Corporate Bankruptcy and Managers' Self-Serving Behavior

Author(s): Claudio F. Loderer and Dennis P. Sheehan

Source: *The Journal of Finance*, Vol. 44, No. 4 (Sep., 1989), pp. 1059-1075
Published by: Blackwell Publishing for the American Finance Association
Stable URL: http://www.jstor.org/stable/2328625
Accessed: 26/11/2009 07:30

THE JOURNAL OF FINANCE • VOL. XLIV, NO. 4 • SEPTEMBER 1989

Corporate Bankruptcy and Managers' Self-Serving Behavior

CLAUDIO F. LODERER and DENNIS P. SHEEHAN*

ABSTRACT

We investigate whether insiders of bankrupt firms hold less stock or reduce their stockholdings compared to what we observed for insiders of similar firms that do not go bankrupt. We find little evidence of such time-series and cross-sectional differences in spite of the fact that the stock value of bankrupt firms falls by more than ninety percent in the five years preceding bankruptcy. One implication of our results is that the amount of stock owned and the magnitude of the trades undertaken by corporate insiders of both bankrupt and nonbankrupt firms appear to provide no information about firm value.

THERE IS EXTENSIVE EVIDENCE that insiders such as officers and directors earn abnormal returns when trading in their firm's stock (Lorie and Niederhoffer (1968), Pratt and De Vere (1970), Jaffe (1974b), Finnerty (1976), Seyhun (1986), Rozeff and Zaman (1988)). However, a simple interpretation of the ability of insiders to earn abnormal returns appears difficult. Insiders do not trade before large stock price increases (Reinganum (1987)) or before firm-specific events such as earnings and dividend announcements and merger decisions (Givoly and Palmon (1985)). It is therefore unclear what private information insiders act upon when they trade. As a consequence, the signals sent by these trades to the market about firm value are ambiguous. (See Seyhun (1988).) By implication, the level of stockholdings by insiders is also likely to provide outsiders with an ambiguous clue about firm value.[1]

This paper investigates the action of insiders in corporations that experience large declines in equity value over an extended period of time. The level and the changes in stockholdings of these executives are compared to those of similar executives in firms that do not experience the same value decline. The paper seeks to add to the evidence on when and why insiders trade and to contribute

* Both authors from Krannert School of Management, Purdue University. We would like to thank Arthur Andersen & Co. and G. Law, the head librarian of the Krannert Library, for their generous assistance in our data collection effort and Cynthia Quillen for her careful research. We are grateful to an anonymous referee for this Journal and René Stulz for their comments and suggestions. We are also grateful to Wolfgang Bensel, who was involved in the preliminary stages of this study. We benefited from the comments of Clifford Holderness, Wayne Marr, David Mauer, and Wayne Mikkelson, from discussion with the Krannert Brown Bag Economists, and from comments received during seminars at Purdue University, the University of Iowa, and the University of Rochester. An earlier version of this paper was presented at the 1987 American Finance Association Meetings.

[1] Leland and Pyle (1977) show that an entrepreneur's retention of equity can serve as a signal to the market of the entrepreneur's valuation of the firm. The relevant evidence, however, is mixed (Downes and Heinkel (1982), Ritter (1984)).

to an understanding of the information that executive stock ownership and changes in that ownership convey to the market about firm value. Discerning the reasons why insiders trade might also explain why corporate insiders of publicly held corporations own amounts of alienable stock in their employer firms that can be substantial.[2]

The firms analyzed here are firms that filed for bankruptcy between 1971 and 1985. According to our calculations, the stock of the median bankrupt corporation experiences a cumulative abnormal return of minus ninety-two percent during the 1,300 trading days preceding the announcement of bankruptcy filings. (Aharony, Jones, and Swary (1980) and Clark and Weinstein (1983) report similar figures.) We investigate whether corporate insiders reduce their stockholdings during this five-year period and whether the magnitude of these stockholdings is significantly lower in bankrupt firms than in firms that do not file for bankruptcy. Bankrupt firms and nonbankrupt firms are matched according to industry and size.

We find no evidence that officers and directors systematically "bail out" prior to bankruptcy. In spite of the significant and protracted wealth losses, we also find little evidence that insiders' stockholdings in bankrupt firms, as measured either by the fraction of or the number of shares outstanding held, are lower than those observed for similar insiders in control firms, regardless of rank and title of these executives. We do find, however, that insiders of failing firms increase their holdings less frequently than do the insiders of control firms.

The implication is that insiders' stockholdings in *both* bankrupt firms and nonbankrupt firms of similar size and industry do not provide the market with useful information about intrinsic firm value. The frequency of increases in stockholdings by insiders is lower in bankrupt than in nonbankrupt firms, but the dollar value of stockholding changes is not a useful clue to gauging firm value either. All this could happen either because corporate insiders of failing firms are reluctant to trade on the basis of their private information or because they are unable to predict, with better accuracy than the market, changes in firm value. We explore different explanations for the reluctance of insiders to trade, without much success.

In Section I we document data collection methods for the two samples of firms. Section II describes our results, and Section III discusses various reasons why we might observe what we do. A short conclusion follows.

I. The Data

To collect our sample of bankrupt firms, we searched through the *Wall Street Journal Index (WSJI)* under the heading "Bankruptcy" during the period 1971–1985 and compiled a list of all firms traded on the AMEX or the NYSE that filed for bankruptcy during those years. This list was augmented by (i) searching the COMPUSTAT research tapes for NYSE and AMEX firms that were deleted from the active tapes because of bankruptcy in 1971–1985 and (ii) searching the

[2] Papers dealing with the subject of managerial stockholdings include, among others, Jensen and Meckling (1976), Morck, Shleifer, and Vishny (1988), and Stulz (1988).

CRSP daily tapes for the sample of firms that were liquidated, delisted by the exchange, halted by the exchange, or suspended by the SEC and identifying from the *WSJI* those that filed for bankruptcy in 1971–1985. This process yielded a total of 218 bankruptcy events involving 217 separate firms. Stock ownership data availability reduced that sample to 182 bankruptcy events and 181 separate firms. These events are fairly evenly distributed by year of bankruptcy filing; the number of filings ranges between eight and twenty except for 1971 and 1972, when we have one and six filings.

For every bankrupt firm, we chose a matching firm with the same two-digit SIC code (as reported on the CRSP tapes) and a book value of total assets closest to the one of the bankrupt firm four years before it filed for bankruptcy. Thus, test and control firms were matched by size and industry in years when it is unlikely that bankruptcy could have been predicted with great confidence. Total asset values were taken from COMPUSTAT or, if unavailable, from various *Moody's Manuals.* We checked each firm in the control sample of firms to ensure that it did not file for bankruptcy in the same calendar year as the bankrupt firm or in any of the three years thereafter. Some firms were included in the control sample more than once—two firms three times and seventeen firms twice. We were able to find 159 separate matching firms for 178 bankruptcy events.[3]

Stock ownership data by officers and directors in the two samples of firms were obtained from proxy statements. For every firm, we gathered, when possible, the five most recent annual proxy statements dated before the filing date of bankruptcy. Thirty percent of the proxy statements potentially available could not be found in the case of bankrupt firms. One of the major reasons, we suspect, is that failing firms are more likely to skip stockholder meetings, especially in the year of bankruptcy filing. The proportion of proxy statements missing in the case of control firms is less than ten percent. From the documents available for each firm, we gathered data on the stockholdings by the highest paid officers in the firm. Depending on data availability, up to six executives were considered. Ownership was recorded as reported in the appropriate tables of the proxy statements, disregarding footnotes except to deduct unexercised stock options.

We also compiled the stockholdings of the directors as a group, the outside directors (defined as directors with no regular employment relation to the firm; consultants, for instance, were considered as outsiders), the officers and directors as a group, the holders of blocks in excess of five percent, and the outside holders of such blocks—these latter being defined as stockholders who are neither officers nor directors of the firm.[4]

To enable comparisons across firms and years, ownership is measured as the

[3] No control firm could be found for three bankruptcy events, either because there was no other firm in the same industry as the bankrupt firm or because we were unable to find data on the total assets of the bankrupt firm.

[4] The following algorithm was used to assign data to different years in event time. Year 0 data are those reported in the last available proxy statement before the announcement date of bankruptcy filing, provided that the proxy statement has the same calendar date as the year of the filing announcement or precedes it by a maximum of six months. Observations for year −1 are from proxy statements dated in the twelve months preceding either the date of the above last proxy statement or the sixth month before the year of Chapter 11 filing; observations for year −2 are taken from proxies filed in the twelve months preceding year −1, etc.

number of shares owned (*NUM*) and the proportion of shares outstanding owned (*ALPHA*). The *ALPHA* measure will be given more emphasis since it is unaffected by stock splits and stock dividends; however, the *ALPHA* measure, unlike *NUM*, does not distinguish between changes in the number of shares owned and changes in the number of shares outstanding following a stock offering or an equity-for-debt swap. Since *ALPHA* is typically skewed to the right, median values are the measures of central tendency discussed.

II. Empirical Analysis

The level of managerial stockholdings in bankrupt firms, by position and by individual executive, over time, and relative to the control group of executives, is analyzed first. Changes in these stockholdings are examined later. The last section analyzes reasons for our findings.

A. Preliminary Considerations

Table I reports the distribution of stockholdings by corporate insiders in bankrupt versus control firms for all firm years preceding and including the bankruptcy year. As shown there, with the exception of outside directors, corporate insiders own a substantial fraction of the shares outstanding in both the bankrupt and the control firms. In bankrupt firms, for instance, seventy-five percent of the highest paid executives own at least one percent of the shares outstanding, fifty percent of these executives own at least seven percent, and twenty-five percent own more than eighteen percent. Surprisingly, the control firms have an almost identical ownership distribution.[5] There could be, however, substantial differential changes in stockholdings as bankrupt firms approach the bankruptcy filing year. The only apparent cross-sectional difference is the one involving the median value of aggregate large blocks. Since outsiders hold no blocks of shares in the median firm of either sample, this difference is due to blocks held by insiders. In nonbankrupt firms, aggregate large blocks amount to twenty percent, while in bankrupt firms they are significantly larger and equal thirty-one percent.

We examined whether insiders tend to act in concert by analyzing whether large holdings by one group of insiders imply large holdings by other groups as well, but we failed to find a consistent pattern within and across samples. For instance, when the highest ranking executives (chairmen of the board, presidents, or chief executive officers) of a failing firm as a group own more than the median amount observed for their category, the vice presidents as a group also tend to own an above-median amount of equity. By contrast, the ownership level of top

[5] In general, these ownership figures are larger than what has been observed in other studies or reports on executive stock ownership. In a sample of 746 CEOs analyzed in the 1987 Forbes Executive Compensation Survey, the median CEO held only 0.25 percent of his firm's stock, or $3.5 million. Morck, Shleifer, and Vishny (1988) report median total board member holdings of three percent in a sample of 456 Fortune 500 firms in 1980; the same figure is found by Lewellen, Loderer, and Rosenfeld (1985) for a sample of 191 merger events involving acquiring firms listed on the NYSE or the AMEX in 1963–1981. The typical firm in these studies is probably larger than the ones analyzed here.

Table I

Aggregate Stock Ownership, as a Percentage of Shares Outstanding, of Officers, Directors, and Large-Block Shareholders for the Five-Year Period Preceding and Including the Year of Bankruptcy Filing

Data are a pooled time-series cross-section of 181 firms filing for bankruptcy between 1971–1985 and their matching control firms. Each firm year is treated as one observation. Outside directors are directors with no regular employment relation to the firm. Large block owners are shareholders who own more than five percent of the stock outstanding. Large block outside owners are shareholders who are neither officers nor directors of the firm. *MIN* is the minimum value; *MAX* is the maximum value.

	MIN	First Quartile	Median	Average	Third Quartile	*MAX*	Sample Size
Bankrupt firms							
Highest paid officer	0.0	1.2	7.0	12.0	18.2	76.5	667
Three highest paid officers	0.0	1.3	9.1	15.9	26.2	85.7	734
Directors	0.0	4.8	15.0	22.0	34.3	97.1	712
Outside directors	0.0	0.1	0.4	2.5	1.9	61.2	711
Large block owners	0.0	12.2	31.1	31.8	49.5	96.3	626
Large block outside owners	0.0	0.0	0.0	10.1	15.3	71.2	625
Control firms							
Highest paid officer	0.0	1.0	6.6	11.5	16.8	61.1	530
Three highest paid officers	0.0	1.8	8.8	16.2	24.3	71.1	554
Directors	0.0	6.5	18.2	23.3	32.9	79.5	552
Outside directors	0.0	0.1	0.6	2.8	2.3	49.0	550
Large block owners	0.0	11.8	21.1	26.6	40.2	79.5	504
Large block outside owners	0.0	0.0	0.0	7.1	10.7	72.7	500

Table II

Median Stock Ownership, as a Percentage of Shares Outstanding (*ALPHA*), of Officers, Directors, and Large-Block Shareholders for Each Year in the Five-Year Period Preceding and Including the Year of Bankruptcy Filing

Data are a time-series cross-section of 181 firms filing for bankruptcy between 1971–1985 and their matching control firms. Large block shareholders are defined as any shareholders owning more than five percent of the stock outstanding. N indicates the sample size. Wilcoxon two-sample statistic is a nonparametric test for equality of locations of the two populations of firms. We report the normal approximation to the actual test statistic (Z-value); p-values are for a two-sided test.

Year Relative to Bankruptcy Filing	Bankrupt Firms		Control Firms		Wilcoxon Two-Sample Test Statistic	
	ALPHA	*N*	*ALPHA*	*N*	*Z*-Value	*p*-Value
			Highest Paid Officer			
−5	6.3	93	7.2	63	0.30	0.76
−4	7.6	128	7.3	99	−0.12	0.90
−3	5.7	130	5.8	103	0.52	0.60
−2	7.0	139	6.5	112	0.08	0.94
−1	6.9	128	5.9	109	−0.32	0.75
0	7.5	40	7.4	56	0.10	0.92
			Any of the Six Highest Paid Officers			
−5	1.3	280	1.2	184	−0.21	0.83
−4	1.5	405	1.5	296	−0.43	0.67
−3	1.4	399	1.2	319	0.04	0.97
−2	1.3	414	1.0	368	0.07	0.94
−1	1.0	386	1.1	362	−0.51	0.61
0	1.9	109	1.6	151	−0.21	0.83

Directors as a Group						
−5	15.4	97	15.9	65	0.72	0.47
−4	17.1	137	22.2	102	1.13	0.26
−3	15.2	138	16.0	106	−0.02	0.98
−2	15.1	152	17.2	120	0.49	0.62
−1	14.5	142	17.3	116	1.07	0.29
0	12.2	46	19.1	60	−1.00	0.32
Outside Directors as a Group						
−5	0.8	97	1.0	64	1.05	0.29
−4	0.4	136	0.6	101	0.80	0.42
−3	0.4	138	0.5	106	0.41	0.68
−2	0.4	151	0.6	120	0.96	0.68
−1	0.2	142	0.5	116	2.45	0.01
0	0.3	46	0.5	59	−1.22	0.22
Large Block Owners as a Group						
−5	25.5	86	18.6	59	1.66	0.10
−4	32.0	117	25.9	93	1.19	0.23
−3	31.3	114	18.4	95	2.19	0.03
−2	30.0	130	21.2	106	1.88	0.06
−1	32.4	125	20.1	106	2.69	0.01
0	27.7	42	20.7	54	1.02	0.31

executives is unrelated to the ownership of outside directors. In control firms, the holdings by the top executives are also positively related to the holdings of the vice presidents, but they are inversely related to the holdings of outside directors.

B. Stockholdings by Insider Category in Event Time

To test whether there is any evidence that corporate insiders reduce their holdings at some time before bankruptcy, we analyze their holdings in event time. We find no difference between the holdings observed five years before bankruptcy filing and those observed in the year of filing. According to Table II, for instance, the highest paid executive in the median bankrupt firm holds 6.3 percent of the outstanding stock five years before bankruptcy filing and 7.5 percent in the year of filing. The change is not statistically significant (test statistic not reported). The corresponding figures for the sample of nonbankrupt firms are almost identical: 7.2 percent in year −5 and 7.4 percent in year 0.[6]

No statistical difference either in time (not reported) or across samples can be observed in the case of the six highest paid executives, the directors, or the outside directors (outside directors in year −1 are the lone exception).[7] No category of corporate insiders, regardless of their position, therefore reduces its holdings at any point in event time. The only cross-sectional difference apparent in Table II is once again that stock ownership appears to be more concentrated in failing firms—the differential is mostly significant with confidence 0.90 or better.

C. Stockholdings by Individual Corporate Insiders

In the preceding tables, we analyzed the holdings of corporate insiders by position rather than by individual executive. To give an example, the holdings reported in Table II for the highest paid executive over the years do not necessarily refer to the same person but simply to whomever happens to be the highest paid executive. The analysis presented in Table III obviates this potential problem. There, we report the holdings of various categories of executives who remained with the firm for five years or more. As the table shows, the highest paid executive's holdings do not appear to fall at any point in time, but there are some years in which statistically large differences emerge between samples. By comparison, for the six highest paid executives, there is some tendency for the median holding to decrease over time, but there is no reliable difference between

[6] One should be careful in comparing the results for year 0 to the ones of the preceding years. What appear to be increased holdings in year 0 could very well be the result of selection bias since the number of year 0 observations is typically substantially lower than the number of observations in previous years. Few failing firms had stockholder meetings just before they petitioned for bankruptcy, and it could well be that the group of firms that did so is systematically different from the rest of the bankrupt firms.

[7] The stockholdings of newly appointed executives in bankrupt firms are also not statistically different from those of similar executives in control firms. Newly appointed executives are defined as individuals appointed to any one of the six highest paying jobs in the firm in a particular year who were not reported among the six highest paid executives in the proxy statements of the previous sample years.

Table III

Median Stock Ownership, as a Percentage of Shares Outstanding (*ALPHA*), of Executives Who Have Been with the Firm Five Years or More for Each Year in the Five-Year Period Preceding and Including the Year of Bankruptcy Filing

Data are a time-series cross-section of 181 firms filing for bankruptcy between 1971–1985 and their matching control firms. Sample size in a year is indicated by N. Wilcoxon two-sample test statistic is a nonparametric test for equality of locations of the two populations of firms. We report the normal approximation to the actual test statistic (Z-value); p-values are for a two-sided test.

Year Relative to Bankruptcy Filing	Bankrupt Firms		Control Firms		Wilcoxon Two-Sample Test Statistic	
	ALPHA	N	*ALPHA*	N	Z-Value	p-Value
			Highest Paid Officer			
−5	9.4	36	12.6	26	−1.36	0.17
−4	7.7	48	13.1	39	−1.88	0.06
−3	7.9	48	12.2	39	−1.46	0.15
−2	7.9	46	12.9	42	−2.13	0.03
−1	8.5	44	12.7	40	−2.05	0.04
0	8.2	21	12.2	21	0.86	0.40
			Any of the Six Highest Paid Officers			
−5	1.8	95	1.8	69	−0.26	0.79
−4	2.2	111	2.2	116	−0.14	0.86
−3	2.4	111	2.3	116	−0.51	0.61
−2	2.2	103	2.5	129	0.03	0.97
−1	1.7	102	2.7	119	0.55	0.58
0	1.2	42	3.5	62	−0.98	0.33

samples. A nonparametric test (Kruskal-Wallis) of the variation of holdings of either the top executive or the top six executives over event time shows that in neither sample is it possible to detect any changes associated with year relative to bankruptcy.[8]

The four-percentage-point difference in holdings between the highest paid executive in bankrupt versus nonbankrupt firms is not trivial. However, it could be simply a random phenomenon. Consistent with that, when we repeated the analysis by focusing on the highest paid executive who had been with the firm for at least four rather than five years, we failed to find any significant cross-sectional differences. Indeed, the top executive in the bankrupt firms held *more* than the top executive in the control firms in four of the six years studied.

Changes in the proportion of shares held by executives, *ALPHA*, could reflect changes in the number of shares outstanding rather than trades by insiders in the capital market. We therefore replicated the analysis by investigating the changes in the number of shares held by corporate insiders (*NUM*) (not reported). Again, there is no evidence that executives of bankrupt firms own less stock or decrease their holdings compared to their counterparts in control firms.

D. Changes in the Stockholdings by Corporate Insiders

To investigate stockholding changes, we first examined the *direction* of the year-to-year changes in holdings observed for individual executives in the six highest paying jobs of failing firms during the five years prior to bankruptcy filing. By design, all year-to-year changes involve the same person. Holdings, as measured by *ALPHA*, vary quite frequently over time; almost eighty-five percent of the executives change their holdings over the year. However, it is not the case that almost all of these changes are reductions: in forty-four percent of the cases analyzed there is a decrease; in thirty-nine percent of the cases there is an increase; and in the remaining cases there is no change. This conclusion is reinforced when holdings are measured by the number of shares held. There are fewer instances of reductions in the number of shares held, *NUM*, than there are reductions in *ALPHA*. The breakdown of annual changes in *NUM* during the five-year period considered is twenty-five percent decreases, thirty-nine percent increases, and thirty-seven percent unchanged.

The relevant comparison, however, is with control firms. Panel A of Table IV reports a contingency table analysis of the changes in *ALPHA* measures of executive ownership by firm category (bankrupt versus control), and Panel B does the same for the number of shares held (*NUM*). Both perspectives indicate that the main difference between bankrupt and control firms is not so much the instances of holdings reductions but rather the instances of increases in the number and the proportion of shares held. For instance, the number of shares owned increases in forty-eight percent of the firm years in control firms, compared to only thirty-nine percent of the firm years in failing firms (Panel B). The difference is statistically significant with confidence better than 0.99.

[8] The Kruskal-Wallis test used here is not completely appropriate due to the lack of independence between observations. (The same executive appears multiple times.) The evidence indicates that the likely positive serial correlation would lead to p-values that are biased downward. (See Gastwirth and Rubin (1971).) This would tend to reinforce our finding of no effect.

Table IV

Annual Changes in Stock Ownership by Any of the Six Highest Paid Executives, Classified by Direction of Change

Data are a pooled time-series cross-section of 181 firms filing for bankruptcy between 1971–1985 and their matching control firms. Changes are measured for each year of the five-year period preceding and including the year when the bankruptcy filing is announced. Numbers in parentheses under observed frequencies are row percentages. The chi-squared value is for a test of the hypothesis that the two sets of firms are from the same population. The χ^2 values have degrees of freedom equal to two and p-values less than 0.0001.

	Observed Frequencies			
Firm	Decrease	Increase	No Change	Total
Panel A: Stock Ownership Measured as a Fraction of Shares Outstanding (*ALPHA*)				
Bankrupt	523	470	204	1,197
	(44%)	(39%)	(17%)	
Control	510	489	90	1,089
	(47%)	(45%)	(8%)	
Total	1,033	959	294	2,286
				$\chi^2 = 39.7$
Panel B: Stock Ownership Measured as the Number of Shares Held (*NUM*)				
Bankrupt	296	463	438	1,197
	(25%)	(39%)	(37%)	
Control	259	522	308	1,089
	(24%)	(48%)	(28%)	
Total	555	985	746	2,286
				$\chi^2 = 23.6$

Since the conclusions are contingent on giving all the changes in executive ownership the same weight independent of their magnitude, we also analyzed the size of the variation in *ALPHA* and *NUM* measures of ownership. The median size of these changes, however, is zero in either sample regardless of how ownership is measured. The median size of the changes in stockholdings *summed* across the six highest paid executives in failing firms is also zero.

An investigation of different categories of corporate insiders indicates that these results are fairly general and independent of an executive's tenure and rank in a failing firm's hierarchy. Overall, the evidence indicates that insiders of failing firms do not own less stock; nor do they trade amounts of stock that are significantly different from what we observe for insiders of control firms. The main difference between failing and nonfailing firms is that executives in nonfailing firms do not increase their holdings as frequently as their counterparts in control firms do, but in no case is the magnitude of the median change different from zero.

III. Possible Explanations

The data indicate that insider ownership in bankrupt firms is not lower than in control firms and that it does not decline significantly at any point in time before the filing for bankruptcy. Since these stockholdings do not appear to be restricted, the obvious question is whether insiders of failing firms do not have a better knowledge about firm value than the market or whether they elect not to reduce their holdings. Some of the reasons that insiders might not reduce their ownership in spite of adverse private information are low value of investment at stake, concerns about sending adverse signals to suppliers and employees, the possibility of resigning from the firm before selling the stock, laws against insider trading, and lawsuits from disgruntled shareholders.

A. Trading Incentives

It is possible that executives do not divest their stockholdings because losses are negligible. Dollar value of holdings, however, is substantial: five years before bankruptcy filing, the highest paid executive of bankrupt firms owns \$1.8 million, directors as a group \$5.2 million, and outside directors together \$0.2 million (all median values in constant 1987 dollars). However, the decline in the value of these holdings is difficult to investigate because the number of shares held by insiders changes frequently from one year to the next. We therefore computed the annual, real dollar change in the value of holdings of shares that did not vary by more than five percent from one year to the next when measured by the number of shares involved. Table V shows the findings for the case of individual managers in the six highest paid positions. The median annual decline ranges from \$20,000 in year −4 to \$99,000 in year −2. Losses seem to be especially high in the last three years before bankruptcy filing. If one takes into consideration the opportunity costs incurred by not investing in capital market opportunities with a positive return, more than seventy-five percent of the value changes considered in this period represent losses. The actual losses are likely to be larger because in many cases we were unable to find prices in *Standard and Poor's Daily Stock Price Record.* Firms for which we do have stock prices are probably the ones which fared better. In spite of this bias, however, the evidence indicates that the senior executives of failing firms experience wealth declines that can be substantial.

B. Adverse Signals to Suppliers and Employees

We then investigated whether lower ranking executives in failing firms divest their holdings more actively than higher ranking executives under the presumption that any decrease in the holdings by higher level managers would send a strong negative signal to the firm's suppliers and its employees. Annual proportional changes in ownership of each one of the six highest paid executives in bankrupt firms were therefore analyzed. Total annual direct compensation was used as a proxy for the rank of an executive in the firm's hierarchy. We found no evidence, however, that lower ranking executives sell more than higher ranking executives. The median annual change in *ALPHA* and *NUM* during the five years preceding the filing for bankruptcy is zero across positions. Control firms exhibit the same pattern.

It is possible, however, that higher ranking executives effectively prevent lower

Table V

Annual Changes in the Value of Stockholdings by Any of the Six Highest Paid Executives in Bankrupt Firms

Data are a time-series cross-section of 181 firms filing for bankruptcy between 1971–1985. Changes are measured for each year of the five-year period preceding and including the year when the bankruptcy filing is announced. Value is measured in thousands of 1987 dollars. The Consumer Price Index used to rescale historical dollar figures is the price index for all urban consumers. The number of observations is the number of executives included in a year.

Year Relative to Bankruptcy Filing	Minimum	First Quartile	Median	Third Quartile	Maximum	Number of Observations
−4	−35,824	−354	−20	14	19,981	109
−3	−26,704	−429	−54	10	*18,508	151
−2	−10,096	−599	−99	0	9,715	158
−1	−35,759	−752	−61	0	10,692	127
0	−10,311	−895	−58	0	10,699	33
Overall	−35,824	−575	−61	0	19,981	583

ranking executives from disposing of their shares.[9] In general, if the board or top management were concerned about sending a bad signal, they could fire any executive who drastically reduced his holdings. We analyzed whether managers who leave their firm before year 0 are more likely to have reduced their stockholdings than managers who stay on. For that purpose, we focused on managers in the three highest paid positions and partitioned that sample into two parts: executives who have been there for at least four years, including year 0, and executives who have been there for at least four years, but who are not there in year 0.[10] In the last two years before the bankruptcy filing year (years −2 and −1), the difference in the two samples goes in the predicted direction (results not reported separately): thirty-six percent of the departing executive have reduced the number of shares owned, compared to twenty-four percent in the case of executives who stay. The difference, however, is only marginally significant with confidence 0.90, and it disappears when the actual size of the transactions is taken into consideration. The median change in the number of shares owned is zero across samples, and the Wilcoxon test is not significant.

C. Option of Leaving the Firm

The reason no executive in failing firms appears to reduce his holdings could be that anybody wanting to sell, but under pressure from the board of directors or other senior managers not to do so, could simply resign and then divest his holdings. To investigate whether executives dump their holdings after resigning, we checked the cases where executives having more than ten percent ownership left the firm. Holders of more than ten percent are required to register all trades with the Securities and Exchange Commission, which publishes them in its *Official Summary of Security Transactions and Holdings*. We identified ten such executives (out of a total of 142 who owned more than ten percent) but found no evidence that they liquidated substantial amounts of stock. Of the ten, two were found who had reduced their holdings, one reducing by essentially one hundred percent (representing the sale of a majority block) and the other by four percent. A third former executive increased his holdings by three percent. No transactions were reported for the other seven executives.[11] Hence, there is little evidence that

[9] Managers could also have an incentive to retain stock to make it credible to outside observers that a divergence from stockholder-maximizing policies will be costly to themselves. There seem, however, to be more flexible ways than alienable stock ownership to align the interest of stockholders and managers. It is also unclear how much confidence stockholders should have in an incentive mechanism, such as alienable stock ownership, that managers can tamper with by trading. Compensation contracts are likely to be better vehicles of interest harmonization. Interestingly, executive compensation packages appear to be designed to a large extent independently of the stock owned by the executive in the employer firm (Lewellen, Loderer, and Martin (1987)).

[10] Although it is very likely, there is no certainty that these managers actually left the firm. We only know that they are not reported in the six highest paid positions in the firm in year 0.

[11] We also used the *Official Summary* to track those executives for whom we had a proxy in year −1 but no proxy in the bankruptcy year. It could be argued that these are precisely the cases where executives would bail out. We followed fifty-eight such executives from the date of the last proxy statement to three months after bankruptcy. For thirty-seven of these fifty-eight executives (sixty-four percent), there were no reports of buying or selling. Of the twenty-one that reported transactions, sixteen of them were net sellers with an average decrease of seven percent in their ownership. Although the majority of those who report transactions are selling, they do not comprise a substantial number, nor do they decrease their holdings by a substantial amount.

executives leave the firm to dispose of their stockholdings.

Interestingly, the senior executive who weather all the prebankruptcy storms and are there when bankruptcy is filed appear to control *more* stock than other executives (not shown). The three highest paid executives who are still present in year 0 have a median holding of seven percent of the stock outstanding, while those who leave before year 0 hold less than two percent. The difference is marginally significant in the years −3 and −2. It may be that the extent of their ownership enables these senior executives to resist actions that would restructure the firm and thereby stave off bankruptcy.

D. Legal Problems

Legal prohibitions may also prevent the sale of stock in firms going bankrupt. Rule 10b-5 of the 1934 Securities Act prohibits insiders from trading on their private information. In addition, SEC Rule 144(e)-1 imposes constraints on the number of shares that can be sold in a three-month period absent a secondary distribution. Regardless of these prohibitions, insiders do trade, and, in particular, they do not hesitate to sell. In Seyhun's sample (1988), for instance, open market sales outnumber purchases seven to five, although the dollar value ratio is two to three. Further evidence that the SEC rules have little effect on preventing insider trading is reported by Jaffe (1974a) and Rozeff (1987). Jaffe's paper analyzes trading by insiders following three significant regulatory events (court cases) that helped to define insider trading. He finds that one cannot reject the hypothesis that the three cases had no effect on trading volume or trading profits. Rozeff reports that there were few SEC enforcement actions brought against insiders (only thirty-seven from 1966 to 1980), and most were settled with small penalties.

Perhaps it is not so much the SEC enforcement actions that are the primary restraint on insiders dumping their stock but rather the threat of lawsuits that shareholders file after the firm is in bankruptcy proceedings. This threat could also make it unattractive for managers to resign to dump their stock. To test this notion, we tracked all firms where any insider reduced his holdings by more than fifty percent in one year. Each firm was followed in the *Wall Street Journal* from two years before through two years after bankruptcy. There were forty instances of reductions in ownership exceeding fifty percent in one year. We found three references to lawsuits for the companies involved. All of these referred to lawsuits involving allegations of failure to make timely release of adverse information. There were two additional reports of SEC investigations, one of which mentioned trading irregularities (but not insider trading). Thus, lawsuits and SEC investigations do not appear to be very frequent or directly related to insider trading. The existence of lawsuits involving disgruntled shareholders and their potential cost could, however, be a sufficient deterrent against dumping stock.

IV. Concluding Remarks

We investigated whether insiders in firms filing bankruptcy petitions show any tendency to "bail out" of the firm. In spite of the substantial wealth declines incurred, we find no evidence that officers and directors systematically reduce their stockholdings in the five years before bankruptcy. There is also no evidence that insiders' stockholdings in bankrupt firms are lower than those observed for insiders in control firms, regardless of rank and title.

All this could happen either because corporate insiders of failing firms are unable to predict changes in firm value better than the market or because they are reluctant to trade on their inside information. We investigated whether any reluctance to trade is rooted, among other things, in concerns about sending adverse signals to suppliers and employees, the possibility of resigning from the firm before selling the stock, laws against insider trading, or fears of lawsuits from disgruntled shareholders. We do not find convincing evidence to support any of these explanations.

This paper contributes to the evidence on when and why insiders trade but, in doing so, may add to the conundrum of insider trading. Beyond that, the main implication of our findings is that knowledge of insiders' stockholdings in bankrupt firms and in nonbankrupt firms of similar size and industry does not provide market participants with useful clues about firm value. The dollar value of changes in insider stockholdings is also not a very useful clue to gauging firm value. The only potentially informative characteristic of insider trading is the direction of insider stockholding changes: insiders of bankrupt firms are less likely to increase their holdings than insiders of nonbankrupt firms.

REFERENCES

Aharony, Joseph, Charles, P. Jones, and Itzhak Swary, 1980, An analysis of risk and return characteristics of corporate bankruptcy using capital market data, *Journal of Finance* 35, 1001–1016.

Clark, Truman A. and Mark I. Weinstein, 1983, The behavior of the common stock of bankrupt firms, *Journal of Finance* 38, 489–504.

Downes, David H. and Robert Heinkel, 1982, Signaling and the valuation of unseasoned new issues, *Journal of Finance* 37, 1–25.

Finnerty, Joseph E., 1976, Insiders and market efficiency, *Journal of Finance* 31, 1141–1148.

Gastwirth, Joseph L. and Herman Rubin, 1971, Effect of dependence on the level of some one-sample tests, *Journal of the American Statistical Association* 66, 816–820.

Givoly, Dan and Dan Palmon, 1985, Insider trading and the exploitation of inside information: Some empirical evidence, *Journal of Business* 58, 69–87.

Jaffe, Jeffrey F., 1974a, The effect of regulation changes on insider trading, *Bell Journal of Economics and Management Science* 5, 93–121.

———, 1974b, Special information and insider trading, *Journal of Business* 47, 410–428.

Jensen, Michael C. and William H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics* 3, 305–360.

Leland, Hayne E. and David H. Pyle, 1977, Informational asymmetries, financial structure, and financial intermediation, *Journal of Finance* 32, 371–387.

Lewellen, Wilbur, Claudio Loderer, and Ahron Rosenfeld, 1985, Merger decisions and executive stock ownership, *Journal of Accounting and Economics* 7, 209–231.

———, Claudio Loderer, and Ken Martin, 1987, Executive compensation and executive incentive problems, *Journal of Accounting and Economics* 9, 287–310.

Lorie, James H. and Victor Niederhoffer, 1968, Predictive and statistical properties of insider trading, *Journal of Law and Economics* 11, 35–51.

Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293–315.

Pratt, Shannon P. and Charles W. De Vere, 1970, Relationship between insider trading and rates of return of NYSE common stocks, 1960–1966, in J. Lorie and R. Brealey, eds.: *Modern Developments in Investment Management* (Praeger, New York).

Reinganum, Marc, 1987, The anatomy of a stock market winner, *Financial Analysts Journal* 43, 16–28.

Ritter, Jay R., 1984, Signaling and the valuation of unseasoned new issues: A comment, *Journal of Finance* 39, 1231–1237.

Rozeff, Michael, 1987, Insider trading: What we know and what we don't know, in E. Valentine, ed.: *The Ethics of Organizational Transformation: Mergers, Takeovers, and Corporate Restructuring* (Quorum Books, Westport, CT).

——— and Mir A. Zaman, 1988, Market efficiency and insider trading: New evidence, *Journal of Business* 61, 25–44.

Seyhun, H. Nejat, 1986, Insiders' profits, costs of trading, and market efficiency, *Journal of Financial Economics* 16, 189–212.

———, 1988, The information content of aggregate insider trading, *Journal of Business* 61, 1–24.

Stulz, René, 1988, Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25–54.