An Assessment of the Correlation between Corporate Malfeasance and Short Selling

by

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EXECUTIVE SUMMARY

Between 1997 and 2003 the United States capital markets soared to heights never seen and then proceeded to plummet. The rise and fall of the equity markets can be primarily explained by the overvaluation by the market of high-technology stocks and "New Economy" stocks. Theoretical Finance would argue through the Efficient Market Hypothesis that market overvaluation could not occur. The Efficient Market Hypothesis states that at any time, the price of a security reflects all available information. Most investors that buy and sell securities do so in hopes that the securities they are buying are worth more than the price that they are paying (undervalued), while securities that they are selling are worth less than the selling price (overvalued). However, if markets are efficient and current prices fully reflect all information, then buying and selling securities in an attempt to outperform the market will effectively be a game of chance rather than skill.

Recent developments in the business world show that corporations have been committing accounting fraud, underwriting fraud, general management malfeasance along with other types of fraud. Companies such as Enron, Worldcom, Adelphia, Tyco, and Parmalat have increased public awareness of corporate malfeasance as well as lowered investor confidence. Companies like these and many more have wiped out trillions of dollars of investor capital leaving investors calling out for increased corporate governance.

Short sellers play an interesting role in the capital markets. They borrow securities and hope that they go down in price so that they may repurchase them at a lower price and return them to the original lender. If short sellers could identify corporate fraud early, they could earn very large returns on their investments. This brings rise to an interesting question, does a

relationship between short sales and corporate malfeasance exist. Are short sellers able to predict companies that are committing fraud and going to have a huge drop in their stock price so that they can make a profit? In order to accurately examine the relationship between short selling and corporate malfeasance we need to define which companies are actually committing fraud. Companies that participated in the following were considered fraudulent:

1. inaccurate accounting practices;
2. withholding material information to artificially keep the stock price inflated;
3. illegal behavior by management;
4. insider trading.

A proprietary database with 357 settled class action lawsuits was collected from a private consulting firm. This database was comprised of companies who had settled their lawsuits between 1996-2002. Companies that have settled lawsuits are not necessarily guilty of committing fraud because some may have just wanted to save on litigation fees or did not want bad publicity. Historically, many cases are thrown out prior to going to trial, some settle and very few make it to trial. This database of settled class action lawsuits is likely to contain firms that have committed fraud and will be the main source of data for the research in this paper. The database includes the type of fraud alleged, settlement size (standardized by dividing by market capitalization at class end month), and the class beginning month and the class end month. The class period is defined as the first month that illegal activity was alleged to be taking place to the last month when the curative disclosure (management announcing it is correcting its mistake) was made to the public. All shareholders that held stock during the class period were said to have been a victim of the fraud.

In order to determine whether short interest has increased during the class period, we collected each company's mid-month short position from January 1995 to October 2002 from NASDAQ's website. Each company's monthly shares outstanding from January 1995 to October 2002 and market capitalization at class end date was collected from the CRSP database. Short interest is defined as the short position divided by the shares outstanding on that same date. Abnormal returns, when the return on an asset or security is in excess of the expected rate of return, for the class end month –3 to class end month –1 along with abnormal returns in the class end month were collected from Eventus basic event study (monthly) database as a way to test the possibility that short sellers are incorporating information prior to the curative disclosure date. The class end month was defined as the month in which the class end date was contained. CRSP value weighted market index including dividends was used for the market model estimation in the event study. The abnormal returns were constructed only for companies that had a beta that could be estimated at least 12 months to a maximum of 36 months prior to the class end month. Mid-month NASDAQ market short interest data was collected from Bloomberg to provide a way to normalize short interest based on the market.

The purpose of this paper was to examine the relationship between corporate fraud and short selling. Based on this relationship we wanted to see if short sellers could identify corporate malfeasance early on during the time of the fraud. We hoped that the results would help us prove our second hypothesis that increased short selling cause prices to incorporate information prior to the curative disclosure date.

Our first hypothesis was proven via statistical tests. Several other relationships were also discovered through the regression:

1. Short sellers are better able to identify frauds that are large in size. This may be due to information leakage.
2. Short sellers are better able to identify frauds that occur over a long period of time, or with a long class period.
3. Short sellers are able to better identify frauds that cause bigger stock price reactions.

The regression proved to have a very strong economic impact rather than statistical significance.

The evidence to support our second hypothesis was much weaker. It was apparent from the remaining two regressions that short sellers are able to identify larger frauds with more accuracy due to information leakage in months prior to the announcement. However, because the normalized increase in short sales has the same affect on abnormal returns prior to the class date and at the time of disclosure we are led to believe that our second hypothesis was not proven to be correct.

One way that this analysis may have been improved is if we looked at daily returns instead of monthly returns. We based a large part of our analysis on mid-month short sales, monthly abnormal returns and determined our class end month based on our class end date. Some class end dates occurred towards the end of the month and some occurred at the beginning of the month causing for inaccuracies in the short sales data. Using monthly numbers does not allow for completely accurate analysis because short positions change every trading day and some of the mid-month data may have been after the curative disclosure date instead of before. This is one possible explanation for our numbers not coming out statistically significant and our results being far from what we expected.

I. INTRODUCTION

Between 1997 and 2003 the United States capital markets soared to heights never seen and then proceeded to plummet. The rise and fall of the equity markets can be primarily explained by the overvaluation by the market of high-technology stocks and "New Economy" stocks. Theoretical Finance would argue through the Efficient Market Hypothesis that market overvaluation could not occur. The Efficient Market Hypothesis states that at any time, the price of a security reflects all available information. Most investors that buy and sell securities do so in hopes that the securities they are buying are worth more than the price that they are paying (undervalued), while securities that they are selling are worth less than the selling price (overvalued). However, if markets are efficient and current prices fully reflect all information, then buying and selling securities in an attempt to outperform the market will effectively be a game of chance rather than skill.

Recent developments in the business world show that corporations have been committing accounting fraud, underwriting fraud, general management malfeasance along with other types of fraud. Companies such as Enron, Worldcom, Adelphia, Tyco, and Parmalat have increased public awareness of corporate malfeasance as well as lowered investor confidence. Companies like these and many more have wiped out trillions of dollars of investor capital leaving investors calling out for increased corporate governance.

In the late 1990's and early 2000's hedge funds have become a more active investor taking on a combination of long and short positions in order to hedge their risk. Hedge funds try to zero-in on companies that they believe are not being completely transparent in prospectuses and public financial statements in hopes of taking advantage of market inefficiencies. As easily as an investor can buy a security and hope that the price appreciates

so that they can see a gain, an investor can also short a stock in hopes that the price falls so that he can sell it back at a lower price than what the security was purchased at.

Many researchers have not studied this area of Finance. Most of the works referenced in this paper focused on other topics. Griffin and Richardson were focusing their papers on sell-side research analysts and stumbled onto the fact that short sellers earn abnormal returns when there has been certain types of corporate malfeasance. Sloan and Dechow were looking at the affects of earnings manipulation by management and also stumbled onto similar findings.

This paper looks to build off the works of the past and determine the possible reasons why short sellers are earning abnormal returns. Does short selling increase over the time that these companies are committing fraud? Can investors with heavy short positions somehow identify corporate malfeasance early on thus helping to preserve the Efficient Market Hypothesis by dampening the drop in stock price on the announcement date and by driving the stock price down towards its "correct value"?

II. BACKGROUND ON SHORT SELLING

Short selling involves the selling of a security that is not owned by the seller and is completed by the delivery of the same security to the original lender. Short sellers hope that they will be able to repurchase the security at a lower price so that they can make a profit on the spread between the price they borrowed the security at and the price that they returned the security at. The reasons these investors take a short position are one of the following:

1. To square out a long position in a stock to avoid capital gains taxes by locking in a gain.
2. To hedge a position in another stock (i.e. risk arbitrage transaction).
3. To make a profit from a possible mispricing by the market, a purely speculative purpose.

This paper will focus on the third reason and whether short sellers are able to identify a mispricing in the market due to corporate fraud.

Short sellers face more restraints than a regular investor in a long position does. The Securities and Exchange Commission has setup the uptick rule that only allows an investor to take a short position in a stock only if the most recent trade went in a positive direction. A short seller also needs to find an investor with a long position that is ready to lend you the shares. If the stock is in short supply the fee will be higher to borrow and may drown out potential profits. After borrowing the securities the short seller needs to leave cash in the account at a lower interest rate from the prevailing market rates. The short seller also may lose his borrowed shares if the original lender sells the shares. This causes the short seller to find another lender or else the short seller will be forced to purchase the shares at the current market price possibly causing a loss if the stock rose in price.

Given that short sellers have to take on so much risk, it would seem to make sense that they earn a very high return. The remainder of this paper will look at the abnormal returns earned by short sellers and the change in short positions for companies that are acting fraudulently.

III. DATA COLLECTION

In order to accurately examine the relationship between short selling and corporate malfeasance we need to define which companies are actually committing fraud. Companies that participated in the following were considered fraudulent:

1. inaccurate accounting practices;
2. withholding material information to artificially keep the stock price inflated;
3. illegal behavior by management
4. insider trading.

A proprietary database with 357 settled class action lawsuits was collected from a private consulting firm. This database was comprised of companies who had settled their lawsuits between 1996-2002. Companies that have settled lawsuits are not necessarily guilty of committing fraud because some may have just wanted to save on litigation fees or did not want bad publicity. Historically, many cases are thrown out prior to going to trial, some settle and very few make it to trial. This database of settled class action lawsuits is likely to contain firms that have committed fraud and will be the main source of data for the research in this paper. The database includes the type of fraud alleged, settlement size (standardized by dividing by market capitalization at class end month), and the class beginning month and the class end month. The class period is defined as the first month that illegal activity was alleged to be taking place to the last month when the curative disclosure (management announcing it is correcting its mistake) was made to the public. All shareholders that held stock during the class period were said to have been a victim of the fraud.

In order to determine whether short interest has increased during the class period, we collected each company's mid-month short position from January 1995 to October 2002 from

NASDAQ's website. Each company's monthly shares outstanding from January 1995 to October 2002 and market capitalization at class end date was collected from the CRSP database. Short interest is defined as the short position divided by the shares outstanding on that same date. Abnormal returns, when the return on an asset or security is in excess of the expected rate of return, for the class end month –3 to class end month –1 (*will be referred to as –3 to –1 months from class end*) along with abnormal returns in the class end month were collected from Eventus basic event study (monthly) database as a way to test the possibility that short sellers are incorporating information prior to the curative disclosure date. The class end month was defined as the month in which the class end date was contained. CRSP value weighted market index including dividends was used for the market model estimation in the event study. The abnormal returns were constructed only for companies that had a beta that could be estimated at least 12 months to a maximum of 36 months prior to the class end month. Mid-month NASDAQ market short interest data was collected from Bloomberg to provide a way to normalize short interest based on the market. In order to calculate monthly NASDAQ shares outstanding (not readily available) the following estimation was used:

Estimated NASDAQ monthly share count = NASDAQ monthly market cap / (NASDAQ monthly dollar trading volume/ NASDAQ monthly share trading volume)

The original database consisted of 357 publicly traded companies across all exchanges. 167 firms were used as a result of 190 companies being removed from the study for the following reasons:

1. 121 firms were excluded because they were not traded on the NASDAQ exchange. NASDAQ firms were used because their short interest data is readily available on the NASDAQ website.

2. 65 settlements were excluded from the analysis because short interest data was not available during the class period. Most of these cases were due to the class period beginning at the Initial Public Offering date leading to no data prior to the class period.
3. 4 settlements were excluded because the class period was less than 2 months. This did not allow for any abnormal returns in month prior to be collected.

IV. DATA CHARACTERISTICS

Table 1 gives descriptions of mean, median, standard deviation, range, minimum and maximum for the variables collected above. The mean short interest (mid-month short sales / monthly shares outstanding) is increasing from the beginning of the class period to the end of the class period for the normalized and the regular sets of data. Abnormal returns in the class end month are on average higher than the abnormal returns in –3 to -1 months prior to curative disclosure date. Preliminary analysis suggests that short sellers are identifying corporate malfeasance early on and earning a more negative abnormal return on average. In order to further prove the hypotheses presented in this paper, more statistical testing needs to be done to eliminate the effects of outliers and skewness.

V. EMPIRICAL RESULTS

In order to determine whether short sales increased during the class period a paired t-test was used to compare the short interest in the month prior to the beginning of the class period and prior to the end of the class period. The null hypothesis was that short interest at the beginning of the class period was the same as the short sales at the end of the class period.

The mean short interest at the beginning of the period was 0.03216 and the mean short interest at the end of the class period was 0.05315, showing that short sales as a percentage of shares outstanding has gone up by 2.1% over the class period. The T-statistic was –4.23299 and the one tailed p-value was 0.00002, allowing us to reject the null hypothesis. We can conclude since the mean increased during the class period and the null hypothesis was rejected that short interest significantly increased over the class period (Table 2).

In order to control for possible increases in NASDAQ short interest over the same time, the same test was run on a normalized short interest position (short interest – NASDAQ short interest). The null hypothesis is the same as above and this paired t-test yielded a T-statistic of -3.83608 and a one tailed p-value of 0.00009. Again we can reject the null hypothesis and conclude that short sales increase over the class period. After adjusting for the market increases it is still clear that there is an increase in short interest over the class period (Table 3).

In order to see the month by month increase in normalized short interest an equal-weighted index was created. The index took the average of 6 months of normalized short interest prior to the class end month for as many companies in the original database that had monthly short interest information available to get as broad of an index as possible. It is clear that there is an increasing pattern in short interest if you start looking from six months prior to the class end month (Table 4). This also helps support the hypothesis that short sellers may be identifying corporate malfeasance early on.

The next part of this paper will look further into the reasons for this increase and by running several regressions to look further into the abnormal returns that short sellers make.

The first regression looks to see if the following independent variables can explain the increase in normalized short interest over the class period:

1. Length of the class period – to see if firms with a longer class period are identified easier by short sellers.
2. Standardized settlement size - to determine if larger frauds allow for more information to be leaked out and are identified easier by short sellers.
3. Dummy variables for the type of fraud – to see whether the type of malfeasance has an impact on the amount of short interest.
4. Dummy variables for the year when the class period ends – to see whether short sellers are getting smarter as time goes on and can identify fraud more in later years.
5. Abnormal returns –3 to –1 months from class end – to see whether short sellers are predicting a more negative return in months prior to the curative disclosure date.
6. Abnormal returns (class end month) – to see whether short sellers are expecting a more negative return in the class end month.

The results from the regression are shown in Table 5. The regression has an r-squared value of 0.0542, indicating that the independent variables can only explain roughly 5.42% of the variation in the increase in normalized short interest. None of the independent variables are statistically significant at the 5% level in this regression. Upon further review, economic impact was looked at to determine any type of relationship in this regression. Economic impact is defined as the coefficient derived from the regression multiplied by the standard deviation of the independent variable to understand the variation around the mean of the dependent variable in the regression. The positive coefficient and the 0.74% economic impact,

which is almost 40% of the 1.89% average increase in normalized short interest, for the length of the class period offers the possibility that short sellers can identify with greater accuracy frauds that have longer class periods. The positive coefficient and 0.76% economic impact, also representing a large variation around the mean of the increase in normalized short interest, for the standardized settlement size offer the possibility that short sellers can identify frauds that will have a larger impact on the company's financial statements. The negative coefficients for both independent abnormal return variables indicate that short sellers can anticipate more negative returns and increase their short positions. This is consistent with the first hypothesis that short sellers are able to identify malfeasance early on.

The next regression has the abnormal returns from –3 to –1 months in relation to the class end date as the dependent variable and looks at the following independent variables:

1. Length of class period – to determine if more time allows for more information to be reflected in the price prior to curative disclosure date.
2. Standardized settlement size – to determine if larger settlements have information leakage allowing short sellers to take a heavy short position and earn more negative abnormal returns prior to curative disclosure date.
3. Dummy variables for the fraud type – to determine if any certain type of fraud causes a more negative abnormal return in the months prior to announcement.
4. Dummy variables for the year when the class period ends – to see if short sellers earn more abnormal returns in certain years.
5. Increase in normalized short interest – to examine the relationship between increased short selling and abnormal returns in these 3 months.

The results from this regression can be seen in Table 6. The r-squared value is 0.0724 indicating that the independent variables can only explain 7.24% of the dependent variable. The standardized settlement size is statistically significant at the 5% level with a p-value of 0.0038 and a T-statistic of –2.9338. The economic impact yields a –8.46% variation around the mean of abnormal returns of –25.37% strengthening the importance of this independent variable. The possible reasoning for this is that companies that are committing fraud on a larger level may be able to be detected earlier causing investors to earn a more negative abnormal return. There may be information leakage causing certain short sellers to be able to profit from the mispricing. The increase in normalized short interest has an economic impact of -2.96% in relation to the mean of abnormal returns of –25.37% and a -46.37% coefficient showing that increased short selling creates more negative abnormal returns in months prior to class end.

The final regression to determine whether short sellers are pricing information into these fraudulent companies before the announcement date had the abnormal returns on the class end month as the dependent variable and the following as independent variables:

1. Length of class period – to determine if time allows for more information to be reflected in the price at the announcement date.
2. Standardized settlement size – to determine if information leakage has occurred in companies with larger settlements.
3. Dummy variables for the fraud type – to determine if any certain type of fraud causes a more negative abnormal return in these months.
4. Dummy variables for the year when the class period ends – to see if short sellers earn more abnormal returns in certain years.

5. Abnormal returns –3 to –1 months from class end – To see how the abnormal returns in prior month relates to the abnormal returns at class end.
6. Increase in normalized short interest – to examine the relationship between increased short selling and abnormal returns in these 3 months.

The regression came up with an r-squared of 0.1451 indicating that only 14.51% of the abnormal returns in the class end month can be explained by the independent variables. Table 7 shows that length of class period, standardized settlement size and Dummy GAAP are statistically significant in this regression. There were 113 cases of alleged fraud related to GAAP in this sample. The negative coefficient offers the possibility that GAAP violations are easier to identify and investors recognized the opportunity to make a more negative return if they shorted these stocks. The change in signs of the coefficient for the settlement size from negative to positive from the abnormal returns in the months prior to abnormal returns in class end month offer more evidence that there is information being leaked that is decreasing the negative returns at the curative disclosure date. The length of the class period has the same sign as the previous regression and does not provide us with new relevant information. The short interest has an economic impact of –2.45% in relation to the –32.33% average for the abnormal returns in the class end month and a negative coefficient. This shows that increased short selling is associated with more negative abnormal returns and is not the results we were expecting. We would have liked to see a change in the sign of the coefficient and more statistically significant variables to help prove our hypotheses.

One way that this analysis may have been improved is if we looked at daily returns instead of monthly returns. We based a large part of our analysis on mid-month short sales, monthly abnormal returns and determined our class end month based on our class end date.

Some class end dates occurred towards the end of the month and some occurred at the beginning of the month causing for inaccuracies in the short sales data. Using monthly numbers does not allow for completely accurate analysis because short positions change every trading day and some of the mid-month data may have been after the curative disclosure date instead of before.. This is one possible explanation for our numbers not coming out statistically significant and our results being far from what we expected.

VI. CONCLUSION

The purpose of this paper was to examine the relationship between corporate fraud and short selling. Based on this relationship we wanted to see if short sellers could identify corporate malfeasance early on during the time of the fraud. We hoped that the results would help us prove our second hypothesis that increased short selling cause prices to incorporate information prior to the curative disclosure date.

Our first hypothesis was proven via the T-tests and the first regression. Normalized short interest does increase over the class period. Several other relationships were also discovered through the regression:

1. Short sellers are better able to identify frauds that are large in size. This may be due to information leakage.
2. Short sellers are better able to identify frauds that occur over a long period of time, or with a long class period.
3. Short sellers are able to better identify frauds that cause bigger stock price reactions.

The regression proved to have a very strong economic impact rather than statistical significance.

The evidence to support our second hypothesis was much weaker. It was apparent from the remaining two regressions that short sellers are able to identify larger frauds with more accuracy due to information leakage in months prior to the announcement. However, because the normalized increase in short sales has the same affect on abnormal returns prior to the class date and at the time of disclosure we are led to believe that our second hypothesis was not proven to be correct.

APPENDIX

Table 1: Descriptive Statistics of Variables

	Length of Class in Months	Standardized Settlement Size (Settlement/Mkt Cap(k))	SI% at Class Beg.	SI% at Class End	(SI% - NASD SI%) at Class Beg.	(SI% - NASD SI%) at Class End	Abn. Returns (-3 to -1)	Abn. Returns (Class end)
Mean	14.04	91.09	3.22%	5.32%	0.93%	2.83%	-25.37%	-32.33%
Median	13.00	36.78	1.16%	2.99%	-0.99%	0.62%	-25.43%	-33.21%
Standard Deviation	8.02	221.99	4.87%	6.49%	4.85%	6.49%	35.34%	25.77%
Range	44.00	2,574.77	29.90%	34.90%	30.21%	35.27%	228.09%	145.77%
Minimum	2.00	0.07	0.00%	0.00%	-3.14%	-2.83%	-129.98%	-85.34%
Maximum	46.00	2,574.83	29.90%	34.90%	27.07%	32.44%	98.11%	60.43%

Table 2: T- test Paired Two Sample for Means Comparison of Beginning and Ending Short Interest Normalized

	SI% at Class Beginning	*SI% at Class End*
Mean	0.032156082	0.053152574
Variance	0.002368028	0.004206809
Observations	167	167
Pearson Correlation	0.390659208	
Hypothesized Mean Difference	0	
Df	166	
t Stat	**-4.232987357**	
P(T<=t) one-tail	**1.90397E-05**	
t Critical one-tail	1.654084372	
P(T<=t) two-tail	3.80794E-05	
t Critical two-tail	1.974358383	

Table 3: T- test Paired Two Sample for Means Comparison of Beginning and Ending Normalized Short Interest (Short Interest – NASDAQ Short Interest)

	(SI% - NASD SI%) at Class Beginning	*(SI% - NASD SI%) at Class End*
Mean	0.009335573	0.028256346
Variance	0.002356461	0.004208448
Observations	167	167
Pearson Correlation	0.397280584	
Hypothesized Mean Difference	0	
Df	166	
t Stat	-3.836084143	
P(T<=t) one-tail	8.86602E-05	
t Critical one-tail	1.654084372	
P(T<=t) two-tail	0.00017732	
t Critical two-tail	1.974358383	

Table 4: Equal-Weighted Normalized %Short Interest Index Trend

	m-6	**m-5**	**m-4**	**m-3**	**m-2**	**m-1**	**Class End (m)**
# of firms	217	219	220	222	229	231	229
Std Deviation	5.40%	5.91%	5.73%	5.99%	6.18%	6.24%	6.67%
Weighted Average	**1.61%**	**1.92%**	**1.89%**	**2.08%**	**2.26%**	**2.19%**	**2.23%**

Table 5: Regression of Increase in Normalized Short Interest and Multiple Variables

Regression Statistics	
Multiple R	0.2328
R Square	0.0542
Adjusted R Square	0.0000
Standard Error	0.0637
Observations	167

ANOVA

	df	*SS*	*MS*	*F*
Regression	9	0.0366	0.0041	0.9997
Residual	157	0.6379	0.0041	
Total	166	0.6744		

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*STDev*	*Economic Impact*
Intercept	-0.0085	0.0196	-0.4317	0.6665		
Length of Class in Months	0.0009	0.0007	1.3172	0.1897	8.0198	0.0074
Standardized Settlement Size (Settlement/Mkt Cap(k))	0.0000	0.0000	1.3816	0.1691	221.9926	0.0076
Dummy Misrepresentations/Disclosures in Financial Documents	0.0185	0.0192	0.9646	0.3362		
Dummy Insider Trading	0.0043	0.0150	0.2901	0.7721		
Dummy GAAP	0.0020	0.0112	0.1817	0.8560		
Dummy Restatement	-0.0102	0.0114	-0.8898	0.3749		
Year Dummy 1995(0) - 2001 (6)	-0.0009	0.0039	-0.2387	0.8116		
Abnormal Returns around Class end month (-3 to -1)	-0.0173	0.0145	-1.1868	0.2371	0.3534	-0.0061
Abnormal Returns around Class end month (0-0)	-0.0260	0.0207	-1.2567	0.2107	0.2577	-0.0067

Table 6: Regression of Abnormal Returns in (-3 to –1)months Prior to Class End

Regression Statistics	
Multiple R	0.2690
R Square	0.0724
Adjusted R Square	0.0254
Standard Error	0.3489
Observations	167

ANOVA

	Df	*SS*	*MS*	*F*
Regression	8	1.5005	0.1876	1.5411
Residual	158	19.2291	0.1217	
Total	166	20.7296		

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*STDev*	*Economic Impact*
Intercept	-0.2839	0.0954	-2.9749	0.0034		
Length of Class in Months	0.0013	0.0038	0.3366	0.7369	8.0198	0.0102
Standardized Settlement Size (Settlement/Mkt Cap(k))	-0.0004	0.0001	-2.9338	0.0038	221.9926	-0.0846
Dummy Misrepresentations/Disclosures in Financial Documents	0.0642	0.1051	0.6106	0.5423		
Dummy Insider Trading	-0.0128	0.0819	-0.1569	0.8755		
Dummy GAAP	0.0156	0.0607	0.2573	0.7973		
Dummy Restatement	-0.0152	0.0626	-0.2425	0.8087		
Year Dummy 1995(0) – 2001 (6)	0.0224	0.0212	1.0545	0.2933		
Increase in (SI% - NASD SI%)	-0.4637	0.4331	-1.0707	0.2859	0.0637	-0.0296

Table 7: Regression of Abnormal Returns in Class End Month

Regression Statistics	
Multiple R	0.3809
R Square	0.1451
Adjusted R Square	0.0961
Standard Error	0.2451
Observations	167

ANOVA

	df	*SS*	*MS*	*F*
Regression	9	1.6003	0.1778	2.9611
Residual	157	9.4278	0.0600	
Total	166	11.0282		

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*STDev*	*Economic Impact*
Intercept	-0.3896	0.0689	-5.6565	0.0000		
Length of Class in Months	0.0067	0.0027	2.5270	0.0125	8.0198	0.0539
Standardized Settlement Size (Settlement/Mkt Cap(k))	0.0002	0.0001	2.5548	0.0116	221.9926	0.0532
Dummy Misrepresentations/Disclosures in Financial Documents	0.0075	0.0739	0.1011	0.9196		
Dummy Insider Trading	0.0083	0.0575	0.1443	0.8854		
Dummy GAAP	-0.0896	0.0426	-2.1026	0.0371		
Dummy Restatement	-0.0195	0.0440	-0.4431	0.6583		
Year Dummy 1995(0) - 2001 (6)	0.0010	0.0150	0.0677	0.9461		
Abnormal Returns around Class end month (-3 to -1)	-0.0726	0.0559	-1.2995	0.1957	0.3534	-0.0257
Increase in (SI% - NASD SI%)	-0.3837	0.3053	-1.2567	0.2107	0.0637	-0.0245

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