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How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed

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ABSTRACT

This paper studies thirty-one highly leveraged transactions (HLTs) that become financially, not economically, distressed. The net effect of the HLT and financial distress (from pretransaction to distress resolution, market- or industry-adjusted) is to increase value slightly. This finding strongly suggests that, overall, the HLTs of the late 1980s created value. We present quantitative and qualitative estimates of the (direct and indirect) costs of financial distress and their determinants. We estimate financial distress costs to be 10 to 20 percent of firm value. For a subset of firms that do not experience an adverse economic shock, financial distress costs are negligible.

MANY OF THE HIGHLY LEVERAGED TRANSACTIONS (HLTs) completed in the latter half of the 1980s subsequently defaulted on debt payments, filed for bankruptcy, and, in general, encountered financial distress. Kaplan and Stein (1993a, 1993b), for example, find that more than 30 percent of management buyouts (MBOs) completed after 1985 later defaulted. Kaplan and Stein attribute the increased default rates to poorly designed capital and incentive structures; Jensen (1991) argues that regulatory shocks and a downturn in the overall economy also played a role.

In this paper, we study the effects and sources of financial distress for thirty-one HLTs from the samples in Kaplan and Stein (1990, 1993a) that became distressed. The analysis follows each HLT from before the leveraging transaction to the resolution of financial distress.

We address two primary questions. First, we address how poorly (or well) the HLTs of the second half of the 1980s ultimately fared. Several of the defaults and failures of those HLTs involved large, well-known companies. These companies received a great deal of attention from the popular press, most of which was negative and equated default with disaster.[1] Jensen (1991) argues that such defaults were very costly. According to him, regulatory changes in the late 1980s and early 1990s "substantially increased the frequency and costs of financial distress and bankruptcy" (p. 26).

In contrast, Kaplan (1989b, 1994a, 1994b) studies one of the most celebrated defaults, that of Federated Department Stores, and finds that the original HLT increased Federated's value even after taking into account the costs of financial distress and bankruptcy. Jensen (1989) argues that this outcome should be expected when defaulting firms have substantial going-concern value.

To address this first question, we follow the analysis in Kaplan (1989a, 1989b, 1994a, 1994b) and estimate the value of each distressed HLT from before the HLT announcement until the resolution of financial distress. Our findings are consistent with those predicted by Jensen (1989). We find that from pretransaction to distress resolution, the sample firms experience a marginally positive change in value—adjusted for market or industry stock performance. This finding indicates that, on average, the values of the distressed HLTs do not decline. Given that distressed HLTs did not lose any value, it is highly likely that HLTs overall—distressed and nondistressed—created value. This finding is not consistent with the view that the HLTs of the later 1980s were unsuccessful.

Second, we address how costly financial distress is (both directly and indirectly) and what determines those costs. Financial economists have found it difficult to measure the costs of financial distress. The difficulty is driven by an inability to distinguish whether poor performance by a firm in financial distress is caused by the financial distress itself or is caused by the same factors that pushed the firm into financial distress in the first place. For example, Altman (1984) finds large indirect costs of financial distress, but does not distinguish them from negative operating shocks. Recent studies by Asquith, Gertner, and Scharfstein (1994), Gilson (1997), Hotchkiss (1995), and LoPucki and Whitford (1993b) examine financially distressed firms and find indirect evidence that financial distress is costly.[2] A large fraction of the firms in the samples in all of these papers, however, have negative operating income, and, therefore, questionable value as going concerns. Those firms are not only financially distressed, but also economically distressed, making it difficult to identify whether those papers measure costs of financial distress, economic distress, or an interaction of them.

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[1] For accounts of this attention, see Kaplan (1989b, 1994a, and 1994b).

[2] Both Ofek (1993) and Opler and Titman (1994) study larger samples of firms that experience some financial distress. Ofek finds evidence consistent with leverage reducing the cost of financial distress; Opler and Titman find the opposite.

To address this second question, we first examine the factors that drive the sample firms into financial distress. We find that high leverage is the primary cause of distress. Poor firm performance and, then, poor industry performance play much smaller roles. More importantly, all of our sample firms have positive operating margins in the years they are distressed. In fact, the operating margins typically exceed the industry median. In other words, without their high leverage, our sample firms would appear healthy relative to other firms in the industry. Because of this, we argue that these firms are largely financially distressed, not economically distressed. Our analysis, therefore, attempts to isolate the costs of "pure" financial distress.

We examine quantitative measures of operating performance for evidence of financial distress costs. Operating and net cash flow margins of the distressed firms increase immediately after the HLT, decline when the firms become distressed and while they are distressed, but then rebound after the distress is resolved. The decline in margins from distress onset to postresolution is 10 percent to 15 percent. The change in margins from pre-HLT to postresolution is negligible.

We then estimate the magnitude of the net costs of financial distress directly using capital values—debt and equity market values. For the entire sample, we estimate the costs of financial distress as 10 percent to 20 percent of firm value. Our most conservative estimates do not exceed 23 percent of firm value. Because these estimates may include the effects of negative economic shocks (in addition to the costs of financial distress), we separate firms that experience such a shock from those that do not. For the subset of firms that do not experience a negative shock, we estimate the costs of financial distress to be negligible.

Our analysis also considers qualitative measures of financial distress costs. The firms in our sample appear to incur three such costs most frequently. First, a number of firms are forced to curtail capital expenditures, sometimes substantially. Second, a number of firms appear to sell assets at depressed prices. Third, a number of firms delay restructuring or filing for Chapter 11 in a way that appears to be costly. In contrast, we find no evidence that the distressed firms engage in risk shifting/asset substitution of any kind. In addition to costs of financial distress, we also find benefits: many firms cut costs and replace management.

To the extent they occur, the costs of financial distress that we identify are heavily concentrated in the period after the firms become distressed, but before they enter Chapter 11. We find little evidence that Chapter 11 is inefficient or costly. This result is in agreement with recent work by Alderson and Betker (1995), Gertner and Picker (1992), Gilson (1997), and Maksimovic and Phillips (1998). The result also suggests that the experience of Eastern Airlines, documented in Weiss and Wruck (1996), may be more the exception than the rule.

In our last set of analyses, we estimate the cross-sectional determinants of the costs of financial distress. We find that these costs are negatively related to HLT value and the fraction of total debt owed to banks, but are not

related to capital structure complexity, the presence of junk bonds, the presence of buyout sponsors, time in distress, or industry performance. These results are not consistent with increased complexity increasing the costs of financial distress. They also suggest that costs of financial distress have a fixed component. The results are somewhat supportive of Haugen and Senbet (1978) who argue that claimants in financial distress should be able to renegotiate without affecting the value of the underlying firm. The results also fail to support Shleifer and Vishny (1992), who argue that costs of distress increase as industry performance declines.

We conclude the paper by discussing the implications and generality of our findings. Compared to estimates of the direct costs of financial distress on the order of 3 percent of firm value (Weiss (1990)), our estimates of the costs of financial distress for the entire sample—as low as 10 percent with an upper bound of 23 percent—appear high. This would be particularly true if there is a selection bias in which firms with low costs of financial distress are more likely to become highly leveraged.

Alternatively, the costs of financial distress seem low from an ex ante perspective that trades off expected costs of financial distress against the tax and incentive benefits of debt. Furthermore, the costs of financial distress are low, ex ante and ex post, when we rely on our estimates of the costs of financial distress for the subset of firms that do not experience an economic shock. To the extent that the regulatory pressures cited in Jensen (1991) unexpectedly increased these measured costs, the ex ante expected costs would have been even lower.

While we acknowledge that both interpretations are plausible, we favor the latter and believe our results are consistent with the views in Jensen (1989) and Kaplan (1994b) that financial distress is not particularly costly in HLTs. To the extent that they generalize to mature firms, our results suggest that the pure costs of financial distress are modest. Consistent with this generalization, the results in Opler and Titman (1993) as well as two tests on our sample suggest that the selection bias in this sample is modest.

The paper proceeds as follows. Section I describes the sample, Section II describes the causes of financial distress, and Section III presents the valuation analysis. Section IV presents both quantitative and qualitative evidence of the costs of financial distress and Section V describes the cross-sectional determinants of costly financial distress. Section VI summarizes our results and discusses their implications and generality.

I. Sample Selection and Description

The sample companies are taken from the HLTs in Kaplan and Stein (1990, 1993a). Kaplan and Stein (1993a) study 124 management buyouts completed between 1980 and 1989, in which (1) the companies are originally publicly owned; (2) at least one member of the incumbent management team obtains

an equity interest in the new private firm; and (3) the total transaction value exceeds $100 million. Kaplan and Stein (1990) study 12 leveraged recapitalizations completed between 1985 and 1989. A leveraged recapitalization is similar to a management buyout in many respects except that it does not involve the repurchase of all of a company's stock. There is a dramatic increase in leverage, but public stockholders retain some interest in the company.

HLTs that subsequently become financially distressed are identified from searches of the NEXIS database and from posttransaction financial statements. We use two basic measures of distress as of December 1995: (1) defaulting on a debt payment (possibly leading to a Chapter 11 filing); and (2) an indication that the HLT has attempted to restructure its debt because of difficulty in making debt payments. Companies that encounter some form of distress after a posttransaction releveraging are not considered to have defaulted because the original transaction did not default.

As of December 1995, thirty-one of the 136 firms had defaulted. An additional eight firms attempted to restructure debt because of difficulty in making debt payments leading to a total of potentially thirty-nine financially distressed firms. Consistent with Kaplan and Stein (1993a), the distressed firms are concentrated in later HLTs, with all but four completed after 1985.

We have obtained data for thirty-one of the thirty-nine financially distressed firms from the time of the HLT transaction to the resolution of financial distress. Data on four firms are only partially available either because the firms were sold very shortly after the HLT or because the firms lacked data for several years during distress. Data on four firms are unavailable because the firms were private when they became distressed and subsequently remained private. We do not know how these omissions affect our results, if at all. It also is worth adding that our selection criteria likely exclude some firms that experienced modest financial distress, but were able to restructure without defaulting and without indicating they had difficulty making debt payments.

Data on the firms we have analyzed are obtained from SEC documents that describe the original transaction, from posttransaction filings of 10-Ks, S-1 registrations, prospectuses, and plans of reorganization, and from press reports available on NEXIS. Stock price data are obtained from the Center for Research in Security Prices (CRSP) database and Standard & Poor's *Daily Stock Price Record*. Other financial data are obtained from the COMPUSTAT tapes.

When we perform analyses that require an industry control group, we use the firms covered by the *Value Line Investment Survey* that are in the same industry as our sample firms at the time of the HLT. We use Value Line's classifications because they provide a well-known, economically based, and widely accepted classification scheme. We also do so because of the well-documented inaccuracy of CRSP industry classifications and the nonavailability of historical SIC codes from COMPUSTAT.

Table I
Summary Information for HLTs

Summary information on the sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Company name is as of the HLT date. Value Line industry classification is as of the last pre-HLT date or the HLT date (always within twelve months of the HLT). HLT date is the month of completion. Pre-HLT and Post-HLT dates are the ending months of the last full fiscal year before and the first full fiscal year after the company completed the HLT, respectively. Distress onset date is the ending month of the fiscal year during which the company became distressed. Distress onset is defined as the first post-HLT fiscal year in which at least one of the following occurred: (1) EBITDA/Interest Expense was less than one; (2) the company announced it attempted debt restructuring due to its inability to meet debt obligations; (3) the company defaulted on debt; (4) the company filed for Chapter 11. The nature of the distress resolution indicates whether the company underwent an out of court recapitalization but remained independent, was sold without filing for Chapter 11 and emerged independent, or was sold as part of Chapter 11 proceedings. The Chapter 11 date is the filing date. The distress resolution date is either the first postrecapitalization reporting date, the date of emergence from Chapter 11, or the sale date.

Company	Value Line Industry Classification	Pre-HLT Date	HLT Date	Post-HLT Date	HLT Type	Distress Onset Date	Distress Onset Nature	Default Date	Ch. 11 Date	Distress Resolution Date	Distress Resolution Nature
American Standard	Building Materials	12/87	7/88	12/89	MBO	12/91	Restructuring	—	—	3/95	Recap. and IPO
Bucyrus Erie	Machinery (Construct. & Mining)	12/87	2/88	12/89	MBO	12/91	Restructuring	6/93	2/94	12/94	Ch. 11
Burlington Industries	Textile	9/86	9/87	9/88	MBO	6/90	Restructuring	—	—	9/92	Recap. and IPO
Cherokee	Apparel	11/87	5/89	5/90	MBO	5/92	Restructuring	11/92	4/93	6/93	Ch. 11
Florida Steel	Steel (General)	6/87	11/88	8/89	MBO	6/91	Default	5/92	—	12/92	Recap. and Sale
Fort Howard	Paper & Forest Prods.	12/87	10/88	12/89	MBO	12/90	Restructuring	—	—	6/95	Recap. and IPO
Fruehauf	Auto & Truck	12/85	12/86	12/87	MBO	12/87	Default	6/89	11/89	11/89	Sale

Harcourt Brace Jovanovich	Publishing	12/86	7/87	12/88	Recap.	12/89	Default	12/91	12/91	12/91	Sale
Harvard Industries	Auto Parts (OEM)	9/88	11/88	9/90	MBO	9/90	Default	11/90	4/91	8/92	Ch. 11
Hills Stores	Shoes	1/85	12/85	1/87	MBO	1/91	Default	1/91	2/91	10/93	Ch. 11
Interco	Shoes	2/88	12/88	2/90	Recap.	2/90	Default	6/90	1/91	8/92	Ch. 11
KDI	Electronics	12/87	12/88	12/89	MBO	12/89	Restructuring	12/90	—	6/91	Recap.
Leaseway Transportation	Trucking and Transport. Leasing	12/85	6/87	12/87	MBO	12/89	Restructuring	2/90	12/92	9/93	Ch. 11
R. H. Macy	Retail Stores	7/85	7/86	7/87	MBO	7/90	Default	1/92	1/92	12/94	Ch. 11 and Sale
Mayflower	Trucking and Transport. Leasing	12/85	12/86	12/87	MBO	12/90	Default	12/90	1/92	3/92	Ch. 11
Morse Shoe	Shoes	12/86	3/88	12/88	MBO	12/89	Default	9/90	1/91	1/92	Ch. 11
National Gypsum	Building Materials	12/85	4/86	12/87	MBO	12/88	Default	10/90	10/90	7/93	Ch. 11
Papercraft	Packaging & Containers	12/84	10/85	12/86	MBO	12/87	Restructuring	12/88	3/91	12/91	Ch. 11
Payless Cashways	Retail Building Supplies	11/87	10/88	11/89	MBO	11/91	Restructuring	—	—	11/93	Recap. and IPO
Pay N' Pak	Retail Building Supplies	2/87	3/88	2/89	MBO	2/91	Default	5/91	9/91	11/92	Liquidation
Plantronics	Telecom. Equipment	6/88	4/89	4/90	MBO	4/91	Restructuring	—	—	4/94	Recap. and IPO
Republic Health	Medical Services	12/85	8/86	8/87	MBO	8/87	Default	7/87	12/89	4/90	Ch. 11
Revco	Drug Stores	5/86	12/86	5/88	MBO	5/88	Default	6/88	7/88	6/92	Ch. 11
RJR Nabisco	Tobacco	12/88	3/89	12/90	MBO	12/89	Restructuring	—	—	12/91	Recap. and IPO
Seaman Furniture	Furniture & Home Furnishings	4/87	2/88	4/89	MBO	4/89	Default	8/89	1/92	9/92	Ch. 11
Specialty Equipment	Industrial Services	1/88	9/88	1/90	MBO	1/91	Default	12/90	12/91	3/92	Ch. 11
Southland	Grocery	12/86	12/87	12/88	MBO	12/88	Default	3/90	10/90	3/91	Ch. 11 and Sale
Supermarkets General	Grocery	1/87	10/87	1/89	MBO	1/91	Restructuring	—	—	1/94	Recap.
USG	Building Materials	12/87	7/88	12/89	Recap.	12/90	Default	12/90	3/93	5/93	Ch. 11
Jim Walter	Homebuilding	8/87	1/88	5/89	MBO	5/90	Default	12/89	12/89	3/95	Ch. 11
Welbilt	Industrial Services	12/87	8/88	12/89	MBO	12/90	Restructuring	—	—	12/93	Recap. and IPO

Table I lists the thirty-one sample companies along with the date of the HLT, the nature and date of distress, and the nature and date of the resolution of distress. Twenty-three of the sample firms defaulted on their debt after the HLT. Eight firms successfully restructured without defaulting.

Table II reports information about the value of the HLTs as well as the pre- and post-HLT capital structures of the sample firms. The median total capital of the HLT transaction for these firms is $1 billion. Table II also indicates that the HLTs were indeed very highly leveraged after the transactions. The median coverage ratio, the ratio of operating income before depreciation and amortization (EBITDA) to interest expense, is only 1.16 in the first post-HLT year.[3]

II. Reasons for Financial Distress

In this section, we determine the factors that led to the financial distress of the HLTs. We define the first year of financial distress as the first year that a firm either has EBITDA less than interest expense, attempts to restructure its debt, or defaults. We refer to the first year of financial distress as year 0. For twenty-six firms, the first year of financial distress is the first year the firm attempts to restructure its debt or defaults. For five firms, interest coverage drops below one in the year preceding a default or an attempted restructuring (Burlington Industries, Morse Shoe, National Gypsum, RJR Nabisco, and Southland).[4]

Column 1 of Table III shows that the median firm in the sample has an operating margin (EBITDA/Sales) of 9.8 percent in year zero. This median operating margin exceeds the 8.5 percent for the industry comparison group. In other words, all thirty-one firms have positive operating income and are, typically, more healthy than the typical firm in the industry despite being financially distressed.

Those results contrast with those for the samples used in previous studies of the effects of financial distress by Asquith et al. (1994), Hotchkiss (1995), and Gilson (1997). The median firm in those studies has operating income roughly equal to zero.

Although the firms have healthy operating margins and operating income, column 1 of Table IV confirms that operating income at those firms roughly equals interest payments. The median interest coverage ratio (EBITDA to interest expense) in the first year of financial distress is 0.97.

The rest of Tables III and IV explore in more detail the factors that led to distress. There are four possible factors: (1) industry performance, (2) firm performance, (3) short-term interest rate changes, and (4) firm leverage.

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[3] In the paper, interest expense includes total interest payments and, therefore, includes both cash and noncash interest.

[4] All of our results—for operating performance and for returns—are insensitive to defining the first year of distress as the first year of either default or an attempted financial restructuring.

Table II
Pre- and Post-HLT Leverage

Summary of pre- and post-HLT (highly leveraged transaction) leverage statistics for the sample of HLTs comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Pre-HLT capitalization figures are based on the last available balance sheet before announcement of the HLT. Pre-HLT income statement figures, EBITDA (earnings before interest, taxes, depreciation, and amortization), and interest expense are based on financial statements for the fiscal year preceding the year in which the HLT was announced, in most cases already adjusted to exclude operations to be discontinued following the HLT. Post-HLT capitalization figures are based on the first available balance after HLT completion. Post-HLT income statement figures are based on financial statements for the first full fiscal year following the year in which the HLT is completed. Total equity is defined as the total compensation paid to pre-HLT shareholders, which for MBOs includes the value of all cash and securities received, and for leveraged recapitalizations includes the value of dividends received, both cash and securities, plus the ex-dividend value of equity. Total capital is the pre-HLT book value of debt, plus pre-HLT preferred stock (at liquidation preference), plus total equity. Interest expense includes both cash and noncash components.

Company	Total Equity ($MM)	Total Capital ($MM)	Book Value of Debt/Total Capital		EBITDA/Interest Expense	
			Pre-HLT	Post-HLT	Pre-HLT	Post-HLT
American Standard	2,431	2,846	0.15	1.02	14.24	1.47
Bucyrus Erie	289	319	0.09	0.33	1.47	0.97
Burlington Industries	2,447	2,851	0.14	1.04	9.48	1.28
Cherokee	380	387	0.02	0.47	29.40	1.21
Florida Steel	306	381	0.20	1.06	8.71	2.08
Fort Howard	3,569	4,050	0.12	0.91	14.36	1.05
Fruehauf	947	1,555	0.39	1.08	3.70	1.20
Harcourt Brace Jovanovich	2,541	3,353	0.24	0.97	9.37	1.12
Harvard Industries	229	392	0.41	0.83	2.89	0.38
Hills Stores	717	873	0.18	0.85	13.70	1.88
Interco	2,908	3,492	0.17	0.90	9.56	0.55
KDI	184	242	0.24	1.08	7.50	0.57
Leaseway Transportation	600	1,000	0.40	0.63	4.90	2.47
R. H. Macy	3,518	4,829	0.27	0.86	5.52	1.47
Mayflower	249	363	0.31	0.92	8.97	1.63
Morse Shoe	258	342	0.25	1.08	3.80	0.79
National Gypsum	1,571	1,698	0.07	0.89	19.43	1.41
Papercraft	262	269	0.03	0.86	NA	0.76
Payless Cashways	963	1,251	0.23	0.91	7.51	1.08
Pay N' Pak	213	298	0.29	1.01	2.39	1.17
Plantronics	153	174	0.12	0.99	34.33	0.81
Republic Health	359	858	0.58	0.95	1.91	0.56
Revco	1,249	1,554	0.20	1.07	7.42	0.67
RJR Nabisco	24,561	30,102	0.18	0.97	6.29	1.32
Seaman Furniture	337	355	0.05	0.98	19.84	0.47
Specialty Equipment	326	427	0.24	0.97	4.06	1.16
Southland	3,810	5,307	0.28	0.91	6.93	0.77
Supermarkets General	1,828	2,037	0.10	0.93	10.34	1.18
USG	2,175	3,026	0.28	1.04	8.39	1.35
Jim Walter	2,408	3,250	0.26	1.06	4.70	0.99
Welbilt	213	254	0.16	0.74	9.38	1.27
Median	717	1,000	0.20	0.95	7.95	1.16
Mean	2,000	2,520	0.21	0.91	9.68	1.13
Standard deviation	4,349	5,335	0.12	0.17	7.62	0.47

Table III

Potential Sources of Financial Distress—Cash Shortfall at Distress Onset

Summary of potential sources of financial distress and the estimated impact of each source on cash flows for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Year t = 0 denotes the fiscal year in which the company experienced the onset of distress. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. EBITDA is earnings before interest, taxes, depreciation, and amortization. Change in LIBOR is calculated as the nominal increase in 3-month LIBOR at the fiscal year-end. Portion of distress due to a source = (cash shortfall due to source/sum of cash shortfall due to all sources). Cash shortfall due to industry performance is calculated as the amount by which the industry median in year t = 0 but the industry median had the same EBITDA/Sales company had the same operating performance relative to the industry median in year t = 0 but the industry median had the same EBITDA/Sales as in year t = −1. Cash shortfall due to firm performance is calculated as the amount by which cash flow would improve if the company had the same EBITDA/Sales as the industry median in year t = 0. Cash shortfall due to leverage is calculated as the amount by which cash flow would improve if the company had the same Interest Expense/Assets as the industry median in year t = 0. Cash shortfall due to short-term rate changes is calculated as the amount by which cash flow would improve if the company had paid interest on floating rate debt (proxied by bank debt) at the same rate as in year t = −1.

| Company | EBITDA/Sales (t = 0) | | Interest Expense/Assets (t = 0) | | Change from t = −1 to t = 0 | | Portion of Distress due to | | | |
	Company	Industry Median	Company	Industry Median	Ind. Median EBITDA/Sales	LIBOR	Industry Performance	Firm Performance	Leverage	Short-Term Rate Changes
American Standard	9.8%	5.9%	8.5%	3.1%	−33.9%	−3.36	0.97	−0.75	0.96	−0.18
Bucyrus Erie	10.7%	5.5%	12.4%	1.1%	−13.8%	−3.36	0.28	−0.84	1.56	0.00
Burlington Industries	10.2%	9.2%	12.6%	3.5%	−4.1%	−0.76	0.06	−0.14	1.12	−0.04
Cherokee	10.7%	7.7%	12.6%	3.2%	−5.9%	−1.24	0.09	−0.38	1.32	−0.02
Florida Steel	9.3%	7.6%	7.4%	2.2%	−31.1%	−2.53	0.59	−0.25	0.77	−0.11
Fort Howard	39.9%	16.3%	11.7%	2.6%	−13.6%	−0.57	0.59	−2.22	2.68	−0.05
Fruehauf	6.4%	7.7%	5.7%	1.7%	59.6%	1.69	−0.84	0.47	1.31	0.06
Harcourt Brace Jovanovich	8.4%	12.8%	13.3%	1.7%	−20.5%	−1.05	0.07	0.15	0.78	0.00
Harvard Industries	3.0%	10.1%	9.5%	3.1%	−13.1%	−0.76	0.04	0.55	0.42	−0.01
Hills Stores	5.7%	7.5%	14.7%	2.3%	−7.2%	−0.99	0.07	0.27	0.67	−0.01
Interco	10.1%	8.1%	26.4%	2.9%	37.0%	−1.43	−0.25	−0.19	1.50	−0.06
KDI	8.2%	8.8%	11.4%	1.6%	5.2%	−1.05	−0.03	0.05	1.04	−0.05

Leaseway Transportation	11.0%	10.2%	8.6%	4.6%	−5.2%	−1.05	0.27	−0.34	1.18	−0.11
R. H. Macy	9.9%	7.3%	11.1%	3.0%	−1.5%	−0.95	0.03	−0.54	1.52	−0.02
Mayflower	6.3%	11.1%	8.3%	4.4%	8.7%	−0.57	−0.08	0.77	0.31	0.00
Morse Shoe	8.5%	8.1%	14.8%	2.9%	37.0%	−1.05	−0.55	−0.11	1.69	−0.03
National Gypsum	11.7%	8.5%	10.1%	2.1%	−17.2%	1.45	0.24	−0.32	1.08	0.00
Papercraft	12.8%	12.5%	13.1%	1.7%	−0.5%	1.69	0.00	−0.02	0.97	0.05
Payless Cashways	8.2%	5.0%	10.5%	1.6%	−17.0%	−3.11	0.47	−0.91	1.53	−0.09
Pay N' Pak	6.1%	6.0%	9.3%	1.9%	−2.9%	−1.76	0.04	−0.04	1.08	−0.08
Plantronics	17.1%	13.7%	16.4%	6.5%	0.0%	−2.36	0.00	−0.41	1.58	−0.17
Republic Health	11.4%	16.5%	14.2%	4.5%	−1.3%	0.98	0.01	0.26	0.71	0.02
Revco	4.0%	5.7%	7.8%	2.4%	7.3%	0.16	−0.05	0.31	0.74	0.00
RJR Nabisco	24.6%	5.3%	8.1%	4.1%	−11.3%	−1.05	−0.58	3.55	−2.09	0.11
Seaman Furniture	7.6%	10.6%	11.4%	2.0%	−8.6%	3.02	0.04	0.15	0.67	0.14
Specialty Equipment	15.5%	14.8%	11.1%	2.1%	12.8%	−0.99	−0.17	−0.07	1.31	−0.07
Southland	5.4%	5.4%	11.5%	2.7%	−3.1%	1.45	0.03	0.00	0.92	0.06
Supermarkets General	5.4%	5.7%	10.0%	2.7%	0.2%	−0.99	0.00	0.11	0.92	−0.02
USG	15.1%	8.9%	17.0%	2.5%	4.8%	−0.57	−0.13	−1.11	2.28	−0.04
Jim Walter	27.8%	12.8%	11.6%	6.5%	20.2%	−1.24	0.62	2.00	−1.68	0.06
Welbilt	7.2%	14.8%	11.6%	2.1%	12.8%	−0.57	−0.06	0.56	0.52	−0.02
Median	9.8%	8.5%	11.4%	2.6%	−2.9%	−0.99	0.03	−0.04	1.04	−0.02
Mean	11.2%	9.4%	11.7%	2.9%	−0.2%	−0.74	0.06	0.02	0.95	−0.02
Standard deviation	7.5%	3.4%	3.8%	1.3%	19.3%	1.50	0.36	0.96	0.91	0.07

Table IV
Potential Sources of Financial Distress—Interest Coverage at Distress Onset

Summary of pro forma EBITDA/Interest coverage ratios (EBITDA is earnings before interest, taxes, depreciation, and amortization), estimated by eliminating the impact of potential sources of financial distress for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Year $t = 0$ denotes the fiscal year in which the company experienced the onset of distress (see Table I). Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. Change in LIBOR is calculated as the nominal increase in 3-month LIBOR at the fiscal year-end. Pro forma coverage due to a source = (pro forma EBITDA due to source/pro forma Interest Expense due to source). Pro forma EBITDA due to industry performance is calculated as the EBITDA that the company would have reported if it had had the same operating performance relative to the industry median in year $t = 0$ but the industry median had the same EBITDA/Sales as in year $t = -1$. Pro forma EBITDA due to firm performance is calculated as the EBITDA that the company would have reported if it had had the same EBITDA/Sales as the industry median in year $t = 0$. Pro forma interest expense due to leverage is calculated as the interest expense the company would have reported if it had had the same Interest Expense/Assets as the industry median in year $t = 0$. Pro forma interest expense due to short-term rate changes is calculated as the interest expense the company would have reported if it had paid interest (proxied by 3-month LIBOR) on floating rate debt (proxied by total bank debt outstanding) at the same rate as in year $t = -1$. Pro forma coverage if EBITDA/Sales margin the same as of $t = -1$ is calculated as the EBITDA that the company would have reported if it had had the same EBITDA/Sales margin as in the last predistress fiscal year.

Company	EBITDA/Interest Expense (t = 0)	Pro forma Coverage Due to				Pro forma Coverage if EBITDA/Sales Margin as of t = −1
		Industry Performance	Firm Performance	Firm Leverage	Change in Short-Term Rates	
American Standard	1.27	1.92	0.76	3.52	1.14	1.37
Bucyrus Erie	1.02	1.18	0.53	11.97	1.02	0.97
Burlington Industries	0.89	0.93	0.80	3.18	0.87	1.08
Cherokee	0.77	0.82	0.56	3.02	0.76	1.03
Florida Steel	1.17	1.70	0.95	3.87	1.06	1.68
Fort Howard	1.09	1.26	0.44	4.78	1.07	1.11
Fruehauf	1.20	0.75	1.45	4.01	1.23	0.52

Harcourt Brace Jovanovich	0.32	0.40	0.49	2.51	0.32	0.76
Harvard Industries	0.38	0.44	1.26	1.18	0.37	1.09
Hills Stores	1.08	1.16	1.41	6.79	1.07	1.42
Interco	0.55	0.40	0.44	4.95	0.53	0.52
KDI	0.57	0.54	0.61	4.02	0.55	0.74
Leaseway Transportation	1.93	2.04	1.80	3.63	1.85	1.84
R. H. Macy	1.00	1.02	0.74	3.76	1.00	1.34
Mayflower	1.54	1.42	2.73	2.91	1.54	2.01
Morse Shoe	0.97	0.71	0.92	4.86	0.96	0.78
National Gypsum	0.87	1.06	0.64	4.31	0.87	1.37
Papercraft	0.73	0.73	0.71	5.61	0.76	0.76
Payless Cashways	1.27	1.53	0.76	8.48	1.21	1.29
Pay N' Pak	1.01	1.04	0.98	4.91	0.96	1.50
Plantronics	0.78	0.78	0.63	1.96	0.73	0.74
Republic Health	0.56	0.57	0.81	1.76	0.57	1.03
Revco	0.67	0.62	0.96	2.21	0.67	0.99
RJR Nabisco	1.07	1.21	0.23	2.11	1.04	0.93
Seaman Furniture	0.47	0.51	0.65	2.67	0.57	0.68
Specialty Equipment	0.91	0.80	0.86	4.83	0.87	1.08
Southland	0.77	0.80	0.77	3.28	0.81	0.36
Supermarkets General	1.35	1.35	1.44	4.99	1.32	1.26
USG	1.02	0.97	0.60	6.85	1.00	1.19
Jim Walter	0.98	0.81	0.45	1.76	0.96	0.94
Welbilt	0.84	0.75	1.72	4.68	0.82	1.32
Median	0.97	0.82	0.76	3.87	0.96	1.08
Mean	0.94	0.98	0.91	4.17	0.92	1.09
Standard Deviation	0.34	0.43	0.51	2.18	0.32	0.38

In Table III, we follow the analysis in Asquith et al. (1994) to measure the relative contributions of these four factors.[5] To do this, we measure how much cash flow after interest (EBITDA net of interest expense) in year 0 would have improved if (1) the firm performed the same relative to its industry, but the industry performed at its median level in year -1—industry performance; (2) the firm performed as well as the median firm in the industry in year 0—firm performance; (3) the firm paid interest at the short-term interest rate in effect in year -1; and (4) the firm had the same ratio of interest to assets as the median firm in the industry—firm leverage. The sum of all these changes would move the sample firms' after-interest cash flow in year 1 to that of the median firm in the industry in the prior year (year -1).

To calculate the relative contribution of each source, we divide the change in cash flow after interest attributable to each source by the sum of the changes from all four sources. Table III indicates that firm leverage is the primary cause of distress for twenty-six of the thirty-one HLTs and accounts for a median of 104 percent of the shortfall in cash flow after interest. Even the 104 percent understates the importance of leverage because leverage is responsible for a positive cash shortfall for two firms, RJR Nabisco and Walter Industries, but the sum of the different sources is negative. The sum and the ratio are negative because the industry and the firm performed unusually well. On average, firm performance, industry performance, and interest rate changes play no role in explaining financial distress.

In Table IV we use a second measure of the sources of financial distress. We calculate what interest coverage would have been if (1) the firm's industry had performed as well as the previous year; (2) the firm had performed as well as the industry; (3) interest rates had not changed; and (4) the firm had the same interest expense as the median firm in the industry. We also consider a fifth factor by measuring interest coverage using the firm's operating margins in the year before distress.

Table IV confirms that high leverage is primarily responsible for financial distress in our sample. If the sample firms had had the industry level of interest expense, they would have had a median coverage ratio of 3.87, not 0.98. The table also indicates that poor firm performance, industry performance, and interest rate changes have a negligible effect on interest coverage ratios and did not lead to financial distress for the sample firms. In fact, the results show that HLT firm and HLT industry performance helped delay the onset of financial distress; that is, interest coverage ratios would have been lower if the sample firms had not outperformed their industries (median of 0.76, not 0.98) and if the industries had not performed better than the previous year (median of 0.93, not 0.98).[6]

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[5] The methodology is not identical because Asquith et al. (1994) do not consider the effect of changes in short-term interest rates.

[6] The results are similar when we use the pre-HLT year, not the predistress year (year -1), as the reference year.

The fifth factor also plays a role in financial distress, albeit not nearly as much as leverage. Interest coverage would have been a median of 1.08 (not 0.98) if the firms had achieved the same operating margins as in the year before distress. This suggests that the firms experience a decline in margins in the year of distress (this is confirmed in Table VI below). The result is also consistent with some of the sample firms experiencing adverse economic shocks that contribute to the firms' becoming distressed. We explore this further in Section IV.

Our results differ substantially from those in Asquith et al. (1994), who study a sample of firms that have very low operating income and find that poor firm operating performance is the primary source of financial distress, explaining 56 percent of the cash flow shortfall. Firm leverage explains only 21 percent of the cash flow shortfalls in their sample. This is a strong confirmation of the success of our sample selection procedures. Unlike Asquith et al., we have isolated a sample of firms for whom leverage is the primary, if not the only, source of financial distress. In that sense, our firms are largely financially distressed, not economically distressed.

III. Value Calculations

This section measures the change in value of the distressed HLTs from two months before the transaction is announced until the resolution of distress. The analysis follows those in Kaplan (1989a) and Kaplan (1994a). The date that a market value is available after the distress resolution is referred to as the resolution valuation date.[7]

The value on the resolution date is one of four types: (1) a company's value when it exits Chapter 11; (2) a company's value when it is sold; (3) a company's value when it issues public equity; or (4) a company's value when it is liquidated. Sixteen of the firms in this sample exit Chapter 11 as public companies, two are sold in the process of exiting Chapter 11, one firm is liquidated in Chapter 11, three are sold as part of a restructuring, and eight subsequently go public after successfully restructuring. One firm, Supermarkets General, is still private and, therefore, cannot be valued yet. For three of the sample companies, we obtain a plan of reorganization but are unable to obtain a market value at resolution. In these cases, we estimate equity values using the estimated reorganization value of the company. (The results are similar when we exclude these companies.)

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[7] The time from the beginning of the year of distress onset (year 0) until the month of distress resolution averages 44 months, varying from a minimum of 24 months to more than 60 months (for five firms). Compared to other studies, this time period may seem long. There are two reasons for the length. First, the period is artificially lengthened at the start, because it begins at the beginning of the fiscal year of distress, not at the time of distress. Second, the period is artificially lengthened at the end for those firms that are privately held and restructure outside of Chapter 11. These firms can be valued only at the time of an IPO.

For all thirty companies with resolutions, we estimate nominal, market-adjusted, and industry-adjusted returns. We calculate and present the returns to total capital (equity, debt, preferred stock, and capitalized leases) invested in the company two months before the HLT is announced. The market-adjusted returns adjust the nominal returns obtained by investors by the return on the CRSP value-weighted index over the same period. The industry-adjusted returns perform a similar adjustment, using as a benchmark the returns on a portfolio of firms in the same Value Line industry. The methodology is detailed in the Appendix.

Three aspects of this methodology merit discussion. First, the market and industry adjustments are equivalent to assuming that the HLT assets would have performed as well as the market or the industry if the HLTs had not occurred. Because the market and industry adjustments are applied to total capital, not equity, the market- and industry-adjusted calculations assume that the total capital of each HLT—debt and equity—has an *asset* beta of one. This is roughly consistent with the individual betas and the industry betas of the sample firms.

Second, the methodology calculates values using book values for debt. Though this may misstate value in some cases, it is unlikely to do so by very much. Before the HLT, most firms do not have much long-term debt. The equity market value, which is correctly measured, is the primary value of the company. At the time of the distress resolution, companies that emerge from Chapter 11 typically recast their balance sheets to reflect the market value of the new debt liabilities. Companies that are sold report sale prices for debt. The book value estimates may be inaccurate only for those companies that restructure without Chapter 11 and subsequently go public. Because such firms are substantially less leveraged after going public, the book value estimates slightly understate their true market values. In fact, this is what we find when we use end-of-month bond prices for the public debt of these firms (obtained from Standard & Poor's).

Finally, our measures of return performance are equivalent to the realized net present value of the HLT scaled by the total capital invested. Because they are in present value terms, these measures are directly comparable across firms and do not have to be annualized.

Table V reports that the total capital of our sample firms earns marginally more than the industry, with a mean return of 12 percent and a median return of 4 percent. Adjusted for market returns, the sample firms earn a mean return of 8 percent and a median return of 5 percent. With standard errors of roughly 8 percent, none of these returns differs significantly from zero.[8] These results, therefore, indicate that the combination of benefits from the HLTs and costs of distress did not decrease the value of capital and, in all likelihood, increased it.

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[8] At the same time, one can statistically reject the hypothesis that these returns are more negative than -10 percent.

This conclusion has one immediate implication. If HLTs that defaulted earned slightly positive market-adjusted returns, it is virtually certain that HLTs overall—those that defaulted and those that did not—earned significantly positive market-adjusted returns.

Table V reports three other results. First, although total capital earns small market- and industry-adjusted returns, the division of those returns is unequal. Postbuyout capital earns average market- and industry-adjusted returns of −23 percent and −19 percent, respectively. Prebuyout capital that sells to postbuyout capital earns significantly positive market- and industry-adjusted returns.

Second, postbuyout equity investors in the distressed HLTs do not fare very well. Equity investors earn nothing in eight of the HLTs and earn an average total nominal return of −7 percent. Adjusted for the market and the industry, the average return is −48 percent and −57 percent, respectively. The market adjustments overstate the returns to equity because they assume post-HLT equity betas equal one.

Third, postbuyout equity holders lose 90 percent or more of their investment in fourteen of the nineteen transactions that entered Chapter 11. The violation of absolute priority for equity holders, therefore, appears to be infrequent and small in market value terms. This appears to be consistent with, albeit somewhat less favorable for equity holders than, the results for equity holders in Weiss (1990).

IV. Evidence on the Costs of Financial Distress

This section considers quantitative and qualitative evidence on the costs of financial distress.

A. Quantitative Estimates

We consider quantitative measures of the costs of financial distress. First, we measure changes in operating performance, both absolutely and relative to industry. Second, we compare the estimated value of the firm at the time it enters distress to its value at resolution.

A.1. Changes in Operating Performance

We follow Kaplan (1989a) and measure changes in operating performance as the percentage change in operating margins (EBITDA to sales), capital expenditure margins, and net cash flow margins (EBITDA net of capital expenditures, all divided by sales). Our results are qualitatively similar when we divide by assets.[9] We also measure these changes relative to the industry by subtracting the changes in median operating performance for firms in the same industry. To the extent that direct costs of financial distress do not reduce reported operating income, this measure may understate the costs of financial

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[9] We prefer to use sales rather than assets as a deflator because assets are affected both by accounting changes at the time of the HLT and by subsequent asset sales.

Table V
Returns to Pre- and Post-HLT Total Capital and Post-HLT Equity

Nominal, market-adjusted and industry-adjusted returns generated by a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently became distressed. Returns on pre-HLT capital denote returns to total capital invested from two months before the announcement of any HLT to the date of distress resolution. Returns on post-HLT total capital denote returns to total capital invested in HLT from the HLT date to the date of distress resolution. Returns on post-HLT equity denote returns to total equity invested in HLT from the HLT date to the date of distress resolution. Pre-HLT total capital is defined as the book value of debt + preferred stock (at liquidation preference) + market value of equity, two months before announcement of the HLT. Post-HLT total capital is defined as the book value of debt + preferred stock (at liquidation preference) + total equity invested, at the HLT date. Nominal returns on capital = (sum of all payments to capital)/total capital. Payments to capital include cash interest and debt principal repaid, dividends paid, equity repurchased, and total value received by capital at distress resolution, net of proceeds from new equity and debt issues. Nominal returns on equity = (sum of all payments to HLT equity)/HLT equity. Payments to HLT equity include dividends paid, equity repurchased, and total value realized by equity at distress resolution. Market-adjusted and industry-adjusted returns are calculated similarly to nominal returns, except that payments to total capital and to equity are adjusted for the return over the same period on: (1) the CRSP value-weighted portfolio of NYSE, AMEX, and Nasdaq stocks, and (2) an equally weighted portfolio of stocks in each company's Value Line industry sector, respectively.

Company	Returns on Pre-HLT Total Capital			Returns on Post-HLT Total Capital			Returns on Post-HLT Equity		
	Nominal	Market-Adjusted	Industry-Adjusted	Nominal	Market-Adjusted	Industry-Adjusted	Nominal	Market-Adjusted	Industry-Adjusted
American Standard	353%	114%	134%	101%	16%	48%	410%	141%	213%
Bucyrus Erie	29%	18%	20%	13%	-48%	-41%	-73%	-87%	-84%
Burlington Industries	143%	93%	92%	39%	17%	12%	139%	87%	76%
Cherokee	100%	16%	56%	16%	-20%	14%	-69%	-81%	-69%
Florida Steel	82%	15%	17%	24%	-21%	-24%	-61%	-78%	-80%
Fort Howard	125%	13%	23%	57%	-15%	-9%	2%	-56%	-55%
Fruehauf	45%	2%	12%	0%	-18%	-20%	-61%	-74%	-70%

Harcourt Brace Jovanovich	44%	8%	28%	−19%	−35%	−23%	−94%	−96%	−95%
Harvard Industries	44%	−9%	−5%	−2%	−38%	−41%	−90%	−94%	−95%
Hills Stores	85%	−7%	−24%	65%	−11%	−26%	16%	−18%	−29%
Interco	28%	−12%	−28%	−17%	−39%	−47%	−100%	−100%	−100%
KDI	11%	−17%	5%	−26%	−43%	−33%	−100%	−100%	−100%
Leaseway Transportation	27%	−17%	−11%	11%	−12%	−17%	−98%	−99%	−99%
R. H. Macy	88%	−22%	−14%	51%	−23%	1%	−100%	−100%	−100%
Mayflower	37%	−5%	1%	22%	−18%	−3%	−81%	−91%	−89%
Morse Shoe	1%	−37%	−52%	−33%	−54%	−60%	−95%	−97%	−98%
National Gypsum	109%	18%	26%	1%	−27%	−19%	−93%	−94%	−93%
Papercraft	4%	−40%	−52%	−17%	−46%	−54%	−100%	−100%	−100%
Payless Cashways	180%	49%	53%	86%	6%	−1%	19%	−40%	−48%
Pay N' Pak	21%	−13%	−15%	−22%	−47%	−47%	−100%	−100%	−100%
Plantronics	183%	64%	−5%	113%	42%	−20%	776%	413%	65%
Republic Health	3%	−36%	−25%	−16%	−37%	−34%	−98%	−98%	−98%
Revco	14%	−24%	−5%	−19%	−49%	−44%	−100%	−100%	−100%
RJR Nabisco	164%	67%	20%	46%	14%	−4%	126%	40%	−36%
Seaman Furniture	−72%	−79%	−66%	−75%	−85%	−74%	−100%	−100%	−100%
Specialty Equipment	7%	−35%	−14%	−18%	−45%	−24%	−100%	−100%	−100%
Southland	62%	28%	4%	18%	1%	−13%	−90%	−92%	−94%
Supermarkets General	NA	NA	NA	NA	NA	NA	NA	NA	NA
USG	54%	12%	28%	1%	−34%	−19%	−97%	−98%	−98%
Jim Walter	89%	21%	42%	37%	−26%	−31%	−4%	−58%	−63%
Welbilt	184%	60%	128%	108%	9%	66%	193%	34%	116%
Median	50%	5%	4%	12%	−25%	−22%	−90%	−93%	−93%
Mean	75%	8%	12%	18%	−23%	−19%	−7%	−48%	−57%
Standard deviation	82%	42%	46%	45%	27%	29%	187%	106%	76%

distress. The understatement, however, is likely to be slight. First, some of the direct costs do reduce operating income. Second, Weiss (1990) estimates the direct costs of financial distress at roughly three percent of total assets for firms that enter Chapter 11. This is, therefore, the upper bound on direct costs for firms that enter Chapter 11. Direct costs are likely lower for firms that do not enter Chapter 11.

Table VI reports our results. Panel A of the table indicates that the distressed HLTs initially register positive operating performance. Operating margins in the first full year after the HLT (post-HLT) increase by 12.8 percent nominally, and by only 1.7 percent adjusting for the industry. Capital expenditure margins decline as well, although these declines are likely to have been expected at the time of the HLT. The combination of these two changes leads to an increase in net cash flow margins of 52.9 percent and industry-adjusted 54.5 percent. While the industry-adjusted increase in operating margins is well below the 9 percent found for HLTs overall by Kaplan and Stein (1993a), the 66.3 percent increase in net cash flow margins compares well with the 43 percent they find for HLTs overall.

By the first year of distress (year 0), however, operating performance deteriorates. Compared to pre-HLT performance, operating margins have declined by 18.2 percent and industry-adjusted by 13.3 percent. Net cash flow margins have increased, but only by 14.6 percent and industry-adjusted 28.1 percent. Similarly, Panel B shows that operating margins decline by 16.1 percent and industry-adjusted 17.0 percent from the year before distress to the year of distress.

As noted earlier, these results differ from those in Denis and Denis (1995) who find that operating income adjusted for industry performance is flat. We find no evidence that poor industry performance is responsible for financial distress. The results in year 0 (and the years after) are qualitatively similar whether we adjust for industry performance or not.

Panels B and C indicate that HLT operating and net cash flow margins continue to decline somewhat from the first year of distress until the year before distress is resolved. Immediately after the resolution of distress, however, performance rebounds. For example, Panel C indicates that operating margins exceed their levels in the first year of distress (year 0).

Overall, from the year before distress to the first year after resolution, Panel B shows that operating margins decline by 7.1 percent and industry-adjusted by 12.3 percent; net cash flow margins decline by 9.0 percent and industry-adjusted by 16.7 percent. From the year before the HLT to the first year after resolution, operating margins decline by 14.9 percent and industry-adjusted by 12.4 percent; net cash flow margins increase by 29.9 percent and industry-adjusted by 22.0 percent.[10]

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[10] Because ten firms do not have postresolution operating results—nine were sold and one was liquidated—the postresolution operating results could be biased if the ten missing firms systematically underperformed the included ones. Although we cannot reject a possible bias, we find no evidence of underperformance. The operating performance of the ten firms without postresolution results—from both pre-HLT to preresolution and from the onset of distress to preresolution— are qualitatively similar to those for the twenty-one firms with postresolution operating results.

It is possible that these operating performance measures are biased in some way due to post-HLT asset sales. For example, if firms in financial distress divest less profitable divisions or assets, then the operating margins of the firms that sell assets would increase without reflecting any actual improvements to the continuing operations. This does not appear to be an important problem in our sample. When we remove the seven sample firms that undertook substantial asset sales during their distress period,[11] the operating results reported in Table VI do not decline, but improve slightly.

One interpretation of the operating results is that the net costs of financial distress are 10 percent to 17 percent, corresponding to the percentage decline in operating and net cash flow margins from the year before distress to the year after resolution. Adding direct costs of 3 percent on the high end, generates a range of 10 percent to 20 percent. This interpretation requires three assumptions. First, it assumes that a change in margins is permanent and translates into a permanent drop in cash flows to investors. In a perpetuity valuation framework, this leads to an identical percentage decline in value.

Second, it assumes that we have accurately identified the time that financial distress begins. Though we believe we have done so, financial distress might have begun before a firm attempted to restructure, defaulted, or saw its coverage drop below one. In the extreme, some readers have argued that financial distress for these firms began when the HLT was completed. We think this is an unreasonable assumption because none of the sample firms considered themselves distressed immediately after the HLT. After all, investors and managers chose to finance the capital structures that were put in place and presumably would not have done the HLT if they thought they would become distressed immediately.

Nevertheless, under the assumption that financial distress began at the HLT, operating performance from before the HLT to postresolution becomes the relevant measure of the costs of financial distress. The results over this period suggest that the net costs of financial distress are, if anything, lower. Operating margins decline by roughly the same amount over this longer period (industry-adjusted 12.4 percent), and net cash flow margins actually increase (industry-adjusted 22.0 percent).

Third, our interpretation assumes that the typical firm did not experience an adverse economic shock or economic distress (worse than that suffered by the industry). As noted earlier, it is likely that some of the decline in margins is caused by adverse economic shocks. We explicitly address this issue in Section A.3.[12]

In conclusion, the changes in operating performance suggest that the net costs of financial distress are no greater than 10 percent to 20 percent of initial value and, when adverse economic shocks are accounted for, are likely smaller.

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[11] These seven firms undertook total post-HLT asset sales that exceeded 25 percent of the pre-HLT asset value, and sold at least half of these assets during the distress period.

[12] Again, it is important to repeat that, even after these shocks, the operating margin of the typical sample firm exceeded the operating margin of its industry.

Table VI
Changes in Operating Performance

Summary statistics on median growth in operating (EBITDA/Sales), capital expenditures (CAPX/Sales), and net cash flow margins (NCF/Sales) for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Nominal and industry-adjusted median growth calculations are adjusted for negative base-year values by defining individual company and industry base-year variables as max[variable(base-year), 0.01]. Pre-HLT is the last full year before the fiscal year in which the HLT was announced. Post-HLT is the first full fiscal year after completion of the HLT. Year t = 0 denotes the fiscal year in which the company experienced the onset of distress. Preresolution is the last full fiscal year before distress resolution. Postresolution is the first full fiscal year after distress resolution. Industry-adjusted growth is given by nominal growth less growth in the median industry variable over the same period. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. EBITDA is earnings before interest, taxes, depreciation, and amortization. NCF is defined as EBITDA less capital expenditures. Figures in parentheses indicate the number of observations used to calculate median growth, which might be less than the full sample size due to unavailability of firm or industry data for certain years. CAPX is capital expenditures.

	Panel A: From Pre-HLT to					
	Post-HLT	Year 0	Year +1	Year +2	Preresolution	Postresolution
EBITDA/Sales						
Nominal Growth	12.8%	−18.2%	−34.4%	−19.0%	−27.2%	−14.9%
	(31)	(31)	(30)	(27)	(30)	(21)
Industry Adjusted Growth	1.7%	−13.3%	−22.6%	−6.7%	−10.9%	−12.4%
	(31)	(31)	(30)	(27)	(30)	(21)
CAPX/Sales						
Nominal Growth	−44.8%	−47.6%	−55.8%	−54.5%	−58.6%	−44.1%
	(31)	(31)	(30)	(27)	(30)	(20)
Industry Adjusted Growth	−40.7%	−44.4%	−34.2%	−25.8%	−37.8%	−14.2%
	(31)	(31)	(30)	(27)	(30)	(20)
NCF/Sales						
Nominal Growth	52.9%	14.6%	−33.4%	0.3%	−0.2%	29.9%
	(31)	(31)	(30)	(27)	(30)	(20)
Industry Adjusted Growth	54.5%	28.1%	−31.3%	11.2%	−3.2%	22.0%
	(31)	(31)	(30)	(27)	(30)	(20)

Panel B: From Year −1 to

	Year 0	Year +1	Year +2	Preresolution	Postresolution
EBITDA/Sales					
Nominal Growth	−16.1%	−29.6%	−14.7%	−22.9%	−7.1%
	(31)	(30)	(27)	(30)	(21)
Industry Adjusted Growth	−17.0%	−24.2%	−8.6%	−16.9%	−12.3%
	(31)	(30)	(27)	(30)	(21)
CAPX/Sales					
Nominal Growth	−12.6%	−25.2%	−16.6%	−21.9%	2.9%
	(31)	(30)	(27)	(30)	(20)
Industry Adjusted Growth	−10.6%	−14.6%	−7.3%	−9.8%	11.0%
	(31)	(30)	(27)	(30)	(20)
NCF/Sales					
Nominal Growth	−17.0%	−34.4%	−18.1%	−30.2%	−9.0%
	(31)	(30)	(27)	(30)	(20)
Industry Adjusted Growth	−8.8%	−36.7%	−34.9%	−44.7%	−16.7%
	(31)	(30)	(27)	(30)	(20)

Panel C: From Year 0 to

	Year +1	Year +2	Preresolution	Postresolution
EBITDA/Sales				
Nominal Growth	−15.0%	−11.4%	−18.5%	3.3%
	(30)	(27)	(30)	(21)
Industry Adjusted Growth	−10.8%	−5.4%	−22.8%	14.7%
	(30)	(27)	(30)	(21)
CAPX/Sales				
Nominal Growth	−15.9%	5.7%	−11.4%	3.1%
	(30)	(27)	(30)	(20)
Industry Adjusted Growth	−5.1%	6.1%	8.7%	28.6%
	(30)	(27)	(30)	(20)
NCF/Sales				
Nominal Growth	−23.3%	−16.1%	−18.2%	−6.7%
	(30)	(27)	(30)	(20)
Industry Adjusted Growth	−48.7%	−25.0%	−49.6%	−21.7%
	(30)	(27)	(30)	(20)

A.2. Value at Resolution Versus Value at Distress

Table VII uses a value-based approach to measure the magnitude of the costs of financial distress. The table compares the estimated capital value of the distressed HLTs at the end of the year before the onset of distress—the end of year −1 or, equivalently, the beginning of year 0, the fiscal year in which they become financially distressed—to the capital value realized through the resolution of distress. The capital value realized from the end of the year before the onset of distress until resolution as well as the market and industry adjustments are calculated in the same way as the returns from pre-HLT to resolution in Section III.

Because most of the securities of the sample firms were not publicly traded at the onset of distress, we must estimate capital value at the end of the fiscal year before the HLT becomes distressed. We follow Kaplan and Ruback (1995) and estimate capital value as the sum of (1) cash on hand and (2) the product of the median industry multiple of total capital to EBITDA that year and the HLT's EBITDA. Kaplan and Ruback find that this method is successful in explaining a large fraction of the variation in actual HLT transaction values but underestimates the transaction values by 17 percent. We, nevertheless, rely on this method because the HLTs in their sample forecast that operating margins would increase by roughly the same 17 percent in the first year after the HLT. In other words, applying this methodology to EBITDA in the first post-HLT year yields estimated values that are (statistically) indistinguishable from the transaction values.[13]

The value-based results in Table VII are consistent with the operating performance results in Table VI. We report the mean in addition to the medians for our return results because the mean is more appropriate than the median for measuring the return to an equal-weighted portfolio of HLT investments. Using the year before the onset of financial distress, the median estimates imply that the costs of financial distress are 20.7 percent adjusted for the industry and 24.7 percent adjusted for the market. The mean estimated costs of financial distress, however, are smaller, at 9.7 percent and 9.8 percent adjusted for the industry and the market, respectively. Neither of the mean values differs significantly from zero. These estimates, like those for operating performance, are likely to overstate the net costs of financial distress because they include the effects of adverse economic shocks to some of the sample firms.

Table V provides another estimate of the net costs of financial distress. As noted in the analysis of operating performance, one might make the extreme assumption that financial distress began immediately after the HLT was

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[13] Using estimated capital value at the end of the year before the onset of distress may overstate the value of the HLTs when they became distressed because the estimates use EBITDA in the year before distress. As Table VI indicates, these firms experienced a decline in operating margins from the predistress year to the year of distress. To the extent that the decline and distress are precipitated by an adverse economic shock, our estimated capital value will not be adjusted for the shock. For this reason, we believe the results here will overstate the costs of financial distress.

completed. Under this assumption, the losses to post-HLT capital would approximate the costs of financial distress. In Table V, we estimate the median losses to post-HLT capital as 22 percent industry-adjusted and 25 percent market-adjusted; the average losses are 19 percent and 23 percent, respectively. Again, it is likely that these estimates overstate the true costs of financial distress for this sample.

There is an additional reason that both sets of estimates—from the year before distress and from the HLT—may overstate the costs of financial distress. For the twenty sample firms with available postresolution stock returns, we calculate industry- and market-adjusted stock returns from postresolution through December 1995. We find that the equities of these firms earn average cumulative market-adjusted returns of 26.7 percent and industry-adjusted returns of 77.9 percent. In other words, the sample firms do unexpectedly well after emerging from Chapter 11 or restructuring. This result is consistent with recent work by Eberhart, Aggarwal, and Altman (1997) and Alderson and Betker (1996) who study larger samples of firms that emerge from Chapter 11.[14] As Eberhart et al. note, this result is particularly striking given the extensive literature that finds that initial public offerings subsequently underperform the market.[15]

A.3. The Effect of Adverse Economic Shocks on Estimated Costs of Distress

In this section, we examine the potential effect of adverse economic shocks on our previous estimates of the costs of financial distress. Because our goal is to isolate the pure costs of financial distress, we would like to remove from our estimates the initial value loss due to a negative shock to cash flows—that is, we would like to eliminate firms that experienced poor business outcomes unrelated to financial distress. In an attempt to do this, we separate the sample firms into two subsamples based on whether they did or did not experience an adverse economic shock.[16]

We classify firms as having experienced a negative economic shock if there is explicit qualitative evidence that the shock occurred—either in company reports or press accounts.[17] For example, the two gypsum producers in our sample and the press reported that severe weakness in the construction industry had adversely affected the gypsum business. Similarly, several retailers in the sample noted that retail demand had declined substantially. This procedure classifies seventeen firms as having suffered a negative shock.

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[14] Eberhart et al. control for industry and size. They do not control for book-to-market because it often is unavailable at the time of the resolution. In their view, industry matching should control for a large portion of the book-to-market effect. We obtain qualitatively similar results for our sample when we control for book-to-market and size. We do so by regressing postresolution monthly returns against the market, a book-to-market factor (HML), and a size factor (SMB).

[15] See Ritter (1997) for a summary of this literature.

[16] We thank the referee for suggesting this procedure.

[17] Interested readers should consult the caselets in the web version of the paper, Appendix B.

Table VII
Estimates of Costs of Financial Distress

Estimated costs of distress for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989 which subsequently become distressed. Predistress figures correspond to the last fiscal year before distress onset. Total capital is defined as the sum of the book value of total debt (long-term and short-term), preferred stock (at liquidation preference), and market value of equity. Net capital is the total capital less cash and short-term investments. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. Estimated predistress value of total capital for each company is calculated as [product of median industry (net capital/EBITDA) and company EBITDA] plus company cash balances at predistress year-end. EBITDA is earnings before interest, taxes, depreciation, and amortization. Value of total capital realized during distress is the present value of all payments to capital made from distress onset up to resolution (inclusive), discounted back to the predistress year. Payments to capital include cash interest and debt principal repaid, dividends paid, equity repurchased, and total value received by capital at distress resolution, net of proceeds from new equity and debt issues. Market-adjusted value realized is calculated by discounting payments to capital by the rate of return earned on the CRSP value-weighted portfolio of NYSE, AMEX, and Nasdaq stocks during the distress period. Industry-adjusted value realized is calculated by discounting payments to capital by the rate of return earned on an equally weighted portfolio of stocks in each company's Value Line industry sector. The upper bound on costs of distress is estimated as the difference between the value of total predistress capital and the total capital realized during distress.

Company	Predistress (t = −1)			Value of Total Capital Realized During Distress		Market-Adjusted Costs of Financial Distress		Industry-Adjusted Costs of Financial Distress	
	EBITDA ($MM)	Ind. Median (Net Capital/EBITDA)	Est. Value of Total Capital ($MM)	Market-Adjusted ($MM)	Industry-Adjusted ($MM)	Nominal ($MM)	Percentage of Total Capital t = −1 (%)	Nominal ($MM)	Percentage of Total Capital t = −1 (%)
American Standard	384	6.4	2,529	2,975	2,784	−446	−17.6	−255	−10.1
Bucyrus Erie	23	9.1	244	87	82	157	64.4	162	66.5
Burlington Industries	270	5.2	1,479	2,195	2,504	−716	−48.4	−1,024	−69.2
Cherokee	34	5.4	181	108	145	73	40.4	36	19.7
Florida Steel	71	5.2	375	249	232	126	33.6	143	38.2
Fort Howard	430	4.9	2,105	3,575	3,602	−1,470	−69.9	−1,497	−71.1
Fruehauf	118	6.6	852	670	714	182	21.4	139	16.3
Harcourt Brace Jovanovich	355	7.9	2,802	1,965	2,482	837	29.9	321	11.4
Harvard Industries	66	5.4	370	325	280	45	12.3	90	24.4
Hills Stores	157	6.0	956	549	567	407	42.6	389	40.7

Interco	193	6.2	1,273	1,708	1,569	−435	−34.2	−296	−23.2
KDI	33	6.8	233	155	183	78	33.4	50	21.7
Leaseway Transportation	124	4.6	579	376	573	203	35.1	6	1.0
R. H. Macy	923	6.8	6,286	5,035	5,680	1,251	19.9	606	9.6
Mayflower	55	4.7	275	185	187	90	32.8	88	32.1
Morse Shoe	37	6.2	237	119	99	118	49.7	138	58.3
National Gypsum	253	5.5	1,410	735	766	675	47.9	644	45.7
Papercraft	23	4.6	109	123	110	−14	−12.6	−1	−1.2
Payless Cashways	187	6.3	1,212	1,339	1,128	−127	−10.5	84	6.9
Pay N' Pak	42	7.1	301	103	110	199	65.9	191	63.4
Plantronics	17	7.7	144	211	101	−67	−46.3	43	29.8
Republic Health	73	8.7	641	544	573	97	15.1	68	10.6
Revco	159	8.0	1,315	958	923	357	27.1	392	29.8
RJR Nabisco	3,642	7.9	30,122	28,497	20,475	1,625	5.4	9,647	32.0
Seaman Furniture	29	5.5	179	60	103	119	66.4	76	42.4
Specialty Equipment	61	8.6	526	246	280	279	53.1	246	46.7
Southland	205	5.8	1,212	3,836	3,609	−2,624	−216.6	−2,398	−197.9
Supermarkets General	316	7.8	2,480	NA	NA	NA	NA	NA	NA
USG	388	7.0	2,781	1,785	2,127	996	35.8	654	23.5
Jim Walter	380	7.8	3,099	2,546	2,498	553	17.8	600	19.4
Welbilt	37	8.6	323	319	409	4	1.3	−85	−26.4
Median	141	6.4	904	549	573	118	24.3	89	20.7
Mean	302	6.5	2,210	2,112	1,879	86	9.8	309	9.7
Standard Deviation	659	1.3	5,434	5,246	3,841	766	55.1	1,872	51.0

Though it is unlikely that any classification scheme can perfectly distinguish the purely financially distressed from the economically distressed firms, we believe that the firms in our sample that did not face an adverse economic shock are more likely to be purely financially distressed than the sample as a whole. Similarly, the firms we identify as having suffered an adverse economic shock are more likely to have suffered some economic distress.

Panels A and B of Table VIII report statistics on the returns to pre- and post-HLT total capital, as well as the value-based costs of distress, for the "shock" and "no shock" subsamples respectively. Panel A indicates that firms that experienced an adverse shock experienced significantly negative returns to post-HLT total capital and significant costs of financial distress.

In contrast, Panel B indicates that the firms that did not suffer shocks experienced negligible costs of financial distress. The median costs of financial distress are 1.3 percent and 6.9 percent adjusted for market and industry, respectively. The mean costs are, in fact, benefits, at −14.2 percent and −9.6 percent, respectively. All four of these estimates are statistically insignificant.

The median returns on post-HLT total capital are −12.1 percent market-adjusted and −19.7 percent industry-adjusted. The mean returns are −12.2 percent and −15.8 percent, respectively. These returns are less negative than the returns to the overall sample. As we discuss in Section A.2, this is our most conservative measure because it assumes firms were distressed immediately after the HLT.

We obtain qualitatively similar results when we classify firms as having experienced a negative economic shock if there is not only qualitative evidence of a shock, but also quantitative evidence—a firm's operating margins dropped by more than one-third from the year before the onset of distress to the year after distress. This procedure classifies twelve firms as having suffered a negative shock. This classification is more conservative because the nonshocked firms likely include some firms that do incur an economic shock.

The evidence in Table VIII, therefore, indicates that firms that do not experience shocks have significantly lower estimated costs of distress than firms that did, both statistically and economically. In fact, the estimated costs of financial distress for the "no shock" subsample are statistically indistinguishable from zero. The similarity of results using the two classification procedures provides strong support for our conclusion that firms that did not suffer shocks experienced negligible costs of financial distress.

We also repeat the operating performance analysis in Table VI on the two subsets of firms. Table IX reports the results for operating performance from year −1 to the first postresolution year. The results from the last pre-HLT year and from year 0 are qualitatively similar. Table IX indicates that firms that did not experience an adverse shock showed a slight improvement in median (industry-adjusted) operating margins from the last year before distress to the last distress year and to the first postresolution year. The results are similar when measured from the last pre-HLT year. Additionally, the results for net cash flow margins are similar to those for operating margins. The operating performance results, therefore, also imply minimal costs of financial distress (again, based on a perpetuity valuation).

Overall, then, when the effects of adverse economic shocks are filtered out, our estimates imply small or insignificant costs of pure financial distress. We cannot distinguish, however, between two additional implications of these results. The results are consistent with low financial distress costs overall. Under this interpretation, the economic shocks drive the higher costs for the shocked sample. Alternatively, it is possible that there is an interaction between an adverse economic shock and costly financial distress. (Stulz (1990) presents a theoretical rationale for this effect.) If this is true, then financial distress may exacerbate the poor (industry-adjusted) performance of the firms that we identify as having suffered an adverse economic shock.

B. Qualitative Estimates: Operating Changes after Distress and Chapter 11

In this section, we augment the quantitative estimates of the costs of financial distress with qualitative evidence of such costs. The qualitative costs include evidence of (1) irrevocable and costly reductions in capital expenditures; (2) asset sales at depressed prices; (3) undesired losses of key customers; (4) undesired losses of suppliers; (5) asset substitution; and (6) delay. Of course, as discussed in Harris and Raviv (1990), Kaplan (1994a, 1994b), and Wruck (1990), financial distress also can provide benefits. Such benefits include (1) the removal of poor management, (2) operating improvements, and (3) the sale or discontinuation of poorly performing assets.

We obtain this qualitative evidence from press reports, annual reports, 10Ks, and plans of reorganization (PORs), paying special attention to management's discussion of operations and liquidity in the latter three types of documents.

Table X summarizes our qualitative analysis of financial distress. We find evidence of costly investment cuts, depressed asset sales, and delay, which are detailed in Tables XI.A–XI.C. (Appendix B to the web version of the paper describes the onset and outcome of distress for each company.)

Table XI.A indicates that all thirty-one firms in our sample curtail capital expenditures at some point. At least some of the cuts appear to be undesirable and potentially costly for seventeen of the firms.

Table XI.B reports that ten firms appear to sell assets at depressed prices and nine firms may have done so. Twelve firms do not appear to sell assets at depressed prices.

Table XI.C shows that fourteen firms took actions to delay the resolution of the financial distress. The delay appears to have been costly for at least nine of these firms.

We also consider whether the sample firms engage in risk shifting or asset substitution. In particular, we look for instances in which the distressed firms made large investments in unusually risky capital expenditures, projects, or acquisitions. We find no evidence of such behavior in any of the sample firms. It is likely that the strict bond covenants associated with the HLT play a large role in this result. Nevertheless, this evidence is consistent with the results in Parrino and Weisbach (1997) that the distortions of risk shifting are inconsequential to capital structure choice.

Table VIII

Estimates of Costs of Financial Distress for "Shock" and "No Shock" Subsamples

Estimated costs of financial distress for firms that did and did not incur an adverse economic shock ("shock" and "no shock" subsamples, respectively), for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989, and which subsequently become distressed. A firm is classified as suffering from an adverse economic shock if there is qualitative evidence of such a shock based on company reports and press accounts. Returns on pre-HLT capital denote returns to total capital invested from two months before announcement of an HLT to the date of distress resolution. Returns on post-HLT total capital denote returns to total capital invested in the HLT from the HLT date to the date of distress resolution. Returns on capital = (sum of all payments to capital)/total capital. Costs of distress are estimated as the difference between the value of total predistress capital and the total capital realized during distress. Pre-HLT total capital is defined as the book value of debt + preferred stock (at liquidation preference) + market value of equity, two months before announcement of the HLT. Post-HLT total capital is defined as the book value of debt + preferred stock (at liquidation preference) + total equity invested, at the HLT date. Predistress figures correspond to the last fiscal year before distress onset. Estimated predistress value of total capital for each company is calculated as [product of median industry (net capital/EBITDA) and company EBITDA] plus company cash balances at predistress year-end. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. EBITDA is earnings before interest, taxes, depreciation, and amortization. Value of total capital realized during distress is the present value of all payments to capital made from the distress onset up to resolution (inclusive), discounted back to the predistress year. Payments to capital include cash interest and debt principal repaid, dividends paid, equity repurchased, and total value received by capital at distress resolution, net of proceeds from new equity and debt issues. Market-adjusted returns, industry-adjusted returns, and upper bounds on costs of distress are calculated by adjusting payments to total capital for the return over the same period on: (1) the CRSP value-weighted portfolio of NYSE, AMEX, and Nasdaq stocks, and (2) an equally weighted portfolio of stocks in each company's Value Line industry sector, respectively. Panel A firms are: American Standard, Cherokee, Florida Steel, Fort Howard, Harvard Ind., Hills Stores, KDI, R. H. Macy, Mayflower, Morse Shoe, National Gypsum, Pay N' Pak, Republic Health, Seaman Furniture, Specialty Equipment, USG, and Jim Walter. Panel B firms are: Bucyrus Erie, Burlington Ind., Fruehauf, Harcourt Brace Jovanovich, Interco, Leaseway Transportation, Papercraft, Payless Cashways, Plantronics, Revco, RJR Nabisco, Southland, and Welbilt. Significant at the 1 percent level ***; at the 5 percent level **; and at the 10 percent level *.

	Returns on Pre-HLT Total Capital		Returns on Post-HLT Total Capital		Estimated Costs of Financial Distress	
	Market-Adjusted	Industry-Adjusted	Market-Adjusted	Industry-Adjusted	Market-Adjusted	Industry-Adjusted
Panel A: "Shock" Subsample						
Median	−7.4%	1.5%	−26.6%***	−24.3%***	33.6%***	24.4%***
Mean	−3.2%	6.9%	−31.1%***	−22.3%***	28.3%***	24.4%***
Standard deviation	39.6%	45.5%	21.4%	28.3%	32.6%	30.9%
No. of positive	7	9	1	3	15	15
Subsample size	17	17	17	17	17	17
Panel B: "No-shock" Subsample						
Median	18.2%	12.1%	−12.1%	−19.7%***	1.3%	6.9%
Mean	22.9%**	19.7%	−12.2%	−15.8%*	−14.2%	−9.6%
Standard deviation	41.2%	48.3%	29.6%	31.4%	69.4%	65.6%
No. of positive	9	8	6	2	7	8
Subsample size	13	13	13	13	13	13

Table IX
Changes in Operating Performance during Financial Distress for "Shock" and "No Shock" Subsamples

Summary statistics on median growth in operating (EBITDA/Sales), capital expenditures (CAPX/Sales), and net cash flow margins (NCF/Sales) for firms that did and did not incur an adverse economic shock, for a sample of HLTs (highly leveraged transactions) comprising both MBOs (management buyouts) and leveraged recapitalizations completed between 1980 and 1989, and which subsequently become distressed. A firm is classified as suffering from an adverse economic shock if there is qualitative evidence of such a shock based on company reports and press accounts. Nominal and industry-adjusted median growth calculations are adjusted for negative base-year values by defining individual company and industry base-year variables as max[variable(base-year), 0.01]. Year $t = -1$ is the last fiscal year before distress onset. Year $t = 0$ denotes the fiscal year in which the company experienced the onset of distress. Preresolution is the last full fiscal year before distress resolution. Postresolution is the first full fiscal year after distress resolution. Industry-adjusted growth is given by nominal growth less growth in the median industry variable over the same period. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. EBITDA is earnings before interest, taxes, depreciation, and amortization. NCF is defined as EBITDA less capital expenditures. Figures in parentheses indicate the number of observations used to calculate median growth, which for each panel might be less than full subsample size due to unavailability of firm or industry data for certain years.

Panel A: "Shock" Subsample from Year -1 to					
	Year 0	Year +1	Year +2	Preresolution	Postresolution
EBITDA/Sales					
Nominal growth	−24.2%	−55.3%	−37.0%	−47.6%	−31.6%
	(17)	(16)	(13)	(17)	(10)
Industry-adjusted growth	−19.6%	−36.7%	−19.9%	−30.9%	−49.7%
	(17)	(16)	(13)	(17)	(10)
CAPX/Sales					
Nominal growth	−12.6%	−25.2%	−22.5%	−29.8%	−10.1%
	(17)	(16)	(13)	(17)	(10)
Industry-adjusted growth	−19.1%	−15.8%	−7.3%	−12.3%	−15.8%
	(17)	(16)	(13)	(17)	(10)
NCF/Sales					
Nominal growth	−22.0%	−56.5%	−49.1%	−49.1%	−52.9%
	(17)	(16)	(13)	(17)	(10)
Industry-adjusted growth	−15.2%	−63.3%	−42.3%	−61.5%	−42.5%
	(17)	(16)	(13)	(17)	(10)
Panel B: "No Shock" Subsample from Year -1 to					
	Year 0	Year +1	Year +2	Preresolution	Postresolution
EBITDA/Sales					
Nominal growth	4.8%	−1.5%	−0.7%	1.7%	11.0%
	(14)	(14)	(14)	(13)	(11)
Industry-adjusted growth	6.0%	7.0%	9.0%	8.7%	5.6%
	(14)	(14)	(14)	(13)	(11)
CAPX/Sales					
Nominal growth	−16.8%	−32.2%	−7.6%	−13.4%	9.4%
	(14)	(14)	(14)	(13)	(10)
Industry-adjusted growth	−0.1%	−12.6%	−6.0%	10.4%	18.9%
	(14)	(14)	(14)	(13)	(10)
NCF/Sales					
Nominal growth	−0.9%	6.4%	3.7%	−2.9%	−1.7%
	(14)	(14)	(14)	(13)	(10)
Industry-adjusted growth	20.1%	−22.0%	−9.6%	−5.2%	31.2%
	(14)	(14)	(14)	(13)	(10)

Table X

Qualitative Measures of Costs of Financial Distress

Qualitative measures of the costs of financial distress for a sample of HLTs (highly leveraged transactions) completed between 1980 and 1989 which subsequently become distressed. Figures indicate how many companies, out of a total sample of 31, exhibited evidence of different costs and/or benefits of distress during various time periods from predistress through resolution. Evidence of costly distress is gathered from public company filings with the Securities and Exchange Commission, bankruptcy documents, news stories, and analyst reports. "Predistress" is the period from the completion of the HLT until the onset of distress. "Distress to Chapter 11/ Resolution" is the period from distress onset until the earliest of either a filing for Chapter 11 or the resolution of distress. "Chapter 11 to Resolution" applies only to firms that file for bankruptcy, and is defined as the time period between the initial filing of Chapter 11 and the resolution of bankruptcy. "Predistress to Resolution" aggregates all three previously defined time periods. Investment cuts are considered "costly" if there is evidence the cuts result in the forgoing of profitable opportunities for the company. Asset sales are defined as "desperation" if the company is forced to sell assets it wishes to retain or that are part of core operations, as defined by the company. "Delay" is defined as evidence that management "unreasonably" delayed taking actions that would have resulted in the resolution of financial distress, such as restructuring the company or filing for Chapter 11.

	Predistress	Distress to Chapter 11/ Resolution	Chapter 11 to Resolution	Predistress to Resolution
Costs of Distress:				
Investment:				
Evidence of cuts	16	28	6	31
Evidence of unexpected/costly cuts	3	16	6	17
Asset sales:				
Evidence of desperation asset sales?	3	20	4	22
Proceeds less than expected?	N.A.	9	1	10
Delay?	N.A.	12	3	14
Asset aubstitution?	0	0	0	0
Difficulties with customers?	0	8	0	8
Difficulties with suppliers?	0	9	1	10
Lose competitiveness?	0	7	2	9
Benefits of distress:				
Costs cut/operations improved?	N.A.	20	8	23
Management changed?	N.A.	12	6	15

Finally, Table X reports that ten firms experienced difficulties with suppliers, eight firms had difficulties with customers, and nine firms appear to have been hurt competitively while they were distressed.

On the benefit side, twenty-three of the financially distressed firms clearly make greater efforts to cut costs and attempt to improve operations after becoming distressed. Fifteen firms bring on a new chairman, president, or CEO during the period of distress.

The analysis in Table X also reports when the costs and benefits of financial distress are incurred. To the extent they occur, the costs are heavily concentrated in the period after the firms become distressed, but before they enter Chapter 11. There is little qualitative evidence that Chapter 11 is inefficient or even costly for our sample firms. Under the safe harbor from

Table XI.A
Evidence of Investment Cuts

Qualitative evidence of investment cuts for a sample of HLTs completed between 1980 and 1989 which subsequently become distressed. Investment cuts are considered "costly" if there is evidence the cuts result in the forgoing of profitable opportunities for the company. Evidence of investment cuts is gathered from public company filings with the Securities and Exchange Commission, bankruptcy documents, news stories, and analyst reports. "Predistress" is the period from the completion of the HLT until the onset of distress. "Distress to Chapter 11/resolution" is the period from distress onset until the earliest of either a filing for Chapter 11 or the resolution of distress. "Chapter 11 to resolution" applies only to firms that file for bankruptcy, and is defined as the time period between the initial filing of Chapter 11 and the resolution of bankruptcy. "All periods" aggregates all three previously defined time periods.

Company	Timing of Investment Cuts	Costly?
American Standard	All periods	No.
Bucyrus Erie	All periods	No. The company not only made some acquisitions, but also the industry as a whole was depressed and with excess demand, making new investments unnecessary.
Burlington Industries	All periods	No. The company explicitly stated it had recently completed a modernization project for all its facilities, and therefore capital expenditures were expected to fall.
Cherokee	All periods	Yes. The company mentioned it was having unforeseen asset sales because of restrictive debt covenants and inability to generate enough cash flow from operations.
Florida Steel	Distress to Chapter 11/resolution	Yes.
Fort Howard	Predistress	No.
Fruehauf	Distress to Chapter 11/resolution	Uncertain. Capital expenditures were reduced to half of pre-HLT levels, but the company still invested in a new factory.
Harcourt Brace Jovanovich	Distress to Chapter 11/resolution	Yes. Failure to invest in new schoolbook offerings and maintain its Parks division led to loss of customers and a lower than expected sale price for latter.
Harvard Industries	Distress to Chapter 11/resolution and Chapter 11 to resolution	Uncertain. Capital expenditures were cut significantly both pre- and post-Chapter 11 filing, but it successfully developed three new product lines to carry the company into the future.
Hills Stores	Distress to Chapter 11/resolution	Yes. The company said it was unable to spend enough to grow at its desired rate, forcing abandonment of expansion plans.
Interco	Distress to Chapter 11/resolution	No.
KDI	Distress to Chapter 11/resolution	No. Some of the company's industry sectors were depressed and with excess demand, making new investments unnecessary.
Leaseway Transportation	All periods	Yes. The company claimed it was cutting capital expenditures to make up for shortfalls in operating cash flows to pay back debt.
R. H. Macy	Distress to Chapter 11/resolution and Chapter 11 to resolution	Yes. The company cuts back on new store openings. However, particularly after Ch. 11, investment in store modernization and computerization of sales and inventory control increases.

Company	Period	Description
Mayflower	All periods	No. In fact, during the predistress period the company maintained a modest assets and workforce expansion program.
Morse Shoe	All periods	No. The company continued opening new stores throughout, although not as many as before the HLT.
National Gypsum	All periods	Yes. Although pre-Ch. 11 reductions do not appear costly, with the company actually announcing investments in new plants, most capital outlays are cut to maintenance levels following Ch. 11 filing.
Papercraft	Distress to Chapter 11/resolution	Yes. The company claimed it was cutting capital expenditures to make up for short-falls in operating cash flows to pay back debt.
Payless Cashways	All periods	Yes. The company did not open any new stores throughout, although after IPO Payless announced plans to open 7 new stores.
Pay N' Pak	All periods	No. The company explicitly stated it had made major plant overhauls in pre-HLT period, and therefore post-HLT capital expenditures were expected to fall.
Plantronics	Distress to Chapter 11/resolution	Yes. The company explicitly stated that it had been forced to discontinue products expected to provide significant contributions to revenue and growth.
Republic Health	Chapter 11 to resolution	No. In fact, the company made acquisitions both during distress and in Ch. 11.
Revco	All periods	Yes. From distress onset to Ch. 11 filing, Revco had to curtail new store openings and remodelings, pending reorganization. However, after filing, the company went on extensive store renovation program.
RJR Nabisco	All periods	No. The company denied any impact of cuts in capital expenditures, but analysts attributed RJR's loss of share in the U.S. tobacco market to it.
Seaman Furniture	Distress to Chapter 11/resolution and Chapter 11 to resolution	Yes. The company eventually was forced to pull out of the Philadelphia market, which had been part of its core expansion strategy, because it could not afford to make the necessary investments.
Specialty Equipment	Distress to Chapter 11/resolution	Yes. The company claimed it was cutting capital expenditures to make up for short-falls in operating cash flows to pay back debt.
Southland	All periods	Yes. Southland had to reduce investment in store maintenance and advertising, leading to lost customers and eventual sale of the company.
Supermarkets General	All periods	Yes. In distress, the company was forced to sell assets and eventually recapitalize in order to afford necessary investments to remain competitive.
USG	All periods	No. Although capital expenditures were significantly below pre-HLT levels, USG expected no adverse impact because plants were in excellent condition.
Jim Walter	Predistress	No.
Welbilt	Distress to Chapter 11/resolution	No.

Table XI.B
Evidence of Desperation Asset Sales

Qualitative evidence of desperation asset sales for a sample of HLTs completed between 1980 and 1989 which subsequently become distressed. Asset sales are defined as "desperation" if the company is forced to sell assets it wishes to otherwise retain, or that are part of core operations as defined by the company. Evidence of asset sales is gathered from public company filings with the Securities and Exchange Commission, bankruptcy documents, news stories, and analyst reports. "Predistress" is the period from the completion of the HLT until the onset of distress. "Distress to Chapter 11/resolution" is the period from distress onset until the earliest of either a filing for Chapter 11 or the resolution of distress. "Chapter 11 to resolution" applies only to firms that file for bankruptcy, and is defined as the time period between the initial filing of Chapter 11 and the resolution of bankruptcy. "All periods" aggregates all three previously defined time periods.

Company	Timing of Desperation Asset Sales	Costly?
American Standard	Predistress	Uncertain. The company unexpectedly sold its railway braking products division, which until then had appeared as part of its core automotive operations.
Bucyrus Erie	Distress to Chapter 11/resolution	Yes. The company did a sale/leaseback of its only manufacturing facility, with an implied interest cost of 27 percent, which was later judged by the court to be excessive.
Burlington Industries	Distress to Chapter 11/resolution	Uncertain. The company sold one of its core subsidiaries to raise cash, but there was no information on the pricing or other consequences of the transaction.
Cherokee	None	No.
Florida Steel	None	No.
Fort Howard	Predistress	No. The company sold its core cup business, but by all accounts the decision made good business sense and the price was fair.
Fruehauf	Distress to Chapter 11/resolution	Yes. The company had to sell more assets than initially forecast, and eventually sell itself off piecemeal. Its automotive business sold at a price described by analysts as a "great deal" for the acquirer.
Harcourt Brace Jovanovich	Distress to Chapter 11/resolution	Yes. The company was forced to sell its core Parks division at a price ($1.1 billion) substantially below expectations ($1.5 billion). Still, the eventual company sale price was described by analysts as fair.
Harvard Industries	Distress to Chapter 11/resolution	Uncertain. The sale of the Anchor Swan hose products business was not part of the original HLT plans, but there is no indication that the price was below fair value.
Hills Stores	None	No.
Interco	Distress to Chapter 11/resolution	Yes. The company sold Londontown to a lower bidder because it could pay sooner. Also, lower than projected proceeds from asset sales led to further, unplanned divestitures.
KDI	Distress to Chapter 11/resolution	Yes. Not only was the company unable to sell many of the assets it hoped to, but there was evidence that some subsidiaries were sold at low prices to generate quick cash.

Leaseway Transportation	Distress to Chapter 11/resolution	Uncertain. The company sold businesses to raise cash, after it entered distress, but there's no information on the performance of the businesses sold or the fairness of the price.
R. H. Macy	Distress to Chapter 11/resolution	Uncertain. The company sold its Finance and Credit subsidiaries to GECC to lower debt, but there is no indication that the price was below fair level.
Mayflower	None	No.
Morse Shoe	None	No.
National Gypsum	Distress to Chapter 11/resolution and Chapter 11 to resolution	Yes. Although there is no indication that pre-Ch. 11 unplanned asset sales (e.g., its tile business) were below fair value, the post-bankruptcy asbestos settlement which led to the loss of all assets of Austin construction services subsidiary was costly to investors.
Papercraft	Distress to Chapter 11/resolution	Yes. The company was forced to liquidate some divisions that could not attract buyers, while many other unforeseen divestitures were made before the reorganization.
Payless Cashways	None	No.
Pay N' Pak	Distress to Chapter 11/resolution and Chapter 11 to resolution	Yes. Post-distress the company started selling off stores, including lucrative ones. Eventually it liquidated in Ch. 7 because of its inability to obtain financing or trade credit.
Plantronics	Distress to Chapter 11/ Rresolution	Uncertain. The company said it had been forced to sell businesses expected to contribute to growth, but there was no evidence that the price realized from the sale was low.
Republic Health	Distress to Chapter 11/resolution and Chapter 11 to resolution	Uncertain. The company was also making acquisitions at the time, so it's unlikely it was forced to sell assets at a discount.
Revco	Distress to Chapter 11/resolution and Chapter 11 to resolution	Uncertain. In its pre-Ch. 11 period Revco sold its Odd Lot unit, which had been part of core post-HLT operations. During Ch. 11, it sold hundreds of stores. Still, there is no indication that the assets were sold at less than fair value.
RJR Nabisco	All periods	No. All asset sales were required by LBO financing and the prices were fair.
Seaman Furniture	None	No.
Specialty Equipment	Distress to Chapter 11/resolution	Uncertain. The company unexpectedly sold assets to raise cash, but they were underperforming, and there is no information on the fairness of the price.
Southland	Distress to Chapter 11/resolution	Yes. Southland was forced to sell a 50 percent stake in Citgo and eventually sell itself to a Japanese partner at a price described by analysts as a "steal" for the buyer.
Supermarkets General	Distress to Chapter 11/resolution	Yes. The company sold its Purity Supreme unit, previously part of core operations, at a price considered below fair value, in order to make debt payments.
USG	None	No.
Jim Walter	None	No.
Welbilt	Distress to Chapter 11/resolution	No. The company sold its core Bakery group, but there is no evidence that the price was unfair.

Table XI.C
Evidence of Delay

Qualitative evidence of delay for a sample of HLTs completed between 1980 and 1989 which subsequently become distressed. "Delay" is defined as evidence that management "unreasonably" delayed taking actions that would have resulted in the resolution of financial distress, such as restructuring the company or filing for Chapter 11. Evidence of delay is gathered from public company filings with the Securities and Exchange Commission, bankruptcy documents, news stories, and analyst reports. "Predistress" is the period from the completion of the HLT until the onset of distress. "Distress to Chapter 11/resolution" is the period from distress onset until the earliest of either a filing for Chapter 11 or the resolution of distress. "Chapter 11 to resolution" applies only to firms that file for bankruptcy, and is defined as the time period between the initial filing of Chapter 11 and the resolution of bankruptcy. "All periods" aggregates all three previously defined time periods.

Company	Timing of Delay	Costly?
American Standard	None	No.
Bucyrus Erie	Distress to Chapter 11/resolution	Yes. Management and major debtholders fought over the distribution of post-reorganization equity, delaying the filing of the prepackaged Ch. 11 and the exit from distress.
Burlington Industries	None	No.
Cherokee	None	No.
Florida Steel	None	No.
Fort Howard	Distress to Chapter 11/resolution	Uncertain. The company pulled the first attempted IPO, which would relieve debt burden, because management was not pleased with the price.
Fruehauf	Distress to Chapter 11/resolution	Yes. The company first received an acquisition bid from Varity in 12/88, which was later called off. The Board then proposed a recapitalization, which was eventually replaced by a new, less generous offer from Varity in 12/89.
Harcourt Brace Jovanovich	Distress to Chapter 11/resolution	Yes. The first bid by General Cinema was rejected by bondholders because shareholders were excessively rewarded. A later proposal, which was approved, included less in payouts to equity, to the benefit of creditors.
Harvard Industries	None	No.
Hills Stores	Distress to Chapter 11/resolution	Yes. Despite being in default and practically insolvent, the company allowed its trade credit to go unpaid before filing for Ch. 11, causing suppliers to stop shipping and hurting business.
Interco	None	No.
KDI	None	No.
Leaseway Transportation	Distress to Chapter 11/resolution	Yes. The company not only resisted going into Ch. 11, but it started hoarding cash, despite making costly investment cuts at the same time.

R. H. Macy	Distress to Chapter 11/resolution and Chapter 11 to resolution	Yes. Macy delayed Ch. 11 filing as long as possible, by getting covenants waivers and equity injections, repurchasing debt, and even getting a last-minute buyout bid from a major equity holder. While in bankruptcy, management delayed proposing reorganization for more than two years, and when it did, the proposal included a very low enterprise value, in an attempt to give senior creditors full recovery and avoid Federated takeover.
Mayflower	None	No.
Morse Shoe	None	No.
National Gypsum	None	No.
Papercraft	Distress to Chapter 11/resolution	Yes. The company attempted many restructurings and desperation asset sales, even though it acknowledged early on that it was insolvent.
Payless Cashways	Distress to Chapter 11/resolution	Uncertain. The company pulled the first attempted IPO, which would relieve debt burden, because management was not pleased with the price.
Pay N' Pak	None	No.
Plantronics	None	No.
Republic Health	None	No.
Revco	Chapter 11 to resolution	Yes. Revco turned down buyout offers from Bass and Eckerd while in bankruptcy. Also, management took nearly three years to file reorganization plan, and eventually paid Eckerd to drop out of bankruptcy bidding.
RJR Nabisco	None	No.
Seaman Furniture	Distress to Chapter 11/resolution	Uncertain. The company attempted a myriad of exchange offers, capital infusions, and restructurings before finally filing for Ch. 11.
Specialty Equipment	None	No.
Southland	None	No.
Supermarkets General	Distress to Chapter 11/resolution	Yes. The company cancelled an attempted IPO because the price was not satisfactory. Also, it disappointed many analysts by holding on to the money-losing Rickel division for many years before spinning it off, despite continued losses and pressure from creditors.
USG	Distress to Chapter 11/resolution	Uncertain. Company proposed reorganization plans that were turned down by bondholders. Likely delayed to avoid settling with asbestos litigants. No indication delay was costly.
Jim Walter	Chapter 11 to resolution	Uncertain. Management delayed proposing reorganization plans, and when it did, they were rejected by debtholders, mainly due to the company's refusal to settle with asbestos litigants. Walter clearly held off on reaching agreement with creditors in the hope of obtaining a favorable ruling in asbestos suits. No indication that the delay was costly.
Welbilt	None	No.

debt payments provided by Chapter 11, the sample firms resolve difficulties with suppliers, customers, and competitiveness in general. In a very different study, Gilson (1997) reaches a similar conclusion.

One of the difficulties in interpreting this qualitative evidence is deciding whether the events we uncover are due to financial distress or are a consequence of some adverse performance shock that also precipitates the onset of distress. For the case of investment cuts and asset sales, Tables XI.A and XI.B specify, wherever possible, whether these events are unforeseen and costly, but necessary to meet the firm's debt burden.

We do not believe that a shock to operating cash flows is the primary cause for cost cutting and operating improvements. All the firms in the sample remain profitable (on an operating basis) throughout their period of distress. It seems unlikely, therefore, that the sample firms—even those that experience a negative performance shock—would have required such belt tightening absent the debt. Other events, such as loss of key customers and suppliers, also appear directly related to uncertainty about the financial health of the firm and its ability to make payments, rather than negative operating performance.

Finally, management changes are the one event where it is impossible to disentangle the effects of financial distress and poor operating performance, as firm disclosures and press accounts do not provide enough detail.

This qualitative analysis uncovers costs and benefits of financial distress. The contribution here is to describe the frequency of different types of costs and benefits and when those costs and benefits appear to be incurred. This also should be interesting for readers who take a cynical view of the relevance of management discussions of operations in SEC filings, particularly those who believe that managers never willingly report bad news.

V. Cross-sectional Analysis

In this section we consider the cross-sectional determinants of the costs of financial distress. We measure the costs of financial distress using the value-based quantitative estimates of the costs of financial distress from Section IV.A.2 adjusted for industry performance. This measure may not reflect the costs of financial distress perfectly, but we are not aware of any reason to believe it is biased in any particular way. Accordingly, the estimated coefficients in the regressions that follow should be unbiased. We acknowledge, however, that we may obtain insignificant results because the data are noisy, not because the relationships do not exist.

A. Costs of Financial Distress and Capital Structure Complexity

We first test whether costs of financial distress are related to the complexity of the HLT's capital structure. As a firm's capital structure has more securities and becomes more complex, conflicts of interest and free-rider problems increase. Complexity makes it more difficult for claimants to agree on the division of the firm's assets, and, therefore, prolongs both the amount

of time a firm experiences financial distress and the costs of that distress (see Gertner and Scharfstein (1991), Giammarino (1989), Haugen and Senbet (1978), and Wruck (1990)). We measure complexity using the log of the number of securities in the HLT capital structure. (We use a log specification because it seems unlikely that costs increase linearly. The results, however, are similar using linear or dummy variable specifications.)

Regression (1) of Table XII indicates that costs of financial distress decline with capital structure complexity (significant at the 5 percent level). This is not consistent with increased complexity increasing the costs of financial distress.

B. Costs of Financial Distress and Ease of Restructuring

We also consider the effect of three other variables that, in theory, affect a firm's ability to reorganize or restructure. First, we include a dummy variable for the presence of public junk bonds. Because the Trust Indenture Act makes it difficult to restructure public debt, it is possible that the presence of public junk bonds will increase the costs of financial distress. In addition, Kaplan and Stein (1993a) find that MBOs that use junk bonds are subsequently more likely to default. They argue that this potentially indicates that the junk bond market overheats if the costs of financial distress are particularly large in such transactions. Regression (2) finds that the use of junk bonds is associated with lower costs of financial distress although the coefficient is not significant. This is not supportive of junk bonds being more difficult to restructure nor is it supportive of overheating.

Second, we include a variable that measures the fraction of debt that is bank debt in the year before the HLT becomes distressed. Gilson, John, and Lang (1990) find that firms are more likely to resolve financial distress through private workouts the more heavily those firms rely on bank debt. Consistent with the Gilson et al. result, regression (3) indicates that a greater fraction of bank debt reduces the net costs of financial distress (significant at the 10 percent level). This suggests that the presence of bank debt improves a firm's ability to renegotiate or restructure.

Third, we include a dummy variable for the presence of a buyout sponsor. A buyout sponsor is an organization, like KKR (Kohlberg, Kravis, and Roberts) or Clayton, Dubilier, which specializes in organizing leveraged buyouts and investing in the postbuyout equity. The presence of a buyout sponsor might be expected to reduce the costs of financial distress because a sponsor may develop expertise in restructuring and because most buyout sponsors want to protect their reputations in order to do future HLT transactions. Regression (4) indicates that the presence of a buyout sponsor has no effect on the costs of financial distress.

C. Costs of Financial Distress and Total Value

We next test whether costs of financial distress are related to the capital value of the HLT at the time of the HLT. The costs will be negatively related to total capital value if there are important fixed costs to restructuring—for example, legal costs, creditor costs to get information on the distressed firm,

Table XII

Cross-Sectional Determinants of the Costs of Financial Distress

Ordinary least squares regressions of estimated costs of financial distress on capital structure, industry performance, transaction value, and time in distress, for a sample of HLTs (highly leveraged transactions) completed between 1980 and 1989 which subsequently become distressed. The dependent variable is the industry-adjusted upper bound on the costs of financial distress. The costs of distress are estimated as the difference between the value of total predistress capital and the total capital realized during distress. Predistress figures correspond to the last fiscal year before distress onset. The estimated predistress value of total capital for each company is calculated as [product of median industry (net capital/ EBITDA) and company EBITDA] plus company cash balances at predistress year-end. Industry medians are based on the universe of firms in the same Value Line industry classification as the company. Financial data on industry comparables are obtained from COMPUSTAT. EBITDA is earnings before interest, taxes, depreciation, and amortization. Value of total capital realized during distress is the present value of all payments to capital made from distress onset up to resolution (inclusive), discounted back to the predistress year. Payments to capital include cash interest and debt principal repaid, dividends paid, equity repurchased, and total value received by capital at distress resolution, net of proceeds from new equity and debt issues. Upper bounds on costs of distress are industry-adjusted by adjusting payments to total capital for the return over the same period on an equally weighted portfolio of stocks in each company's Value Line industry sector. Number of securities is the number of different debt and preferred stock securities in the post-HLT capital structure. HLT value is the capital value of the HLT when the HLT is completed. Junk bonds equal one if the firm issued public noninvestment grade bonds to finance the HLT, and zero otherwise. Bank debt to total debt is as measured in the year before financial distress. Buyout sponsor equals one if a buyout partnership sponsored the HLT, and zero otherwise. Default equals one if the firm defaulted on its debt, and zero otherwise. Time in distress is the number of months between the onset of distress and the resolution of that distress. Industry returns dummy variables equal one if the industry return was in the given quartile from the onset of distress until resolution, and zero otherwise. Significant at the 1 percent level ***; at the 5 percent level **; and at the 10 percent level *. Figures in brackets are standard errors.

Regression number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.644 [0.265]	0.245 [0.181]	0.391 [0.194]	0.096 [0.134]	1.231 [0.483]	1.120 [0.522]	−0.154 [0.192]	0.187 [0.181]
Log number of securities	−0.351** [0.160]					−0.150 [0.249]		
Junk bonds		−0.202 [0.211]						
Bank debt/Total debt			−0.811* [0.474]					
Buyout sponsor				0.002 [0.190]				
Log HLT value					−0.163** [0.068]	−0.114 [0.107]		
Default							0.270 [0.275]	
Time in distress							0.002 [0.007]	
Industry return								
Top quartile								−0.101 [0.270]
Third quartile								−0.324 [0.256]
Second quartile								0.086 [0.265]
Adjusted R^2	0.12	0.00	0.06	−0.04	0.14	0.12	0.01	−0.00
Number of observations	30	30	30	30	30	30	30	30

etc. Alternatively, to the extent that complexity increases the costs of financial distress and that capital value is a measure of complexity, costs of financial distress increase with capital value.

Regression (5) indicates that the costs of financial distress decrease with (the log of) HLT capital value. This result is consistent with fixed costs of financial distress and, again, is not consistent with increased complexity increasing the costs of financial distress.

Because HLT capital value and capital structure complexity are highly correlated, regression (6) includes both variables in one regression. Though neither of the coefficients is significant, costs of distress decrease with HLT capital value and with capital structure complexity. Again, this result is more consistent with fixed costs of distress and less consistent with complexity increasing the costs of financial distress.

D. Costs of Financial Distress and Time in Distress

It is commonly argued (e.g., see Helwege (1996) and Jensen (1989, 1991)) that the costs of financial distress increase with the time in financial distress, in default, and Chapter 11. The costs increase with time because the value of the firm is assumed to dissipate as claimants expend resources arguing over the division of the value of the company. Alternatively, Haugen and Senbet (1978) argue that claimants' bargaining may not affect overall firm value.

We empirically estimate the relation between our measures of the costs of distress and the time each firm is financially distressed. We also distinguish between firms that default and those that do not for two reasons: (1) firms that default are more likely to have experienced a negative economic shock that will decrease the return to HLT capital and increase the measured costs of financial distress; and (2) financial distress is arguably more severe for firms that default. Before reporting the results, it is worth noting that this regression specification is potentially flawed. It is quite possible that the time in distress is endogenous, with a longer time in distress indicating that the firm is in greater financial and operating difficulty.

Regression (7) indicates that there is no relation between the time in distress and the costs of financial distress. This result is insensitive to different definitions of time in distress. The result in regression (7), like the earlier regressions, is consistent with the bargaining surrounding claims in distress having no effect on the value of the underlying firm.

E. Costs of Financial Distress and Industry Performance

Shleifer and Vishny (1992) predict that financial distress is more costly when the distressed firm's industry performs badly because the distressed firm's assets are relatively illiquid—the buyers who value the distressed firm's assets the most highly will find it difficult to buy those assets.

We test this prediction by comparing our measures of industry-adjusted costs of financial distress against different quartiles of industry perfor-

mance. According to Shleifer and Vishny, costs of financial distress are higher when industries perform relatively poorly. We measure industry performance as the equal-weighted return to firms in the same industry over the period that costs of financial distress are calculated. In regression (8), we find no relation between industry performance and either the return to pre-HLT capital or the costs of financial distress. The results are similar when we measure industry performance relative to the overall stock market.

F. Quantitative Costs of Financial Distress and Qualitative Costs of Financial Distress

We also consider the relationship between our qualitative and quantitative measures of financial distress. (We do not report these in a table.) Because the qualitative variables are imprecise measures of the extent of the costs of distress, we do not expect much from these regressions and we do not get much. All of the coefficients are insignificant.

VI. Summary, Implications, and Generality of Results

A. Summary

This paper studies a sample of highly leveraged transactions that subsequently become financially distressed. First, we estimate the effects of financial distress on value. From pretransaction to distress resolution, the sample firms experience a small increase in value. In other words, the net effect of the HLT and distress is to leave value slightly higher. This strongly suggests that HLTs overall—those that defaulted and those that did not—earned significantly positive market-adjusted returns.

Second, we estimate the costs of financial distress and their determinants. The sample firms have positive operating margins at the time of distress that typically exceed the median industry operating margins. Because of this, we believe that this sample is primarily financially distressed, not economically distressed. Accordingly, our estimates of the costs of distress largely represent costs of pure financial distress. Because we cannot eliminate economic distress or the effects of economic shocks completely, our estimates for the overall sample should be considered upper bounds on the costs of pure financial distress for these firms.

Consistent with some costs of distress, several firms are forced to curtail capital expenditures and a number of firms appear to sell assets at depressed prices. We find no evidence that the distressed firms engage in asset substitution of any kind.

To the extent they do occur, the costs of distress are heavily concentrated in the period after the firms become distressed, but before they enter Chapter 11. We find little evidence that Chapter 11 is inefficient or costly for our sample firms. This result is in agreement with recent work by Alderson and

Betker (1995), Gertner and Picker (1992), Gilson (1997), and Maksimovic and Phillips (1998). The result also suggests that the experience of Eastern Airlines, documented in Weiss and Wruck (1996) may be more the exception than the rule.

We provide several estimates of the magnitude of the net costs of financial distress. For the entire sample, we estimate that these costs are 10 to 20 percent of firm value. Our most conservative estimates do not exceed 25 percent of firm value. These net costs are substantially lower than those found in previous studies of firms that are economically distressed. For example, Altman (1984) finds that cumulative earnings shortfalls in the three years before bankruptcy approximate 25 percent of initial stock value. Altman does not attempt to capitalize these earnings shortfalls. If he had, they would undoubtedly have been much greater than 25 percent.

When we divide our sample into firms that do or do not experience an adverse economic shock, we find the costs of financial distress to be negligible for the nonshocked subset. These estimates imply small or insignificant costs of pure financial distress. We cannot distinguish between two additional implications of these results. The results are consistent with low financial distress costs overall. Under this interpretation, the economic shocks drive the higher costs for the shocked sample. Alternatively, it is possible that there is an interaction between an adverse economic shock and costly financial distress. If this is true, then financial distress may exacerbate the poor (industry-adjusted) performance of the firms that we identify as having suffered an adverse economic shock.

Finally, we estimate the cross-sectional determinants of the costs of financial distress. We find that these costs decline with HLT value and the fraction of total debt owed to banks, but are not related to capital structure complexity, the presence of junk bonds, the presence of buyout sponsors, time in distress, or industry performance. These results are not consistent with increased complexity increasing the costs of financial distress. They also suggest that costs of financial distress have a fixed component.

B. Implications

At 10 to 20 percent of firm value, our estimates of the net costs of financial distress suggest that such costs exist and are not trivial in magnitude. In particular, our estimates are high relative to existing estimates of the direct costs of financial distress of 3 percent of firm value (Weiss (1990)). Furthermore, if there is a selection bias in our sample—that is, firms with low costs of financial distress are more likely to become highly leveraged—then our estimates may understate the costs of financial distress for the typical firm.

Alternatively, from an ex ante perspective that trades off expected costs of financial distress against the tax and incentive benefits of debt, the costs of

financial distress seem low both for the entire sample and, particularly, for the firms that do not experience an economic shock. If the costs of financial distress are 10 percent (or even 25 percent), then the expected costs of financial distress for most public companies are modest if not minimal because the probability of financial distress is very small for most public companies. Even for our highly leveraged initial sample of 136 HLTs, fewer than one-third became financially distressed, suggesting relatively low realized costs of financial distress overall. As long as debt conveys tax benefits, a standard capital structure choice analysis, trading off tax and incentive benefits of debt against the expected costs of financial distress, would conclude that the sample firms and firms like them should have a highly leveraged capital structure. While we acknowledge the high cost of financial distress interpretation in the previous paragraph, we believe the low expected cost of financial distress interpretation is more persuasive.

The final issue that we address is the extent to which our results generalize to mature firms. It is possible that the firms that undertook HLTs were those that, ex ante, expected to have low costs of financial distress. If this is true, our estimates of the costs of financial distress understate the costs of financial distress for firms in general.[18]

Several papers find that HLT firms do not have high research and development expenditures (R&D). Kaplan (1989a) and Hall (1990) note that HLT firms tended to be in mature industries that did not require large amount of R&D. Opler and Titman (1993) study firms that undertook LBOs in the 1980s. Over the 1985 to 1990 period that is relevant for our sample firms, they find that firms with higher R&D expenditures were less likely to undertake LBOs. Other than differences in R&D, however, they find little evidence that firms with low costs of financial distress were more likely to undertake LBOs.[19] A reasonable interpretation of these results is that among companies that are not R&D intensive, HLT companies are not selected in an obvious way for low costs of financial distress. Among such companies, therefore, our results are likely to generalize.

The results in Maksimovic and Phillips (1998) also suggest that our results are general. They use plant-level data to examine the productivity and plant-closure decisions of bankrupt firms. They find little evidence of bankruptcy costs, particularly in industries that are not experiencing high growth.

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[18] It is still possible, even if HLT firms are not selected for low costs of distress, that the HLT capital and governance structures are selected or designed to minimize the costs of financial distress relative to other structures.

[19] In our sample, we compare the costs of financial distress for HLTs that were motivated by hostile pressure with those that were not. If HLTs are specially selected, we would expect those motivated by hostile pressure to be less selected and to have higher costs of financial distress. We do not find this. In our sample, the hostile HLTs have insignificantly lower costs of financial distress.

There also is little evidence that HLTs were concentrated in industries with less volatile cash flows or, equivalently, low probabilities of financial distress. Kaplan and Stein (1993a) and Bernanke, Campbell, and Whited (1990) find that the HLTs of the later 1980s (which we study here) operated in industries whose cash flows were approximately as volatile as the average industrial firm on COMPUSTAT. We perform a similar test and find that the HLTs in our sample did not operate in Value Line industries with operating margins that were less volatile than average. These findings suggest that the probability of financial distress was not particularly low for the sample HLTs. Overall, then, we cannot conclude that our results would hold for firms in high R&D or, possibly, high growth businesses. (In fact, we believe the results are unlikely to hold for such firms.) However, among firms in more mature businesses, it seems likely that the results for our sample HLTs would hold.

Appendix

Method for Calculating Excess Returns to Investors

This Appendix describes the method used to calculate excess returns to HLT investors.

In this analysis, time is measured as follows:

$T1$	$T2$	$T3$	$T4$
Two months before HLT announcement	HLT announcement	HLT completed	Exit Chapter 11 or company sold or IPO or distress resolved

The total capital value of the HLT company at time T equals the sum of the values of equity, long-term debt, short-term debt, and capitalized leases when the HLT is completed:

$$\text{TCAP}_T = \text{Market Value of Equity}_T$$
$$+ \text{Book Value of Long-Term and Short-Term Debt}_T$$
$$+ \text{Book Value of Capitalized Leases}_T \qquad \text{(A1)}$$
$$+ \text{Liquidation Value of Preferred Stock}_T.$$

The total return to investors is calculated as:

$$\text{NRET} = \frac{[\text{TCAP}_{T4} + \text{Interim Payments to Capital} - \text{TCAP}_{T1}]}{\text{TCAP}_{T1}}. \qquad \text{(A2)}$$

Interim payments to capital include the annual principal, interest, dividend, and lease payments made between T1 and T4. It is assumed that the interim payments are invested in a portfolio with the same systematic risk as the company as a whole. This adjustment will tend to underestimate the terminal value because such payments are made throughout the year, rather than at year-end.

REFERENCES

Alderson, Michael, and Brian Betker, 1995, Liquidation costs and capital structure, *Journal of Financial Economics* 39, 45–69.

Alderson, Michael, and Brian Betker, 1996, Assessing postbankruptcy performance: An analysis of reorganized firms' cash flows, Working paper, Saint Louis University.

Altman, Edward, 1984, A further investigation of the bankruptcy cost question, *Journal of Finance* 39, 1067–1089.

Asquith, Paul, Robert Gertner, and David Scharfstein, 1994, Anatomy of financial distress: An examination of junk-bond issuers, *Quarterly Journal of Economics* 109, 625–658.

Baird, Douglas, 1986, The uneasy case for corporate reorganizations, *Journal of Legal Studies* 15, 127–147.

Baird, Douglas, 1993, Revisiting auctions in Chapter 11, *Journal of Law and Economics* 36, 633–654.

Bernanke, Ben, John Campbell, and Toni Whited, 1990, U.S. corporate leverage: Developments in 1987 and 1988, *Brookings Papers on Economic Activity* I, 255–286.

Bhagat, Sanjay, Andrei Shleifer, and Robert Vishny, 1990, Hostile takeovers in the 1980s: The return to corporate specialization, *Brookings Papers on Economic Activity: Microeconomics*, 1–72.

Bradley, Michael, and Michael Rosenzweig, 1992, The untenable case for Chapter 11, *Yale Law Journal* 101, 1043.

Denis, David, and Diane Denis, 1995, Causes of financial distress following leveraged recapitalizations, *Journal of Financial Economics* 37, 129–158.

Easterbrook, Frank, 1990, Is corporate bankruptcy efficient?, *Journal of Financial Economics* 27, 411–418.

Eberhart, Allan, Reena Aggarwal, and Edward Altman, 1997, The equity performance of firms emerging from bankruptcy, *Journal of Finance*, forthcoming.

Gertner, Robert, and Randal Picker, 1992, Bankruptcy and the allocation of control, Working paper, University of Chicago.

Gertner, Robert, and David Scharfstein, 1991, A theory of workouts and the effects of reorganization law, *Journal of Finance* 46, 1189–1222.

Giammarino, Robert, 1989, The resolution of financial distress, *Review of Financial Studies* 2, 25–47.

Gilson, Stuart, 1997, Transactions costs and capital structure choice: Evidence from financially distressed firms, *Journal of Finance* 52, 161–197.

Gilson, Stuart, Kose John, and Larry Lang, 1990, Troubled debt restructurings: An empirical study of private reorganization of firms in default, *Journal of Financial Economics* 27, 315–354.

Hall, Bronwyn, 1990, The impact of corporate restructuring on industrial research and development, *Brookings Papers on Economic Activity: Microeconomics*, 85–124.

Harris, Milton, and Artur Raviv, 1990, Capital structure and the informational role of debt, *Journal of Finance* 45, 321–349.

Haugen, Robert, and Lemma Senbet, 1978, The insignificance of bankruptcy costs to the theory of optimal capital structure, *Journal of Finance* 33, 383–393.

Helwege, Jean, 1996, How long do junk bonds spend in default?, *Journal of Finance*, forthcoming.

Helwege, Jean, and Tim Opler, 1993, Leveraged buyouts in the late eighties, how bad were they?, Working paper, Southern Methodist University.

Hotchkiss, Edith, 1995, Post-bankruptcy performance and management turnover, *Journal of Finance* 50, 3–22.

Jensen, Michael, 1989, The eclipse of the public corporation, *Harvard Business Review* 5, 61–74.

Jensen, Michael, 1991, Corporate control and the politics of finance, *Journal of Applied Corporate Finance* 4, 13–33.

Kaplan, Steven, 1989a, The effects of management buyouts on operations and value, *Journal of Financial Economics* 24, 217–254.

Kaplan, Steven, 1989b, Campeau's acquisition of Federated: Value created or value destroyed?, *Journal of Financial Economics* 25, 191–212.

Kaplan, Steven, 1989c, Management buyouts: Evidence on taxes as a source of value, *Journal of Finance* 44, 611–632.

Kaplan, Steven, 1994a, Campeau's acquisition of Federated: Post-bankruptcy results, *Journal of Financial Economics* 35, 123–136.

Kaplan, Steven, 1994b, Federated's acquisition and bankruptcy: Lessons and implications, *Washington University Law Quarterly* 72, 1103–1226.

Kaplan, Steven, and Richard Ruback, 1995, The valuation of cash flow forecasts, *Journal of Finance* 50, 1059–1094.

Kaplan, Steven, and Jeremy Stein, 1990, How risky is the debt in highly leveraged transactions?, *Journal of Financial Economics* 27, 215–246.

Kaplan, Steven, and Jeremy Stein, 1993a, The evolution of buyout pricing and financial structure in the 1980s, *Quarterly Journal of Economics* 108, 313–358.

Kaplan, Steven, and Jeremy Stein, 1993b, The evolution of buyout pricing and financial structure (or what went wrong) in the 1980s, *Journal of Applied Corporate Finance* 6, 72–88.

LoPucki, Lynn, and William Whitford, 1993a, Corporate governance in the bankruptcy reorganization of large, publicly-held companies, *University of Pennsylvania Law Review* 141, 669–800.

LoPucki, Lynn, and William Whitford, 1993b, Patterns in the bankruptcy reorganization of large, publicly-held companies, *Cornell University Law Review* 78, 597–618.

Maksimovic, Vojislav, and Gordon Phillips, 1998, Efficiency of bankrupt firms and industry conditions: Theory and evidence, *Journal of Finance*, forthcoming

Ofek, Elie, 1993, Capital structure and firm response to poor performance: An empirical analysis, *Journal of Financial Economics* 34, 3–30.

Opler, Tim, and Sheridan Titman, 1993, The determinants of leveraged buyout activity: Free cash flow vs. financial distress costs, *Journal of Finance* 48, 1985–1999.

Opler, Tim, and Sheridan Titman, 1994, Financial distress and corporate performance, *Journal of Finance* 49, 1015–1040.

Parrino, Robert, and Michael Weisbach, 1997, On the magnitude of stockholder-bondholder conflicts, Working paper, University of Arizona.

Rao, Ramesh, David Sokolow, and Derek White, 1996, Fiduciary duty a la Lyonnais: An economic perspective on corporate governance in a financially-distressed firm, *Journal of Corporation Law* 22, 53–78.

Ritter, Jay R., 1997, Initial public offerings, in Dennis Logue and James Seward, eds.: *Warren Gorham & Lamont Handbook of Modern Finance* (South-Western College Publishing, Cincinnati, Ohio).

Senbet, Lemma, and James Seward, 1995, Financial distress, bankruptcy and reorganization, in Robert Jarrow, Vojislav Maksimovic, and Walter Ziemba, eds.: *Finance* (Elsevier Science, New York).

Shleifer, Andrei, and Robert Vishny, 1992, Liquidation values and debt capacity: A market equilibrium approach, *Journal of Finance* 47, 1343–1366.

Stulz, René, 1990, Managerial discretion and optimal financing policies, *Journal of Financial Economics* 26, 3–28.

Weiss, Lawrence A., 1990, Bankruptcy resolution: Direct costs and violation of priority of claims, *Journal of Financial Economics* 27, 285–314.

Weiss, Lawrence, and Karen H. Wruck, 1996, Financial distress, information problems, and conflicts of interest: Chapter 11's failure in the case of Eastern Airlines, Working paper, Harvard Business School.

Wruck, Karen H., 1990, Financial distress, reorganization, and organizational efficiency, *Journal of Financial Economics* 27, 419–444.

LINKED CITATIONS

- Page 1 of 5 -

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[Footnotes]

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References

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Stable URL:

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Stable URL:

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Stable URL:

http://links.jstor.org/sici?sici=0044-0094%28199203%29101%3A5%3C1043%3ATUCFC1%3E2.0.CO%3B2-T

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Stable URL:

http://links.jstor.org/sici?sici=0022-1082%28199109%2946%3A4%3C1189%3AATOWAT%3E2.0.CO%3B2-E

NOTE: *The reference numbering from the original has been maintained in this citation list.*

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The Review of Financial Studies, Vol. 2, No. 1. (1989), pp. 25-47.
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http://links.jstor.org/sici?sici=0893-9454%281989%292%3A1%3C25%3ATROFD%3E2.0.CO%3B2-I

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Stable URL:
http://links.jstor.org/sici?sici=0022-1082%28199703%2952%3A1%3C161%3ATCACSC%3E2.0.CO%3B2-8

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http://links.jstor.org/sici?sici=0022-1082%28199006%2945%3A2%3C321%3ACSATIR%3E2.0.CO%3B2-N

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The Journal of Finance, Vol. 44, No. 3, Papers and Proceedings of the Forty-Eighth Annual Meeting of the American Finance Association, New York, New York, December 28-30, 1988. (Jul., 1989), pp. 611-632.
Stable URL:
http://links.jstor.org/sici?sici=0022-1082%28198907%2944%3A3%3C611%3AMBEOTA%3E2.0.CO%3B2-C

NOTE: *The reference numbering from the original has been maintained in this citation list.*

LINKED CITATIONS

- Page 4 of 5 -

The Valuation of Cash Flow Forecasts: An Empirical Analysis
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The Journal of Finance, Vol. 50, No. 4. (Sep., 1995), pp. 1059-1093.
Stable URL:
http://links.jstor.org/sici?sici=0022-1082%28199509%2950%3A4%3C1059%3ATVOCFF%3E2.0.CO%3B2-Z

The Evolution of Buyout Pricing and Financial Structure in the 1980s
Steven N. Kaplan; Jeremy C. Stein
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Stable URL:
http://links.jstor.org/sici?sici=0033-5533%28199305%29108%3A2%3C313%3ATEOBPA%3E2.0.CO%3B2-X

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http://links.jstor.org/sici?sici=0041-9907%28199301%29141%3A3%3C669%3ACGITBR%3E2.0.CO%3B2-I

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Financial Distress and Corporate Performance
Tim C. Opler; Sheridan Titman
The Journal of Finance, Vol. 49, No. 3, Papers and Proceedings Fifty-Fourth Annual Meeting of the American Finance Association, Boston, Massachusetts, January 3-5, 1994. (Jul., 1994), pp. 1015-1040.
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LINKED CITATIONS

- Page 5 of 5 -

Liquidation Values and Debt Capacity: A Market Equilibrium Approach
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The Journal of Finance, Vol. 47, No. 4. (Sep., 1992), pp. 1343-1366.
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