than two months earlier.

Figure 6 **Annual Returns, Yields and Spreads on Ten-Year Treasury (Treas) and High Yield (HY) Bonds (a)**
(1978 – 2007 Q2)

Year	Return (%)			Promised Yield to Maturity (%)		
	HY	Treas	Spread	HY	Treas	Spread
2007 Q2	2.66	(0.45)	3.11	8.17	5.03	3.14
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:						
1978-2006	11.07	8.51	2.56	12.17	7.36	4.80
STD DV	12.13	11.64	12.00	2.97	2.63	2.01
Compound Annual Average:						
1978-2006	10.46	7.94	2.51			

(a) End of year yields.

defaults, net of recoveries and lost interest, from the promised yield spread accepted by investors. The result could be interpreted as the average annual expected excess return from investments in any debt market. For high-yield bonds, the historic average annual yield spread over the past 30 years has been 4.80% (as reported in Figure 6), while the annual loss rate has averaged 2.34%.¹¹ The difference between these two averages, 2.46%, represents an expected annual excess return that is very close to the actual net return spread (2.56%, as reported in Figure 6) earned by high-yield bond investors during that period.

Using this approach, if one expects default rates to remain under 1% and recovery rates to exceed 50%, a yield spread of about 3% is roughly consistent with historical expectations. But if default rates instead begin to revert toward the mean, even if it takes two years to get there, today's spread will prove to be inadequate compensation to most investors for the increased risk. For example, a default rate of 2.5% in 2007, which I projected at the end of 2006, combined with a recovery rate of 50%, would leave a margin of only about 1.75% based on current spreads. This is generally believed to be a below-average net return to compensate for the illiquid-

11. Using data for 1978-2006. Altman & Karlin (2007).

ity and unexpected nature of default rates and bond prices in risky debt markets. Still that would not be a disaster. But if defaults escalate dramatically, risky debt markets will be seriously challenged and the liquidity faucet funding highly leveraged transactions (HLTs) and rescue financings could be turned off.

Innovations in Managing Distressed Companies

Until the recent explosion of the sub-prime mortgage market, highly leveraged homeowners were less likely to default on their mortgages because the industry continually developed new products or revitalized existing ones that allowed the market to grow or restructure debt. As one example, the packaging of individual mortgages into collateralized mortgage obligations, or CMOs, has allowed for the redistribution of heavy concentrations of interest rate and credit risk from originating banks among thousands of non-bank investors. One major benefit of this massive risk transfer has been lower interest rates for mortgage borrowers. And in addition to the lower rates made possible by tapping better diversified investors, new (and in some cases) existing lenders have come up with new ways of refinancing “distressed” mortgages. (But, as now seems clear from developments in the sub-prime mortgage market, such innovations can lead to market excesses.)

A similar dynamic appears to be taking place in the high-yield debt and leveraged loan markets. For one thing, the widespread use of credit default swaps and CDOs has ensured that credit risks are now spread among a much larger and better diversified group of investors, which as noted could contribute to reduced spreads. And perhaps equally important, distressed companies now appear to have a wider range of options to avoid default. Until recently, companies that got into trouble went to their traditional sources of financing—banks, insurance companies, and bond markets—to provide financing packages that could rescue them from temporarily stressed conditions. But in the aftermath of the enormous default and loss experience of the early years of this decade, these traditional sources were reluctant to lend to newly distressed firms. Non-traditional sources, such as distressed debt hedge funds, saw an opportunity to fill the rescue-financing void while earning attractive yields—as much as double the spreads on comparably rated companies. And in a reversal, traditional debt sources have also recently returned to financing risky, highly leveraged transactions.

Distressed debt investors, flush with new capital infusions after posting huge returns in 2003, have proven more willing to take subordinated positions than traditional senior secured

lenders. This has accounted for the impressive growth in the second-lien market of notes and bonds. In 2006 these loans were made at 400-700bp or more over LIBOR and, in order to meet the funds’ total rate-of-return targets, were sometimes leveraged by a factor of two to three times. When presented with the possibility of these credits becoming distressed, such investors argue that private rescue financing packages (such as second-lien notes with warrants attached) can be structured to ensure relatively high recoveries if the rescue financing is not successful.

But all this raises the question of whether such activity will succeed in keeping companies afloat: Has the huge amount of liquidity, together with the emergence of new insurance mechanisms such as credit default swaps, ensured that investors collectively have relatively manageable credit exposures? Or are these rescues merely postponing the inevitable demise of fundamentally inefficient companies?

Corporate Governance and “Active Investing”

A number of today’s distressed investors aren’t just seeking to keep leveraged companies on life support; they are in many cases using high-yield debt as a means of getting involved with corporate governance by taking control of companies.¹² Such active investing has always been an important part of distressed investing, and there are numerous stories—as well as at least one credible scholarly study¹³—attesting to the success of “vultures” in using their large debt positions to influence the reorganization of troubled companies in ways that preserve or even add value. In some cases, including the Chapter 11 reorganizations of Sunbeam, Kmart, Barneys, and LTV/Bethlehem Steel, active investors with large debt positions wound up running the companies—in some cases before, and in some cases after, they emerged from bankruptcy. In other cases, active distressed debt hedge funds have provided rescue equity buyouts, which is one important explanation of today’s low default rates. For example, Asprey & Garrard, the venerable English luxury jewelry retailer, was recently rescued by an American distressed hedge fund, Plainfield Asset Management. And Cerberus Capital Management, a large hedge fund/private equity firm that specializes in distressed situations, sharply reduced at least the near-term probability of a default by General Motors by purchasing a majority stake in its finance unit, GMAC.¹⁴ Other recent private rescues or restructurings have involved Solutia Corp., Foster Wheeler, Granite Broadcasting, Saltan Corp., Merisant Co., Radnor, Pose & Talbot, Techniplex, and Movie Gallery, among others. In some of these cases,

12. I estimate that more than two dozen so-called “active control” investors now operate regularly in the distressed debt market. See (Altman and Ramayanan (2007)).

13. For anecdotal evidence, see, for example, Rosenberg (1992 and 2000). For a rigorous scholarly study documenting the value added by active-control investors during the Chapter 11 process, see Hotchkiss and Mooradian (1997). The authors of the study reported that the percentage of companies experiencing negative operating income in the year following a bankruptcy was 32% for companies with no evidence of “vulture” in-

volvement, as compared to 12% in cases when vultures were involved, and dropping to 8% if the vulture involvement continued throughout the process.

14. Whether the longer-term outlook for GM was improved by this is less clear—though one could argue that the urgency of the search for efficiencies at GM has been heightened by removing the cash cow provided by GMAC. And the recent performance of GM and its stock would seem to provide support for that explanation.

distressed companies that previously would have ended up in Chapter 11 appear to have been effectively reorganized—presumably at far lower cost—outside the courts.¹⁵

Increased Liquidity and the Impact of Non-Traditional Lenders

But to return to the question of a possible change in the credit cycle, let's now consider the most dramatic recent development in the credit and investing landscape. The environment in credit and capital markets of the last several years can well be described as a virtual explosion of liquidity, fueling an unprecedented supply of leverage throughout the global financial system. The sources of this liquidity boom are increased levels of investment from traditional sources, such as petrodollars, huge government surpluses, particularly from Asia, as well as pension, foundation, and private wealth. The combination of such sources with expansionist monetary policies has resulted in impressive economic growth rates throughout the world. What is particularly striking, however, about this most recent burst of liquidity has been its path to credit markets and the decisions to place increasing proportions of capital into alternative investment products, notably non-investment grade debt, private equity, and distressed assets.

The main vehicles in this quest for greater yield—distressed asset hedge funds and private equity funds—are also, as noted above, relatively new. Hedge funds in the distressed space now number over 200 globally, and have more than \$300 billion under management.¹⁶ With their impressive ability to attract capital and the dwindling supply of new defaulted assets to invest in, increasing numbers of these funds have turned to direct lending to faltering companies, in many cases using leverage enthusiastically supplied by aggressive prime-brokerage units of investment banks to earn returns consistent with their investors' expectations. This new strategy, in many cases in the form of rescue financing to companies that in less benign credit markets would not be able to survive, appears to have worked well up to this point. It has contributed significantly to a drop in the default rate to its lowest levels in 25 years. And, as of this writing, the “distressed-ratio” was at its lowest level in the history of the high-yield market, with only about 1.2% of high-yield bonds selling at 1,000bp or more over 10-year U.S. Treasuries.¹⁷

In addition to direct distressed firm investing, these funds now hold about 25% of all outstanding high-yield bonds purchased either in the primary new-issue high-yield market

or in secondary market trading. This source of increased demand for high-yield bonds—which is playing an even larger role in the leveraged-loan markets, with its surprisingly (some would say “disturbingly”) few or non-existent covenants, flexible payment schedules,¹⁸ and so-called second-lien senior secured structures—have produced extraordinarily benign credit market conditions. In fact, such conditions are so extraordinary as to have caused much “head-scratching” by experienced investors who, like this writer, wonder how long this “bubble” can last before the return of more traditional conditions and risk-adjusted pricing.

Leveraged Loans and Structured Products

One of the most remarkable recent trends in credit markets is the growth of the leveraged loan market and the instantaneous packaging of these loans into structured deals known as collateralized loan obligations (CLOs). The latter are pools of bank and non-bank loans bundled together and sold to investors in various risk slices, or tranches. CLOs were first developed in the mid-1990s to provide regulatory capital relief and added liquidity for banks. Almost all of these early vintage CLOs were based on the pools of investment-grade corporate loans. More recently, however, CLOs have been a primary recipient of risky debt, providing debt financing for more than half of the record wave of leveraged buyouts (LBOs) in 2006 and an even greater percentage in 2007.¹⁹

Investors attracted to the slightly higher yields and greater diversification provided by CLO debt have flocked to these structures, providing about \$100 billion in the U.S. and about \$150 billion globally in 2006. But raising some concerns, the loans showing up in these pools are without strong covenants and, in many cases, are “secured” by so-called second-lien notes. As the name implies, second-lien notes provide protection to investors only to the extent that the first-lien holders' priority is for an amount less than the value of the collateral or security. The volume of second-lien loans has increased dramatically since 2002. In 2006, over \$28 billion of these innovative (though not completely new) financings were issued; and in 2007, as can be seen in Figure 7, the pace has only accelerated. The second-lien public bond market has experienced similarly impressive growth.

While many investors in CLOs are sophisticated money managers, an increasing proportion are inexperienced, non-traditional lenders. Though it is not clear what will happen when the credit cycle changes, these newer investors will

15. But although some of these companies appear to have been restored to solvency, and even to profitability, such “rescue” financings do not always result in an ultimately successful restructuring. For example, Granite and Radnor ultimately defaulted in 2006 and filed for bankruptcy—and Movie Gallery's rescue attempt in May, 2007 ended abruptly two months later with a default on the bonds triggered by violation of several covenants. On the other hand, in June 2007 Granite emerged from its Chapter 11 after what appears to have been a relatively brief (six months) and highly efficient reorganization using a mechanism known as pre-packaged bankruptcy.

16. My estimate of about 200 distressed debt funds with assets of more than \$300 billion under management as of mid-2007 can be derived from the lists of U.S. and European based-funds found in Altman and Ramayanan (2007). From these lists, we

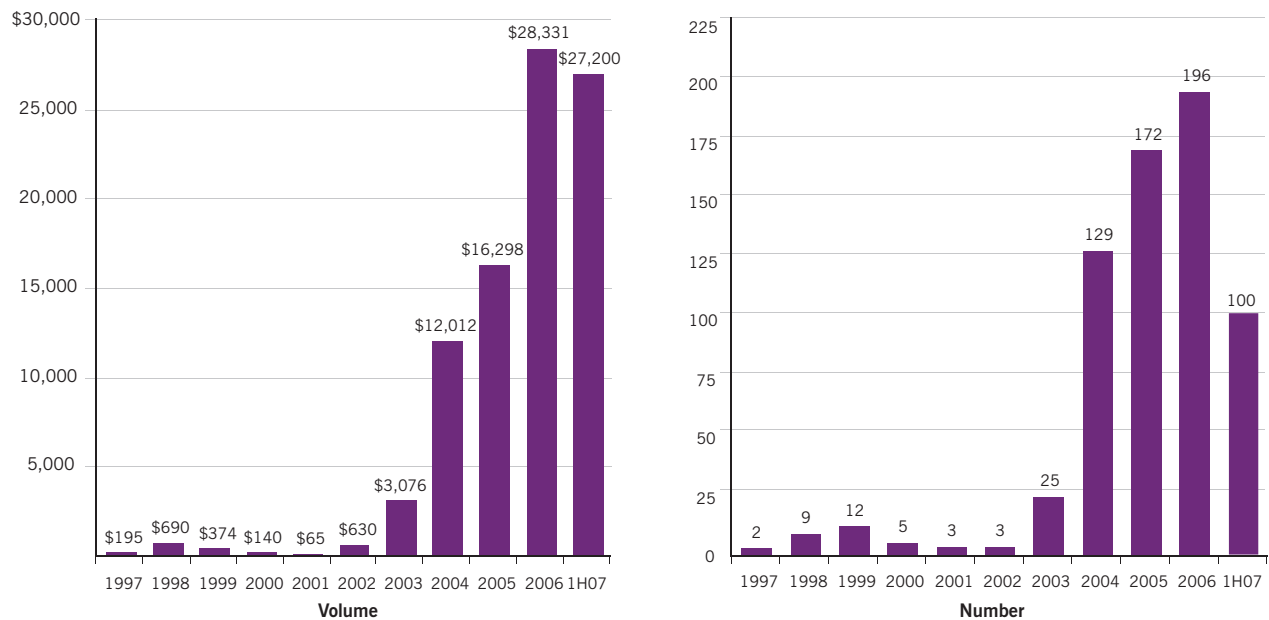
estimate that about 25 have more than \$5 billion under management. These asset levels are up from under \$100 billion during the “boom” years of default in 2001/2002.

17. From Merrill Lynch and displayed in Altman & Karlin, 2007.

18. The newest innovation in flexible terms for shaky issuers of debt are the so-called “PIK toggle” notes, which give an option to firms to pay their interest either in cash or in PIK (payment in kind) more debt issuance. The latter has returned in force after its temporarily popular usage in the buyout and junk-bond boom of the middle and late 1990s. In those days, there was no option involved. Either firms paid interest on the PIKs, or they substituted PIK payments, usually for a limited time (say, three years).

19. Since 2004, at least \$200 billion of loans have been packaged into CLOs, compared to about \$50 billion in the prior four years (data from Dealogic).

Figure 7 **Volume and Number of Second-Lien Loans**
(\$ in millions)



Source: S&P 1H07 Second-Lien Lending Review

likely seek to sell out of these extremely illiquid CLO securities, and their values will be subject to pressure, perhaps leading to the carnage seen in the last high default periods of 2001/2002.²⁰

LBOs, The Privatization of Bankruptcy, and Other Lessons from the 1980s

The most visible, and clearly the most controversial, manifestation of leveraged activity has been the LBO market, where entire public companies and divisions of companies are bought out and replaced by private entities using the leveraged-financed mechanism. In 2006, hundreds of U.S. businesses were acquired in LBOs, resulting in a record \$233 billion volume of deals funded in part by about \$125 billion of loans.²¹ And in the first half of 2007 alone, leveraged loans of \$205 billion were used to provide 83% of the funding for the \$248 billion of total deals transacted—and total leveraged loans in the U.S. of all kinds were \$427 billion—all eye-opening statistics. The confluence of record low yield spreads and plentiful capital have provided a virtual explosion of activity, with an enormous pipeline of new deals waiting to be financed. If the

benign conditions of early 2007 continue, CLOs will be an important part of loan demand in these structures. But if this demand slows down or dries up, the buyout boom will be challenged, as will many of the structured deals.

What could cause a dramatic reduction of available leverage and LBO activity is a marked increase in defaults and a meaningful rise in the yields required by debt investors, not necessarily in that order. While many investor firms are new to the credit space, there are still enough “old-timers” who remember that the high-yield bond market derailed in late 1989 when one highly leveraged transaction (HLT) went bad (Federated Department Stores²²) and one LBO couldn’t get financed (United Airlines), events that were followed by a rash of HLT failures in the early 1990s. Indeed, more than half of the defaults in the 1989-1991 credit market meltdowns were overleveraged LBOs and other HLTs. And most of these failures were ultimately caused by the inability of the sponsors to service or refinance the massive amounts of debt put in place in the mid-to-late 1980s.²³

But before examining what may have gone wrong with LBOs and HLTs, it’s important to consider the general

20. The senior tranches of CLOs are typically given the option to liquidate if one of the triggers (e.g., minimum ratios) is violated. Alternatively, the organizer or equity holder in the CLO can put more collateral into the underlying pool. Both of these occurred during the period 2001/2002, although, in some cases, not exercising the trigger produced some higher recoveries during the rebound of 2003.

21. From S&P Leveraged Commentary Data and Reuters.

22. Interestingly, the Federated case, which turned into a Chapter 11, was successfully restructured in bankruptcy when a solid new management team was installed. For a revealing case study, see Kaplan (1994). In his earlier study, Kaplan (1989) explored the value of the deal, concluding that it was greatly overpriced and, as a result, overleveraged.

23. For discussions on this aspect of HLT activity, See Altman and Hotchkiss (2005) and Kaplan and Stein (1993).

economic benefits resulting from these transactions that involve major changes in corporate ownership and, in theory at least, improvements in corporate governance and performance. Since the 1980s, financial economists have produced a body of work whose general findings have been summarized by Palepu²⁴ as follows:

- Stockholders of companies taken private in LBOs during the 1980s earned substantial excess returns, and so did the buyout investors, with the total gains from the transactions divided roughly equally between pre-and post-buyout investors. Existing debtholders experienced immediate losses, but such losses were a small fraction of the total gains to shareholders.

- Company efficiency and productivity improved substantially in the years immediately following buyouts. Such improvements have been attributed to changes in the financial and governance structure associated with buyouts, including more effective oversight by the new owner-managers (and an “early-alert” distressed restructuring mechanism that is discussed below).

- Buyouts provided companies with increased interest and depreciation tax shields that accounted for a material part of the equity gains from these transactions. While these effects resulted in large reductions in tax revenues for the government, the spectacular capital gains reported by both old and new shareholders likely resulted in LBOs having a net positive effect on aggregate tax revenues.

- LBOs had two opposing effects on firm risk. The obvious effect of these heavily leveraged deals was an increase in financial risk, i.e., bankruptcy probabilities. At the same time, the changes in financial and organizational structure were also shown to be accompanied by reductions in business or operating risk, with the consequence that LBO investors bore significantly lower risk than comparably levered public companies.

Citing these accomplishments, Jensen²⁵ went so far as to describe the LBO as a major “organizational innovation,” one that was likely to take the place of the public corporation in mature sectors of the U.S. economy. In addition to the financial discipline of high leverage in combination with equity incentives, Jensen also identified as a major source of value-added the ability of LBO sponsors to manage financial distress outside of the courts instead of through the formal legal bankruptcy process, a process he referred to as the “privatization of bankruptcy.” In Jensen’s view, the high leverage in LBOs and other HLTs operates as a value-

preserving early-warning device. That is, when an HLT has trouble meeting its debt service, management is alerted to the need for corrective action far sooner than if the firm were financed mainly with equity, resulting possibly in the conservation of value. And in the event the debt payments have to be restructured, the significant operating value that remains in most distressed LBOs (precisely because the interventions are triggered so early) provides strong incentives for sponsors and their creditors to reorganize quickly, and thus typically outside the courts.

To illustrate this argument, Jensen pointed to Drexel Burnham’s practice in the ’80s of using private (Section 3(a)(9)) exchange offerings to reorganize troubled companies whose original financings were underwritten by the firm. Although Drexel’s main motive in such cases was to minimize the formal default rate calculations that were used as a barometer of the health of the high-yield bond market, such exchanges also helped the companies preserve value by staying out of Chapter 11 and so reducing the costs of financial distress. Consistent with this argument, a much cited study by Gilson, John, and Lang of restructurings of some 170 NYSE and ASE companies defaulting between 1980 and 1986 reported that the costs of out-of-court restructurings were as little as one-tenth of those in reorganizations under Chapter 11.²⁶ (And the cost estimates for Chapter 11 in this comparison do not include any estimate of the costs associated with the diversion of managerial time and attention, and lost business opportunities, while dealing with creditors and courts.²⁷) What’s more, the privately restructured companies experienced 40% increases in value, on average, between the announcement of default and the announcement of a reorganization plan, whereas the stocks of companies filing Chapter 11 continued to decline (by another 40%) after defaulting.

But if the dealmakers of the ’80s succeeded in finding a way to reduce distress costs, why did the leveraging restructuring movement come to such a bad end? According to Jensen, in the late ’80s the growing failure of LBO (and other HLT) sponsors to put enough of their own capital (net of fees) into their deals led to a heavy concentration of overpriced and, as a result, overleveraged transactions. But, as he also argued, capital markets were beginning to make adjustments to these excesses with demands for larger equity commitments and lower leverage ratios when a series of regulatory actions in 1989 (notably FIRREA, with its ban of S&L holdings of high-yield bonds), the prosecution and demise of Drexel, and the LTV bankruptcy ruling (turning debt forgiveness into taxable

24. See Palepu (1990), who in turn cites, among other studies, related works by Jensen, Kaplan and Stiglin (1989), Kaplan (1989), and Bhagat, Shleifer and Vishny (1990).

25. Jensen 1989 and 1991

26. Gilson, John, and Lang (1990) and also Gilson (1991).

27. As both Jensen and Gilson pointed out, perhaps the most costly aspect of the formal bankruptcy process is the diversion of management’s focus from running the business to negotiations with creditors and other key stakeholders. In fact, in my own study of bankrupt companies conducted in the early ’80s (Altman (1984)), I estimated that such “indirect” bankruptcy costs can amount to as much as 10-15% of firm value. By contrast, private restructurings, besides typically reaching agreement among creditors far more quickly, are generally handled by the financial sponsors, allowing management to concentrate on the business operations.

income) made out-of-court restructurings prohibitively expensive if not impossible.²⁸ As a consequence, 1990 and 1991 saw record numbers of HLT defaults and bankruptcies.

A New Credit Paradigm, or an Imminent Turn of the Credit Cycle?

In some recent rescues of financially distressed companies, we have seen a variation of Jensen's privatization of bankruptcy at work in the frequent interventions by distressed investors and other hedge funds. As also noted earlier, such investors have often used their impressive inventory of capital to shore up teetering firms with loans. And this has undoubtedly contributed to the remarkably low default rates in recent years.

My concern, however, is about the eventual effects of the growing number of private and public restructurings of possibly less viable companies—deals in which new and often larger amounts of higher-cost debt are being substituted for the existing debt. To add to this concern, until very recently much of this new debt was being issued with “covenant-lite” and PIK note options. Although these features could serve to avoid costly defaults and reorganizations, at least in the short run, in many cases they are likely to end up prolonging the lives of doomed enterprises and, in so doing, reducing recoveries by creditors. Or, will these recent rescue financings come to a grinding halt, like many large leveraged restructurings, if the cheap debt financings become significantly more expensive with stiffer covenants?

More generally, the increase in global liquidity and the explosion of debt throughout the finance system have provided a windfall for companies as they add new, low-cost debt to their capital structures and substitute debt for equity in LBOs and buybacks of common stock. But these benefits may also prove to be short-lived, leading to a significant increase in defaults down the road. The question that many credit specialists are now pondering is whether hedging mechanisms like CLOs and credit default swaps, together with the increased liquidity channeled into alternative investments, can be expected to produce a more or less permanent decline in default rates and interest rate yield spreads. Or are we witnessing rather a leverage build-up of monumental proportion—one that is likely to end in a massive increase in defaults, much higher spreads, and a flight-to-quality reminiscent of the meltdowns in the early 1990s and at the start of this decade?

Fridson recently speculated that if the U.S. economy experiences a recession similar to that of the early 1990s with today's credit rating profile superimposed on that GDP scenario, annual default rates in the high-yield bond market could reach 16% or more for several years.²⁹ While neither Fridson nor I are predicting such high default rates, we share the concern that the credit profiles of high-yield bonds and leveraged loans appear to be at their greatest risk levels since

the great Depression years, and certainly since the advent of the modern “junk-bond” period starting in 1978. Yet, as indicated earlier, yield spreads are not forecasting anything like the meltdown implied by forecasting models. On the contrary, as we saw earlier, in May of 2007 both required spreads and the distress ratio fell to their lowest levels in the post-Depression period.

At least three metrics can be cited to bolster the forecast of an imminent increase in defaults and a dramatic flight-to-quality. They are (1) the proportions of new high-yield bond issues rated B- or below; (2) the proportion of new leverage loan issues used in the financing of LBOs that have been rated at the highest risk level (triple C); and (3) the trend and level of debt/EBITDA ratios in newly completed LBO deals.

First, as shown in Figure 8, the percentage of new issues in the high-yield bond market rated B- or below by S&P (the so-called “bad cohort”) has risen to at least 42% in each of the last three years—and reached a new high of more than 47% in the first-half of 2007. Historically, this has meant high default levels starting in the second year after issuance and rising for at least one-to-two years thereafter. This well-documented “aging effect” (illustrated in Figure 9) has failed to materialize in the last few years, lending support to advocates of the “new paradigm.” But, in my view, this heightened risk profile of recent issuers suggests that at least some increase in defaults is inevitable and that claims of a new paradigm are very likely to prove overstated.

Second, during the period 2004-2006, a very high percentage of leveraged loans, the current financing of choice (especially for HLTs), has received the most risky credit rating (CCC or Caa). Indeed, the proportion of triple-Cs rose from an average of under 10% in the 2000-2003 period to 41% in 2004, 44% in 2005, and a truly remarkable 50% in 2006. One reason for such low ratings is the increasing prevalence of second-lien loans, which have been cited by the rating agencies as providing little or no actual protection to creditors if there should be a default (especially if there is little or no debt below the second-lien). But the main reason for the low ratings is the small coverage that cash flows provide to service the increasing interest burden as sponsors pile on debt.

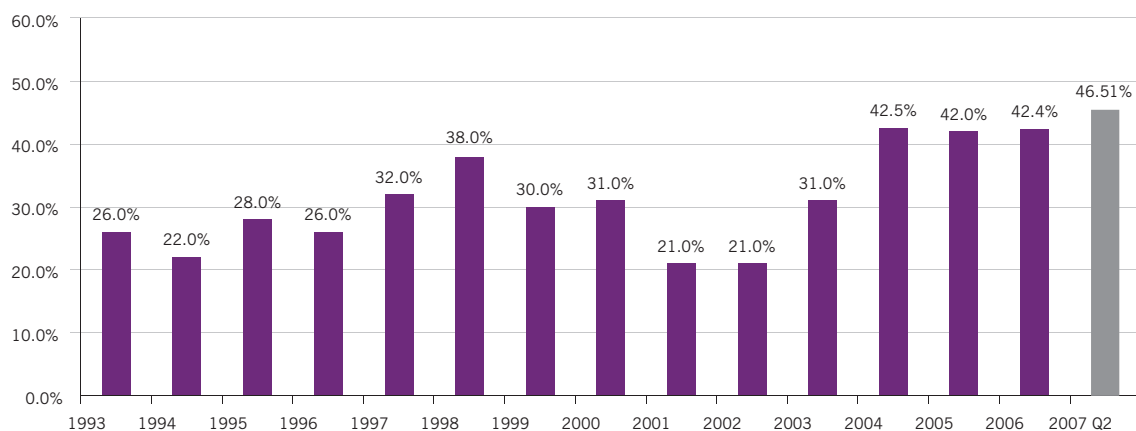
This leads us to the third metric, the debt/EBITDA ratio, which in the first-half of 2007 exceeded the traditional danger point of 6.0 times in Europe and reached 6.3 times in the U.S. for the first half of 2007 (see Figure 10). In an environment where the interest rate on CCC debt is in the 10-12% range, a debt/EBITDA ratio of 6.0 implies that for \$100 of debt and an interest burden of \$10-\$12, the cash flow (\$16.6) will “cover” interest by at most 1.6 times—and the “free” cash flow after deducting capital expenditures may very well be negative. And for those many LBOs (probably close to

28. Concerns about the tax advantages of private equity have been voiced of late with the likely enactment of increased tax rates on the profits earned by hedge funds and

private equity funds on their carried interest in profitable transactions.

29. Fridson (2006).

Figure 8 **New Issues Rated B- or Below**
(based on number of issues)



Source: Standard & Poor's

Figure 9 **Distribution of Years to Default from Original Issuance Date: 1989–2007 (Q2)**

Years to Default	No. of Issues	% of Total
1	184	9%
2	345	17%
3	370	18%
4	304	15%
5	246	12%
6	162	8%
7	136	7%
8	72	4%
9	45	2%
≥10	170	8%

Source: NYU Salomon Center Master Default Database.

one-half of all deals) where the ratio exceeds six, the cover is precariously close to one, possibly even less. No wonder the so-called “Toggle-PIK” loans have become so popular amongst sponsors and debt-issuers but have just recently started to get “push-back” from investors.³⁰

Two other measures of financial risk that warrant attention are the proportion of equity in LBO deals and the purchase price multiples for the transactions. Recent evidence provides mixed signals with the equity proportion remaining at a relatively “safe” level of 30% (as compared to 10-15% in the late '80s) while purchase price multiples have risen to a record average level of over ten times in 2007. And since the

deals have been much larger than ever, with nine of the top ten LBOs taking place in the last year, the absolute levels of debt are now huge.

Recovery Rate Models and Trends

Another critical metric for credit product investors is recovery rates—that is, the percentage of the face value of defaulted debt that will be paid back if there is a default. Our own past research has clearly shown a significant negative correlation between coincident default and recovery rates.³¹ In other words, when default rates rise, recovery rates fall—and vice versa. Here, again, however, the dynamics seem to be changing. Forecasted recovery rates based on a supply/demand relationship for defaulted securities were quite accurate until 2005. But in 2005, our forecasted recovery of about 40-45% turned out to be much lower than the actual rate of above 60% (see Figure 11). And in 2006, the weighted average recovery rate, on an admittedly small number of defaults, was 65.3%, and considerably higher on defaulted loans. Even the unusually low default rate of 0.76% in 2006 would not have predicted these levels. This is another example in which the use of models based on historical data has proved problematic in the recent unusual credit environment.³²

Conclusions

The key question today, then, is whether the benign credit environment, fueled by significant liquidity from traditional and non-traditional institutions, will continue to have such signif-

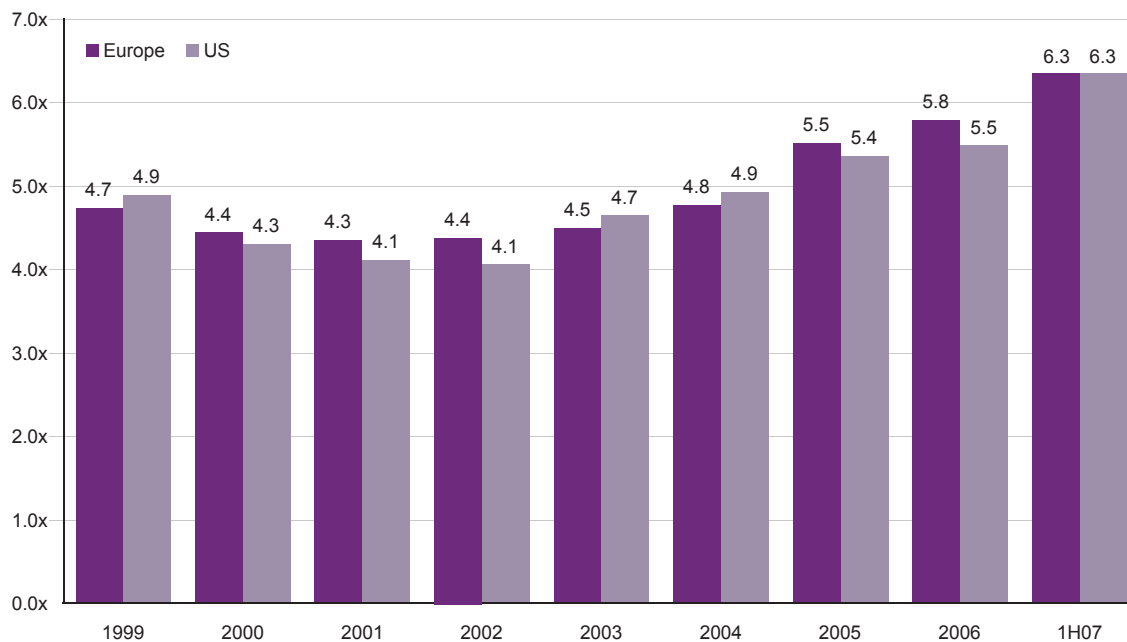
30. Indeed, three very recent attempted HLT financings (Thomson Learning, Dollar General and ServiceMaster Co.) were not able to attract enough investors due to the terms that included the PIK option. Along with the U.S. Foodservice LBO financing, which underwriters were compelled to retain on their own books, the last week of June 2007 was an extremely difficult period. And with other large LBO financings, and Chrysler's giant restructuring, among others, where the underwriters were compelled to retain

the debt on their own books, the month of July, 2007 was even more difficult.

31. Altman, Brady, Resti, and Sironi (2002 and 2005).

32. It is possible that the econometric multivariate models found in Altman, et al (2005) did not adequately reflect potential demand conditions and a revision of these models is probably necessary.

Figure 10 Average Total Debt Leverage Ratio for LBO's: Europe vs. US with EBITDA of €/\$50M or More



Source: Standard & Poor's LCD; Thomson Datastream.

icant effects on default and recovery rates in the high-yield, leveraged-loan, and distressed debt markets, inducing investors to continue supplying leveraged capital at unusually low interest rates. Or will the “hot” money from non-traditional lenders recede, moving to other uses—such as commodities, alternative energy stocks, emerging markets, hybrid securities, distressed real estate, or riskless debt instruments—and more normal default and recovery patterns return?

I believe that the latter scenario will materialize, perhaps as early as the second-half of 2007. If we observe disappointing returns to highly leveraged and rescue-financing packages, some of the hedge funds may find it difficult to cover their own loan requirements as well as the likely fund investor withdrawals. In that case, the broker-dealers who are not only providing the leverage to hedge funds but are also investing in similar strategy deals will pull back from these activities. Investors in risky debt, who have been providing unusually low-cost financing to companies of good and questionable credit quality alike, will finally reassert their traditional risk-return requirements (as we are just beginning to witness).

At the same time, let me also confess to being partly persuaded by some of the arguments made by advocates of a new paradigm in debt markets. Many of the features of the privatization of bankruptcy, which were brought to an end by regulatory developments as well as poorly structured HLT deals at the end of the '80s, appear to have resurfaced in the form of

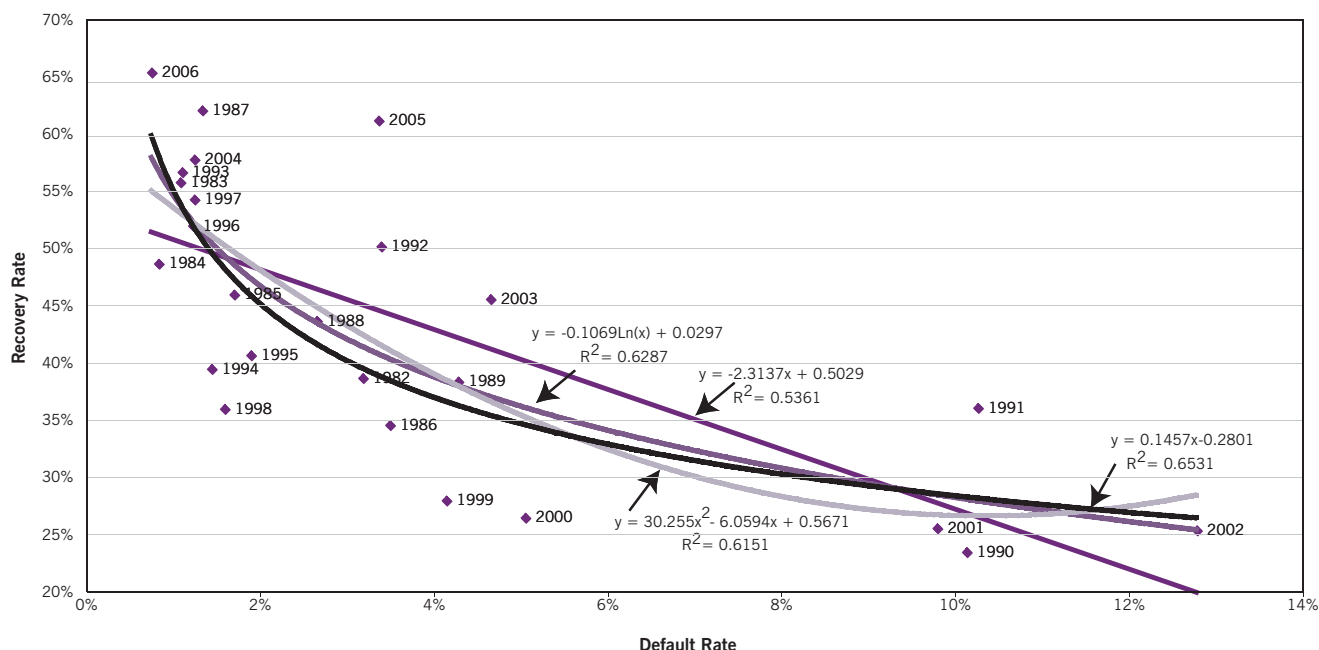
the financing and refinancing activities of today's hedge funds and private equity firms. And today's credit risk mitigation techniques are far more sophisticated than those available in earlier stressed periods. To the extent such innovations succeed in reducing the ultimate costs of reorganizing troubled companies, they will increase leverage ratios and reduce the costs of borrowing—both good things for the economy. They may well also produce lower default rates, which, at least in the short run, are also good for credit markets and the economy.

Such changes may also, of course, require some adjustment of my models for predicting default rates. But while I concede this possibility, my prediction is that the adjustments will not turn out to be major ones. As investment managers like to say, the past is not necessarily a perfect guide to future performance. The question is, which past will repeat itself in the near future? Will it be the longer patterns of the past 30 years, or will the most recent past continue to dominate? I have always believed in “regression to the mean,” and in this case I mean the long-term mean.

EDWARD ALTMAN is the Max L. Heine Professor of Finance and Director of Credit and Fixed Income Markets Research at New York University's Salomon Center at the Stern School of Business. He can be reached at ealtman@stern.nyu.edu.

Figure 11 **Recovery Rate/Default Rate Association**

Defaulted Bonds Data Set (1982–2006), Dollar Weighted Average Recovery Rates to Dollar-Weighted Average Default Rates



Source: The Link Between Default and Recovery Rates, E. Altman, B. Brady, A. Rest, and A. Sironi, NYU Salomon Center, working paper S-03-4, 2003 and *Journal of Business*, November 2005.

References

E. Altman (1984), "A Further Investigation of the Bankruptcy Cost Question," *Journal of Finance*, 39, 1067.

E. Altman (1989), "Measuring Corporate Bond Mortality and Performance," *Journal of Finance*, September, 909-922.

E. Altman (1990), "Investing in Distressed Securities," Altman Foothill Report, Foothill Corp., Los Angeles.

E. Altman (2006), "Are Historically Based Default and Recovery Models Still Relevant in Today's Credit Environment," NYU Salomon Center Working Paper, October.

E. Altman, B. Brady, A. Resti, and A. Sironi (2005), "The Link between Default and Recovery Rates: Theory, Empirical Evidence and Implications," ISDA website, 2002, NYU Working Paper Series #S03-4 (2003) and *Journal of Business*, November, 2203-2227.

E. Altman and E. Hotchkiss (2005), "Corporate Financial Distress and Bankruptcy," John Wiley & Sons, New York.

E. Altman and S. Ramayanan (2007), "Default and Returns in the High Yield Bond Market: 2006 Review," NYU Salomon Center, February.

E. Altman and B. Karlin (2007), "Defaults and Returns in the High-Yield Bond Market: First-Half 2007 Review," NYU Salomon Center, July.

S. Bhagat, A. Shleifer and R. Vishny (1990), "Hostile Takeovers in the 1980s: The Return of Corporate Specialization," Brookings Paper, 1-84.

M. Fridson (2006), "Hard or Soft Landing: Does It Matter," *Distressed Debt Investor*, September, 1-7.

M. Fridson (2007), "Turning Point in Leveraged Finance," *Leveraged World*, Fridsonvision, June 29, 1-10.

S. Gilson (1991), "Managing Default: Some Evidence on How Firms Choose Between Workouts and Chapter 11," *Journal of Applied Corporate Finance*, vol. 4, no. 2, Summer.

S. Gilson, K. John and L. Lang (1990), "Troubled Debt Restructuring: An Empirical Study of Private Reorganization of Firms in Default," *Journal of Financial Economics*, 26, 315.

E. Hotchkiss and R. Mooradian (1997), "Vulture Investors and the Market for Control of Distressed Firms," *Journal of Financial Economics*, 43, 401.

M. Jensen (1989), "Active Investing, LBOs, and the Privatization of Bankruptcy," *Journal of Applied Corporate Finance*, Spring.

M. Jensen (1991), "Corporate Control and the Politics of Finance," *Journal of Applied Corporate Finance*, Summer, 13-33

M. Jensen, S. Kaplan and L. Stiglin (1989), "Effects of LBOs on Tax Revenues of the U.S. Treasury," *Tax Notes*, vol. 42, no. 6, February, 727-733.

S. Kaplan (1989), "Campeau's Acquisition of Federated: Value Created or Value Destroyed?" *Journal of Financial Economics*, vol. 25.

S. Kaplan (1991), "The Effects of Management Buyouts on Operating Performance and Value," *Journal of Financial Economics*, vol. 28, No. 2, 217-254.

S. Kaplan (1994), "Campeau's Acquisition of Federated: Post-Bankruptcy Results," *Journal of Financial Economics*, vol. 35.

S. Kaplan and J. Stein (1993), "The Evolution of Buyout Pricing and Financial Structure in the 1980s," *Quarterly Journal of Economics*, 108, 2, 313-357.

K. Palepu (1990), "Consequences of Leverage Buyouts," *Journal of Financial Economics*, Vol. 27.

Moody's (1999), "Predicting Bond Default and Default Rates," *Global Credit Research*, NY, August.

Moody's (2007), "Corporate Default and Recover Rates; 1920-2006", Special Report, NY, February.

H. Rosenberg (1992), "The Vulture Investors," New York, Harper-Collins and Revised edition (2000), John Wiley & Sons.

Journal of Applied Corporate Finance (ISSN 1078-1196 [print], ISSN 1745-6622 [online]) is published quarterly, on behalf of Morgan Stanley by Blackwell Publishing, with offices at 350 Main Street, Malden, MA 02148, USA, and PO Box 1354, 9600 Garsington Road, Oxford OX4 2XG, UK. Call US: (800) 835-6770, UK: +44 1865 778315; fax US: (781) 388-8232, UK: +44 1865 471775.

Information for Subscribers For new orders, renewals, sample copy requests, claims, changes of address, and all other subscription correspondence, please contact the Customer Service Department at your nearest Blackwell office (see above) or e-mail customerservices@blackwellpublishing.com.

Subscription Rates for Volume 19 (four issues) Institutional Premium Rate* The Americas[†] \$377, Rest of World £231; Commercial Company Premium Rate, The Americas \$504, Rest of World £307; Individual Rate, The Americas \$100, Rest of World £56, €84[‡]; Students** The Americas \$35, Rest of World £20, €30.

*The Premium institutional price includes online access to current content and all online back files to January 1st 1997, where available.

[†]Customers in Canada should add 6% GST or provide evidence of entitlement to exemption.

[‡]Customers in the UK should add VAT at 6%; customers in the EU should also add VAT at 6%, or provide a VAT registration number or evidence of entitlement to exemption.

**Students must present a copy of their student ID card to receive this rate.

For more information about Blackwell Publishing journals, including online access information, terms and conditions, and other pricing options, please visit www.blackwellpublishing.com or contact your nearest Customer Service Department.

Back Issues Back issues are available from the publisher at the current single-issue rate.

Mailing *Journal of Applied Corporate Finance* is mailed Standard Rate. Mailing to rest of world by DHL Smart & Global Mail. Canadian mail is sent by Canadian publications mail agreement number 40573520. **Postmaster** Send all address changes to *Journal of Applied Corporate Finance*, Blackwell Publishing Inc., Journals Subscription Department, 350 Main St., Malden, MA 02148-5020.

Journal of Applied Corporate Finance is available online through Synergy, Blackwell's online journal service, which allows you to:

- Browse tables of contents and abstracts from over 290 professional, science, social science, and medical journals
 - Create your own Personal Homepage from which you can access your personal subscriptions, set up e-mail table of contents alerts, and run saved searches
 - Perform detailed searches across our database of titles and save the search criteria for future use
 - Link to and from bibliographic databases such as ISI.
- Sign up for free today at <http://www.blackwell-synergy.com>.

Disclaimer The Publisher, Morgan Stanley, its affiliates, and the Editor cannot be held responsible for errors or any consequences arising from the use of information contained in this journal. The views and opinions expressed in this journal do not necessarily represent those of the Publisher, Morgan Stanley, its affiliates, and Editor, neither does the publication of advertisements constitute any endorsement by the Publisher, Morgan Stanley, its affiliates, and Editor of the products advertised. No person should purchase or sell any security or asset in reliance on any information in this journal.

Morgan Stanley is a full service financial services company active in the securities, investment management, and credit services businesses. Morgan Stanley may have and may seek to have business relationships with any person or company named in this journal.

Copyright © 2007 Morgan Stanley. All rights reserved. No part of this publication may be reproduced, stored, or transmitted in whole or part in any form or by any means without the prior permission in writing from the copyright holder. Authorization to photocopy items for internal or personal use or for the internal or personal use of specific clients is granted by the copyright holder for libraries and other users of the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com), provided the appropriate fee is paid directly to the CCC. This consent does not extend to other kinds of copying, such as copying for general distribution for advertising or promotional purposes, for creating new collective works, or for resale. Institutions with a paid subscription to this journal may make photocopies for teaching purposes and academic course-packs free of charge provided such copies are not resold. Special requests should be addressed to Blackwell Publishing at: journalsrights@oxon.blackwellpublishing.com.