Extreme Negative Information and the Market Adjustment Process: The Case of Corporate Bankruptcy

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Abstract

Despite the conventional wisdom that equity prices adjust rapidly to new information, several studies provide contrary evidence in the presence of severe price declines. In the spirit of Lakonishok and Smidt (1988), the generality of this finding is investigated through the use of an independent sample. The current results are consistent with a rejection of the sampling error hypothesis. Various alternative explanations consistent with investor rationality are explored

Introduction

It widely is believed that financial markets adjust rapidly to releases of firm-specific information. This belief has gained strong support from the event study literature where most investigations using daily data are consistent with the semi-strong form of the efficient market hypothesis (EMH). Additional reinforcement is provided by intraday studies by Dann, Mayers, and Raab (1977), Jennings and Starks (1986), and Patell and Wolfson (1984) who show that prices generally adjust to new information within several minutes. Despite these findings, the current investigation suggests that markets may overadjust to some varieties of information.

There exist several unexplained findings within the event study literature that suggest an overadjustment and subsequent price reversal to extreme negative information. Howe and Schlarbaum (1986) report average risk-adjusted performance of up to 4 percent for the first trading day subsequent to SEC trading suspensions, and Clark and Weinstein (1983) document 11 percent in the two days following the announcements of corporate bankruptcies. Both of these studies concern the dissemination of extreme negative information as evidenced

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by risk-adjusted returns of -29 percent and -39 percent, respectively, estimated over a two day announcement period.

Given the voluminous event study literature, it is possible that like price movements would exist for some small number of studies absent any true abnormal performance. A recently published study by Brown, Harlow, and Tinic (1988) suggests that this statistical artifact interpretation may not be complete, however, as they document analogous movements (although of a lesser magnitude) lasting several days subsequent to a large sample of daily price declines of at least 2.5 percent. Further, they report a positive correlation between these movements and the severity of the conditioning price decline and attribute their findings to a time-varying risk premia explanation.[1] Although no separate analysis of extreme movements is provided, this combined evidence suggests that the previously cited event study examples are unlikely to have resulted solely from sampling error.

It is the primary purpose of this paper to investigate the generality of the examples of positive price movements that have been documented subsequent to the release of extreme negative information. In addressing a related topic with regard to seasonalities, Lakonishok and Smidt (1988) report that the best methodological approach for this type of data snooping is through the use of an independent sample. In response to this suggestion, the current paper replicates the Clark and Weinstein (1983) study of bankruptcy filings with a more current and independent data set. The Clark and Weinstein study was selected for replication because the magnitude of the reported postannouncement adjustment (11 percent in two days) and the number of firms used to obtain this result (eight and 11 firms, respectively, over the two days) suggest that sampling error may have been particularly severe.

The current major finding shows that the previously documented overadjustment to extreme negative information persists when an independent sample is employed and suggests that the sampling error interpretation should be rejected. An average market model prediction error of 8 percent is documented during the three day period subsequent to the bankruptcy filings. Explanations relating to data imperfections, concurrent information flow, and transaction costs are explored. Finally, an interpretation based upon securities dealers seeking optimal inventory levels in the presence of severe order imbalances is suggested. Although a direct test of this conjecture is not possible due to the proprietary nature of dealer position data, daily volume statistics supporting this explanation are provided.

[1] Brown, Harlow, and Tinic (1988) argue that these price responses may be interpreted as the rational response of risk-averse investors (requiring only decreasing absolute risk aversion) to the presence of uncertain information. The current paper, however, suggests that this interpretation is unlikely to be a complete explanation for the observed movements.

Empirical Tests Employing Return Data

A list of all public companies filing Chapter 11 petitions was obtained from the Office of the General Counsel of the SEC for the period 1980 through 1986. Events before 1980 were excluded to maintain independence from the Clark and Weinstein (1983) study. From this list, 41 companies satisfy the joint sample selection criteria of being listed on the daily CRSP tapes and having the filing announced in the *Wall Street Journal*. The publication date of the Chapter 11 petition is defined as the event date.[2] A listing of the sample and the corresponding event dates appear in the appendix.

In order to test potential abnormal performance relative to the event date, the prediction error (PE) for the common stock of firm i on relative day t is defined as:[3]

$$(1)\quad PE_{it} = R_{it} - E(\tilde{R}_{it})$$

where:

R_{it} = The continuously compounded firm return.

Two measures of expectations are utilized in equation (1). First, a market model measure of expected returns is employed where:

$$(2a)\qquad E(\tilde{R}_{it}) = \hat{a}_i + \hat{b}_i R_{mt}.$$

The estimated intercept and slope parameters are obtained from a 250 day period extending from -290 through day -41 in conjunction with the equally-weighted market return, R_{mt}, obtained from the CRSP daily index file.

The current research also employs a second measure of expectations to test the sensitivity of the findings to potential bad news announcements made during

[2]To avoid confusion, it should be noted that Clark and Weinstein (1983) define the SEC filing date as the event date. Because publication in the *Wall Street Journal* typically occurs one day subsequent to the actual filing, days -1 and 0 in the current study correspond to days 0 and +1 in the Clark and Weinstein work.

[3]In order to avoid a bias in the absence of trading for any particular day, a multiple day expected return is employed in the manner of Kim and Schatzberg (1987). Additionally, because the focus of this analysis concerns daily price movements immediately following the bankruptcy filing, a second modification is employed in order to provide a consistent interpretation of event time. This procedure truncates any interval of missing data around the announcement and redefines the first subsequent trade date as day 0. For example, if due to a trading suspension a security had no reported trade on day 0 but resumed trading on day +1, the day +1 return is redefined as occurring on day 0 and all subsequent returns are adjusted correspondingly. Of the final sample of 41 firms, this reclassification procedure is necessary for only five cases.

the estimation period. In this manner, a market-adjusted prediction error is defined as:[4]

(2b) $E(\tilde{R}_{it}) = R_{mt}$.

The daily prediction errors from equation (1) are averaged cross-sectionally to yield an average prediction error (APE) for each day t where:

$$(3)\quad APE_t = \frac{1}{N_t}\sum_{i=1}^{N_t} PE_{it}$$

where:

N_t = The number of firms with reported returns on relative day t.

Finally, t-statistics are calculated for the daily APEs as:

$$(4)\quad t(APE_t) = \frac{APE_t}{s(APE_t)},$$

where:

$s(APE_t)$ = Estimated standard error of APE_t obtained from constant composition portfolios during the estimation period.[5]

Because the abnormal performance documented by Clark and Weinstein (1983) subsequent to the filing date persists for several days, an abnormal holding period return is employed also. This measure, the holding period prediction error (HPPE) for firm i between t1 and t2, is given by:

$$(5)\quad HPPE_i[t1,t2] = \sum_{t=t1}^{t2} PE_{it}$$

and averaged cross-sectionally as:

[4]The authors are grateful to an anonymous referee for identifying this potential problem and for suggesting the market-adjusted return approach.

[5]For example, because only 37 firms have reported return data for day -5, the portfolio standard error used for this day in the tests of significance is estimated from only these 37 firms. In this particular example, the estimated standard error is .0073 versus .0070 when the entire 41 firms are employed.

$$(6)\quad AHPPE[t1,t2] = \frac{1}{N_{t2}} \sum_{i=1}^{N_{t2}} HPPE_i[t1,t2].$$

The corresponding test statistic is given as:

$$(7)\quad t(AHPPE[t1,t2]) = \frac{AHPPE[t1,t2]}{\sqrt{\sum_{t=t1}^{t2} Var\,(APE_t)}}$$

where:

$Var\,(APE_t)$ = Estimated variance of the daily APE for day t obtained from the estimation period using the constant composition technique.

Tables 1 and 2 report the findings employing market model and market-adjusted prediction errors, respectively. Given in Panel A of each table are the daily average prediction errors (APEs), the percentage of firms with positive abnormal returns (% Pos) for the period eight days before until eight days after the event date and the number of firms in each cross-sectional portfolio (# Firms). Subsequent to this period, the sample size diminishes quickly due to delistings. Average holding period errors (AHPPEs) for the two day announcement period (days -1 and 0) and the three day postannouncement period (days 1 through 3) are provided in Panel B. Differences between the AHPPEs and the cumulative APEs (which may be inferred from Panel A) result from missing data.[6]

No substantive differences are detected in the prediction errors reported between Tables 1 and 2. Consequently, it is unlikely that estimation error is a promising source for further investigation. The two day announcement period AHPPEs of -45.8 percent (market model) and -46.7 percent (market-adjusted) for the complete sample, although more extreme than the comparable measure reported by Clark and Weinstein (1983), are not relevant for the purposes at hand. Of particular interest, however, are the three day postannouncement period AHPPEs of 7.9 percent (market model) and 6.9 percent (market-adjusted). These returns are too large to be explained predominately by time-varying risk premia

[6]Missing data are defined as return fields that are coded as missing by CRSP. This may relate to an actual absence of transaction orders that cross or from a trading suspension due to an imbalance of orders. In an attempt to identify the precise reason for this occurrence, the appropriate exchanges were contacted. In each case, the exchanges said their records during the sample period did not allow identification of the precise cause of the inactivity. Given the abnormal volume documented in Table 4, order imbalances may provide a more likely explanation than does the potential absence of crossing orders.

explanations and require an alternative interpretation.[7] The proportions of positive average prediction errors (in Panel A) and of average holding period prediction errors (in Panel B) suggest that the reported mean statistics are generally representative of the sample.

Also provided in Tables 1 and 2 are prediction errors derived from two constrained subsamples. The middle three columns of each table refer to the 25 sample firms where no missing data during the 17 day event period are observed. These firms display return behavior with no marked differences from the complete sample. Consequently, the full sample findings are unlikely to be statistical artifacts resulting from trading suspensions. Last, in order to investigate whether the observed reaction in the postannouncement period may be related to information disclosures that are interpreted as good news, prediction errors for the 19 sample firms where no *Wall Street Journal* news articles appear for the three day postannouncement period are reported. Interestingly, the average holding period errors are only 1.5 percent (market model) and 0.8 percent (market-adjusted) for this subsample and are statistically indistinguishable from zero.[8]

One potential interpretation of the last finding is that firms either may issue no news during the postannouncement period (resulting in the normal price performance) or, on average, issue good news. This argument, however, is less than satisfying as it suggests a trading rule where gains are possible but losses are precluded. Finally, it should be noted that these potential gains may be illusory in the sense that they may not be economically significant net of transaction costs.

Is the Bid/Ask Spread Responsible?

One potential explanation for the observed postannouncement prediction errors concerns the price distribution of the sample firms and the bid/ask spread. At the close of trading on the announcement day, 51 percent of the sample securities had prices under $2.00 per share and 83 percent had prices less than $5.00. Hence, the bid/ask spread for these firms is likely to be substantial when considered as a proportion of price. For example, a spread of 1/8 on a $2.00 stock equals 6.25 percent.

[7]For example, the three day market model prediction error of 7.9 percent equates to over 500 percent on an annual basis.

[8]For the 22 firms where news coverage exists, the corresponding statistics (not reported) are 13.3 percent for the market model prediction errors and 12.3 percent for the market-adjusted measures. Difference in means tests between the two samples reject the null hypothesis at the 6 percent and 7 percent levels, respectively.

If it is assumed that closing transactions on the announcement day are executed at the dealers' bid prices, it follows that the observed day 0 returns may have a significant downward bias (relative to the mean of the bid/ask spread) and that the day +1 returns would be upward biased. Recall from Table 1, however, that most of observed price reaction in the period of interest occurs on days +2 and +3. Therefore, although it is tempting to suggest that the bid/ask spread is likely to be the primary causal factor, the argument requires additional assumptions concerning closing transactions up to three days after the announcement.

The Transaction Cost Hypothesis

The transaction cost hypothesis of Kraus and Stoll (1972) allows for a temporary decline in prices that is followed by a price reversal of a similar magnitude. The argument assumes a perfectly elastic demand curve but allows temporary price concessions to compensate a set of targeted buyers for liquidity costs. The price level subsequently is restored once the supply shock is exhausted. Hansen (1988) provides evidence consistent with this hypothesis for a sample of underwritten rights offerings and suggests that the transaction costs borne (by the firm) with rights offerings may explain the relative aversion to this form of financing.

Although the supply-side correspondence between underwritten rights offerings and bankruptcy findings is not exact, a similar cause-and-effect relationship may exist. If so, the observed postannouncement response may be correlated with the magnitude of the announcement period price decline. In the manner of Hansen (1988), this conjecture was tested with the cross-sectional regression model:

$$(8)\quad HPPE_i[-1, 0] = a + b\ HPPE_i[+1, +3] + e_i.$$

Table 3 provides the ordinary least squares regression estimates for both the market model and market-adjusted prediction errors.[9] For all samples addressed in Tables 1 and 2, no evidence is found that the price reversal is related to the drop in values shown for the announcement period. Nevertheless, the idea that a supply shock of some type may be responsible for the observed movements cannot be discounted.

[9]Each regression is tested for potential heteroskedasticity using the White (1980) technique. No violations are observed.

A Dealer Inventory Explanation

The market microstructure literature contains various models that suggest that dealers will set quotes in order to achieve optimal inventory levels in the presence of nonnegativity constraints and carrying costs. (See, for example, Garman, 1976; Stoll, 1976; Amihud and Mendelson, 1980, 1982; Ho and Stoll, 1980, 1981, 1983; and O'Hara and Oldfield, 1986.) In the presence of catastrophic news, such as a bankruptcy filing, dealers may be beset with an imbalance of incoming sell orders versus buy orders. To offset such an imbalance, the inventory control models assume that quotes will be revised downward.[10] Accordingly, the observed transaction prices immediately after the bankruptcy announcements will be below the true economic values of the securities. As a result, sellers will bear an additional cost apart from the bid/ask spread, and potential buyers may be induced to enter the market.[11]

The existing empirical work investigating the inventory control models is limited. Studies by Smidt (1971), using daily inventory positions for NYSE stocks, and Ho and Macris (1984), employing intraday data and inventory positions for specific AMEX options, provide evidence that dealer inventory positions affect prices. In a more recent work, Hasbrouck (1988) finds partial consistency with the inventory control models by examining the autocorrelation of time-stamped quote and transaction records during March and April 1985.

Unfortunately, a direct test of the inventory control hypothesis is not possible due to the private nature of the required data. There is, however, access to indirect evidence through publicly available information. Recall that the assumed discount from the economic value occurring on day 0 may induce buyers to enter the market to the extent that the perceived price differential exceeds the costs of trading. Consequently, the hypothesis implies the possibility of abnormal trading volume as a result of the discount. Because the abnormal return data from Tables 1 and 2 cover a period of three days from the announcement of the bankruptcy filing, abnormal volume that roughly corresponds to the same period would be consistent with the hypothesis.

In addition to the results of the return-based event study, Table 4 reports average abnormal standardized volume (AASV) in the manner of Tables 1 and 2.

[10] Strictly speaking, no dealer bid or ask price exists in the presence of an order imbalance so severe that trading is halted. Instead of taking the traditional form of a double auction market, the specialist opens trading using a call market format that clears all existing market orders at a single price. This price, however, may be a function of dealer inventory concerns.

[11] Apart from inventory control issues, there also exist asymmetric information models that suggest that dealers will lower their bid prices when it is felt that the incoming sell orders originate from traders with private information. See Bagehot (1971), Copeland and Galai (1983), Glosten and Milgrom (1985), and Easley and O'Hara (1987). Within this framework, however, the observed transaction prices convey new information, and a subsequent rebound in prices is not expected.

Abnormal volume is defined as the difference between the actual daily volume and its expected value estimated from a prior period. The test methodology is similar to that used with the return data except that a shorter estimation period is employed due to data collection costs and the results are standardized at the firm level due to large differences in average volume across the sample firms.[12]

The analysis reveals abnormally high AASV measures at the 1 percent critical level for all 17 trading days under study across all samples presented. Apart from days -1 and 0, where abnormal volume most likely results from the event day release of information, the two largest measures occur on day +1 (AASV = 10.9) and day +2 (AASV = 7.8). This latter statistic for day +2 is particularly surprising, as it is larger than the corresponding measure for day -1 (AASV = 6.7) where estimated APEs in excess of -.23 are observed. Results for day +3 (AASV = 4.7) are only slightly less extreme, and the subsample findings are similar in nature. Nevertheless, the presence of abnormal volume for each day within the test period, in conjunction with the indirect nature of the test procedures, weakens the extent to which the data can support this particular explanation.

Concluding Comments

Despite the conventional wisdom that financial markets adjust rapidly to all types of information, several existing studies provide contrary evidence when the information is accompanied by dramatic price declines. This study replicates one of these existing works with an independent data set and observes similar postannouncement price movements. The major finding is consistent with a rejection of the sampling error hypothesis and suggests that some underlying economic determinant may be responsible.

Numerous explanations for the overreaction and the subsequent price rebound are explored. The data suggest that estimation error, missing data during the test period, and the transaction cost hypothesis of Kraus and Stoll (1972) are all unlikely to be major contributing factors. It is observed, however, that the price reversal is only evident in the absence of *Wall Street Journal* news coverage during the three day postannouncement period. It is unclear whether this relationship is spurious or if management has a tendency to issue only good news (or no news at all) within this period. Consequently, it is plausible that a portion of the observed price reversal is driven by information.

A second promising avenue concerns trades within a given bid/ask spread. Because the majority of the stocks in the sample sell for less than $2.00 per

[12]Standardization is performed with regard to both the estimated mean and standard error of each firm's daily volume distribution. The 40 day period beginning 280 days prior to day 0 is used to obtain estimates of each measure.

share, the impact of market orders within this spread could be responsible for a nontrivial portion of the observed price movements. Nevertheless, additional assumptions concerning closing trades over multiple day intervals are required. Further insights may be obtained by using transactions data.

Borrowing from the market microstructure literature, it finally is suggested that dealers may adjust their quotes downward in the presence of severe order imbalances in order to lessen the effects of suboptimal inventory levels. Depending upon the magnitude of the adjustments, this hypothesis implies elevated postannouncement volume as investors are induced to enter the market at bargain prices. Abnormal volume data consistent with this interpretation are observed. Nevertheless, given that abnormal volume (although of a lesser magnitude) is also observable on other days within the test period and that dealer inventory data are not readily available, this explanation provides a second fertile area for future research.

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Table 1
Average Model Prediction Errors (APE) and Average Holding Period Prediction Errors (AHPPE) for the 17 Day Period Surrounding the Announcement of Corporate Bankruptcy

Panel A
Individual Daily Returns

	Complete Sample			Sample With No Missing Event Period Returns			Sample With No WSJ Announcements Appearing on Days +1 through +3		
Days	APE	% Pos[a]	# Firms	APE	% Pos[a]	# Firms	APE	% Pos[a]	# Firms
-8	-.035**	.43	40	-.056**	.40	25	-.067**	.33	18
-7	.000	.45	40	.000	.52	25	.016	.33	18
-6	.001	.61	38	-.006	.64	25	.022*	.67	18
-5	-.029**	.43	37	-.005	.52	25	-.063**	.29	17
-4	.000	.50	34	.011	.60	25	-.030**	.47	15
-3	-.041**	.33	36	-.026**	.32	25	.015	.44	16
-2	-.050**	.46	35	-.083**	.36	25	-.067**	.53	15
-1	-.231**	.23**	31	-.214**	.24*	25	-.260**	.17*	12
0	-.284**	.22**	41	-.164**	.28*	25	-.301**	.26	19
1	.005	.59	41	.008	.64	25	.013	.58	19
2	.041**	.73**	41	.040**	.72*	25	-.009	.53	19
3	.033**	.61	41	.034**	.68	25	.012	.53	19
4	-.002	.54	41	-.009	.48	25	.010	.47	19
5	-.022**	.49	41	-.026**	.56	25	-.008	.58	19
6	.011	.68*	41	.008	.68	25	.008	.68	19
7	.018*	.59	41	.016	.56	25	.007	.53	19
8	-.016*	.46	41	-.026**	.44	25	-.015	.53	19

Table 1 (continued)
Average Model Prediction Errors (APE) and Average Holding Period Prediction Errors (AHPPE) for the 17 Day Period Surrounding the Announcement of Corporate Bankruptcy

Panel B
Holding Period Returns

	Complete Sample			Sample With No Missing Event Period Returns			Sample With No WSJ Announcements Appearing on Days +1 through +3		
Interval	AHPPE	%Pos[a]	# Firms	AHPPE	% Pos[a]	# Firms	AHPPE	%Pos[a]	# Firms
[-1, 0]	-.458**	.02**	41	-.379**	.04**	25	-.465**	.05**	19
[+1, +3]	.079**	.68	41	.082**	.76*	25	.015	.58	19

[a] The normal approximation to the binomial distribution is used to test the null hypothesis of an equal proportion of positive and negative prediction errors on each relative day of trading

* Significant at the 5 percent level using a two tailed test

** Significant at the 1 percent level using a two tailed test

Table 2
Average Market-Adjusted Prediction Errors (APE) and Average Holding Period Prediction Errors (AHPPE) for the 17 Day Period Surrounding the Announcement of Corporate Bankruptcy

Panel A
Individual Daily Returns

	Complete Sample			Sample With No Missing Event Period Returns			Sample With No WSJ Announcements Appearing on Days +1 through +3		
Days	APE	% Pos[a]	# Firms	APE	% Pos[a]	# Firms	APE	% Pos[a]	# Firms
-8	-.039**	.32*	40	-.062**	.28*	25	-.070**	.22*	18
-7	-.003	.43	40	-.003	.48	25	.012	.33	18
-6	-.002	.55	38	-.010	.56	25	.019	.67	18
-5	-.032**	.41	37	-.009	.48	25	-.064**	.24	17
-4	-.003	.50	34	.006	.60	25	-.033**	.47	15
-3	-.044**	.25**	36	-.029**	.24*	25	.012	.31	16
-2	-.053**	.40	35	-.086**	.28*	25	-.070**	.47	15
-1	-.234**	.13**	31	-.218**	.12**	25	-.264**	.08**	12
0	-.290**	.20**	41	-.168**	.28*	25	-.308**	.21*	19
1	.002	.56	41	.004	.60	25	.011	.53	19
2	.038**	.71**	41	.037**	.68	25	-.011	.47	19
3	.029**	.59	41	.029**	.64	25	.008	.47	19
4	-.005	.49	41	-.013	.44	25	.006	.42	19
5	-.025**	.41	41	-.029**	.52	25	-.010	.53	19
6	.007	.63	41	.005	.64	25	.004	.68	19
7	.014*	.56	41	.011	.52	25	.003	.53	19
8	-.019*	.41	41	-.030**	.40	25	-.018	.42	19

Table 2
Average Market-Adjusted Prediction Errors (APE) and Average Holding Period Prediction Errors (AHPPE) for the 17 Day Period Surrounding the Announcement of Corporate Bankruptcy

Panel B
Holding Period Returns

	Complete Sample			Sample With No Missing Event Period Returns			Sample With No WSJ Announcements Appearing on Days +1 through +3		
Interval	AHPPE	%Pos[a]	# Firms	AHPPE	% Pos[a]	# Firms	AHPPE	%Pos[a]	# Firms
[-1, 0]	-.467**	.02**	41	-.386**	.04**	25	-.474**	.05**	19
[+1, +3]	.069**	.61	41	.070**	.64	25	.008	.47	19

[a] The normal approximation to the binomial distribution is used to test the null hypothesis of an equal proportion of positive and negative prediction errors on each relative day of trading

* Significant at the 5 percent level using a two tailed test

** Significant at the 1 percent level using a two tailed test

Table 3
Ordinary Least Squares Regression of Two Day Holding Period Prediction Errors, HPPE [-1, 0], on Three Day Postannouncement Holding Period Prediction Errors, HPPE [+1, +3], for the Announcement of Corporate Bankruptcy[1]

$$HPPE_i\ [-1, 0] = a + b\ HPPE_i\ [+1, +3] + e_i$$

	a	b	R^2	F
	Panel A Market Model Prediction Errors			
Complete Sample (N=41)	-0.447 (-9.01)	-0.140 (-0.60)	.009	.360 [.55]
Sample With No Missing Event Period Returns (N=25)	-0.394 (-7.04)	0.196 (0.613)	.016	.376 [.55]
Sample With No Missing WSJ Announcements Appearing on Days +1 Through +3 (N = 19)	-0.465 (-6.92)	0.013 (0.030)	.000	.001 [.98]
	Panel B Market-Adjusted Prediction Errors			
Complete Sample (N=41)	-0.456 (-9.32)	-0.150 (-0.64)	.011	.413 [.52]
Sample With No Missing Event Period Returns (N=25)	-0.398 (-7.30)	0.169 (0.53)	.012	.284 [.60]
Sample With No WSJ Announcements Appearing on Days +1 Through +3 (N=19)	-0.475 (-7.09)	0.026 (0.06)	.000	.003 [.96]

[1] t-statistics given in parenthesis below the intercept and slope coefficients. Items in brackets below the F-statistics refer to probability levels

Table 4
Average Abnormal Standardized Volume (AASV) for the 17 Day Period Surrounding the Announcement of Corporate Bankruptcy

Days	Complete Sample AASV	Complete Sample % Pos*	Complete Sample # Firms	Sample With No Missing Event Period Returns AASV	Sample With No Missing Event Period Returns % Pos*	Sample With No Missing Event Period Returns # Firms	Sample With No WSJ Announcements Appearing on Days +1 through +3 AASV	Sample With No WSJ Announcements Appearing on Days +1 through +3 % Pos[a]	Sample With No WSJ Announcements Appearing on Days +1 through +3 # Firms
-8	4.587**	.55	40	5.504**	.52	25	8.164**	.61	18
-7	3.297**	.52	40	3.929**	.48	25	5.135**	.50	18
-6	2.081**	.39	38	2.875**	.40	25	1.907**	.33	18
-5	2.773**	.51	37	2.393**	.52	25	2.858**	.41	17
-4	3.616**	.65	34	2.170**	.56	25	4.,365**	.60	15
-3	3.761**	.69*	36	3.777**	.64	25	4.158**	.50	16
-2	5.084**	.77**	35	6.586**	.80**	25	7.472**	.60	15
-1	6.682**	.74*	31	7.780**	.76*	25	7.380**	.67	19
0	15.063**	.90**	41	11.418**	1.00**	25	18.970**	.89**	19
1	10.864**	.90**	41	10.851**	.96**	25	10.187**	.84**	19
2	7.814**	.90**	41	7.531**	.96**	25	7.307**	.79*	19
3	4.749**	.83**	41	4.511**	.88**	25	4.265**	.74*	19
4	4.504**	.80**	41	3.726**	.80**	25	3.696**	.79*	19
5	2.865**	.78**	41	2.562**	.80**	25	2.133**	.79*	19
6	3.697**	.76**	41	2.379**	.80**	25	2.245**	.68	19
7	2.591**	.78**	41	2.646**	.76*	25	1.861**	.74	19
8	2.669**	.80**	41	2.138**	.76*	25	2.799**	.79*	19

[a] The normal approximation to the binomial distribution is used to test the null hypothesis of an equal proportion of positive and negative prediction errors on each relative day of trading

* Significant at the 5 percent level using a two tailed test

** Significant at the 1 percent level using a two tailed test

Appendix
Bankruptcy Sample and Event Dates

	Company	Event Date
1.	AM International	4/15/82
2.	Altec Corp.	9/26/83
3.	Amfesco Industries	11/20/85
4.	Anglo Energy, Ltd.	11/7/83
5.	Arctic Enterprises	2/18/81
6.	Baldwin United	9/27/83
7.	Beker Industries	10/22/85
8.	Bobbie Brooks, Inc.	1/18/82
9.	Braniff	5/14/82
10.	Buttes Gas & Oil	11/18/85
11.	Charter Co.	4/23/84
12.	Combustion Equipment	10/21/80
13.	Evans Products	3/13/85
14.	Flanigan Enterprises	11/5/85
15.	Global Marine	1/28/86
16.	HRT Industries	11/24/82
17.	LTV	7/18/86
18.	Lionel Corp.	2/22/82
19.	Johns Manville	8/27/82
20.	J.W. Mays Inc.	1/26/82
21.	McLean Industries	11/25/86
22.	McLouth Steel Corp.	12/9/81
23.	Mobile Homes Industries	12/5/84
24.	Peninsula Resources	9/14/83
25.	Penn Dixie	4/18/80
26.	Revere Copper & Brass	10/28/82
27.	River Oaks Industries	8/14/86
28.	A.H. Robbins Inc.	8/22/85
29.	Robinson Technical Prod.	7/11/83
30.	Salant Corporation	2/25/85
31.	Saxon Paper	4/16/82
32.	Seatrain Lines	2/12/81
33.	Standard Metals Corp.	3/7/84
34.	Storage Technology	11/1/84
35.	Tacoma Boatbuilding	9/24/85
36.	Towle Manufacturing	3/25/86
37.	UNR Industries	7/30/82
38.	Wedtech	12/16/86
39.	Wheeling Steel	4/17/85
40.	White Motor	9/5/80
41.	Wickes Companies	4/26/82