The Impact of Strikes on Shareholders' Wealth: Empirical Evidence from the 1990's

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Abstract

This study examines the effect of a strike on the wealth of shareholders, and whether there is a difference in the effects during various phases of a stock market cycle. Although a significant loss of shareholders' value is observed at the beginning of a strike, most of the losses are recovered upon the settlement of the strike. During a bear market, the negative impact of a strike on a firm's value is more profound, and the firm does not fully recover its value when the strike ends. On the other hand, in a bull market, struck firms not only suffer a less severe loss but also experience a quicker rebound in their firms' value. Since the duration of a strike during a bear and bull market period is not significantly different, we conclude that the observed difference in the impact of a strike during different phases of a stock market cycle cannot be attributed to the difference in the duration of a strike.

Introduction

Labor dispute such as strike can have a profound impact on the operations of a company, and hence the market valuation of the company. In previous studies on the impact of strikes on the valuation of a firm, such as Neumann (1980), Greer, Martin and Reusser (1980), Garrison (1990), and Davidson, Worrell and Garrison (1988), a significant decline in the value of a firm is observed at the onset of a strike while a significant increase in a firm's value is observed at the conclusion of a strike. Although a firm recovers some of its value with the settlement of a strike, as pointed out by both Neumann (1980) and Davidson et al. (1988), the recovery of value is not complete. Neumann (1980) and Davidson et al. (1988) conclude that despite the eventual settlement of a strike, on average, shareholders suffer a net loss of wealth because of the strike.

Greer et al. (1980) and Davidson et al. (1988) also examine whether the market reacts differently to strikes with different duration. Although the duration of a strike is not observable at the start of a strike, Greer et al. (1980) argue that investors are able to formulate an expectation on the duration of the strike. Using monthly returns over a long observation period (30 months before and 30 months after the strike date), Greer et al. (1980) find that firms enduring strikes with longer duration, tend to experience a substantial run up in their stock prices prior to the strike. They argue that these firms are in a strong bargaining position, and are, therefore, less

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willing to compromise. As a result, the strike may last longer. On the other hand, for shorter duration strikes, firms tend to experience a decline in their stock values prior to the strike. This seems to indicate that the company is aware of its weakened financial position prior to the strike, and it can ill afford to prolong work stoppages. Therefore, the company may have increased its negotiation effort to shorten the strike period.

In contrast, Davidson et al. (1988) examine whether the investors react differently to strikes of different duration. The results of their study show that struck firms experience significantly negative returns about 5 to 10 days before the start of a strike. This negative reaction of the stock market is most evident one day before the starting day of a strike. Moreover, investors seem to be able to predict the length of a strike and react more negatively to strikes that subsequently turn out to last longer. On the other hand, the market reacts more positively to the settlements of long strikes than to those of short strikes. When strikes are averted before they take place, the stock price reaction is erratic and statistically insignificant. Since the degree of negative reaction from the market at start of a strike is greater than the degree of positive reaction at the end of a strike, the authors conclude that there appears to be a permanent loss of shareholders' wealth as a result of a strike.

DeFusco and Fuess (1991) examine if the relative bargaining power of the two parties involved has any effect on the stock market reaction to a strike. They investigate the effect on airline stock due to strikes by three different groups of employees, namely, pilots, mechanics, and others (including clerical, dispatchers, flight attendants and other employees). Since pilots and mechanics are required to go through a certification process, the authors hypothesize that these two groups are harder to replace during strike, and therefore have greater bargaining power than the third group of employees. Since the strikes by these two groups of employees are more likely to halt the operation of the airlines and the airlines are unable to replace these employees at such short notices, they should have a more drastic and adverse impact on the stock price of the airlines. Indeed, their findings show that strikes initiated by pilots and mechanics result in a significantly negative abnormal returns while strikes by other employees did not have a substantial impact. However, the losses in shareholders' value due to strikes by the pilots and mechanics are not permanent as most of these losses are recovered by the settlement date.

This paper revisits issues raised by previous studies using data from 1990's. A number of reasons exist for the re-examination of the impact of strike on the value of a firm. First, in the last couple of decades we observe the emergence of a global economy where an increasing number of companies is either outsourcing or moving some of their operations overseas. This phenomenon has changed labor relationships from a purely domestic issue to an international one where other factors such as government, culture, and general business practices play an important role in the balance of power between workers and employers. Second, as we move into a global market, we also witness the formation of worldwide conglomerates with a well diversified product lines. As a result, strikes may have relatively less adverse impacts on the earnings of these conglomerates because a decrease in productivity during the strike periods may be offset by income from other non-affected overseas operations. Third, the power of unions has diminished significantly since its heyday. In recent years, we witness a decline in union membership, which may be attributed to the fact that workers realize that their fortunes are closely tied to the company's performance. Furthermore, many companies have implemented employee profit sharing programs, which make workers more reluctant to disrupt operations and hurt their companies' profitability by staging a strike. Therefore, unions are more reluctant to bring out the 'S' word as a weapon during labor negotiations.[1] Given such recent developments, it would be interesting to re-examine how the investors would view the impact of strikes on the value of a firm.

Investors' expectation plays an important role in the determination of a stock price. During a stock market rally, investors generally have a more optimistic outlook about the market, and therefore expect the struck company to be able to weather the storm without being seriously damaged. One may also argue that a profitable company has greater bargaining power as shown in the empirical evidence presented by Greer et al. (1980) and DeFusco and Fuess (1991) that companies in a strong bargaining position are less affected by a strike. However, it is not inconceivable that companies could use their excess profits to build a 'war chest' to battle with the union. In this case, a prolonged strike as demonstrated by Davidson et al. (1988) will have a significant negative impact on the firms' value.

On the other hand, during a bear market, investors tend to be more pessimistic and less certain of the company's ability to return to profitability after a strike. If a company's performance is already severely weakened by the recession, it is unlikely that it would like to go through a prolonged strike. The perceived weakened position of companies in a recession leads us to expect that strikes in a bear market will have a larger downward impact on firm value. However, the severity of the adverse impact of a strike during a recession may be lessened if the strike has a short duration.

The intensity of the market reaction to strikes during a bear and bull market is conditional on the relative bargaining power of the union and the length of the strike. It is therefore an empirical issue to determine which of the two factors prevail during the peak and trough of a stock market. In the 1990's, we witness the U.S. stock market going through two different phases: bear market period (i.e., recovery from the first Gulf War, from 1991 to 1995) and bull market period (i.e., internet bubble period from 1996 to 2000). Consequently, the 1990's lends itself well to study the effect of market stock cycle on the intensity of the market reaction to a strike.

Similar to previous studies, our results show that investors react negatively to the start of a strike, and positively significant to the end of a strike. Distinguished market reactions to a strike event are observed during the two different stages of a stock market cycle. The decline in shareholders' wealth at the start of a strike is more severe in the bear market than in the bull market. Although the market's reaction to the settlement of strike is significantly positive during the bear market, the losses shareholders suffered at the start of a strike is still larger than the profits gained upon the settlement of the strike. On the other hand, the stock market reaction to strikes is statistically insignificant during the bull market. The dissimilar reactions are not resulted from a difference in the durations of the strikes since we do not find evidence that the duration of strikes is statistically different between the bear and the bull market samples.

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[1] Ball, Jeffrey, Burkins, Glenn, and White, Gregory L. "Don't Walk: Why Labor Unions Have Grown Reluctant To Use the 'S' Word - Global, High Tech Economy Makes Striking Riskier As Membership Declines - A Sense of Shared Purpose," *December 16, 1999, A1, The Wall Street Journal*; New York.

Research Methodology

Data Period and Sample Description

First, strikes from 1991 to 2000 are identified. In order to investigate the difference in market reactions to strikes during various stock market conditions, the sampling period is then divided into two sub-periods, namely, the bear market period (1991 to 1995) and the bull market period (1996 to 2000)[2]. For each strike, two events are examined, namely, the start of a strike, Strike Start Event (SS) and the end of a strike, Strike End Event (SE). Stock prices covering 30 days prior to and 30 days after each event are gathered from the University of Chicago Center for Research in Security Prices (CRSP) database. In addition, 90 daily stock prices, starting at 180 trading days prior to SS, are collected to calculate the required returns of each stock. S&P 500 Index values for the same periods are also collected.

The effective dates of strikes in the United States and Canada are identified from the Wall Street Journal articles using the search engine provided by ProQuest. Each news article is reviewed to determine 1) the strike period, and 2) if the company is traded on a major stock exchange. Similar to the screening procedure used by Davidson et al. (1988), the sample is further screened to eliminate:

- Strikes that lasted less than two days,
- Overlapping strikes, or the ones that occurred less than one month after the previous strike,
- Strikes with no available beginning or ending dates, and
- Strikes with no available stock price information.

The final sample contains a total of 63 strikes of which 29 are from the bear market period and 34 are from the bull market period.

Methodology

An event-study methodology similar to that described in Brown and Warner (1985) is employed in this study to measure the stock market's reaction to the strikes. For each event (SS and SE), the event day is denoted as $t = 0$. We then examine the behavior of stock returns within a 61-day period including 30 days before and 30 days after the event day, i.e., $t = -30 \ldots +30$.

Similar to the studies by Davidson et al. (1988) and Greer et al. (1980), the daily risk-adjusted returns are estimated using the single index market model for the selected firms. In order to isolate the effects of a strike so that these effects are not built into the parameter estimates, the single index market model as given in Equation (1) are estimated using pre-strike daily returns over a 90-day period, i.e. for $t = -180, \ldots, -91$. The parameter estimates are then used to compute the abnormal returns (AR_t) according to Equation (2) for the period from 30 days before to 30 days after the event day.

[2] The period after the Gulf War and before the start of the "internet bubble" period is defined as bear market because during this period the U.S. economy was just out or economic recession and was is recovery stage.

$$R_{j,t} = \alpha_j + \beta_j R_{m,t} + \varepsilon_{j,t} \qquad (1)$$

where $R_{j,t}$ = Return of j th firm on day t

$R_{m,t}$ = Return on the market index (Standard & Poor 500) on day t

$t = -180, \cdots, -91$

$j = 1, \ldots, 63$

$$AR_{j,t} = R_{j,t} - (\alpha_j + \beta_j R_{m,t}) \qquad (2)$$

where $t = -30, \cdots, 0, \cdots, 30$

The cumulative abnormal return $CAR_j(-m, +n)$ for event window from Day $(t-m)$ to Day $(t+n)$ is then computed for each stock using Equation (3).

$$CAR_j(-m, +n) = \sum_{k=t-m}^{t+n} AR_{j,k} \qquad (3)$$

Similar to Brown and Warner (1985), we assume that the abnormal returns, $AR_{j,t}$, and the cumulative abnormal returns, $CAR_j(-m, +n)$, are independent for the cross-sectional sample.

Empirical Results

According to the efficient market hypothesis, if strikes were predictable, no major change in stock price will be observed when they occur since the market has already anticipated the event prior to its occurrence and should have incorporated this expectation into previous trading results. On the other hand, if strikes were unanticipated events, an unusually high level of stock price movements should be present on the day of the strike announcement.

Since the market value of a company depends on its future earning potential and a strike will disrupt the earning stream by shutting down productions for a period of time, we expect that the stock price of a company to decrease at SS. However, some pre-strike activities may have been reflected in the stock price because most unions announce their intention to strike prior to the official starting date of a strike. News reports on the progress of negotiation may also give investors some indication of the likelihood of a strike prior to its commencement. As the duration of strike prolongs, investors will continue to revise their outlook on the erosion of profitability of the firm. At the conclusion of a strike, we expect the market to treat SE as a good sign that the disruption to the earning power of the company has ended. Therefore, we expect stock price to react positively to the settlement of a strike.

Whole Sample Period (1991 to 2000)

Table I reports the magnitude and the t-test of *CAR*s for the whole sampling period. Throughout the pre-strike period up to Day -1, the market's reaction is uncertain in that we see a mixture of positive and negative price movements during that period. However, a sharp decline in stock price is noticed on the first day of a strike. This downward trend lasts for approximately 10 days, and *CAR*s remain relatively stable thereafter. This is consistent with the expectation that market anticipates a strike will impair the company's future profitability, and thus reacts negatively. Even though the market has already displayed its worries about the company's future earnings on the first day of SS, investors may have revised their outlook pending on the news from the negotiation process as the strike progresses. During the 61-day period surrounding SE, a sharp increase is seen from Day 0 to Day 2 which signals the market's positive response to the settlement of the strike.

For SS, a significantly negative *CAR* is observed for interval containing Days -5 to 0. On the first day of SS (t = 0), the struck firms suffer a statistically significant loss in value of 0.87% on a risk-adjusted basis. Significantly negative *CAR*s are also found 10 days after the event day. It seems that the threat of a strike affects the stock price before the official starting day of the strike, and the action of a strike further damages the company's stock price performance thereafter. In contrast, no significant *CAR*s are found before the SE event day. A statistically significant *AR* of 0.52% is observed on Day 1, one day after the end of a strike. This seems to indicate that the market factors the positive expectation of the end of a strike into stock pricing only after the settlement becomes public. Interestingly, a significant negative *AR* is observed on Day 3 of SE which may be due to investors' profit taking after gains from previous days. As a result, *CAR*s are positive but statistically insignificant after the conclusion of a strike.

A comparison of stock price behaviors surrounding the events of SS and SE is also conducted using paired t-test. As reported in Table I, there is a significant difference in the stock price behaviors between the two events. In general, the market reaction is negative at SS whereas it is positive at SE. Next, we test if the negative reaction at SS is exactly offset by the positive reaction at SE. The results shown in Table I indicate that the sum of reactions from SS and SE is statistically insignificant. In other words, the market reactions to the SS and SE announcements are similar in magnitude but opposite in sign.

Bear Market Period (1991 to 1995)

The dash lines in Figures 1 and 2 show the *CAR*s in the Bear Market period surrounding SS and SE, respectively. A sharp decline in stock price is noted five days before the start of a strike and the downward trend continues after the event day. This implies that investors interpret strikes as an event that would further erode company's earning potential which is already hurt by the recession. Although an increase in CARs is observed as settlement approaches, *CAR*s remains negative 30 days after the strike has ended. Investors may have thought that even though the strike is over, the damages due to the disruption of operations will continued to be a challenge to the company's ability to turn it around in a depressed market.

Table II Panel A indicates that the negative trend before the beginning of the strike observed in Figure 1 is statistically significant at intervals covering Days -10 to 0 and Days -5 to 0. This negative market reaction persists during the first 10 days after the start of a strike. During this period, stock prices decline by 2.75% in the Bear Market period as compared to 1.98% for the whole sample reported in Table I. Positively significant *ARs* on Day -1 and Day 0 for the SE event indicate that as the market senses a settlement is near, it reacts positively to the eventual outcome.

T-test comparing SS with SE in the Bear Market period shows that significant differences in *CAR*s are observed. The sum of *CAR*s for the two events (SS and SE) is significantly negative for the 10 day period before the event day suggesting that before the event day, the negative message conveyed by the possibility of a strike dominates the likely positive outcome of a potential settlement of a strike. Meanwhile, a significantly positive combined effect of SS and SE is found on Day 1 which indicates the once the announcement is made public, positive reaction to SE is stronger than negative reaction to SS. However, that observation is short-lived and disappears over the next 10 days after the event day.

Bull Market Period (1996 to 2000)

The plot of *CAR*s during the Bull Market period paints a very different picture. In Figure 1, we observe that due to positive returns cumulated before the strike announcement, stock prices in the Bull Market period actually increase during the 61-day period. Although a negative reaction on the event day is observed, CARs in the Bull Market period deteriorate at a slower rate after the event day as compared to those in the Bear Market period. In Figure 2, a strong upward trend is observed starting from Day -10 to 30 days after the settlement of a strike. Sharp increases are also noted on Day -3 and again from Day 0 through Day 3.

Panel B of Table II reports statistically insignificant activities at SS. It suggests that during a bull market, the market is more tolerant of the bad news related to the strike because in a strong economy, the market would expect some future good news about the company from other sources. At SE, a significantly positive *AR* is observed on Day -3. Large but statistically insignificant positive returns are observed on Days 1 and 2. These results seem to indicate that there is some leakage of information as market reflects the good news prior to actual settlement day. However, some residual impacts trickle in on Day 0 as we are still able to observe a jump in *CAR*. The significantly negative *AR* on Day 3 is perhaps due to profit taking. As we look at the comparison of stock price behavior at SS and SE during the Bull Market period, significantly negative differences exists on Day -3, Day 5, and also interval Days 0 to 10. The empirical results also show that the combined effect of SS and SE on the stock price is statistically insignificant except for Day -3 which shows a significantly positive return. In general, the impact of a strike on shareholders of a struck firm in the Bull Market period seems to be limited.

Comparison between the Bear Market period and the Bull Market period

Clear differences in investor's reactions to a strike between the two market conditions exist. As we see in Figure 1, the beginning of a strike does not have much impact in the Bull Market period. However, in the Bear Market period, the effect of the same bad news seems to have been amplified by the recessive economy. This general pessimistic attitude of investors in the Bear Market period continues even after the event day. In Figure 2, a larger recovery at Day 0 is observed in the Bear Market period than in the Bull Market period. It indicates that the good news of a strike settlement has stronger positive effect in the Bear Market period.

Table III reports the comparison of market reactions under two market conditions. At SS, *CAR*s are more negative in the Bear Market period than in the Bull Market pe riod. The difference in reaction is significant for the interval covering Days -10 to 0 and Days -5 to 0. That is, the effect of the possible bad news seems to have been amplified by the recessive economy. However, the reactions to the strike announcement under different market conditions are similar after the event day. At SE, significant differences on Day -4 and -3 suggests that less recovery is observed in the Bear Market period than in the Bull Market period before the official conclusion of a strike. The recovery on Day 0 seems to be stronger in the Bear than in the Bull Market period. However, the difference is not statistically significant.

We also conduct a comparison of the duration of strikes and the beta of the struck companies between the Bear Market and the Bull Market samples. The average strike lasts about

81 days for the Bear Market sample and 80 days for Bull Market sample, and statistically they are not different. This shows that duration of strikes cannot account for the difference in the stock price reactions we observed for the Bull and the Bear Market periods.

Despite the fact that 8 of the strikes companies (representing 55% of the sample) in the Bear Market sample also experience strikes in the Bull Market (representing 35% of the sample), the beta of the companies in two samples are statistically different where the average beta in a Bear Market is 1.0068 and that in a Bull Market is 0.7224. The higher beta in a Bear Market suggests that companies in this group are riskier than the group in the Bull Market.

Conclusions

In the 1990's, we observed several changing trends: such as globalization, outsourcing of operations, the formation of global conglomerates and the decline of union membership. We argue that these new trends may diminish the bargaining power of the union, and as such may reduce the adverse impact of a strike on the valuation of a firm particularly in a booming economy. One observation noted in this study is that the number of strikes observed during the 1990's for publicly traded companies was less than the numbers reported in studies conducted during the past decades. Previous studies, such as Neumann (1980) and Davison et al. (1986), identified hundreds of strikes with duration of two days or longer in a 5-year window during the seventies and early eighties. On the other hand, this study only identifies an average of about thirty strikes in a five-year window.

During the 1990s, our results show that investors, in general, still react negatively on the strike start day and positively towards the settlement of a strike. This attitude has not changed from previous decades, and this result is similar to those reported by Neumann (1980) and Davison et al. (1986). However, our result on the net effect of strikes on firm value is different from those reported by Neumann (1980) and Davison et al. (1986) in that we do not observe a significant loss in value as the positive returns at the end of the strike offset the majority of the initial losses at the start of a strike. One possible reason is that the results for the entire sample are dominated by those of the bull market sample.

A large gap in market perception of strikes exists when we classify the observed strikes into Bull Market Strikes and Bear Market Strikes. In the Bull Market period, investors appear to weather the bad news better. Insignificant negative abnormal returns occur on the strike start date, but in general, the market rebounds quickly, and no residual negative impact is observed. This may be due to a spillover effect from market's general optimism due to a strong market. Investors believe that the struck companies will not suffer a significant loss of earnings in a strong economy, or that any loss will be recovered quickly.

In contrast, bad news is amplified by the pessimism present in the Bear Market period. We see that the stock prices of the struck companies took a downward turn when the strike starts, and do not recover with the ending of the strike.[3] Investors may have believed that the strikes have damaged the company's future earning ability and even a resolution of labor dispute cannot guarantee a full recovery in a gloomy economy. Our results for the bear market sample concur with those reported by Neumann (1980) and Davison et al. (1986) in that there is a net loss in firm's value due to a strike.

[3] The net loss occurs before the event day.

When examining the duration of strikes between the two market conditions, our results show that the average durations of a strike in a bear market and that in a bull market are statistically not different from each other. We, therefore, conclude that duration of a strike cannot account for the difference in the stock price behaviors that we observed. However, we do observe a higher risk for companies in the bear market sample as compared to that in the bull market sample as indicated by the significant difference in beta.

In this study, we also observe a leakage of information prior to each event. Significant activities occur several days prior to the start and to the end of strikes. This is understandable, as strike coverage almost always begins weeks prior to the actual event since union members have to vote on whether to go ahead with the walk out. In major strikes, like those experienced by General Motors, updates on the negotiation process were reported almost every day throughout the strike period. Therefore, investors have the means to predict the settlement date and the possible outcomes of the strikes. However, significant reaction observed on the starting day of a strike also signal that not all information is absorbed by the market prior to the event date.

Although we observe that strikes are still viewed as having a negative impact on shareholder value despite the environmental changes that have taken place, this study did not measure whether the extent of the impact has increased or decreased from previous decades. Our results indicate that companies are very likely to recover from the initial loss by the time strikes end particularly in a bull market. As unions are becoming less powerful, employees are less inclined to go on strikes because of the presence of employee stock options, and companies are more global in sourcing their production inputs, we would expect a change in magnitude of impact of strikes and this may constitute an interesting follow-up to this study.

Figure 1

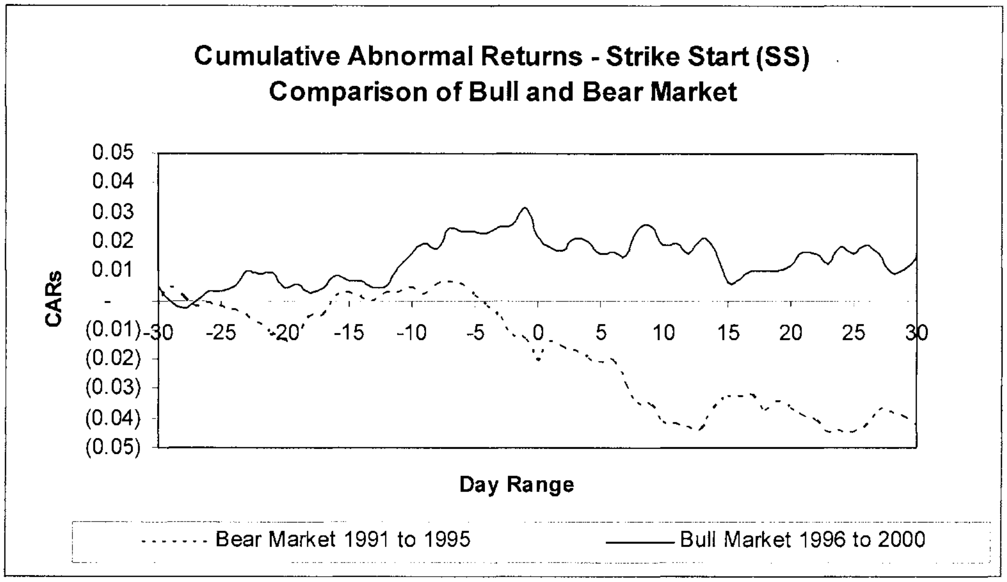

Figure 2

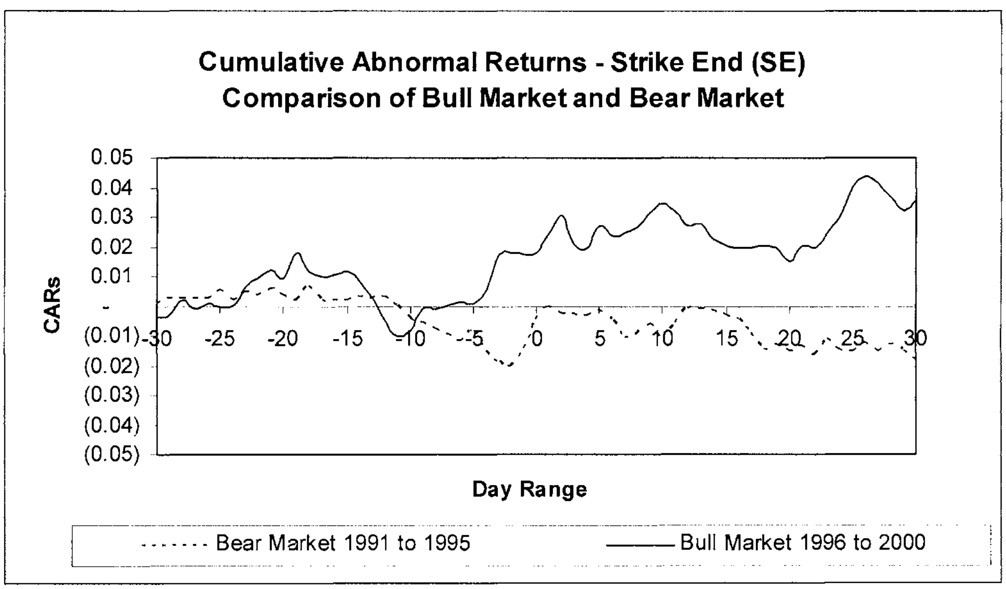

Table I: Average Cumulative Abnormal Returns for Strikes in the Whole sample Period (1991 to 2000)

Interval In Days	Strike Start (SS)[a]		Strike End (SE)[a]		SS & SE Comparison CAR (SS) – CAR (SE) = 0		SS & SE Comparison CAR (SS) + CAR (SE) = 0	
	CAR	t-Test	CAR	t-Test	CAR	t-Test	CAR	t-Test
-30 to 0	0.0023	0.144						
-10 to 0	(0.0052)	(0.583)	0.0128	1.176	(0.0180)	(1.496)	0.0076	0.478
-5 to 0	(0.0128)	(1.967)*	0.0122	1.379	(0.0250)	(2.323)**	(0.0006)	(0.053)
-5	(0.0018)	(1.051)	0.0012	0.410	(0.0030)	(0.897)	(0.0006)	(0.191)
-4	(0.0019)	(0.873)	(0.0010)	(0.342)	(0.0009)	(0.255)	(0.0029)	(0.812)
-3	(0.0005)	(0.234)	0.0054	1.439	(0.0059)	(1.610)	0.0050	1.040
-2	(0.0025)	(1.117)	(0.0007)	(0.233)	(0.0018)	(0.464)	(0.0032)	(0.857)
-1	0.0026	0.942	0.0027	0.869	(0.0001)	(0.020)	0.0053	1.247
0	(0.0087)	(2.118)**	0.0046	1.356	(0.0134)	(2.520)**	(0.0041)	(0.756)
1	0.0009	0.274	0.0052	1.831*	(0.0043)	(0.867)	0.0062	1.589
2	(0.0013)	(0.516)	0.0024	0.777	(0.0037)	(0.971)	0.0012	0.290
3	0.0016	0.513	(0.0051)	(2.014)**	0.0067	1.589	(0.0036)	(0.955)
4	(0.0020)	(0.974)	(0.0010)	(0.437)	(0.0010)	(0.362)	(0.0029)	(0.945)
5	(0.0029)	(0.994)	0.0049	1.523	(0.0078)	(1.850)*	0.0020	0.456
0 to 5	(0.0123)	(1.821)*	0.0111	1.591	(0.0235)	(2.299)**	(0.0012)	(0.129)
0 to 10	(0.0198)	(2.442)**	0.0108	1.198	(0.0306)	(2.779)***	(0.0091)	(0.691)
0 to 30			0.0082	0.479				

*, ** and *** denotes statistical significance at 5%, 1% and 0.10%, respectively. Numbers in the parentheses denotes negative returns or negative t-statistics.

[a] Interval Day 0 to 30 for SS and Interval Day -30 to 0 for SE are omitted due to the possibility of overlapping data.

Table II: Cumulative Abnormal Returns for Strikes in sub-periods

Panel A: The Bear Market Period (1991 to 1995)

Interval In Days	Strike Start (SS)[a]		Strike End (SE)[a]		SS & SE Comparison CAR (SS) – CAR (SE) = 0		SS & SE Comparison CAR (SS) + CAR (SE) = 0	
	CAR	t-Test	CAR	t-Test	CAR	t-Test	CAR	t-Test
-30 to 0	(0.0123)	(1.088)						
-10 to 0	(0.0230)	(2.062)**	0.0008	(0.460)	(0.0238)	(1.2563)	(0.0222)	(1.7477)*
-5 to 0	(0.0262)	(2.639)**	0.0134	0.763	(0.0396)	(2.0973)**	(0.0128)	(1.6451)
-5	(0.0056)	(1.733)*	0.0047	1.128	(0.0103)	(1.8170)*	(0.0008)	(0.1971)
-4	(0.0026)	(1.096)	(0.0049)	(2.581)**	0.0024	1.0777	(0.0075)	(2.2071)**
-3	(0.0033)	(1.466)	(0.0020)	(1.005)	(0.0013)	(0.1147)	(0.0053)	(1.5160)
-2	(0.0051)	(1.855)*	(0.0014)	(0.473)	(0.0036)	(0.7408)	(0.0065)	(1.4822)
-1	(0.0013)	(0.485)	0.0059	1.961*	(0.0073)	(2.0841)**	0.0046	1.0668
0	(0.0084)	(1.863)*	0.0111	1.782*	(0.0194)	(2.2828)**	0.0027	0.3056
1	0.0073	1.425	0.0042	1.122	0.0032	0.3851	0.0115	1.9980*
2	(0.0009)	(0.603)	(0.0019)	(0.503)	0.0010	0.1180	(0.0028)	(0.7164)
3	0.0012	(0.308)	0.0006	0.015	0.0005	(0.2424)	0.0018	(0.2295)
4	(0.0009)	(0.767)	(0.0018)	(0.289)	0.0009	(0.4735)	(0.0027)	(0.7313)
5	(0.0016)	(0.433)	0.0026	0.601	(0.0042)	(0.6501)	0.0011	0.0529
0 to 5	(0.0032)	(1.195)	0.0148	1.194	(0.0180)	(1.9567)*	0.0115	0.2959
0 to 10	(0.0275)	(3.378)***	0.0039	0.295	(0.0314)	(2.5491)**	(0.0236)	(1.6598)
0 to 30			(0.0032)	(0.177)				

Panel B: The Bull Market Period (1996 to 2000)

Interval In Days	Strike Start (SS)[a]		Strike End (SE)[a]		SS & SE Comparison CAR (SS) - CAR (SE) = 0		SS & SE Comparison CAR (SS) + CAR (SE) = 0	
	CAR	t-Test	CAR	t-Test	CAR	t-Test	CAR	t-Test
-30 to 0	0.0261	0.906						
-10 to 0	0.0104	0.801	0.0305	1.566	(0.0201)	(0.9404)	0.0410	1.5309
-5 to 0	(0.0009)	(0.171)	0.0171	1.142	(0.0180)	(1.2083)	0.0161	0.8223
-5	0.0003	0.090	(0.0009)	(0.172)	0.0012	0.2039	(0.0006)	(0.1064)
-4	(0.0009)	(0.243)	0.0048	0.842	(0.0058)	(0.7699)	0.0039	0.6119
-3	0.0027	0.819	0.0135	2.096**	(0.0108)	(1.7703)*	0.0162	2.0250*
-2	0.0007	0.112	(0.0006)	0.081	0.0012	(0.0027)	0.0001	0.1350
-1	0.0065	1.321	(0.0007)	(0.103)	0.0071	0.9749	0.0058	0.8028
0	(0.0101)	(1.398)	0.0008	0.096	(0.0110)	(1.3385)	(0.0093)	(1.0532)
1	(0.0038)	(0.734)	0.0059	1.437	(0.0098)	(1.3342)	0.0021	0.4671
2	(0.0007)	(0.262)	0.0063	1.334	(0.0070)	(1.2366)	0.0056	0.8108
3	0.0046	0.903	(0.0098)	(2.701)**	0.0145	2.2318**	(0.0052)	(1.0611)
4	(0.0015)	(0.591)	(0.0011)	(0.330)	(0.0004)	(0.0809)	(0.0025)	(0.6036)
5	(0.0049)	(0.903)	0.0086	1.399	(0.0135)	(1.7967)*	0.0036	0.4762
0 to 5	(0.0165)	(1.414)	0.0108	1.043	(0.0273)	(1.5308)	(0.0057)	(0.4812)
0 to 10	(0.0132)	(0.954)	0.0171	1.242	(0.0303)	(1.6903)*	0.0038	0.2206
0 to 30			0.0205	0.716				

*, ** and *** denotes statistical significance at 5%, 1% and 0.10%, respectively. Numbers in the parentheses denotes negative returns or negative t-statistics.

[a] Interval Day 0 to 30 for SS and Interval Day -30 to 0 for SE are omitted due to the possibility of overlapping data.

Table III: Comparison of Cumulative Abnormal Returns Between the Bear and the Bull Market periods

Interval In	Strike Start (SS)[a]		Strike End (SE)[a]	
Days	CAR	t-Test	CAR	t-Test
-30 to 0	(0.0384)	(1.384)		
-10 to 0	(0.0335)	(1.962)*	(0.0297)	(1.581)
-5 to 0	(0.0253)	(1.921)*	(0.0036)	(0.513)
-5	(0.0059)	(1.289)	0.0057	0.771
-4	(0.0017)	(0.565)	(0.0098)	(1.992)*
-3	(0.0060)	(1.587)	(0.0155)	(2.322)**
-2	(0.0057)	(1.397)	(0.0009)	(0.383)
-1	(0.0078)	(1.381)	0.0066	1.165
0	0.0018	0.219	0.0102	1.330
1	0.0112	1.496	(0.0018)	(0.419)
2	(0.0002)	(0.092)	(0.0082)	(1.341)
3	(0.0035)	(0.869)	0.0105	1.933*
4	0.0006	(0.267)	(0.0007)	0.092
5	0.0034	0.423	(0.0060)	(0.935)
0 to 5	0.0132	0.558	0.0040	0.194
0 to 10	(0.0143)	(0.996)	(0.0132)	(0.791)
0 to 30			(0.0237)	(0.661)

*, ** and *** denotes statistical significance at 5%, 1% and 0.10%, respectively. Numbers in the parentheses denotes negative returns or negative t-statistics.
[a] Interval Day 0 to 30 for SS and Interval Day -30 to 0 for SE are omitted due to the possibility of overlapping data.

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