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The Performance of Military Defense Contracted Companies After September 11th, 2001: The Case of Politically Connected Companies

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Abstract

This paper examines the effect that the terrorist attacks on September 11th, 2001 had on the stock prices of companies within the military defense industry. In addition, this paper studies the effect of the defense firms' political engagement (through lobbying activities) and how this affected the stock price response to the terrorist attacks. Our study finds that the cumulative abnormal returns of these companies are positively significant and that companies who lobbied experienced higher returns relative to those who did not lobby.

Introduction

Can the market perceive which military defense companies are politically engaged through activities, such as lobbying? Can the political engagement of defense firms explain the stock price response these firms had to one of the most infamous terrorist attacks in the U.S.? With solemn respect for all those affected by such a horrific sequence of events these questions will be examined in this paper. On the morning of September 11th, 2001, a series of catastrophic terrorist attacks were carried out against the U.S. as commercial airliners were hijacked and crashed into four various locations including the Pentagon and the two World Trade Centers. The attacks produced catastrophic losses, as 2,977 people were killed, which included 2,606 people at the World Trade Centers, 125 at the Pentagon, and 246 on the four planes (Kean, Hamilton 2004). Total physical damages climbed to $55 billion, $24 billion of which was expected income of lost lives and $8 billion for the value of the buildings. An overall tally of costs for toll of life, physical damages, homeland security related costs, war funding related costs, economic impact and future war/veterans' care amounted to just under $3.3 trillion (Carter, Cox 2011). This puts into perspective the financially massive impact these attacks had the United States. Furthermore, many financial firms, brokerages, insurance firms and trading firms, which resided in the World Trade Center, were crippled due to the loss of life by many employees and the destruction of their offices.

These attacks resulted in an exogenous shock to the domestic and international economies as well. The New York Stock Exchange and the NASDAQ were closed Tuesday morning on September 11th, to prevent panic selling within the market and did not reopen until Monday, September 17th. This is the first time in history that the exchange was closed for at least two days since the Great Depression when President Roosevelt closed all the exchanges in March of 1933 for an entire week to stop a run on banks (Jabaily, 2013). The first day of trading following the attacks became the largest one-day loss in exchange history for the market index, dropping by 7.1%. The price of the S&P 500 index from closing on September 10th and opening on September 17th dropped 8.2%. During its first week the index lost 11.6% which is an estimated $1.4 trillion in value. The Dow Jones Industrial Average fell by 7.13% on the first day, which up

to that point in time, was the worst one-day drop the DJI had ever experienced. By the end of the week it had fallen over 14% (Davis, 2017).

Industries such as airlines, insurance, travel, tourism and hotels experienced major losses. Goodrich (2002) shows that within the first month of the attacks there were plans to lay off a combined 66,000 employees of domestic airlines due to the financial struggles experienced because of the attacks. Further, he explains that tourism decreases immensely as the U.S. State Department issued a travel advisory to U.S. citizens. There was an apparent fear that was observable from the markets point of view as investors felt exposed to more potential terrorist threats. Carter and Simkins (2004) show that on the first trading day after the attacks the markets stock prices sunk, especially those of airline companies. Further, their research shows that there were significantly large, negative abnormal returns for U.S. airlines and to smaller negative returns for international airlines. This proposes that the market believed this event was much more consequential for U.S. airlines compared to other foreign airlines.

Neely (2004) demonstrates that the Federal Reserve recognized the imminent threat these attacks would have on the financial markets by providing an unusual amount of liquidity and reducing the federal funds rate more than anticipated to incentivize market activity. Nikkinen, Omran, Sahlstrom and Aijo (2006) investigate the short-term impact of the terrorist attacks on a global scale by analyzing data from 53 different equity markets. They find that there were significant increases in volatility and negative returns across the majority of regions. Drakos (2009) displays the effect of event on the global markets by examining the MSCI World Index which represents large and mid-cap equity across 23 different developed markets countries. On September 11th, even though the NYSE and NASDAQ among other U.S. stock markets were closed, the MSCI World index experienced a loss of 1.98%. On the day that U.S. stock markets reopened the index lost 2.57%. These occurrences show that the terrorist attacks had a vast and immediate global effect on international stock markets as well as domestic stock markets.

Prior research on military defense industry stock prices following terrorist attacks has also been examined to find the relationship between terrorist attacks and the reaction by stock prices in the military

defense industry. Essaddam and Douch (2013) look at the short- and long-term performance of the U.S. defense industry after the attacks using a multivariate regression analysis to see whether the market reaction was the same for each firm or whether the market differentiated based on differences among defense firms. They conclude that not all defense firms are equally exposed to the terrorist attacks. Rather, their analysis shows that 60% of the sample exhibited negative abnormal returns based on percentage of defense sales to total sales. E. Apergis and N. Apergis (2016) study the impact of the terrorist attack in Paris on November 13th, 2015 on the stock returns within the defense industry. Their findings show an upward trend in cumulative abnormal returns in the post-attack period.

All these economic reactions to such a catastrophic event portray just how connected the stock markets are to current events. Hayek (1945) elaborates by saying the decisions of investors in the market become a form of communication for current events. He states, "The whole acts as one market, not because any of its members survey the whole field, but because their limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all." These reactions via investment decisions through the market show that there was a detrimental response to what had happened. Participants in the financial markets were anticipating that military funding might increase which ultimately meant a new war was on the horizon. However, as shown by Essaddam and Douch (2013), there was a great deal of variation in how the stock prices of defense firms responded to the terrorist attacks.

In this paper, we hypothesize that some of that variation can be explained by how politically engaged a defense firm was at the time of the attacks. More specifically, we seek to answer the question, do the firms with political connections have a greater stock price response to the attacks than those firms without political connections?

Prior research on the importance of political connections was examined between government and companies. Blau (2017) discusses that companies who possess political connections benefit more so than those who don't. These benefits include lower corporate tax liabilities (Richter, Samphantharak, and Timmons, 2009) and better access to debt capital (Chiu and Joh, 2004; Cull and Xu, 2005; Johnson and

Mitton, 2003; and Khwaja and Mian, 2005). Goldman (2008) finds that companies with a politically connected board of directors received positive abnormal stock returns in periods of political announcements. Do, Lee and Nguyen (2015) find that companies connected to elected governors increased their firm value by 3.89% based on increase in state procurement and investing through the subsequent firms.

These questions are examined to find what effect the terrorist attacks on September 11th, 2001 had on all stock prices of companies linked to military defense contracts. In this paper we measure the cumulative abnormal returns of each company in periods that include different days prior to and after the event for comparison. We then attempt to control for certain variables of 24 companies tied to the military defense industry on September 17th, 2001, the day the stock markets were reopened. Those variables include the company's market cap, price, turnover, spread, volatility, returns, and exchange listing.

According to our hypothesis, we identify 14 (of 24) firms who had positive lobbying expenditures versus 10 companies who did not from the year 1998 up to the terrorist attacks in 2001. Our hypothesis for this study is that the terrorist attacks had a positive impact on companies within the military defense industry. Further, we hypothesize that firms within the defense industry who lobbied experienced higher returns as opposed to the companies who did not. Our study first documents positive and significant abnormal returns for defense stocks in the days surrounding the attacks. Perhaps more importantly, we find that these results are entirely driven by firms that had lobbying expenditures during the years prior to the attacks. For instance, the 14 of the 24 firms that had lobbied experienced positive returns on the reopening day of the stock market. However, the 10 firms that did not lobby prior to the attacks did not have meaningful stock price responses to the attacks. Further, our multivariate tests confirm these results as we find that, after controlling for various firm/stock characteristics, lobbying activities explain the positive stock price response in the defense industry. Said differently, we find that the lobbying variable is a significant factor by itself in the cross-sectional regression analysis.

Data Description

The data used for this analysis comes from two sources. The Center for Research in Security Prices (CRSP) provides the historical stock data from which each variable within the summary of Statistics was obtained. These variables were collected for each of the 24 companies observed in this analysis. The historical data collected was used to observe the financial status of each of these companies on September 17th, 2001 – the day that financial markets reopened after the September 11th Attacks. The historical data gathered includes Market Cap (MktCap), which is the total dollar market value of a company's outstanding shares in $ millions. Price is the price of each company share at the close of the day. Turnover, which is the ratio of daily volume (on the event day) scaled by shares outstanding. Spread is the difference between the closing ask and bid prices for a stock – scaled by the spread midpoint. NYSE is an indicator variable equal to one if the stock is listed on the New York Stock Exchange – zero otherwise. Volatility is measured as the difference between the natural log of the intraday high price and the natural log of the intraday low price (following Alizadeh, Brandt, and Diebold, 2002). Finally, return is the CRSP raw return on the event day: September 17th, 2001.

The second part of data collection comes from the Center of Responsive Politics (CRP). The first variable, Lobby, is an indicator variable equal to unity if a firm had positive lobbying expenditures from 1998 to 2001 – zero otherwise. The second variable is LobAmt/Cap, which is the ratio of the total amount of lobbying expenditures from 1998 to 2001 scaled by market capitalization. We use these variables to approximate which firms had been involved in government lobbying in subsequent years leading up to the terrorist attacks of September 11, 2001. From these collections of data, we attempt to determine whether or not lobbying can explain the price response to the terrorist attacks.

Table 1 reports statistics that summarize the sample of 24 companies on September 17th, 2001 – the day that U.S. financial markets reopened after the September 11th attacks. The 24 companies chosen are all companies that conduct business within the military defense industry. Each variable of stock data was

obtained from The Center for Research Stock Prices (CRSP). Each collected variable was considered an important factor in portraying the status of each company within financial markets.

Highlighting the 24 companies within the sample, the largest and smallest companies based on *MktCap,* respectively, are Honeywell International ($23,942.67) and Taser International ($22.77). The highest and lowest *Return* during the trading day respectively came from L3 Communication Holdings Inc. (0.381) and Triumph Group Inc. (-0.2089). The average company within this sample has a *MktCap* of $3,745.23 (in $millions), a *Price* of $31.22 per share and a *Turnover* ratio of 0.03 during the trading day. Furthermore, the average company has a *Spread* of 0.01, a *Volatility* metric of 0.11 and an average *Return* of 0.05 on the historical trading day. Lastly, of the 24 companies observed, 15 of them are traded on the New York Stock Exchange. Of the 24 companies the most recent initial public offering was in August of 2001. Other companies within the sample have been publicly traded since 1978 or later. All these metrics show that even though the sample size is may be relatively small in size there is a diverse set of companies. The tests run in subsequent tables show significant results that make this smaller sample size feasible.

Empirical Test and Results

We begin by performing a standard event study around the terrorist attacks on September 11th, 2001. Table 2 reports the results of this event study by taking the mean, median, and t-statistic of different cumulative abnormal returns (CAR) of the 24 company share price returns. Abnormal Returns (ARs) are the residual returns from a daily market model where raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. The pre-estimation period ends for each firm 46 days before the event day (approximately two-months) and uses a maximum of 255 trading days in the estimation period (approximately one year of trading data). After obtaining intercept and slope parameters from the estimation period, we calculate ARs (or residuals) during several different event windows surrounding the event day. These windows surround the event of the stock market re-opening on September 17th, 2001. CAR(-5,5) can be explained as an 11-day event window that includes the 5 days prior to the event, the day of the event and the 5 days after the event. Other event windows included in the

study are CAR(-1,1), CAR(0,0) which refers to the day of the event, CAR(0,1) and lastly CAR(0,2). T-statistics, which test the difference from the mean CARs and zero, are reported in parentheses. As shown in Table 2, there is statistical significance in the mean for CAR(-1,1) at the 0.10 level and statistical significance in the mean for CAR(0,0) and CAR(0,1) at the 0.05 level.

Column 1 reports the results for CAR(-5,5) which included a mean return of 0.0392, median of 0.1055 and a t-statistic of 0.70. To put into perspective the abnormality of the mean return, if it were placed in annualized terms, meaning, if such an event occurred every 11 days there would have been a mean return of 89% in the market. These results ultimately show that investors were anticipating an influx in government military spending in preparation for the beginning of a new war.

Column 2 reports the results for CAR(-1,1), which included a mean return of 0.0640, median of 0.0832 and a t-statistic of 1.91. Again, to show just how heavily the market reacted to the terrorist attack events, this time in a smaller event window, in annualized terms the mean abnormal return would have been 537% in excess of the market.

Column 3 reports the results for CAR(0,0), an event window that includes only the day of the event, with a mean return of 0.0782, median of 0.0904 and a t-statistic of 2.61. In annualized terms, with the smallest event window measured, the annual mean abnormal return would have been 1,970%. This mean return is the largest abnormal return within table 2.

Column 4 reports the results for CAR(0,1), an event window that includes only the day of the event and the following day, had a mean return of 0.0717, median of 0.1050 and a t-statistic of 2.20. In annualized terms with an event window measuring only one posterior day, the annual mean abnormal return would have been 903%.

Column 5 reports the results for CAR(0,2) an event window that includes the day of the event and the 2 trading days following the event, had a mean return of 0.0545, median of 0.0111 and a t-statistic of 1.26. In annualized terms the annual mean abnormal return would have been 457.8%.

Each of these columns exhibits substantial cumulative abnormal returns between the 24 companies observed. These abnormal returns reflect the assumptions of investors and the market as whole that there

are anticipations of a new war presenting itself. Furthermore, these market anticipations are converted into the belief that military defense contracts would increase. The need for guns, ammo, missiles, equipment, technology, etc. had suddenly become much more prominent.

Correlation Matrix

Correlation coefficients measure how strong a relationship is between two variables, +1 being identical and -1 being exactly inverse. Table 3 reports the Pearson correlation coefficients between each of the Cumulative Abnormal Returns – measured across various time windows and two measures of lobbying. *Lobby* is an indicator variable equal to unity if a firm had positive lobbying expenditures from 1998 to 2001 – zero otherwise. LobAmt/Cap is the ratio of the total amount of lobbying expenditures from 1998 to 2001 scaled by market capitalization. CARs are calculated as the sum of residual returns from a daily market model where raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. After obtaining intercept and slope parameters from the estimation period, we calculate abnormal returns (or residuals) during several different event windows surrounding the event day. For example, CAR (-5,5) can be explained as an 11-day event window that includes the 5 days prior to the event, the day of the event and the 5 days after the event. Other event windows included in the study are CAR(-1,1), CAR (0,0) which refers to the day of the event, CAR(0,1) and lastly CAR(0,2). The p-values are reported in brackets.

We find that the strongest relationship within the correlation matrix between two separate coefficients are CAR (-1,1) and CAR (0,1) with a value of .9826. This is explainable because most of the relationship is derived from the event day, September 17th, 2001 and the day immediately following. The weakest relationship that exists within the matrix is between coefficients CAR (-5,5) and *LobAmt/Cap.* This exhibits that there was not as strong of a relationship between the largest event window of abnormal returns and the total amount of lobbying expenditures scaled by market capitalization.

Column 2 shows the highest average of correlation coefficients at .8403. Again, this can the strong relationship can be derived by the similarity between CAR (0,0), CAR (0,1) and CAR (0,2). These are the event windows where the military defense industry performed the strongest within the financial markets.

Looking at column 6 for the variable *Lobby* we see that the relationship between the indicator variable capturing whether a firm had positive lobbying expenditures and the abnormal returns grows stronger from the day of the event, CAR (0,0), (0.4640) to the days following the event, CAR (0,1) and CAR (0,2), (0.5494). This suggests that potential abnormal returns experienced in the days following the event could have been more strongly related to the lobbying expenditures. Column 7 shows that there is a moderate relationship between *LobAmt/Cap* and all cumulative abnormal returns. This indicates that there is some relationship between the abnormal returns experienced and the total amount of lobbying expenditures scaled by market capitalization. The reported p-values are all less than 0.05 with the highest being 0.04 from the correlation coefficient of CAR (-5,5) and *LobAmt/Cap.* The lowest correlation coefficient reported between a cumulative abnormal return and either of the variables *Lobby* and *LobAmt/Cap* is CAR (-1,1) and *Lobby.*

Lobby Effect on Abnormal Returns

Table 4 reports the mean, median, and t-statistic of different cumulative abnormal returns (CAR) of the 24 company share price returns. More detailed within this table is the comparison of values between firms that lobbied and firms that did not lobby. Panel A presents the mean, median and t-statistic of the cumulative abnormal returns of the 14 firms that lobbied from 1998 to 2001. Panel B represents the mean, median and t-statistic of the cumulative abnormal returns of the 10 firms that did not lobby from 1998 to 2001. As has been mentioned, the abnormal returns ARs are the residual return from a daily market model where the raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. After obtaining intercept and slope parameters from the estimation period, we calculate ARs (or residuals) during several different event windows surrounding the event day. For

example, CAR(-5,5) can be explained as an 11-day event window that includes the 5 days prior to the event, the day of the event and the 5 days after the event. Other event windows included in the study are CAR(-1,1), CAR(0,0) which refers to the day of the event, CAR(0,1) and lastly CAR(0,2). T-statistics, which test the difference from the mean CARs and zero, are reported in parentheses.

Analyzing panel, A, there were 14 of the 24 companies who did lobby during the four-year period from 1998 to 2001. The highest abnormal mean return within the panel came in CAR(-5,5). However, every abnormal return was greater than or equal to .1341. To put into perspective the abnormality of these mean returns, if each were placed in annualized terms, meaning, if each event occurred within the respective time windows of CAR(-5,5), CAR(-1,1), CAR(0,0), CAR(0,1) and CAR(0,2) for an entire year, then they would experience returns of 341%, 1,159%, 3,379%, 1,745% and 1,142% respectively. Furthermore, it should be noted that all cumulative abnormal returns had moderate to strong statistical significance. These results ultimately show that investors were anticipating an influx in government military spending in preparation for an impending war.

Observing panel B, companies who did not lobby, the highest abnormal mean returns came in CAR(0,0) which was the only one that didn't perform with negative mean returns. Every abnormal return was less than or equal to 0. As well, none of the cumulative abnormal returns were statistically significant at any level. The stock prices of firms within Panel B struggled to perform with positive mean returns during each of the event windows observed. Placing the performance of these companies into annualized terms we see that for CAR(-5,5), CAR(-1,1), CAR(0,0), CAR(0,1) and CAR(0,2) respectively had annualized returns of -262%, -92%, 0%, -50%, and -137%. However, we do not observe that any of the mean CARs in panel B are statistically significant. In comparison against the annualized mean returns of Panel A, we see these drastic differences between abnormal returns demonstrate the markets ability to perceive which companies had participated in government lobbying. We can assess from these results that investors not only anticipated a new war was approaching in the future but also that the companies who were more

politically connected to the government would assumedly receive more military defense contracts then companies who were not.

Cross-Sectional Regressions

The cross-sectional regression analysis utilized in this study helps us see if there is statistical significance associated to our independent variable of political lobbying. We place controlled variables into a cross sectional regression to measure their statistical significance in comparison to the independent variable. If the controlled variables significantly change the value of the regression, then this signals that the level of significance of the independent variable. The adjusted R^2 is also included within the study to measure the portion of the variation in the dependent variable explained by the independent variables. The R^2 value adjusts based on the number of independent variables analyzed in the model.

Table 5 reports the results from estimating the following equation using cross-sectional data.

$$CAR(j,k)_i = \beta_1 Lobby_i + \beta_2 MktCap_i + \beta_3 Price_i + \beta_4 Turnover_i + \beta_5 Volatility_i + \beta_6 Spread_i + \beta_7 NYSE_i + \alpha + \varepsilon_i \quad (1)$$

The dependent variable in the cross sectional regression is CAR(j,k), where j = {-1 or 0} and k = {0 or 1}. independent variable of interest is *Lobby*, which is an indicator variable equal to one if firm i lobbied in any year from 1998 to 2001. The control variables have been defined previously and include the following. *MktCap* is the total dollar market value of a company's outstanding shares in $ millions. *Price* is the price of each company share at the close of the day. *Turnover* is the ratio of daily volume (on the event day) scaled by shares outstanding. *Volatility* is measured as the difference between the natural log of the intraday high price and the natural log of the intraday low price (following Alizadeh, Brandt, and Diebold, 2002). *Spread* is the difference between the closing ask and bid prices for a stock – scaled by the spread midpoint. *NYSE* in an indicator variable equal to one if the stock is listed on the New York Stock Exchange – zero otherwise. T-statistics, which are obtained from White (1980) robust standard errors, are reported in

parentheses. Three separate cumulative abnormal return event windows surrounding the opening of the financial markets on September 17th, 200l are used, CAR(-1,1), CAR(0,0) and CAR(0,1).

Overall, columns 1, 3 and 5 show that the independent variable of interest *Lobby* was strongly, statistically significant within each event window when placed in a regression with only the constant variable. This shows that the independent variable is a statistically significant contributor to the abnormal returns experienced throughout the event. As columns 2, 4 and 6 show, when the independent variable is placed in a regression with all the controlled variables and the constant variable, we find that the independent variable, *Lobby*, is still statistically significant within the event windows of CAR(-1,1) and CAR(0,1) with t-statistics of 3.23 and 2.92, respectively. This demonstrates that the primarily on the day following the event, the independent variable was statistically significant but was not on the day of the event. However, on the day of the event we do not find any variables to be statistically significant. Controlled variables that show significance include *Turnover* and *NYSE.*

Turnover shows a strong level of statistical significance in both CAR(-1,1) and CAR(0,1) with t-values of 3.24 and 3.30. However, just as was shown with the independent variable, most of this significance resides in the day following the event. We can assess that there were significant increases in trading on this day due to the panic created from the terrorist attacks, thus making this variable strongly significant.

NYSE shows a moderate level of statistically significance in both CAR(-1,1) and CAR(0,1) with values of -1.83 and -2.02. However, just as was shown with the variable *Turnover*, most of this significance resides in the day following the event. The negative t-statistics results conclude that any company traded on the New York Stock Exchange had a negative effect on the overall abnormal returns analyzed. However, we note that the coefficient on NYSE is not significant in all three specifications.

Each of the adjusted R^2 for each event window shows that *Lobby* has a significant effect on the dependent variable. In column 1, CAR(-1,1) has an adjusted R^2 of 0.2635 and increases to only 0.3731 when including all the controlled variables. In column 2, CAR(0,0) has an adjusted R^2 of 0.1751 and has a

somewhat more significant increase to 0.3790 when including all the controlled variables. In column 3, CAR(0,1) has an adjusted R^2 of 0.2216 and increases only to 0.3312 when including all the controlled variables. These results show that the independent variable *Lobby* is statistically significant in the variation of the dependent variable, abnormal returns.

The only two variables to report positive statistical significance are *Turnover* and *Lobby*. We can evaluate that *Turnover* is positive due to the market investing more money within companies inside the military defense industry. We can also determine that *Lobby* is positive because the market perceived that the companies lobbying would potential receive more government contracted military defense spending. Both results support our hypothesis that company stock prices within the military defense industry, particularly those who lobbied, benefited from the terrorist attack assumedly because of the markets anticipations to a new war happening.

Table 6 reports the results from estimating the following equation using cross-sectional data.

$$CAR(j,k)_i = \beta_1 LobAmt/Cap_i + \beta_2 MktCap_i + \beta_3 Price_i + \beta_4 Turnover_i + \beta_5 Volatility_i + \beta_6 Spread_i + \beta_7 NYSE_i + \alpha + \varepsilon_i \quad (2)$$

The dependent variable is CAR(j,k), where j = {-1 or 0} and k = {0 or 1}. The independent variable of interest is *LobAmt/Cap*, which is the ratio of total lobbying expenditures from 1998 to 2001 scaled by the market cap of the firm on the event day. The control variables have been described previously.

Overall, columns 1, 3 and 5 show that the independent variable of interest *LobAmt/Cap* was strongly positive and statistically significant within each event window when placed in a regression with only the independent variable of interest. This shows that this independent variable is a statistically significant contributor to the abnormal returns experienced throughout the event. As columns 2, 4 and 6 show, when the independent variable is placed in a regression with all the controlled variables and the

constant variable, we find that the independent variable, *LobbyAmt/Cap,* is still statistically significant within the event windows of CAR(-1,1), CAR(0,0) and CAR(0,1) with t-statistics of and 1.86, 1.74 and 2.00, respectively. This demonstrates that primarily on the day of the event and the day following the event, the independent variable was statistically significant. The only other variable that is significant on the day of the event is the controlled variable *Turnover*.

Turnover shows a strong level of statistical significance in every abnormal return, CAR(-1,1) CAR(0,0) and CAR(0,1) with t-statistic values of 2.81, 4.11 and 2.97, respectively. However, just as was shown with the independent variable, most of this significance resides in the day of the event and the day following the event. We can assess that there were significant increases in trading on these days due to the panic created from the terrorist attacks, thus making this variable strongly significant.

The adjusted R^2 for each event window shows that *LobbyAmt/Cap* has a small effect on the dependent variable. In column 1, CAR(-1,1) has an adjusted R^2 of 0.0572 and increases to only 0.2453 when including all the controlled variables. This result suggests that lobbying expenditures (relative to market capitalization) explain about 6% of the cross-sectional variation in CARs. In column 2, CAR(0,0) has an adjusted R^2 of 0.0249 and has a somewhat more significant increase to 0.36 when including all the controlled variables. In column 3, CAR(0,1) has an adjusted R^2 of 0.0385 and increases only to 0.2364 when including all the controlled variables. These results show that the independent variable *LobbyAmt/Cap* is statistically significant in the variation of the dependent variable, abnormal returns.

The two variables to report positive statistical significance are *Turnover* and *LobbyAmt/Cap.* We can evaluate that *Turnover* is positive due to the market investing more money within companies inside the military defense industry. We can also determine that *LobbyAmt/Cap* is positive because the market perceived that the companies lobbying would potential receive more government contracted military defense spending.

Conclusions

The main objective of this paper is to explore the effect of the terrorist attacks on September 11th, 2001 on the stock prices of companies within the military defense industry. Furthermore, this paper studies the effect of the defense firms' political engagement (through lobbying activities) and how this affected the stock price response to the terrorist attacks. After identifying all companies within the military defense industry, standard event studies around the reopening of financial markets on September 17th, 2001 show significantly positive cumulative abnormal returns for every event window. The highest abnormal mean return for the entire sample reached 7.82% on the day of the event. Furthermore, controlling for the 14 of 24 companies who had political connections through lobbying activity, we find that each of these firms received significantly higher abnormal returns than those who did not. We test the statistical significance of the lobbying variables utilized with a cross sectional regression analysis and find both the t-statistics and adjusted R^2 to be significant.

The results in this paper are compelling and provide some explanation on the financial market's ability to perceive current events and their potential future outcomes. In several tests, we find that the results support our hypothesis that company stock prices within the military defense industry as whole benefited from the terrorist attacks. There are two conclusions drawn from these results. First, the abnormal returns reflect the assumptions of investors and the financial market that there are anticipations of a new war presenting itself. Furthermore, these anticipations are converted into the belief that military defense contracts would increase. This means that the need for warfare products such as guns, ammunition, missiles, equipment, technology, etc. had suddenly become much more prominent. This in turn ultimately concludes that the military defense industry was a benefactor after the horrific results of the terrorist attacks. Second, government lobbying provides positive results for all stock prices in military defense industry that participate in the event of a terrorist attack. Prior research suggests that lobbying benefits firms for multiple reasons which include lower corporate tax liabilities (Richter, Samphantharak, and Timmons, 2009) and better access to debt capital (Chiu and Joh, 2004; Cull and Xu, 2005; Johnson and Mitton, 2003; and Khwaja

and Mian, 2005). There is an extensive amount of research that could be conducted on the amount of government military spending post-September 11th, 2001 with each of these 24 companies. Research can be examined to see if financial market anticipations through allocation of investing came to fruition via the amount of government contracts received to each of the companies.

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Table 1 – Summary Statistics – on September 17th, 2001

	MktCap	*Price*	*Turnover*	*Spread*	*NYSE*	*Volatility*	*Return*
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Honeywell International	23,942.67	29.50	0.0221	0.0037	1	0.1227	-0.1737
General Dynamics	16,694.07	82.90	0.0305	0.0029	1	0.0697	0.0912
Curtiss Wright Corp	450.22	44.70	0.0018	0.0078	1	0.0341	-0.0335
CACI International	577.02	50.47	0.0842	0.0006	0	0.1804	0.2206
Lockheed Martin	19,161.54	43.95	0.0290	0.0061	1	0.0910	0.1469
Northrop Grumman Corp	8,094.02	94.80	0.0499	0.0026	1	0.0497	0.1569
Raytheon Co. B	11,320.38	31.50	0.0615	0.0259	1	0.1957	0.2676
Harris Corp	1,965.29	29.85	0.0275	0.0074	1	0.1101	0.0978
Comtech Tele. Corp	109.58	14.75	0.0178	0.0168	0	0.1406	0.0206
Cubic Corp	269.88	30.30	0.0047	0.0066	0	0.0605	0.0775
Barnes Group	406.55	22.01	0.0013	0.0009	1	0.0086	-0.0086
Esterline Tech. Corp	341.35	16.50	0.0072	0.0120	1	0.0977	-0.0934
Hexcel Corp New	254.79	6.95	0.0029	0.0330	1	0.1417	-0.1258
Ducommun Inc. De	116.16	12.00	0.0060	0.0292	1	0.0729	-0.1459
Sturm Ruger & Co Inc.	277.18	10.30	0.0093	0.0097	1	0.0713	0.1075
Ultralife Batteries	58.25	4.75	0.0009	0.0296	0	0.1129	-0.0686
Flir Systems Inc.	526.70	34.89	0.0590	0.0012	0	0.2499	0.2073
Sypris Solutions Inc.	95.60	9.75	0.0000	0.0253	0	0.0003	0.0000
Triumph Group Inc.	486.54	34.80	0.0235	0.0075	1	0.1393	-0.2089
Elbit Systems Ltd	448.04	17.39	0.0073	0.0069	0	0.1151	0.1162
Viasat Inc.	337.72	14.93	0.0145	0.0027	0	0.1823	-0.0399
L3 Comm. Holdings Inc.	3,390.13	87.00	0.1863	0.0001	1	0.0910	0.3810
Teledyne Tech	539.09	17.00	0.0299	0.0018	1	0.1490	0.1822
Taser International	22.77	8.40	0.0406	0.0036	0	0.1691	-0.0400

The Table reports summary statistics that describe the sample of 24 companies on September 17th, 2001 – the day that U.S. financial markets reopened after the September 11th Attacks. Each variable of stock data was obtained from The Center for Research Stock Prices (CRSP). *MktCap* is the total dollar market value of a company's outstanding shares in $ millions. *Price* is the price of each company share at the close of the day. *Turnover* is the ratio of daily volume (on the event day) scaled by shares outstanding. *Spread* is the difference between the closing ask and bid prices for a stock – scaled by the spread midpoint. *NYSE* in an indicator variable equal to one if the stock is listed on the New York Stock Exchange – zero otherwise. *Volatility* is measured as the difference between the natural log of the intraday high price and the natural log of the intraday low price (following Alizadeh, Brandt, and Diebold, 2002). *Return* is the CRSP raw return on the event day: September 17th, 2001.

Table 2 – Standard Event Study – All Firms around Terrorist Attack

	CAR(-5,5)	CAR(-1,1)	CAR(0,0)	CAR(0,1)	CAR(0,2)
	[1]	[2]	[3]	[4]	[5]
Mean	0.0392	0.0640*	0.0782**	0.0717**	0.0545
Median	0.1055	0.0832	0.0904	0.1050	0.1110
t-statistic	(0.70)	(1.91)	(2.61)	(2.20)	(1.26)
N	24	24	24	24	24

The Table reports the mean, median, and t-statistic of different cumulative abnormal returns (CAR) of the 24 company share price returns. Abnormal Returns Ars are the residual return from a daily market model where raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. After obtaining intercept and slope parameters from the estimation period, we calculate Ars (or residuals) during several different event windows surrounding the event day. CAR(-5,5), for example, is the cumulative Ars for the eleven-day window surrounding the event day. Likewise, CAR(-1,1) is the cumulative Ars for the three-day period surrounding the event day. T-statistics, which test the difference from the mean CARs and zero, are reported in parentheses. *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01, levels, respectively.

Table 3 – Correlation Matrix

	CAR(-5,5)	CAR(-1,1)	CAR(0,0)	CAR(0,1)	CAR(0,2)	*Lobby*	*LobAmt/Cap*
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
CAR (-5,5)	1.0000	0.8800	0.8113	0.8913	0.9435	0.4884	0.4219
		[<.0001]	[<.0001]	[<.0001]	[<.0001]	[0.0155]	[0.0400]
CAR (-1,1)		1.0000	0.9487	0.9826	0.9435	0.5861	0.5411
			[<.0001]	[<.0001]	[<.0001]	[0.0026]	[0.0063]
CAR (0,0)			1.0000	0.9565	0.8817	0.4640	0.4571
				[<.0001]	[<.0001]	[0.0224]	[0.0247]
CAR (0,1)				1.0000	0.9365	0.5494	0.5325
					[<.0001]	[0.0054]	[0.0074]
CAR (0,2)					1.0000	0.5494	0.4765
						[0.0054]	[0.0186]
Lobby						1.0000	0.8871
							[<.0001]
LobAmt/Cap							1.0000

The Table shows the Pearson correlation coefficients between each of the Cumulative Abnormal Returns – measured across various time windows and two measures of lobbying. Lobby is an indicator variable equal to unity if a firm had positive lobbying expenditures from 1998 to 2001 – zero otherwise. LobAmt/Cap is the ratio of the total amount of lobbying expenditures from 1998 to 2001 scaled by market capitalization. CARs are calculated as the sum of residual returns from a daily market model where raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. After obtaining intercept and slope parameters from the estimation period, we calculate abnormal returns (or residuals) during a number of different event windows surrounding the event day. CAR(-5,5), for example, is the cumulative ARs for the eleven-day window surrounding the event day. Likewise, CAR(-1,1) is the cumulative ARs for the three-day period surrounding the event day. P-values are reported in brackets.

Table 4 – Standard Event Study – All Firms around Terrorist Attacks

Panel A. Firms that Lobbied					
	CAR(-5,5)	CAR(-1,1)	CAR(0,0)	CAR(0,1)	CAR(0,2)
	[1]	[2]	[3]	[4]	[5]
Mean	0.1489**	0.1380***	0.1341***	0.1385***	0.1360**
Median	0.1839	0.1470	0.1528	0.1584	0.1485
t-statistic	(2.57)	(3.54)	(3.32)	(3.54)	(2.57)
N	14	14	14	14	14
Panel B. Firms that did not Lobbied					
Mean	-0.1144	-0.0400	0.0000	-0.0219	-0.0596
Median	-0.0174	0.0086	-0.0052	0.0211	-0.0076
T-stat	(-1.27)	(-0.93)	(0.00)	(-0.52)	(-1.03)
N	10	10	10	10	10

The Table reports the mean, median, and t-statistic of different cumulative abnormal returns (CAR) of the 24 company share price returns. Panel A presents the mean, median and t-statistic of the cumulative abnormal returns of the 14 firms that lobbied from 1998 to 2001. Panel B represents the mean, median and t-statistic of the cumulative abnormal returns of the 10 firms that did not lobby from 1998 to 2001. Abnormal Returns ARs are the residual return from a daily market model where raw returns for each firm are regressed on the CRSP value-weighted market index during a pre-event estimation period. After obtaining intercept and slope parameters from the estimation period, we calculate ARs (or residuals) during a number of different event windows surrounding the event day. CAR(-5,5), for example, is the cumulative ARs for the eleven-day window surrounding the event day. Likewise, CAR(-1,1) is the cumulative ARs for the three-day period surrounding the event day. T-statistics, which test the difference from the mean CARs and zero, are reported in parentheses. *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01, levels, respectively.

Table 5 – Cross-sectional Regressions

	CAR(-1,1)		CAR(0,0)		CAR(0,1)	
	[1]	[2]	[3]	[4]	[5]	[6]
Lobby	0.1775***	0.1607*	0.1340**	0.0817	0.1604***	0.1430*
	(3.23)	(2.08)	(2.70)	(1.24)	(2.92)	(1.87)
MktCap		-0.0000		-0.0000		-8.6E-7
		(-0.26)		(-0.24)		(-0.15)
Price		-0.0009		-0.0003		-0.0008
		(-0.47)		(-0.20)		(-0.42)
Turnover		2.1022***		2.2961***		2.0484***
		(3.24)		(4.39)		(3.30)
Volatility		-0.4325		-0.2060		-0.4076
		(-0.88)		(-0.54)		(-0.87)
Spread		-1.6171		-1.3375		-1.2656
		(-0.55)		(-0.52)		(-0.42)
NYSE		-0.0984*		-0.0561		-0.1078*
		(-1.83)		(-1.22)		(-2.02)
Constant	-0.0395	0.0661	0.0000	0.0474	-0.0219	0.0799
	(-0.98)	(0.77)	(0.00)	(0.63)	(-0.55)	(0.95)
Adj. R^2	0.2635	0.3731	0.1751	0.3790	0.2216	0.3312
Robust SEs	Yes	Yes	Yes	Yes	Yes	Yes
N	24	24	24	24	24	24

The table reports the results from estimating the following equation using cross-sectional data.
$CAR(j,k)_i = \beta_1 Lobby_i + \beta_2 MktCap_i + \beta_3 Price_i + \beta_4 Turnover_i + \beta_5 Volatility_i + \beta_6 Spread_i + \beta_7 NYSE_i + \alpha + \varepsilon_i$
The dependent variable is CAR(j,k), where j = {-1 or 0} and k = {0 or 1}. The independent variable of interest is Lobby, which is an indicator variable equal to one if firm i lobbied in any year from 1998 to 2001. The control variables include the following. MktCap is the total dollar market value of a company's outstanding shares in $ millions. Price is the price of each company share at the close of the day. Turnover is the ratio of daily volume (on the event day) scaled by shares outstanding. Volatility is measured as the difference between the natural log of the intraday high price and the natural log of the intraday low price (following Alizadeh, Brandt, and Diebold, 2002).Spread is the difference between the closing ask and bid prices for a stock – scaled by the spread midpoint. NYSE in an indicator variable equal to one if the stock is listed on the New York Stock Exchange – zero otherwise. T-statistics, which are obtained from White (1980) robust standard errors, are reported in parentheses. *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 6 – Cross-sectional Regressions

	CAR (-1,1)		CAR (0)		CAR (0,1)	
	[1]	[2]	[3]	[4]	[5]	[6]
LobAmt/Cap	36.6740**	29.8530*	27.1400*	21.3715*	35.4446**	29.1927*
	(2.25)	(1.86)	(1.88)	(1.74)	(2.46)	(2.00)
MktCap		8.1E-8		-4.6E-9		0.0000
		(0.14)		(-0.00)		(0.21)
Price		-0.0005		-0.0004		-0.0005
		(-0.27)		(-0.25)		(-0.30)
Turnover		2.4144**		2.5354***		2.3604***
		(2.81)		(4.11)		(2.97)
Volatility		-0.1204		-0.0561		-0.1337
		(-0.25)		(-0.16)		(-0.29)
Spread		-2.2533		-1.6746		-1.8375
		(-0.80)		(-0.67)		(-0.64)
NYSE		-0.0697		-0.0377		-0.0807
		(-1.10)		(-0.72)		(-1.30)
Constant	0.02970	0.0559	0.0528	0.0403	0.0385	0.0700
	(0.77)	(0.62)	(1.58)	(0.51)	(1.03)	(0.79)
Adj. R^2	0.0572	0.2453	0.0249	0.3600	0.0560	0.2364
Robust SEs	Yes	Yes	Yes	Yes	Yes	Yes
N	24	24	24	24	24	24

The table reports the results from estimating the following equation using cross-sectional data.
$CAR(j,k)_i = \beta_1 LobAmt/Cap_i + \beta_2 MktCap_i + \beta_3 Price_i + \beta_4 Turnover_i + \beta_5 Volatility_i + \beta_6 Spread_i + \beta_7 NYSE_i + \alpha + \varepsilon_i$
The dependent variable is CAR(j,k), where j = {-1 or 0} and k = {0 or 1}. The independent variable of interest is LobAmt/Cap, which is the ratio of total lobbying expenditures from 1998 to 2001 scaled by the market cap of the firm on the event day. The control variables include the following. MktCap is the total dollar market value of a company's outstanding shares in $ millions. Price is the price of each company share at the close of the day. Turnover is the ratio of daily volume (on the event day) scaled by shares outstanding. Volatility is measured as the difference between the natural log of the intraday high price and the natural log of the intraday low price (following Alizadeh, Brandt, and Diebold, 2002).Spread is the difference between the closing ask and bid prices for a stock – scaled by the spread midpoint. NYSE in an indicator variable equal to one if the stock is listed on the New York Stock Exchange – zero otherwise. T-statistics, which are obtained from White (1980) robust standard errors, are reported in parentheses. *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.