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NORTHERN ILLINOIS UNIVERSITY

Investing in Financially Distressed Securities

A Thesis Submitted to the

University Honors Program

In Partial Fulfillment of the

Requirements of the Baccalaureate Degree

With University Honors

Department of

Finance

By

J Paul Fricilone

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ABSTRACT (100 – 200 WORDS):

This study evaluates the specific characteristics attributed to companies that enter into Chapter 11 and emerge with their stock intact. There are no statistically significant characteristics that uniquely identify such firms. However, the results suggest that a company that is more financially sound is more likely to retain its shareholders. Simple economic ratios such as higher return on assets and lower debt are characteristics that lead a company retaining its original shareholders.

Investing in Financially Distressed Companies

J Paul Fricilone
Dr. Gerald Jensen
Dr. John Banko

Abstract

This study evaluates the specific characteristics attributed to companies that enter Chapter 11 and emerge with their stock intact. While we find no statistically significant characteristics that uniquely identify such firms, the results suggest that a company that is more financially sound is more likely to retain its shareholders. Specifically, firms that emerge from Chapter 11 with their stock intact tend to have a higher return on assets and lower debt ratios.

Literature Review

A company has many choices when filing for bankruptcy. "The Bankruptcy Code defines five types of bankruptcies: Chapter 7 (liquidation), Chapter 9 (municipalities), Chapter 11 (reorganization), Chapter 12 (family farmer reorganizations), and Chapter 13 (consumer and small business reorganizations)" (Griffing 1997). The most common provision used for companies is Chapter 11 bankruptcy. Under Chapter 11, a company can remain in operation while it creates a plan of reorganization (Neish 1995). While in Chapter 11, "a firm is protected from its creditors in that they may not call their loans or claim assets offered as security" (Neish 1995).

A change in the Bankruptcy Code occurred in 1999 with the LaSalle Decision. This decision made changes to the New Value Exception, which is a common law exception to the Absolute Priority Rule. Previously, claims to the assets of a company followed a specific order. Creditors were the first entity to receive payment from the distressed company and then equity holders would receive payment if unclaimed assets were still available. In these two classes, there are many stratified groups of creditors and equity holders. With the New Value Exception, there is the possibility for shareholders to infuse capital into the company to retain a claim on the company. Although this is a possibility, the New Value Exception has to be approved by the creditors and the bankruptcy court before it is accepted. Moreover, shareholders have to follow specific procedures to infuse capital. Shareholders are required to infuse capital at the market price so shareholders go through a bid process, an auction, or competing plans to infuse capital. Finally, the use of the New Value Exception could change the process by allowing shareholders to retain a stake in the company in bankruptcy (Mendoza 2000).

A company may enter into Chapter 11 to exploit specific advantages. The advantage to entering Chapter 11 is that it allows the company to operate at lower cost than other solvent companies. This is possible because companies in Chapter 11 do not have to pay their creditors. Therefore, companies are able to use debt without incurring any cost of debt. For example, if an airline declares Chapter 11, it is able to reduce its

costs and therefore, reduce the costs to its customers. This action could stimulate demand for the company and increase profits. Subsequently, this has the potential to allow the company to recover and enter competitively into the market (Neish 1995). However, in industries such as the airline industry, which is very prone to Chapter 11, this action could force competitors to reduce price resulting in the competitors filing for Chapter 11. Another advantage to filing bankruptcy is that it could resolve a company's tax problems. Through sound planning, bankruptcy can provide a "very attractive form of financing for a tax-troubled company" (Griffing 1997). For example, if a company has equipment on its books for $100,000 and sells it for $200,000, there is a $100,000 gain on the sale. However, the equipment has outstanding debt of $250,000. Therefore, if the company completes this transaction in Chapter 11, the gain on the sale is not recognized as revenue and is not taxed as such. The tax liability is thus reduced (Griffing 1997).

At the same time, creditors see disadvantages from a firm entering into Chapter 11. The first disadvantage is that the managers of the company retain their positions when the company enters bankruptcy since no trustee is appointed to take control. Therefore, the managers who led the company to bankruptcy are charged with bringing the company out of bankruptcy. Also, the company has a four-month period to file a plan of reorganization. This four-month period enables the company to continue operating in a non-profitable manner for four months. Subsequently, this time period can cause the company to become more distressed. Creditors then may have less of a claim to assets or creditors may have to wait longer to receive the claims (Dowling 1993).

Previous studies examine the effect bankruptcy has on a firm's returns and possible reasons firms enter into bankruptcy. In one study (Eberhart 1999), returns of companies who emerged from bankruptcy were examined for 200 days after emergence. This study revealed "weak evidence of positive excess returns in the short-term and strong evidence of positive excess returns in the long-term." Another article that discusses the abnormal positive returns of Chapter 11 companies is "Gold out of Garbage" by Brian O'Keefe. This article discusses the strategy of distressed securities fund managers. This article coupled with the Eberhart study advocates the process of investing in financially distressed companies because if the company emerges from Chapter 11, there is a higher probability for abnormal returns.

Hotchkiss (1999) provides evidence that is contrary to the previous studies. Hotchkiss finds that a large number of the emerging firms are not able to remain successful. Within two years of emergence, many firms had entered back into bankruptcy or had ceased to exist as companies. Therefore, the abnormal returns cannot be achieved in many cases because the companies never emerge from Chapter 11.

Hill (1996) performed an event study with a stated purpose "to examine accounting information's role in identifying firm bankruptcy and financial distress." Two main accounting ratios examined were the profitability and leverage ratios of the firm. The results showed that a firm that had either high profitability or low leverage was less likely to enter into bankruptcy.

Purpose of the Study

Distressed firms are companies who are experiencing financial distress or are in Chapter 11 bankruptcy. We concentrate on firms that have filed for Chapter 11 bankruptcy.

When a company enters Chapter 11, it is protected from its debts while it reorganizes to become profitable. The termination of the company stock is a usual occurrence in Chapter 11 reorganization, in which case the stock becomes worthless. However, in recent years, there have been more companies that have kept the stock intact throughout the process. To be considered intact, the original shareholders must retain their stock after the firm emerges from bankruptcy. A company that cancels its shares and issues new shares or gives the outstanding shares to the debt holders would not be considered intact. In 1999, the New Value Exception to the Absolute Priority Rule was enacted which makes it more probable that a stock will stay intact.

We examine the financial characteristics of distressed companies around their bankruptcy filing. Specifically, financial ratios are examined for several months before and after a firm files for Chapter 11.

The main goal of the study is to identify the characteristics that distinguish those companies that emerge from bankruptcy with their stock intact from those that have their stock cancelled. Our sample of firms is separated into two distinct groups. In one group, there are companies who have cancelled their outstanding shares. In the other group, there are the companies, which emerged from Chapter 11 with their stock intact. We analyze both samples to find characteristics that differentiate the firms in the two groups. Usually, a company that emerges from Chapter 11 with their stock intact experiences abnormal positive returns; therefore, it is important to distinguish these characteristics so an investor can make better investment decisions regarding distressed firms.

This topic is important because of the recent prevalence of bankruptcies. Since there is a scarce amount of empirical research in this area, this study could provide guidance and knowledge that is useful to investors.

Sample and Methodology

The sample was constructed using SEC filings for companies that filed for Chapter 11 in the time period 1997-2005. A list of companies was obtained containing all companies who filed for Chapter 11 during this period. We created a program to search the Edgar Database for the S-4 filings of the Chapter 11 companies. The program searched the database for S-4's that had either of the words "cancelled" or "reorganization". If a Chapter 11 company had a corresponding S-4 with either of those words in the document, the S-4 was sent to a text file and saved for future use. After all the S-4's were collected, a text file of Chapter 11 companies was compared to a text file of S-4's.

The sample was constructed by searching for Chapter 11 companies, which had S-4's, which explained the status of its outstanding stock. When comparing the two text files, some Chapter 11 companies did not have any corresponding S-4's, so the companies were eliminated from the study. Some companies had S-4's, but the S-4's did not correspond to the correct time period for the bankruptcy, so those companies were eliminated. The companies that remained in the study had S-4's which clearly stated the

status of the original shares of the company. Through this meticulous process, we were able to identify 18 companies.

Using the CRSP database, we retrieved data on the 18 companies. The characteristics were cash, working capital, long-term debt, sales, interest expense, taxes, net income, retained earnings, and cash flow from operations. Only 13 of the 18 companies returned data. The other five companies had to be excluded from the data analysis part of the study; however, those companies were included in the qualitative analysis.

The remaining 13 companies were split into two groups. The first group included five companies that filed for Chapter 11 and emerged from bankruptcy with the original shareholders. The specific ways in which each company retained the original shareholders can be seen in Table 1. Some companies did not change the shareholders position, while other companies issued warrants or a percentage of the newly created shares to the original shareholders. The second group included eight companies that filed for Chapter 11 and emerged from bankruptcy with their shares cancelled.

We analyzed the data to find characteristics that differentiated the groups. We analyzed financial data, one and two years before bankruptcy for both groups. The DuPont Equation, Altman's Z-score, Debt-to-Equity Ratio, and Total Asset Turnover Ratio were calculated for each group. The ratios were calculated for one year before bankruptcy, two years before bankruptcy, and a five-year average. A variance and difference of means was calculated for each measure. A t-statistic was calculated using the equation:

$$\frac{(X-Y)}{\sqrt{((x_v^2/n)+(y_v^2/n))}}$$

Since the sample size was small, the t-statistic was used. The list of ratios that used 13 companies is the DuPont Equation and the Altman Z-score. The Debt-to-Equity Ratio and Total Asset Turnover excluded Amerco and Koll Real Estate. The appropriate significant z-scores for a p-level of 0.01, 0.05, and 0.10 for 13 companies are: 3.0123, 2.1604, and 1.7709, respectively. The appropriate significant z-scores for a p-level of 0.01, 0.05, and 0.10 for 11 companies are: 3.1058, 2.201, and 1.7959, respectively.

Results

The results show that there is a significant difference in some of the measures. In particular, there is one ratio that is significant at the 10% level one year before bankruptcy. There is one ratio significant at the 10% level and one ratio significant at the 5% level two years before bankruptcy.

Since the sample size is small, it is very difficult to find many significant ratios. However, even if the data is not statistically significant, there are overall trends in the financial measures, which lead to a logical economic conclusion about the different characteristics between the two groups.

In the analysis of the ROE, Altman Z-score, Debt ratio, and Total Asset Turnover, there are no statistically significant ratios. The ratios do follow a trend, which suggests possible distinguishable differences between the two groups.

In the qualitative analysis, there were not any obvious differences between the companies.

Financial Characteristics of Intact and Cancelled Firms

The financial characteristics portion of the analysis is the only portion, which revealed statistically significant differences between the two groups. This data is displayed in Table 2 and Table 3. More data was statistically significant two years before bankruptcy than one year before bankruptcy.

One year before bankruptcy, the sales were statistically significantly different between the two groups. Sales had a t-statistic of -2.030, which is shaded in Table 2. This measure describes the scale of the companies. Intact companies are much smaller than Cancelled companies. Therefore, it would appear size is a significant factor in determining if the shares will remain intact.

The other ratios were not statistically significant, but had notable economic significance. The Intact companies had a lower long-term debt to assets and a higher cash flow from operations to sales. This pattern suggests that the Intact companies were more economically sound one year before bankruptcy. The lower level of long-term debt for Intact is reflected in the interest expense to sales. The interest expense to sales for Cancelled firms, 0.184, was four times the amount of Intact firm's 0.044 interest expense to sales. This data suggests that companies fewer debt obligations were more likely able to keep their stock intact.

Profitability tends to be higher for Intact firms as evidenced by two statistically significant ratios. CFO to sales is significant at the 10% level and earnings per share (EPS) is significant at the 5% level two years before bankruptcy. EPS for Intact firms and Cancelled firms is 1.235 and -1.240, respectively. The variance is four times higher for Cancelled firms. The trend in ratios from one year before bankruptcy is seen in the data two years before bankruptcy. Intact firms have a higher EPS, which it is retaining, at a higher level. The CFO to sales is significant since net income is a major driver of CFO. Since net income to shares is significant, CFO is likely to be significant. Since the levels of earnings are much higher for Intact firms, the levels of debt and interest payments are not as burdensome. The reason that the ratios of interest payments to sales and debt ratio become statistically significant one year before bankruptcy seems to be attributed to the lower levels of net income and cash flow from operations two years before bankruptcy.

After comparing the two years of financial data, Intact companies seem to have had better revenues and lower interest expense. Since the Intact companies have less debt to service, the companies have fewer or not as powerful creditors in Chapter 11. This difference can be a reason to differentiate between whether a company kept its stock intact.

Individual Ratios – DuPont Equation

In the DuPont Equation analysis, which is depicted in Table 5, no data is statistically significant. However, one and two years before bankruptcy, Intact firms have a much higher ROE. One year before bankruptcy, Intact firm's ROE is 0.8335 compared to Group Two's 0.4893. Two years before bankruptcy, Intact firm's ROE is 0.0727 compared to Cancelled firm's -0.0134. In the five-year averages, which is an

average of all the companies five year averages; the ROE for Intact firms is slightly smaller than Cancelled firms. The five-year averages can be a misleading number since it is an average of averages. In any case, the trend of healthier numbers continues in that Intact firms have higher ROE for most of the years. This would lead to the conclusion that the Intact companies were better off financially than the Cancelled companies.

Individual Ratios – Altman Z-score

In the Altman Z-score analysis, which is depicted in Table 6, no data is statistically significant. Once again, a trend forms between the two groups numbers. Companies with a higher Altman Z-score are considered to be more financially healthy and have a lower probability of entering into bankruptcy within two years. Intact companies' Altman Z-score's were approximately double that of Cancelled firm's Altman Z-scores, however they were not significantly different. This suggests that Intact companies, have a sounder financial situation than that of Cancelled companies. This could be one of the reasons that the Intact companies could keep their shares intact.

Individual Ratios – Debt to Equity

In the Debt-to-Equity analysis, which is depicted in Table 7, no data is statistically significant. The data in this section follows the same pattern as the ROE. A lower debt-to-equity equation would be better for these companies since the companies were very close to bankruptcy. One and two years before bankruptcy, Intact firms have a lower debt ratio. In the five-year average, Intact firm's debt ratio was almost nine times the debt ratio of Cancelled firms. However, the variance on any of these ratios was very high. Overall, Intact firms have a lower debt ratio, which would allow that group to handle a reduction in revenue better than the Cancelled firms. The higher debt ratio would create a higher proportion of debt holders, which become part of the Chapter 11 process. With a higher proportion of debt holders seeking claims to the business, there would be less of a chance that the equity holders would be allowed to retain claim to any part of the company.

Individual Ratios – Total Asset Turnover

In the Total Asset Turnover analysis, which is depicted in Table 8, no data is statistically significant. This analysis reveals that there is really is no difference in total asset turnover ratios between the groups. Thus, it appears total asset turnover did not affect or provide insight into whether or not the company would keep its stock intact.

Qualitative Analysis

The companies that were part of this study came from many industries and had many different reasons for bankruptcy. This qualitative data is organized in Table 9. Since the companies came from many industries, no particular industry can be named as an industry, which has a higher likelihood of retaining shareholders.

By separating the companies by the reasons for bankruptcy, six distinct reasons were found. Poor performance and large expansion with debt were the most popular reasons. These reasons could actually be considered one reason in some respects. The companies that had a large expansion with debt would not have gone into bankruptcy

without poor performance, which then led to bankruptcy. However, Intact firms and Cancelled firms were spread across all reasons.

One area that might be useful in differentiating Intact firms from Cancelled firms is the bankruptcy filings applied to partial bankruptcies. Amerco and Rymer Foods are companies that filed partial bankruptcies. Amerco did not file Chapter 11 for the U-Haul part of its business and Rymer Foods did not file Chapter 11 for its Rymer Meats subsidiary. A more detailed explanation of each company's bankruptcy can be found in Table 10.

Conclusion

This study examines characteristics of companies that enter into Chapter 11 and emerge with their shares intact relative to companies that cancel their shares. There are no statistically significant characteristics that uniquely identify firms that emerge with their shares intact.

The results show that companies that are more economically sound have a better probability of retaining the original shareholders. Companies with higher EPS and a lower debt ratio are characteristics that can be examined to determine the chance that a company will retain shareholders.

The trends in all the individual ratios echo the same principles. Companies that are more solvent and have a better ROE will have a higher probability of retaining shares.

Since this study was quite small, some of the ratios could be misleading. Therefore, a more detailed study, which includes at least thirty companies in each group, would lead to more conclusive results.

For future research, a concentration on partial bankruptcies could lead to more interesting results. Both partial bankruptcies in this study were included in Group One. If more partial bankruptcies could be found, they could be classified to see if that is a significant characteristic for retaining the original shares.

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Table 1

Data Set

Company	Filed Bankruptcy	Emerged	Days in Bankruptcy	Stock Status
Intact Firms				
Harvard Industries	5/8/1997	8/19/1998	468.00	Intact
Amerco	5/20/2003	3/15/2004	300.00	Intact
Carmike Cinemas	8/8/2000	1/31/2002	541.00	Received 22.2% of new shares
Hvide Marine Inc	9/9/1999	12/15/1999	97.00	Turned into Warrants
Rymer Foods	7/8/1997	8/21/1997	44.00	25 into 1 reverse split plus new shares
		Average	290.00	
		Variance	48137.50	
Cancelled Firms				
Chiquita Brands	11/28/2001	3/19/2002	111.00	Cancelled
Zenith Electronics Corp	8/23/1999	11/9/1999	78.00	Cancelled
Joy Global*	6/7/1999	7/12/2001	766.00	Cancelled
Koll Real Estate**	7/14/1997	9/2/1997	50.00	Cancelled
Genesis Health Ventures	6/22/2000	11/2/2001	498.00	Cancelled
Warnaco Group	6/11/2001	2/4/2003	603.00	Cancelled
Hayes Lemmerz	12/5/2001	6/3/2003	545.00	Cancelled
Spectrasite	11/15/2002	2/10/2003	87.00	Cancelled
Pathmark	7/12/2000	9/19/2000	69.00	Cancelled
Horizon PCS	8/15/2003	6/27/2004	317.00	Cancelled
RCN Corp	5/27/2004	12/21/2004	208.00	Cancelled
Mirant	7/14/2003	5/27/2005	683.00	Cancelled
Northwestern	9/14/2003	11/1/2004	414.00	Cancelled
		Average	340.69	
		Variance	66778.40	
		Difference of Means	-50.69	
		t-statistic	-0.37810292	

*formerly Harnischfeger Industries, Inc.
**currently California Coastal Communities

Table 2

Financial Characteristics of Intact and Cancelled Firms One Year Before Bankruptcy

	Intact Firms		Cancelled Firms			
	Mean	**Variance**	**Mean**	**Varinance**	**Difference**	**t-statistic**
Cash to Assets	0.020	0.000	0.028	0.000	-0.008	-0.764
Long-Term Debt to Assests	0.362	0.047	0.632	0.154	-0.270	-1.601
Working Capital to Assets	-0.077	0.025	-0.039	0.025	-0.038	-0.427
Sales	657.518	456386.735	1693.521	1353226.767	-1036.003	-2.030***
Interest Expense to Sales	0.044	0.000	0.184	0.053	-0.140	-1.720
Income Taxes to Sales	0.013	0.002	-0.134	0.136	0.147	1.113
Profit Margin	-0.024	0.014	-0.841	2.244	0.817	1.535
Earnings Per Share	-0.437	4.462	-2.475	25.487	2.037	1.009
Retained Earnings to Sales	0.015	0.099	-1.935	11.173	1.950	1.638
CFO to Sales	0.085	0.012	-0.143	0.144	0.228	1.596

* p-value of 0.01
**p-value of 0.05
*** p-value of 0.1

Table 3

Financial Characteristics of Intact and Cancelled Firms Two Years Before Bankruptcy

	Intact Firms		Cancelled Firms			
	Mean	Variance	Mean	Varinance	Difference	t-statistic
Cash to Assets	0.052	0.004	0.028	0.002	0.024	0.763
Long-Term Debt to Assests	0.387	0.011	0.491	0.139	-0.104	-0.743
Working Capital to Assets	0.053	0.017	0.017	0.011	0.036	0.523
Sales	605.706	406524.294	3094.726	18455871.247	-2489.019	-1.611
Interest Expense to Sales	0.053	0.001	0.198	0.101	-0.146	-1.284
Income Taxes to Sales	0.019	0.000	-0.058	0.029	0.077	1.266
Profit Margin	0.023	0.001	-0.307	0.318	0.330	1.651
Earnings Per Share	1.235	1.400	-1.240	7.779	2.475	2.212**
Retained Earnings to Sales	0.051	0.072	-1.240	4.292	1.292	1.740
CFO to Sales	0.125	0.006	-0.159	0.167	0.284	1.913***

* p-value of 0.01
**p-value of 0.05
*** p-value of 0.1

Table 4

Summary of Averages

Company	Filed Bankruptcy	DuPont Equation	Altman Z-score	Debt To Equity Ratio	Total Asset Turnover
		Five Year Averages			
Harvard Industries	5/8/1997	69.49%	1.13	-3.46	1.40
Amerco	5/20/2003	9.46%	0.99	2.12	0.52
Carmike Cinemas	8/8/2000	1.84%	1.14	1.64	0.79
Hvide Marine Inc	9/9/1999	2.13%	0.71	4.31	0.41
Rymer Foods	7/8/1997	9.53%	1.52	5.90	2.81
Average		18.49%	1.10	2.10	1.19
Chiquita Brands	11/28/2001	-5.04%	1.22	3.18	1.01
Zenith Electronics Corp	8/23/1999	25.31%	0.97	0.55	2.08
Koll Real Estate*	7/14/1997	-14.81%	-0.68	2.40	0.08
Warnaco Group	6/11/2001	4.44%	1.25	1.85	0.92
Hayes Lemmerz	12/5/2001	48.40%	1.04	-1.34	0.81
Pathmark	7/12/2000	2.64%	2.96	-1.63	4.62
RCN Corp	5/27/2004	146.40%	-1.07	-4.05	0.12
Mirant	7/14/2003	7.75%	0.44	3.15	0.56
Average		26.89%	0.77	0.52	1.27

*currently California Coastal Communities

Table 5

DuPont Equation

This table reports DuPont Equations for the two groups. The DuPont Equation was calculated by using the formula recommended by the CFA Institute. All 13 of the companies' data is represented. Harvard Industries and Hvide Marine had unknown data for five years before bankruptcy and four years before bankruptcy, respectively. Those years were excluded. The mean, median, variance, difference of means, and standard error were calculated for each group. Panels A, B, and C separate the parameters by the time period in which the numbers were derived.

Panel A: DuPont Equation One Year Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	0.8335		0.4893
Median	0.0211		0.1385
Variance	3.7150		1.4349
Difference		0.3443	
t-statistic		0.3585	

Panel B: DuPont Equation Two Years Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	0.0727		-0.0134
Median	0.0995		-0.0070
Variance	0.0233		0.2764
Difference		0.0860	
t-statistic		0.4344	

Panel C: DuPont Equation with Five Year Averages Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	0.1849		0.2689
Median	0.0946		-0.0070
Variance	0.0827		0.2709
Difference		-0.0840	
t-statistic		-0.3741	

Table 6

Altman Z-score

This table reports Altman Z-score for the two groups. The Altman Z-score was calculated by using the modified version of Altman's (1968) Z-score. All 13 of the companies' data is represented. Harvard Industries and Hvide Marine had unknown data for five years before bankruptcy and four years before bankruptcy, respectively. The mean, median, variance, difference of means, and standard error were calculated for each group. Panels A, B, and C separate the parameters by the time period in which the numbers were derived.

Panel A: Altman Z-score One Year Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	0.3692		0.1415
Median	0.7495		1.0416
Variance	0.6668		5.7081
Difference		0.2277	
t-statistic		0.2297	

Panel B: Altman Z-score Two Years Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	1.5337		0.7934
Median	1.2105		0.7210
Variance	1.0075		1.0663
Difference		0.7403	
t-statistic		1.1644	

Panel C: Altman Z-score with Five Year Averages Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	1.1252		0.9725
Median	1.1315		1.0045
Variance	0.1083		1.4280
Difference		0.1527	
t-statistic		0.3177	

Table 7

Debt to Equity

This table reports Debt to Equity Equation for the two groups. The Debt to Equity was calculated by using the standard equation from the CFA Institute. Amerco and Koll Real Estate were excluded because both companies had unknown values for current liabilities. Harvard Industries and Hvide Marine had unknown data for five years before bankruptcy and four years before bankruptcy, respectively. The mean, median, variance, difference of means, and standard error were calculated for each group. Panels A, B, and C separate the parameters by the time period in which the numbers were derived.

Panel A: Debt to Equity One Year Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	-2.6111		1.1103
Median	-2.2595		2.5891
Variance	25.7735		20.2607
Difference		-3.7214	
t-statistic		-1.2178	

Panel B: Debt to Equity Two Years Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	0.1869		2.2839
Median	1.5818		2.8382
Variance	9.4330		12.7717
Difference		-2.0969	
t-statistic		-1.0253	

Panel C: Debt to Equity with Five Year Averages Before Bankruptcy			
	Intact Firms		Cancelled Firms
Mean	2.0985		0.2466
Median	1.5818		2.8382
Variance	16.8293		7.3656
Difference		1.8519	
t-statistic		0.8075	

Table 8

Total Asset Turnover

This table reports Total Asset Turnover Equation for the two groups. The Total Asset Turnover was calculated by using the standard equation from the CFA Institute. Amerco and Koll Real Estate were excluded because both companies had unknown values for current liabilities. Harvard Industries and Hvide Marine had unknown data for five years before bankruptcy and four years before bankruptcy, respectively. The mean, median, variance, difference of means, and standard error were calculated for each group. Panels A, B, and C separate the parameters by the time period in which the numbers were derived.

Panel A: Total Asset Turnover One Year Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	1.5562		1.5048
Median	0.8231		0.9845
Variance	3.2414		1.7191
Difference		0.0514	
t-statistic		0.0500	

Panel B: Total Asset Turnover Two Years Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	1.3758		1.2920
Median	1.1647		1.0842
Variance	1.1193		1.4215
Difference		0.0838	
t-statistic		0.1206	

Panel C: Total Asset Turnover with Five Year Averages Before Bankruptcy

	Intact Firms		Cancelled Firms
Mean	1.3540		1.4463
Median	1.0949		0.8096
Variance	1.1130		2.3099
Difference		-0.0923	
t-statistic		-0.1183	

Table 9

Qualitative Data

Industry	
Automotive	Harvard Industries*
	Hayes Lemmerz
Rental and Leasing	Amerco*
Services	Carmike Cinemas*
Energy Transportation	Hvide Marine*
Food Service	Rymer Foods*
	Chiquita Brands
	Pathmark
Technology	Zenith
	Spectrasite
	Horizon PCS
	RCN Corp
Industrial	Joy Global
Financial	Koll Real Estate Group
Healthcare	Genesis Health Ventures
Consumer Goods	Warnaco Group
Utilities	Mirant Corp
	NorthWestern Corp

Reason for Bankruptcy	
Poor Perfomance	Harvard Industries*
	Chiquita Brands
	Zenith
	Joy Global
	Horizon PCS
	RCN Corp
	NorthWestern Corp
Unable to Restructure Debt	Amerco*
	Hvide Marine*
	Pathmark
Large Expansion with Debt	Carmike Cinemas*
	Genesis Health Ventures
	Warnaco Group
	Hayes Lemmerz
	Spectrasite
Restructuring	Rymer Foods*
Litigation	Koll Real Estate
Subsidiary with too much Debt	Mirant Corp
Partial Bankruptcies	Amerco*
	Rymer Foods*

*Group 1 companies are shaded

Table 10

Summary of Chapter 11 Sample Companies

Harvard Industries
A producer of automotive parts and accessories. It sold three poorly performing subsidiaries in Chapter 11. The Chapter 11 filing was the result of continued losses by its Doehler-Jarvis subsidiary, which makes aluminum castings.

Amerco
Amerco, which also owns Amerco Real Estate and two insurance units, sought bankruptcy protection in June after failing to obtain refinancing for $866 million of debt. The U-Haul portion of the company was not involved in the bankruptcy. When it filed the plan of reorganization, Amerco stated it would repay the $1.38 billion it owed to creditors.

Carmike Cinemas
Carmike had been acquiring theatres and building new theatres at a rapid pace. Its goal was to position itself as the dominant movie chain in communities with populations of less than 500,000. Problems for the company came to the forefront when senior creditors blocked the $9 million in interest payments to bondholders on August 1, 2000. Carmike subsequently filed for Chapter 11 to reorganize the company.

Hvide Marine Inc.
Hvide operates 275 vessels all around the world primarily in the oil field serving business. Hvide sold $300 million in Senior Notes in February 1998. Hvide was unable to secure other types of financing to service its semi-annual coupon payment in February 1999. It filed for filed for bankruptcy in August 1999 to implement a plan negotiated with its bondholders.

Rymer Foods
Rymer Foods, through its subsidiary, Rymer Meat Inc., is primarily engaged in the development and production of frozen, pre-seasoned, portion controlled meat entrees. The company also produces products for restaurants and other foodservices. The company entered into Chapter 11 to complete balance sheet restructuring. Rymer Meat Inc. was not part of the bankruptcy proceedings.

Chiquita Brands
Chiquita Brands entered into Chapter 11 because it could not pay its debt. This was a result of suffering losses of more than $1.5 billion over eight years during a dispute with the European Union over banana imports. European quotas on bananas grown in Latin America cost the company an estimated $200 million a year.

Zenith Electronics Corp
Zenith was involved in cable television technology and was a producer of electronics. After many years in the business, Zenith started to come into hard times. In the early

1990's, Zenith became a hostile takeover target. Zenith decided to make a deal with LG Electronics to give LG a five percent stake in Zenith. As the years passed, the stake was increased to 55%. After Zenith filed for bankruptcy, LG bought all of the firm's stock and assumed all the debt to release Zenith from Chapter 11.

Joy Global, formerly Harnischfeger Industries, Inc.
The company's problems began when there was a failed hostile takeover attempt by the Giddings and Lewis Corp. That situation diverted management's attention from the downturn in Asia's economy. Subsequently, the company began to have severe working capital problems. Finally, the company booked $1 billion worth of orders in Asia, but worsening Asian economies caused the Asian company to withhold $300 million in payment. The company had to enter Chapter 11 to restructure. The foreign subsidiaries were not included in the bankruptcy.

Koll Real Estate Group, currently California Coastal Communities
Koll Real Estate's parent company was involved with Dresser Industries in 1988. Dresser acquired an engineering and construction business from Koll Real Estate's parent company. Dresser filed litigation against Koll Real Estate related to the acquisition since asbestos claims were made against buildings affiliated with the parent company. The litigation eventually forced Koll Real Estate Group to file for Chapter 11.

Genesis Health Ventures
Genesis Health Ventures managed nursing homes. Genesis followed a policy of rapid growth. Through the late 1990's, Genesis continued to acquire companies and become involved in joint ventures. As the company's revenue declined, it was unable to meet its interest payments and had to file for Chapter 11.

Warnaco Group
The Warnaco Group is the maker of Calvin Klein jeans. Warnaco sought Chapter 11 bankruptcy protection in June 2001, unable to pay debt from acquisitions and licensing agreements. Warnaco renegotiated licensing deals, sold assets and closed retail stores during its reorganization.

Hayes Lemmerz
Hayes Lemmerz problems began in February 1999, when it acquired CMI International for a cash purchase price of approximately $605 million. During the second half 2000 and throughout 2001, Hayes Lemmerz dealt with reduced demand and operational problems. The liquidity of the company began to be an issue. After restating previous earnings in 2001, Hayes Lemmerz was unable to secure any new debt and needed to file for Chapter 11.

Spectrasite
Spectrasite is one of the largest wireless tower operators in the United States. To become more competitive in the tower market, Spectrasite had to use a large amount of debt to make capital expenditures. Eventually, Spectrasite defaulted on $200 million of bonds following its failure to pay $10.8 million in interest on notes which led to its Chapter 11 filing.

Pathmark
Over a period of 13 years, Pathmark Stores conducted a series of moves to reduce debt such as a huge stock buyback. In December 1999, a planned acquisition by Royal Ahold, the Dutch food retailing giant, fell through, leaving Pathmark with no time to refinance its debt before key payments were due. Pathmark had to enter into Chapter 11.

Horizon PCS
Horizon PCS is a wireless affiliate of Sprint PCS. Due to continued drop in customers and EBITDA, Horizon was unable to meet creditor obligations. Therefore, it searched for a buyer, but was not able to find one soon enough. Horizon filed for Chapter 11 and was then bought by Sprint PCS.

RCN Corp
RCN Corp entered in Chapter 11 because it could not service the $1.2 billion in debt obligations. After a short time in Chapter 11, it was able to renegotiate the terms of the agreements to emerge.

Mirant Corp.
Mirant was a subsidiary of Southern Company. When Mirant was a part of Southern Company, Southern had Mirant take out a large amount of debt and help pay for the dividends of Southern. This caused the subsidiary, Mirant, to start to have liquidity problems. Once Mirant was spun-off, it began to have severe liquidity problems which caused Moody's to downgrade its debt. This downgrade caused Mirant to file for Chapter 11.

NorthWestern Corp.
NorthWestern Corporation, a Montana utility owner and energy trader had losses in five of the past six quarters which led to filing for Chapter 11. The company had $1.76 billion of debt after failing to refinance or sell stock.