The financial influence of terrorist attacks on the domestic stock market

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Management Summary:

Efficient capital markets are only influenced by new information. So news about a terrorist attack should influence the domestic stock market. This study aims to examine in what way the domestic stock market is influenced by terrorist attacks.
Therefore the following research question is developed:

In what way are specific sectors of the domestic stock market financially influenced by Terrorism?

Since it was not clear which sectors were positively or negatively influenced by a terrorist attack and how long it takes for the stock market to recuperate from a terrorist attack, I conducted a case study. I examined two terrorist attack cases: The terrorist attacks of 9.11.2001 in New York and the terrorist attacks of 11.13.2015 in Paris.
In order to examine the impact of a terrorist attacks this study analyzed the stock quotations of twenty companies for each case. The stock market is divided into 4 sectors with each sector containing five companies. The following sectors have been used: Tourism, Aviation & Aerospace, Banking & Insurance and Security & Defense. In this study a base line is constructed by using the stock quotations 1 day prior to the terrorist attacks. The stock quotations for each sector are compared to the previously established base line at several points in time. These comparisons provided me with data about how specific sectors are financially influenced by a terrorist attack. After comparing the sector results with each other this study compared the two cases with each other in order to find differences and/or similarities.
The results of this case study imply that the tourism sector is negatively influenced by a terrorist attacks whereas the security & defense sector is positively influenced by a terrorist attack. The aviation & aerospace sector is only negatively influenced when there is a direct link between the terrorist attack and the aviation & aerospace sector. Therefore the aviation & aerospace sector was negatively influenced in the 9/11 case but was hardly influenced by the terrorist attacks in Paris. The banking & Insurance sector is mostly affected by the amount of property & infrastructural damage and other insurance claims like an individual's hospitalization.
The overall influence of terrorism on the domestic stock market for both the amount of financial damage and the recuperation time of the stock exchange are less than I expected. Before I started this case study I expected every terrorist attack to have at least a 5% negative influence on the domestic stock market due to "the disruptive news". However it turned out that the stock market is more resilient against terrorist attacks than I thought. The analysis/comparison section provides a detailed overview of sector specific reactions to terrorist attacks regarding stock market damage, stock market gain and stock market recuperation time.

1. Introduction:

1.1 Introduction to the financial influence of terrorism on the domestic stock market:

Over the last 15 years the intensity of terrorist attacks has increased dramatically as stated by the Global Terrorism Index (GTI): “In total there have been over 48,000 terrorist incidents over the last 14 years claiming over 107,000 lives. Terrorism has increased dramatically with even conservative estimates suggesting a fivefold surge since the year 2000” (global terrorism index report, 2012 p. 14). In order to write a proper thesis about the link between terrorism and the domestic stock market I will first explain the term terrorism. The U.S. Department of State (2000) has used Title 22 of the United States Code Section 2656f(d), in order to define terrorism. In this section terrorism is defined as “politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience” (U.S. Department of State, 2000).
This thesis will focus on how the New York Stock Exchange (NYSE) is financially influenced by the terrorist attacks of 9/11 2001 in New York and on how the Euronext Paris is financially influenced by the Paris terrorist attacks of 13 November 2015. The 9/11 case had the biggest number of casualties, as well as the largest amount of property and infrastructural damage, in the history of the U.S.A. (M.Morgan, 2009). The NYSE is the biggest stock market of the U.S.A. located across the street of the “Twin Towers”. The second case is the terrorist attack in Paris 13 November 2015. This attack recently occurred and is a trending topic. The Financial influence of this case is measured by changes in the Euronext Paris.
Stock prices are influenced by available information. “An efficient capital market is one in which share prices fully reflect available information. Stock prices in an efficient capital market are adjusted within minutes after the release of new information.” (D. Hillier et al, 2010. P. 350). Therefore I predict that these terrorist attacks directly influence their domestic stock market.

1.2 Research gap

The terrorist attacks of 9/11 in New York and 13 November in Paris received worldwide attention. Everybody seems to know what terrorism is but the connection between terrorist attacks and financial consequences for the domestic stock market seems to remain vague.
A study conducted by Chen and Siems provides evidence that terrorist attacks indeed do influence stock markets. “We found evidence that suggests that modern U.S. capital markets are more resilient than they were in the past and that they recover sooner from terrorist/military attacks than other global capital markets” (Chen and Siems, 2004. P. 363).
This thesis aims to clarify which sectors are positively or negatively influenced by terrorism. The case of 9/11 in New York and 13 November in Paris will be used as an example in order to examine and analyze how the domestic stock market is influenced by terrorism.
The following research question is designed as the backbone of this thesis:

- In what way are specific sectors of the domestic stock market financially influenced by acts of terrorism?

1.3 Research scope and relevance

This thesis aims to clarify which sectors of the domestic stock market are financially positively or negatively influenced by terrorism. In order to achieve this goal I will analyze what impact the terrorist attacks of 9/11 had on specific sectors of the NYSE. Also the terrorist attack of 13 November 2015 in Paris will be examined to clarify in what way sectors of the Euronext Paris were influenced.

Existing studies regarding terrorism and stock markets will be used in order to acquire the information and knowledge needed to answer the research question. Both the historic listings of the NYSE and the Euronext Paris should provide me with additional information about the financial impact of terrorism on the domestic stock markets.

The practical relevance of this thesis is to inform investors and other parties attached to stock exchanges about the financial influence of terrorism. This way all parties should be able to react in a suitable manner when a new terrorist act occurs.

The scientific relevance of this thesis is that it contributes to the existing literature about the connection between terrorism and the domestic stock market.

2. Theoretical framework

2.1 In what way terrorism influences the stock market financially

One of the most important effects of terrorism is spreading fear among the targeted population. A fast amount of studies concluded fear to be a primary objective of terrorist attacks. “It has been a general observation of many terrorism researchers that whereas terrorist acts typically involve acts of destruction, the general goal of terrorism is not the destruction itself it is the production of fear.” (Borum, 2007 p. 62)

According to Borum (2007) terrorism spreads fear in several ways. First of all fear is spread due to unpredictability of terrorist acts. The second feature is the extend and severity of the consequences inflicted by terrorism. The third feature is the thought of uncontrollability about when and where terrorist acts occur. The last feature is the high amount of centralization and interdependency of essential service systems in modern-day life (Borum, 2007).

Fear influences stock markets due to an increase in market volatility. According to Whaley (2000) the market volatility index (VIX) is also called “The investors Fear gauge”. “The index is set by investors and expresses their consensus view about expected future stock market volatility. The higher the VIX, the greater the fear.” (R. Whaley, 2000, p. 12) I think Whaley misstated the last sentence since fear influences the VIX and not the other way around.

Lerner states that terrorist attacks not only induce fear but also influence public opinion, behavioral aspects and emotion. “Terrorist attacks on the United States intensely affected many individuals and institutions, well beyond those directly harmed. Financial markets dropped, consumer spending declined, air travel plummeted, and public opinion toward government shifted. These responses reflected intense thought and emotion. The attacks and prospect of sustained conflict with a diffuse, unfamiliar enemy created anger, fear, and sadness.” (Lerner et al. 2003, p. 144)

Financial markets are influenced by terrorist attacks since expected future gains are represented in today’s stock prices. However the expected future company gains are reduced due to emergency measures aimed at terrorism. The following quote by Bruno et all is partly consistent with the above statements of Lerner et all about fear. “Stock prices are a potentially informative measure of the economic damage of terrorism. Stock prices reflect expected future gains of a company, as well as the likelihood that these expected gains materialize. Terrorist attacks influence both: (i) Expected profits are lower if security measures increase the costs of production and doing business, and if consumers’ fear reduces demand, like in the airline industry. (ii) The risk premium is higher when terrorism leads to increased uncertainty about a firm’s prospects on the market.” (Bruno et al, 2004, p.13)

A case study by Abadie and Gardeazabal in 2003 analyzed the stock market consequences of the cease-fire period the Eta (Terrorist organization in Northern Spain) declared in 1998. The study analyzed the stock market reactions of Basque (ETA’s home turf) firms compared to non-Basque firms. Stocks of Basque located firms outperformed non-Basque located firms by 10.14%. When the ETA ended the truce in 1999 stocks of Basque located firms showed a negative performance of 11.21% compared to non-Basque located firms. (Abadie and Gardeazabal, 2003) This study proves terrorism has serious influence on stock exchanges.

2.2 Factors amplifying the financial consequences of terrorism for the stock market

Consumer confidence and investor sentiment:

Consumer confidence consists of the consumers degree of optimism about the general economy which is expressed through their saving and spending activities. the consumer confidence index was set at 100 in 1985 and currently (November 2015) rates 97.6. the index consist for 40% of opinions about current conditions and the remaining 60% consists of expectations about future conditions.

The consumer confidence index is influenced by terrorist acts. (Sheffie and Rice, 2005) "There is a correlation between consumer confidence and stock market returns: Qiu and Welch (2006) point out that although consumers polled for the University of Michigan Consumer Confidence Index are not asked directly for their views on securities prices, changes in that consumer confidence index nonetheless correlate highly with changes in the UBS/Gallup index. They show that changes in the consumer confidence measure correlate especially strongly with small stock returns and the returns of firms held disproportionately by retail investors." (Baker and Wurgler, December 2006. p. 11) This proves terrorism can indirectly influence the stock market through consumer confidence.

Investor sentiment can be defined as an investors personal beliefs about future cash flows and investment risks which cannot be verified by the facts at hand. Therefore investor sentiment waves can influence the stock market since the investors make unfounded choices often contradicting expectations of stock listings based on the available information. Baker and Wurgler state that "it is quite possible to measure investor sentiment, and that waves of sentiment have clearly discernible, important, and regular effects on individual firms and on the stock market as a whole." (Baker and Wurgler, 18 December 2006, p. 26)

According to research conducted by Drakos investor sentiment is affected by terrorism since terrorist activity influences the investors mood leading to significantly lower returns (Drakos, 2010).

Severity or frequency of terrorist attacks:

Terrorists seek media attention in order to project their actions on public screens. The media devotes significantly more attention to severe terrorist acts which claim larger numbers of casualties and cause higher amounts of property- and infrastructural damage (Wilkinson 1997; Gartner 2004).

Pizam and Fleischer conducted a study about the correlation between terrorism and Israel's tourism demand. They found that the frequency of terrorist attacks had a higher negative correlation with tourism demand than the severity of terrorist attacks had on tourism demand. However they also learned that when the severity of the attack increases the decline in amount of tourists entering Israel also increases. (Pizam and Fleischer, 2002)

Location:

According to information from the Central Intelligence Agency terrorists do not pick their targets randomly but make rational calculated target choices based upon perceived risks and benefits. (U.S. Central Intelligence Agency 1981)

Since the goal of terrorism is to influence political decisions by spreading fear due casualties and structural damage, certain locations become potential targets for terrorist attacks. Locations with high concentrations of people, infrastructural importance, financial importance and political importance are all potential targets for terrorist attacks. Apostolakis and Lemon developed a screening method identifying possible terrorist targets. “A nation’s critical infrastructures are a subset of the potential targets of terrorist acts. Critical infrastructures are complex, interdependent, and ubiquitous; they are sensitive to disruption that can lead to cascading failures with serious consequences.” (Apostolakis and Lemon, 2005 p. 361)

“Terrorist acts have similarities and differences with natural and technological disasters, but are distinguished by a malevolent intelligence directed toward maximum social disruption. One subset of the potential targets of terrorist acts is the nation’s critical infrastructures” (Office of Homeland Security, 2002) (Apostolakis and Lemon, 2005 p. 361).

Fact is that designers of infrastructural systems did not design their systems to withstand the consequences of a terrorist attack. This renders our infrastructure vulnerable which is exactly what terrorists search for in a possible target. (Apostolakis and Lemon, 2005).

Media and technology:

Nowadays news about terrorism spreads much faster due to information sharing devices and techniques which might amplify the consequences of terrorist attacks. According to the form efficient market theory, in an efficient capital market security prices fully reflect all available information. (Fama, 1970) News about a terrorist act therefore would immediately be reflected in stock market prices. Due to information technology and media the amount of available information has increased. Tetlock conducted a study about the interaction between media content and stock market activity. He conclude that high values of media pessimism induce downward pressure on market prices. (Tetlock, 2007)

According to Bollen et all, the twitter mood influences the consumer confidence index. Bollen et all examined the ratio of positive versus negative tweets with a tool called Opinion Finder. The results prove that the twitter mood correlates with the consumer confidence Index. (Bollen et all, 2010). Twitter therefore may indirectly influence the stock market by influencing the consumer confidence index.

a study conducted by Werner et all investigated the possible stock market overreaction of investors to bad news. They concluded that a series of bad earning reports and other bad news leads to investors being excessively pessimistic. They also concluded that most people overreact to unexpected and dramatic news events. In the P/E ratio hypothesis stocks with low P/E ratios (losers) were assumed to be undervalued due to pessimism under the investors and stocks with high P/E ratios (winners) were assumed to be overvalued. “Consistent with the predictions of the overreaction hypothesis, portfolios of prior "losers", are found to outperform prior "winners." Thirty-six months after portfolio formation, the losing stocks have earned about 25% more than the winners, even though the latter are significantly more risky” (Werner et all, 1985 p. 804).

2.3 Measures for minimizing financial damage to the stock market due to acts of terrorism

This chapter aims to inform investors and investment companies about possible market reactions due to terrorism and defense measures to minimize their stock market value losses due to terrorism. First I will discuss governmental damage prevention followed by governmental damage reduction. In the last chapter I will discuss the measures investors should take in order to minimize losses occurred due to terrorism. The difference between damage prevention and damage reduction is that damage prevention focusses on eliminating damage by preventing opportunities and conditions enabling damage whilst damage reduction focusses on containing and reducing existing sources of damage (Australian Institute of Criminology, 2003).

Governmental damage prevention:

The national government has difficulties with damage prevention to the stock market affected by terrorist attacks. This is mainly caused due to the unpredictability regarding to time, location and nature of terrorist attacks (Borum, 2007).

After the September 11 attacks in New York the United States founded the department of homeland security. This department oversees and coordinates national safety and response strategies regarding to terrorist activity (Department of Homeland Security, 2015). In order for the department of homeland security to increase successful terrorist prevention the department acquires and maps vital information about terrorist activity and shares information with other nations and authorities (Department of Homeland Security, 2015).

Governmental damage reduction:

The government has a variety of tools and methods in order to reduce the amount of damage inflicted on the stock market due to terrorism. After the 9/11 attacks, for example, the NYSE and Nasdaq remained closed by the government until September 17 in order to prevent the stock market from a meltdown (Goodrich, 2002). However after reopening the stock market suffered its worst decline since the great depression in 1933. Stocks lost $1.4 trillion of value over those five days. The airline-, amusement- and tourism industries suffered the worst blows. As a result the U.S. federal government provided the airline industry with a relieve package worth $15 billion (Goodrich, 2002). This package was provided in order to prevent a domino effect of bankrupt companies which might affect several sectors and thereby worsening the stock market situation. Another important factor is the fabrication of emergency plans which provides the ability to react in a more efficient way resulting in reduced amounts of stock damage.

Investors point of view:

A stock market investor can reduce the amount of damage to his portfolio due to terrorism by implementing several tools and aspects. First of all the investor can utilize stop-loss orders. Stop-loss orders authorize the investors stockbroker to automatically sell shares when share prices drop to a certain ,previously determined, level. This reduces the amount of potential damage when a severe terrorist attack occurs. An investor who for example owns 100 airline

stocks worth $30 each which were bought for $20 might put a stop-loss order on these shares at $26. In case of a terrorist attack the share prices might drop sharply to, for example $18, but due to the stop-loss order the shares were automatically sold when the market price decreased to $26, preventing the investor from excessive losses.

Another important aspect of investing in the stock market is to reduce the amount of risk. The stock market is subject to systematic and unsystematic/idiosyncratic risk (Corporate finance European edition, 2010). According to Lintner an investor cannot protect his investments from systematic risk, however diversification of the investment portfolio minimizes or even eliminates unsystematic risk (Lintner, 1965). Systematic risk is risk associated with the general economy, for example war and an economic crisis. An investor is not able to protect his investments from systematic risk since this kind of risk influences the entire stock market. Unsystematic/idiosyncratic risk is associated with a specific sector or company and is mostly caused by incidents. An investor is able to minimize or even eliminate unsystematic risk by diversifying the investment portfolio since, for example, sector strikes, legal issues and terrorism are counterbalanced by other stocks in a well-diversified portfolio.

A possible way to protect an investment portfolio from terrorism is to include security and defense shares. As for example airline shares drop due to terrorism this drop is counterbalanced by a rise in security and defense shares.

3. Methodology

3.1 Research design

In order to perform research a research question, which aids as guidance for the research, has to be formulated. According to Babbie exploration, description and explanation are the three possible goals for conducting research. Exploratory research is conducted in order to explore new aspects in a particular research sector. Descriptive research answers the what and why questions and careful description replaces speculation and impression. Explanatory research designs provide reasons for causal relationships and trustworthy explanations (Babbie, 2010). This research aims to explain the causal relationship between terrorist attacks and its financial influence on the domestic stock market, therefore this research is categorized as explanatory research.

This research will be guided by two cases which makes it a case study. According to existing literature case studies can be used for one of multiple goals: to provide description (Kidder, 1982), test theory (Pinfield, 1986; Anderson, 1983), or generate theory (e.g., Gersick, 1988; Harris & Sutton, 1986). In this thesis the case study is used to test theory since the goal of this research is to examine the causal relationship between terrorist attacks and the financial consequences for the domestic stock market.

Since this is a literature study which utilizes case study most of the data is acquired through analyzing the cases while most of the theoretical information is acquired through analyzing data from scientific articles, studies and literature by utilizing google scholar and SCOPUS. First the needed information is defined. Second a set of keywords is selected which should aid in acquiring the needed information. After finding a potential article the date, author, title and amount of citations are checked in order to determine the usability, reliability and validity of the article. After determining the usability, reliability and validity of the article certain paragraphs, in which the previously selected keywords are stated, are read in order to acquire and analyze the desired information. This routine is based on the first four steps of the five-step grounded theory method for reviewing literature from Wolfswinkel et al. This theory uses the following five steps to review literature: Define, search, select, analyze and present (Wolfswinkel et al, 2013). Next to articles, studies, literature and the cases mentioned below I will make use of the historic stock market quotations from the New York Stock Exchange and the Euronext Paris in order to investigate in what way the domestic stock markets are financially influenced by the 9/11 New York terrorist attacks and the November 13th Paris terrorist attacks. Both cases will be examined based on changes in the stock quotations of 20 listed companies.

3.2 Case selection

According to Eisenhardt (1989) a case study is a “research strategy which focuses on understanding the dynamics present within single settings’’ (Eisenhardt, 1989. p. 534).

In order to perform a cross-examination of the financial influence of terrorism on the domestic stock market this Thesis uses two cases. These two cases should provide the information needed to examine possible differences and/or similarities between the financial influence of terrorism on the domestic stock market.

In order to select two representative cases a few requirements had to be fulfilled.
Obviously the first requirement is that the selected case is a terrorist attack. Second the case has to be extensive enough to receive great amounts of media attention. The media attention is crucial since share prices in efficient capital markets are only influenced by available information (D. Hillier, 2010). Without media attention there would be no new information and therefore the stock market wouldn't be influenced. Since both the 9/11 terrorist attacks in New York and the November 13th terrorist attack in Paris meet the above mentioned requirements these two cases have been selected. That the Paris attacks occurred recently shouldn't be a problem and may even make the topic more interesting. In an earlier stage of this research I tried to use the 9/11 terrorist attacks in New York along with the ETA truce (1988-1989) in Spain. However when I started the data collection phase of this thesis the ETA truce case proved to be incompetent since the amount of data available was simply insufficient to perform reliable research. Most of the companies which were influenced by the ETA truce went bankrupt or merged with other companies in the course of the following years. Along with these bankruptcies and mergers the stock quotations of these companies (before bankruptcy or merger) were erased which makes it impossible to collect sufficient data in order to perform research.

3.3 Data collection

This thesis relies on a quantitative data collection method in order to collect the data needed to provide an answer to the research question. Stock quotations of listed companies will be examined for each case. This will be done by comparing stock market quotations pre and post terrorist attack of the following four sectors: Tourism, security and defense, aerospace and aviation and Banking and insurance. During the pre-research stage of this thesis these sectors proved to be most influenced by terrorism which aligns with my research question.
Every sector will be analyzed by interpreting the historic stock market quotations of five, randomly selected, companies which survived the aftermath of the terrorist attacks. In order to investigate the 9/11 case, stock market quotations from seven different dates are used to analyze the financial impact on the NYSE. I chose seven measurement points in order to provide a clear overview of the financial aftermath of this terrorist attack.
The first quotation is set one day prior to the attack in order to function as the, unaffected, base quotation to which the other quotations are compared. The second quotations is one week after the attack. Due to the closure of the stock market it is not possible to retrieve stock quotations one day after the attack. The stock market reopened one week after the attack so that date is chosen as the second quotation date. The third quotation is 30 days after the attack. The fourth quotation is 90 days after the attack. The fifth quotation is 180 days after the attack. The sixth quotation is 365 days after the attack and the seventh quotation is 730 days after the attack. In order to collect data about the November 13 Paris case the same routine will be used to analyze the Euronext Paris except for a slight difference in the date of the stock quotations. For every company the stock quotation of six different dates are used. These quotations are: 1 day prior to the attack, 1 day after the attack, 1 week after the attack, 2 weeks after the attack, 4 weeks after the attack and 8 weeks after the attack.

3.4 Data analyses:

In order to analyze the collected data an index will be created. The index should provide a clear overview of the positive and negative changes in stock quotations due to the aftermath of the terrorist attack. First of all the stock quotations will be transferred into percentages in order to fabricate an index which makes it more easy to compare the quotations. The quotation of one day prior to the attack will be used as the base line of the index since this quotation is not yet affected by the terrorist attack. The other quotations of the company are then compared to the base line which should provide a decent time-lapse overview of the company's causal relationship with the terrorist attack.

After all five companies within the sector are analyzed the sector totals are produced. These totals show the sectors reaction to the terrorist attack by combining the results of the five individual companies. The sector averages are then compared to the domestic stock market average in order to identify sector gains or losses. This process is then repeated in the remaining three sectors.

After analyzing each company and sector the sectors are compared to each other in order to examine the possible differences and/or similarities between sectors. After this has been done for both cases the results of the 9/11 case will be compared to the results of the November 13 attacks in Paris. The index should provide a clear overview of the situation which enables us to answer the following questions. Which companies were positively or negatively influenced at a certain time or date? Are there any differences between the analyzed sectors? Are there any similarities or differences between the cases? How can these similarities or differences be explained?

4. Case September 11 2001 New York

4.1 September 11 2001 New York, Introduction

In the morning of September 11, 2001 around 08:46 local time a Boeing 747 from Air America crashed into the North tower of the world trade Centre. About a quarter of an hour later around 09:03 local time a Boeing 767 from United Airlines crashed into the South tower of the world trade Centre. At 09:37 local time a Boeing 757 from American Airlines crashed into the pentagon and 26 minutes later at 10:02 local time a Boeing 757 from United Airlines crashed into farm ground in the outskirts of Shanksville (Thomas Kean et al, 2004).
After the second airplane hit the south tower the united states knew they were under attack. Passengers from the two remaining hijacked flights received phone calls warning them of the terrorist attacks however only the fourth flight had enough time to counterattack the hijackers which resulted in this plane not reaching its target. After an accomplice of the terrorists was arrested he declared that the fourth hijacked airplane was targeting the capitol or the white house (Kean et al, 2004).
In terms of property damage and casualties the planes who hit the twin towers caused the most amount of damage. Despite the impact of the airplanes and the inferno caused by jet fuel both towers initially remained standing. Eventually after respectively 56 and 102 minutes the South and North tower collapsed. During these minutes a lot of people were able to escape the building. However approximately 400 firefighters and police officers, who entered the building in attempt to assist civilians in their escape, died when both towers collapsed.
The South tower was first to collapse, despite being hit 34 minutes later, since it was hit in a lower section than the North tower. In total the attacks on the twin towers claimed 2753 casualties including the passengers of both flights. The attack on the pentagon claimed 184 casualties including the passengers of the flight and the “recaptured” flight” destined for the capitol or white house claimed 40 casualties (Kean et al, 2004).
Initially no one claimed the terrorist attack but the U.S.A. held Osama Bin Laden, leader of the Al-Qaida terrorist organization, responsible for the attacks. A few months later Osama Bin Laden claimed responsibility for the attacks in an audio message.
According to Morgan (2009) the 9/11 case had the biggest number of casualties, as well as the largest amount of property and infrastructural damage, in the history of the U.S.A. (M. Morgan, 2009). The attacks destroyed world trade center buildings one through seven and damaged the pentagon and numerous other building. The total amount of human casualties is 2977 however this amount does not include all people who died in a later stadium due to cancer and other diseases caused by dust and debris of the twin towers.
The government closed the stock exchange for an entire week as a precaution for a plunging stock market. When the NYSE reopened the market was hit by a 7.1% decline which is the biggest one-day trading loss in the history of the NYSE . At the end of the week the NYSE was down 14% and the S&P index lost 11.6% which represent the biggest full-week losses in NYSE history, the total stock market damage during these 5 days of trading is estimated to be $1.4 trillion (M. Davis, 2011).

4.2 September 11 2001 New York, data and data analysis

This chapter aims to present and analyze the data attached to the September 11 2001, New York case. All data is acquired by a stock quotations database of the NYSE. After the stock quotations were acquired I transformed the quotations into an index with the first quotation, the day before the attacks, representing the baseline as 100. Next to the company stock quotations a sector average and a NYSE average were added in order to simplify the analysis and comparison of the individual stocks and the entire sector. The conclusions and results are based on a descriptive analysis of both the company's and sectors stock behavior.

9/11 New York Case:
Stock quotation dates followed by the amount of days before/after the attack:
(10 sept 01) (17 sept01) (11 okt 01) (11 dec 01) (11 mrt 02) (11 sept 02) (11 sept 03)
-1 +7 +30 +91 +182 +365 +730

Sector: Aviation & Aerospace
1. The Boeing company (43,46) (35,80) (36,18) (37,07) (50,88) (37,08) (35,72)
2. AAR Corp. (16,00) (11,66) (8,85) (8,85) (9,20) (5,97) (8,25)
3. Southwest Airlines Co. (17,12) (13,00) (16,10) (18,98) (20,45) (14,25) (18,36)
4. Lockheed Martin Corporation (38,32) (43,95) (46,39) (45,58) (57,75) (65,25) (51,54)
5. LATAM Airlines Group S.A. (8,40) (6,60) (5,70) (7,28) (7,05) (4,40) (10,55)
6. NYSE composite (DJ) (NYA). (6.006) (5.730) (5.983) (6.092) (6.389) (5.206) (5.735)

TF:	-1	+7	+30	+91	+182	+365	+730
1:	100	82.37	83.25	85.30	117.07	85.32	82.19
2:	100	72.88	55.31	55.31	57.50	37.31	51.56
3:	100	75.58	94.04	110.86	119.45	83.24	107.24
4:	100	114.69	121.06	118.95	150.70	170.27	134.50
5:	100	78.57	67.86	86.67	83.93	52.38	125.60
SA:	100	84.82	84.30	91.42	105.73	85.70	100.22
NYSE:	100	95.40	99.62	101.43	106.38	86.68	95.49

According to the above stated quotations seven days after 9/11 the sector average for Aviation and Aerospace dropped more than 15% compared to an average NYSE drop of 4.6%. Unfortunately the mostly affected aviation and Aerospace companies, Air America and United Airlines, went bankrupt or merged in the following years. This made it unable to acquire their stock quotations related to 9/11. The sector average would have probably suffered more damage if these companies were included.
Interestingly enough seven days after the attack Lockheed Martin gained almost 15%. Since this is contra dictionary to the rest of the sector I looked into this matter. Lockheed martin is not only active in the Aviation and Aerospace sector but it is also a big player in the defense and security sector which explains the positive change contrary to the rest of the sector.
After approximately 90 days the NYSE surpassed the pre 9/11 totals whereas the Aviation and Aerospace sector needed approximately 180 days. Two years after 9/11 the Aviation and Aerospace sector average outperforms the NYSE average by almost 5%.

Sector: Banking and Insurance

1. The Goldman Sachs Group, Inc. (76,20) (69,40) (83,85) (91,82) (90,70) (73,69) (89,84)
2. Morgan Stanley (48,90) (42,50) (52,80) (54,85) (56,46) (40,34) (48,88)
3. JPMorgan Chase & Co. (37,26) (35,25) (33,42) (38,50) (36,30) (22,98) (33,68)
4. Bank of America Corporation (57,65) (54,35) (54,60) (62,45) (67,75) (68,74) (75,60)
5. Berkshire Hataway Inc. (68.000) (64.000) (74.850) (68.600) (71.600) (75.500) (75.800)
6. NYSE composite (DJ) (NYA). (6.006) (5.730) (5.983) (6.092) (6.389) (5.206) (5.735)

TF:	-1	+7	+30	+91	+182	+365	+730
1.	100	91.47	110.04	120.50	119.03	96.71	117.90
2.	100	86.91	107.98	112.17	115.46	82.49	99.96
3.	100	94.61	89.69	103.33	97.42	61.67	90.39
4.	100	94.28	94.71	108.33	117.52	119.24	131.14
5.	100	94.12	110.07	100.88	105.29	111.03	111.47
SA:	100	92.28	102.50	109.04	110.94	94.23	110.17
NYSE:	100	95.40	99.62	101.43	106.38	86.68	95.49

According to the above stated quotations seven days after 9/11 the sector average for Banking and Insurance dropped almost 8% compared to the NYSE average drop of 4.6%. However after only 30 days the Banking and Insurance sector average surpassed the pre 9/11 base line with 2.5%. The Sector average for Banking and Insurance also surpassed the NYSE average which remained slightly negative with a loss of almost 0.4%. After the 30 day mark the sector average for Banking and Insurance starts to consistently outperforming the NYSE average. One year after 9/11 the Banking and Insurance average hits another low with a loss of almost 6% compared to the pre 9/11 base line, however the sector average still outperforms the NYSE which notes losses exceeding 13%. After two years the Banking and Insurance sector average remains outperforming the NYSE average which notes a 4.5% loss compared to a 10% gain for the Banking and Insurance sector.

JPMorgan Chase & Co. struggled to surpass the pre 9/11 base line. After approximately 90 days they surpass the pre 9/11 base line for a short period since they immediately fall into a negative trend again. JPMorgan Chase & Co. reached the bottom after approximately one year with a loss of more than 38% compared to the pre 9/11 quotations. After that they recuperate quite good but two years after the 9/11 attacks they remain with a loss of almost 10% compared to their pre 9/11 stock quotations.

The bank of America corporation surpasses the pre 9/11 base line after 90 days. They continue their positive trend outperforming both the sector average and the NYSE average resulting in a 31% gain after two years compared to the pre 9/11 base line.

Sector: Security and defense

1.L-3 Communications Holdings Inc. (63,00) (87,00) (92,59) (82,50) (109,18) (55,81) (46,90)
2. Northrop Grumman Corporation (81,94) (94,80) (105,25) (93,60) (108,46) (125,83) (92,93)
3. General Dynamics Corporation (75,97) (82,90) (88,00) (76,87) (90,85) (80,48) (84,30)
4. Raytheon Company (24,85) (31,50) (34,40) (31,53) (38,53) (35,40) (32,00)
5. United Technologies Corporation (66,20) (48,90) (52,70) (60,94) (75,69) (62,32) (78,29)
6. NYSE composite (DJ) (NYA). (6.006)(5.730)(5.983)(6.092)(6.389)(5.206)(5.735)

TF:	-1	+7	+30	+91	+182	+365	+730
1:	100	138.10	146.97	130.95	173.30	88.59	74.44
2:	100	115.69	128.45	114.23	132.37	153.56	113.41
3:	100	109.12	115.84	101.18	119.59	105.94	110.96
4:	100	126.76	138.43	126.88	155.05	142.45	128.77
5:	100	73.87	79.61	92.05	114.34	94.14	118.26
SA:	100	112.71	121.86	113.06	138.93	116.94	109.17
NYSE:	100	95.40	99.62	101.43	106.38	86.68	95.49

According to the above stated quotations seven days after 9/11 the sector average for Security and Defense gained almost 13% compared to a drop for the NYSE average of 4.6%. 30 days after 9/11 the Sector average for Security and Defense gained nearly 22% compared to their pre 9/11 quotations. The Security and Defense sector averages note positive numbers at every single quotation date compared to the pre 9/11 base line. It also outperforms the NYSE average at every quotation date with a maximum spread of 30% at 365 days after 9/11. The NYSE average notes a drop exceeding 13% while the sector average for Security and Defense notes a gain of almost 17%. The sector average for Security and Defense reaches its height 180 days after 9/11 with a gain of almost 39% compared to the pre 9/11 base line.
The United Technologies Corporation shows, seven days after 9/11, a significant drop of 26,13% which contradicts the sector average gain of 12.71%. A possible explanation for this significant drop is that United Technologies Corporation has an Aerospace systems department which proofed to be unprepared and thus vulnerable to the 9/11 aerial attack. Seven days after the 9/11 attack L-3 Communications Holdings notes a gain of 38.1% compared to the pre 9/11 base line. 180 days after 9/11 L-3 Communications Holdings outperforms both the sector average as well as the NYSE average. L-3 communications Holdings notes an increase of 73.3% compared to the pre 9/11 base line while the Sector average and NYSE average note increases of respectively 38.39% and 6.38%. However L-3 Communications Holdings notes significant drops for the last two timeframes compared to the pre 9/11 base line. One year after 9/11 L-3 Communications Holdings experiences a significant drop which almost halves their stock quotation compared to the previous time frame. However L-3 Communications Holdings performs similar to the NYSE average with a loss of 11.41% compared to the pre 9/11 base line. Two years after 9/11 L-3 Communications Holdings quotations decreased 25.56% compared to the pre 9/11 base line. The NYSE average outperforms L-3 Communications Holdings since they note a loss of 4.51% compared to the pre 9/11 base line. The sector average for Security and defense notes a 9.17% gain two years after 9/11 compared to the pre 9/11 base line outperforming the NYSE average.

Sector: Tourism (hospitality and leisure)

1. Marriot International, Inc. (40,85) (32,25) (33,75) (39,80) (43,39) (32,42) (40,17)
2. Belmond Ltd. (19,99) (14,73) (13,51) (15,05) (18,88) (13,17) (15,97)
3. MGM Resorts International (28,31) (22,00) (25,60) (28,27) (35,40) (36,44) (35,25)
4. Carnival Corporation (28,52) (19,43) (23,00) (26,59) (31,47) (25,60) (33,55)
5. McDonald's Corp. (28,92) (28,38) (30,05) (26,50) (27,90) (21,34) (23,48)
6. NYSE composite (DJ) (NYA). (6.006)(5.730)(5.983)(6.092)(6.389)(5.206)(5.735)

TF:	-1	+7	+30	+91	+182	+365	+730
1:	100	78.95	82.62	97.43	106.22	79.36	98.34
2:	100	73.69	67.58	75.29	94.48	65.88	79.89
3:	100	77.71	90.43	99.86	125.04	128.72	124.51
4:	100	68.13	80.65	93.23	110.34	89.76	117.64
5:	100	98.13	103.91	91.63	96.47	73.79	81.19
SA:	100	79.32	85.04	91.49	106.51	87.50	100.31
NYSE:	100	95.40	99.62	101.43	106.38	86.68	95.49

According to the above stated quotations seven days after 9/11 the sector average for Tourism dropped more than 20% compared to a NYSE average drop of 4.6%. It took the Tourism sector 180 days to note a positive quotation compared to the pre 9/11 base line, at this point the sector average also starts outperforming the NYSE average.

The stock quotation of the McDonald's Corporation shows, with a 1.87% drop, almost no reaction to the 9/11 attack. This might be explained by the fact that McDonald's' fast-food restaurants are located all over the world. McDonald's is also known as a fast-food chain instead of a "proper restaurant" which might reduce its reliability on tourism which on its turn reduces the affection by the terrorist attacks.

The Carnival Corporation was hugely affected by the 9/11 attacks. Seven days after the attack the Carnival Corporation's stock quotation was hit with a staggering 31.87% loss. It took the Carnival Corporation 180 days to start outperforming both the sector average as well as the NYSE average. Similar to the Carnival Corporation, Belmond show stock losses of 26.31% and 32.42% after respectively 7 and 30 days. This similarity might be explained since both companies provide boat cruises which might cause anxiety for tourists since they feel like there is nowhere to go if a terrorist attack occurs on a cruise.

It took most companies in the Tourism sector at least 180 days to recover from the 9/11 attacks which aligns with the sector average.

Two years after the attacks MGM resorts international and the Carnival Corporation outperform the sector average as well as the NYSE average with a gain of respectively 24.51% and 17.64% compared to the pre 9/11 base line.

4.3 September 11 2001 New York, results and interpretation

This chapter aims to present an interpretation about the influence of 9/11 on the NYSE. This interpretation is mainly based on the accumulated data from the previous chapter. I will start with an interpretation of the NYSE as a whole before addressing each sector separately.

Due to the terrorist attacks of 9/11 the government of the U.S.A. closed the stock exchange for an entire week as a precaution for a plunging stock market. When the NYSE reopened the market was hit by a 7.1% decline which is the biggest one-day trading loss in the history of the NYSE . At the end of the week the NYSE was down 14% which represent the biggest full-week losses in NYSE history, the total stock market damage during these 5 days of trading is estimated to be $1.4 trillion (M. Davis, 2011).

According to my own data the first day of trading (+7 on the timeframe) resulted in a decline of 4.6% instead of the 7.1% stated by Davis. This can be explained since I used the end of day closing quotations instead of the intra-day low which was used by Davis.

After almost three months the NYSE had recuperated from the terrorist attacks, with a 1.43% gain compared to the pre 9/11 base line. Six months after the attacks the NYSE had gained a full 6.38% but started to decrease from that point on to a loss of 13.32% one year after 9/11.

According to the previous chapter the Tourism sector, which contains hospitality and leisure companies, was the worst performing sector after 9/11. The tourism sector was faced with a decrease of more than 20% seven days after the attacks. It took the tourism sector almost 180 days in order to recuperate from the attacks. The performance of the tourism sector can be explained by all news footage of 9/11 which appeared all over the world. This footage created the image of U.S.A. being a warzone withholding tourists from entering the U.S.A.

The second worst performer is the aviation and aerospace sector. Seven days after 9/11 the aviation and aerospace sector had dropped 15.18%. The aviation and aerospace sector shows a similar time frame pattern compared to the tourism sector by taking almost six months to recuperate from the attacks. However since I was not able to include Air America and United Airlines in this sector average due to bankruptcy or merger, I assume that the decrease of the sector averages for aviation and aerospace were compressed.

The banking and insurance sector dropped 7.72% when the NYSE reopened. However it took this sector only one month to recuperate from the terrorist attacks. One year after the terrorist attacks the banking and insurance sector shows a 5.77% drop compared to the pre 9/11 base line. The tourism and aviation and aerospace sector show a similar, but more significant, drop one year after the attacks. The NYSE average one year after 9/11 shows a drop of 13.32% which seems not to be related to terrorism.

The security and defense sector profits from the 9/11 terrorist attacks since this sector shows a 12.71% gain when the NYSE reopened. After 30 days the security and defense sector gained 21.86%. After 180 days the security and defense sector hit a peak with a 38.93% gain compared to the pre 9/11 base line. Even after a year when the NYSE was down 13.32% the security and defense sector still showed a gain of almost 17% compared to the pre 9/11 base line. The security and defense sector gained from the 9/11 attacks since the attacks proved that the U.S.A. and its citizens were vulnerable to terrorist attacks. The feeling of vulnerability led to a series of measures in order to prevent and reduce damage caused by foreign attacks on the U.S.A. These measures mostly involved defensive technological systems which on its turn led to a stock increase of the security and defense sector.

5. Case November 13 2015 Paris

5.1 November 13 2015 Paris, introduction

On the evening of 13 November 2015, a group of nine terrorists launched a series of attacks in Paris targeting civilians. Around 21:20 the attacks started with three suicide bombers striking near the Stade de France. Fortunately all three suicide bombers were denied access to the football stadium which, at that point, was packed with civilians due to a football match between France and Germany.

At almost the same time mass shootings started on five different locations in Paris. The terrorists engaged civilians in cafes, restaurants and the Bataclan theatre. During the attacks 130 civilians were killed, of which 89 at the Bataclan theatre, and another 368 were injured. Seven of the nine terrorists were killed and the remaining two terrorists fled. On November 18 Abdelhamid Abaaoud, the architect of the terrorist attack, was killed during a police raid in Saint-Denis. According to local newspapers the terrorist attacks were the deadliest attacks on French soil since World War II.

The terrorist attacks were claimed by the ISIL (Islamic State of Iraq and the Levant) who retaliated the French for bombing ISIL targets in Syria. President François Hollande of France, on its turn, reacted with a three month state of emergency in France and an increase in bombings of ISIL targets in Syria. On the 18th of November 2015 France dispatched the aircraft carrier Charles de Gaulle towards the eastern Mediterranean in order to support bombing operations conducted by the international coalition.

Since the terrorist attacks occurred on Friday evening the French stock exchange Euronext Paris was, as always, closed during the weekend. This might have reduced the amount of stock market damage since investors and other investment companies had more time to overthink their reactions reducing the amount of stock market damage due to impulsive trading reactions. When the Euronext Paris reopened for trading on Monday the 16th of November the CAC ALLSHARES dropped with 1.13% however seven days after the terrorist attacks the CAC ALLSHARES had already recuperated itself.

5.2 November 13 2015 Paris, data and data analysis

This chapter aims to present and analyze the data attached to the November 13 2015, Paris case. All data is acquired by a stock quotations database of the Euronext Paris. After the stock quotations were acquired I transformed the quotations into an index with the first quotation, the day before the attacks, representing the baseline as 100. Next to the company stock quotations a sector average and a Euronext Paris average were added in order to simplify the analysis and comparison of the individual stocks and the entire sector. The conclusions and results are based on a descriptive analysis of both the company's and sectors stock behavior

November 13 Paris case:
Stock quotation dates followed by the amount of days before/after the attack:
(12 Nov15) (16 Nov 15) (20 Nov 15) (27 Nov 15) (14 Dec 15) (13 Jan 16)
-1 +3 +7 +14 +31 +61

Sector: Aviation & Aerospace

1. Zodiac Aerospace (24,00) (23,85) (24,35) (25,07) (22,78) (19,69)
2. Aviation Latecoere (4,23) (4,13) (4,25) (4,09) (3,80) (3,95)
3. Air France-KLM (6,79) (6,41) (6,70) (6,24) (6,30) (7,72)
4. Airbus Group (64,06) (63,46) (66,42) (67,95) (61,30) (59,49)
5. Dassault aviation (1.045) (1.065) (1.010) (1.057,9) (1.041,75) (1.069,6)
6. EP CAC ALLSHARES (5.508,37) (5.446) (5.561,31) (5.579,30) (5.128,4) (5.068,37)

TF:	-1	+3	+7	+14	+31	+61
1:	100	99.38	101.46	104.46	94.92	82.04
2:	100	97.64	100.47	96.69	89.83	93.38
3:	100	94.40	98.67	91.90	92.78	113.70
4:	100	99.06	103.68	106.07	95.69	92.87
5:	100	101.91	96.65	101.23	99.69	102.35
SA:	100	98.48	100.19	100.07	94.58	96.87
EP:	100	98,87	100.96	101.29	93.10	92.01

According to the above stated quotations three days after November 13 the sector average for Aviation and Aerospace dropped 1,52% compared to an average Euronext Paris drop of 1,13%. Interesting is the 1.91% gain of Dassault aviation which is contrary to the rest of the sector. A possible explanation for Dassault Aviation's contra dictionary gain is that they manufacture combat airplanes next to airliners and private jets.
Three days after the Paris attacks the stock quotation of Air France-KLM dropped 5.6% which is the biggest drop in the sector.
It took the Aviation & Aerospace sector approximately one month to outperform the Euronext Paris average. However both the sector average as well as the Euronext Paris average showed significant drops of respectively 5.42% and 6.9% compared to the pre November 13 base line. The Euronext Paris average hit a low point 30 days after the Paris attacks which seems unrelated to the terrorist attacks since three days after the terrorist attacks the Euronext Paris average showed a relatively small drop of 1.23% and seven days after the attack the Euronext Paris average showed a gain of 0.96%.

Sector: Banking and Insurance

1. BNP PARISBAS ACT.A (56,5) (55,5) (55,44) (56,02) (50,28) (48,86)
2. CREDIT AGRICOLE (11,24) (10,99) (11,30) (11,40) (10,12) (10,18)
3. SOCIETE GENERALE (44,05) (43,41) (44,03) (44,81) (40,15) (39,57)
4. AXA (24,68) (24,50) (24,83) (25,55) (24,13) (23,93)
5. CNP ASSURANCES (12,66) (12,55) (13,01) (13,15) (11,64) (11,35)
6. EP CAC ALLSHARES (5.508,37) (5.446) (5.561,31) (5.579,30) (5.128,4) (5.068,37)

TF:	-1	+3	+7	+14	+31	+61
1:	100	98.23	98.12	99.15	88.99	86.48
2:	100	97.78	100.53	101.42	90.04	90.57
3:	100	98.55	99.95	101.73	91.15	89.83
4:	100	99.27	100.61	103.53	97.77	96.96
5:	100	99.13	102.76	103.87	91.94	89.65
SA:	100	98.59	100.39	101.94	91.98	90.70
EP:	100	98,87	100.96	101.29	93.10	92.01

According to the above stated quotations three days after November 13 the sector average for Banking and Insurance dropped 1,41% compared to an average Euronext Paris drop of 1,13%. After only seven days the sector average for Banking and Insurance shows a minor gain compared to the pre November 13 base line.

On almost all occasions the Euronext Paris Average slightly outperforms the sector average for banking and insurance accept for 14 days after the November 13 Paris attack were the sector average for banking and insurance outperforms the Euronext Paris average by 0.65%.

The Banking and Insurance sector shows a minor gain on both seven and fourteen days after the attack compared to the pre November 13 base line. However 31 days after the November 13 Paris attack the sector average drops with 8.02% compared to the pre November 13 Base line. 61 days after the November 13 Paris attacks the sector average for banking and insurance hits its low with a 9.3% drop compared to the pre November 13 base line.

The companies in this sector perform almost similar except for AXA which outperforms both the sector as well as the Euronext Paris average on almost all occasions.

BNP PARISBAS ACT.A performs slightly worse than the sector average for banking and insurance as well as the Euronext Paris average on all time frames.

Sector: Security and defense

1. Thales (66,12) (67,7) (69,35) (70,06) (67,23) (72,14)
2. CS (COMM. SYSTEMES) (2,89) (2,80) (2,80) (2,76) (2,85) (3,00)
3. ALCATEL-LUCENT (3,74) (3,68) (3,78) (3,71) (3,38) (3,78)
4. SAFRAN (68,00) (66,35) (67,23) (68,89) (60,89) (59,62)
5. Renault (89,07) (89,86) (93,02) (94,08) (85,50) (86,66)
6. EP CAC ALLSHARES (5.508,37) (5.446) (5.561,31) (5.579,30) (5.128,4) (5.068,37)

TF:	-1	+3	+7	+14	+31	+61
1.	100	102,39	104,89	105.96	101.68	109,10
2.	100	96,89	96,89	95,50	98,62	103,81
3.	100	98,40	101,07	99,20	90,37	101,07
4.	100	97,57	98,87	101,31	89,54	87,68
5.	100	100,87	104,43	105,62	95,99	97,29
SA:	100	99,22	101,23	101,52	95,24	99,79
EP:	100	98,87	100,96	101,29	93,10	92,01

According to the above stated quotations three days after November 13 the sector average for security and defense dropped 0.78% compared to an average Euronext Paris drop of 1,13%. The sector average for security and defense slightly outperforms the Euronext Paris average on all occasions with a maximum positive spread of 7.78% 61 days after the November 13 Paris attack. However 31 and 61 days after the November 13 Paris attack both the security and defense sector average as well as the Euronext Paris average show a negative result compared to the pre November 13 base line.

After only seven days the sector average for security and defense shows a minor gain compared to the pre November 13 base line however the security and defense sector average hits its low 31 days after the November 13 Paris attack.

Three days after the November 13 Paris attack Thales shows a gain of 2.39% compared to the pre November 13 base line. In all other timeframes Thales' stock quotation maintains positive compared to the pre November 13 base line. Thales also outperforms the Euronext Paris average on all occasions with a maximum positive spread of 17.99% 61 days after the November 13 Paris attack.

Sector: Tourism (hospitality and leisure)

1. Accor (42,52)(39,52)(40,99)(39,43)(38,04)(37,23)
2. Elior (17,17)(16,90)(17,46)(18,26)(17,89)(18,39)
3. Euro Disney (1,25)(1,24)(1,23)(1,19)(1,13)(1,23)
4. Groupe partouche (18,15)(18,26)(19,00)(20,41)(22,02)(26,00)
5. Groupe FLO (2,55)(2,25)(2,28)(2,30)(2,18)(2,15)
6. EP CAC ALLSHARES (5.508,37) (5.446) (5.561,31) (5.579,30) (5.128,4) (5.068,37)

TF:	-1	+3	+7	+14	+31	+61
1:	100	92,94	96,40	92,73	89,46	87,56
2:	100	98,43	101,69	106,35	104,19	107,11
3:	100	99,20	98,40	95,20	90,40	98,40
4:	100	100,61	104,68	112,45	121,32	143,25
5:	100	88,24	89,41	90,20	85,49	84,31
SA:	100	95,88	98,11	99,39	98,17	104,13
EP:	100	98,87	100.96	101.29	93.10	92.01

According to the above stated quotations three days after November 13 the sector average for Tourism dropped 4.12% compared to an average Euronext Paris drop of 1,13%. It took the Tourism sector approximately 60 days to recover from the November 13 Paris attack. However in the last time frame, 61 days after the November 13 Paris attack, the tourism sector average peaks with a gain of 4.13% compared to the pre November 13 base line. The Euronext Paris average hits its low at that time which results in a spread of 12.12% between the tourism sector average and the Euronext Paris average.

On all occasions Accor as well as Groupe FLO are outperformed by both the tourism sector average as well as the Euronext Paris average. Accor hit its lowest point with a 12.44% loss compared to the pre November 13 base line 61 days after the November 13 Paris attacks. Groupe FLO also hit its lowest point 61 days after the November 13 Paris attack with a loss of 15.69% compared to the pre November 13 Paris attack base line.

Accor's bad performance can be explained since they own a concert arena located three kilometers away of the Bataclan theatre. The concert in the Accor Arena was stopped and the arena was cleared in order to prevent another terrorist shooting like the Bataclan.

Groupe partouche outperforms the tourism sector average as well as the Euronext Paris average on all occasions. Groupe partouche peaks 61 days after the November 13 Paris attack with a gain of 43.25% compared to the pre November 13 base line.

5.3 November 13 2015 Paris, results and interpretation

This chapter aims to present an interpretation about the influence of the terrorist attacks, which occurred on November 13 2015 in Paris, on the Euronext Paris. This interpretation is mainly based on the accumulated data from the previous chapter. I will start with an interpretation of the Euronext Paris as a whole before addressing each sector separately.
Since the Paris attacks occurred late in the evening of Friday the 13th of November the Euronext Paris was already closed for the weekend which may have reduced the amount of damage to the stock market. When the Euronext Paris reopened for trading on Monday the 16th of November the CAC ALLSHARES average dropped, according to my data, with1.13%. However only seven days after the attacks the CAC ALLSHARES average had gained 0.96% compared to the pre November 13th base line. Two weeks after the attack the CAC ALLSHARES average remains positive with a 1.29% gain. However one month after the attack the CAC ALLSHARES average shows a loss of almost 7% compared to the pre November 13th base line. This decrease continues to the last time frame, two months after the attack, with a decrease of almost 8% compared to the pre November 13th base line. The Influence of the attacks appear to be "minimal" compared to the results from the 9/11 case.
According to the previous chapter the Tourism sector, which contains hospitality and leisure companies, was the worst performing sector after the November 13th Paris attacks. The tourism sector was faced with a decrease of more than 4% when the Euronext Paris opened for trading on Monday the 16th of November. It took the tourism sector almost two months to recuperate from the attacks. The performance of the tourism sector can be explained by all news footage of the attacks which was quickly spread by news channels. This footage created fear by potential tourists withholding them from visiting France and especially Paris. It was also harder for tourists to enter France since the government had upped the threat classification which resulted in border controls and overall difficulty to enter France.
The second worst performer is the aviation and aerospace sector. Three days after November 13th the aviation and aerospace sector had dropped 1.52% compared to the pre November 13th base line. However the aviation and aerospace sector quickly recovered which resulted in a 0.96% gain seven days after the attacks. Despite the positive numbers in both the third and fourth time frame the aviation and aerospace sector is faced with a loss of 5.42% in the fifth time frame compared to the pre November 13th base line. During the last time frame the aviation and aerospace sector outperforms the CAC ALLSHARES average by 4.86% however the sector average is still 3.13% short of the pre November 13th base line.
The banking and Insurance sector dropped 1.41% when the Euronext Paris reopened. The sector recovered from the attacks within a week. One month after the attacks the banking and insurance sector notes a loss of more than 8% compared to the pre November 13th base line. The banking and insurance sector is outperformed by the CAC ALLSHARES average on the last two time frames.
The security and defense sector is the least influenced by the attacks. The security and defense sector showed a 0.78% loss when the Euronext Paris reopened on Monday the 16th of November. After seven days the sector showed a 1.23% gain compared to the pre November 13th base line. One month after the attacks the sector shows a significant loss from 4.76% which is similar to the CAC ÁLLSHARES average. Two months after the attack the security and defense sector outperforms the CAC ALLSHARES average by 7.78%.

6. Analysis/comparison

This chapter aims to present an explanation for the cause-effect relationship between terrorist attacks and the domestic stock market. These explanations are mainly based on the accumulated data from both, previously discussed cases.
According to the data I collected from both the NYSE and the Euronext Paris the September 11 terrorist attacks had a greater influence on the NYSE than the Paris attacks of November 13th had on the Euronext Paris. According to Davis (2011) when the NYSE reopened after the terrorist attack the market was hit by a 7.1% decline which is the biggest one-day trading loss in the history of the NYSE . At the end of the week the NYSE was down 14% which represent the biggest full-week losses in NYSE history, the total stock market damage during these 5 days of trading is estimated to be $1.4 trillion (M. Davis, 2011). According to my own data the NYSE average dropped 4.6% on the first day of trading after the terrorist attacks. The Euronext Paris on its turn dropped only 1.13% after the November 13th terrorist attacks in Paris. I suspect that this difference can be addressed by the fact that The 9/11 case had a bigger number of casualties, as well as larger amounts of property and infrastructural damage compared to the terrorist attacks on November 13th in Paris. These amounts of casualties and damage lead to great amounts of media attention which is crucial since share prices in efficient capital markets are only influenced by available information (D. Hillier, 2010)
Another explanation is that due to the frequency of terrorist attacks the capital markets are already restrained which decreases the influence of a single terrorist attack. This theory is explained by Pizam and Fleischer in their study about the correlation between Israel's tourism demand and terrorism (Pizam and Fleischer, 2002).
The recuperation time for the NYSE was almost three months whereas the recuperation time for the Euronext Paris was less than a week. This can be explained by the bigger number of casualties and infrastructural damage in New York compared to Paris. The larger scale of the attack led to an increase in media attention and thus more negative publicity, as is explained a few sentences back. However the recuperation time of the stock exchanges is also greatly influenced by the stock exchange trend in the weeks previous to the attacks. In the 9/11 case the stock exchange was already showing a downward trend for a couple of weeks before the attacks, which made a quick stock market recovery even harder. In Paris the stocks were moving slightly up in the weeks prior to the terrorist attacks which probably shortened the Euronext Paris' recuperation time.
The data presented in chapter four and five indicates that the tourism sector and the security and defense sector show a greater reaction to terrorist attacks than the aviation and airspace and banking and insurance sectors. The tourism sector is the most vulnerable sector when it comes to terrorist attacks. In both cases the tourism sector showed the biggest losses as well as the longest recuperation time of all measured sectors. This data aligns with the theory since "It has been a general observation of many terrorism researchers that whereas terrorist acts typically involve acts of destruction, the general goal of terrorism is not the destruction itself it is the production of fear" (Borum, 2007 p. 62). Fear itself is wat keeps tourists away resulting in a negative trend throughout the entire sector.

The security & defense sector in America gained tremendously after 9/11. The sector average gained almost 40% in 180 days after the attacks. The security & defense sector in France did not show a similar positive reaction to the November 13 Paris attacks. This lack of influence can be explained by a shortage of French companies which are solely active in the security and defense sector. Due to this shortage I also had to analyze companies which were partially active in the security and defense sector which might have restrained the security and defense sector gains caused by the terrorist attacks.
The aviation and airspace sector is only influenced when the terrorist attacks are connected to aviation and airspace like the 9/11 attacks. Otherwise the sector shows a reaction which is similar to the entire stock market. The banking and insurance sector seems to react to the amount of property and infrastructural damage. Therefore the banking and insurance sector shows a greater reaction to 9/11 compared to November 13 in Paris.

7. Conclusion

7.1 Answer to the research question

Based on the stated theory in chapter two combined with the data provided in chapter four and five this chapter aims to provide a descent answer to the following research question:
"**In what way are specific sectors of the domestic stock market financially influenced by Terrorism?"**
First of all the data presented in chapter four and five indicates that the tourism sector and the security and defense sector show a greater reaction to terrorist attacks than the aviation and airspace and banking and insurance sectors. The tourism sector is the most vulnerable sector when it comes to terrorist attacks. The total amount of stock market damage caused by terrorism is, with an initial loss of 4.6% in America and 1,13% in France, less than I previously expected it to be. The total amount of stock market damage seems related to the scale of the attack since the NYSE showed a more severe reaction to 9/11 than the Euronext Paris showed after the November 13 Paris attacks. The stock exchange recuperation time is also shorter than I previously expected. Again the recuperation time seems related to the magnitude of the attack since the NYSE needed more time to recuperated form 9/11 than the Euronext Paris needed after November 13. However the economic trend before the terrorist attacks might have influenced the recuperation time. Also the recent increase in terrorist attacks might have created a more resilient stock market since investors are aware of possible new attacks.

7.2 Limitations

Like every other study this study contains limitations which reduce the reliability and generalizability of the study. A limitation of this study is the amount of companies used per sector in order to accumulate a sector average. I used five companies per sector in order to reduce the amount of data gathering to a workable level. However by lowering the amount of companies per sector the sector average may not be representative for the entire sector. By expanding the amount of companies per sector the sector average reliability will increase. However increasing the amount of companies per sector would also increase the workload. In order to increase the reliability the amount of companies per sector has to be enlarged which goes hand in hand with a larger amount of time invested in gathering the data. This research also drew conclusions, about the financial influence on the domestic stock market caused by terrorist attacks, based on two cases. By increasing the amount of cases the results would become more reliable and thus more suitable for generalization.
Another important aspect in this study was the recuperation time of the stock exchange. I used an index in which the day before the attacks functioned as a base line. However the recuperation time of the stock exchange might also be influenced by the general economic trend at that point in time.

7.3 Possibilities for further research

As with any other study this study investigated only a certain aspect of a much larger subject. Therefore I hope future research will shed more light on the relation between terrorist attacks and the domestic stock market. This can be done by addressing the subject from different perspectives. During the fabrication of this thesis I found several interesting perspectives to further investigate the relation between terrorism and the domestic stock market.

The first possibility for further research is the relationship between the frequency of terrorist attacks and the changes in different sectors of the domestic stock market. Pizam and Fleischer (2002) conducted research about the relationship between Israel's tourism demand and the frequency of terrorist attacks. However this research focused only on tourism which provides a proper guideline for investigating the causal relationship between the frequency of terrorism and other stock market sectors.

Another possibility for further research is to what extend the magnitude of a terrorist attack influences the domestic stock market. Does the scale of a terrorist attack influence the domestic stock market proportionately or are the effects less or more than proportionately? In this case terrorist attacks should be categorized by the amount of destruction before analyzing the stock market. After the data has been accumulated a comparison between bigger and smaller terrorist attacks can be made.

The general economic trend is also a limiting factor within my research which creates possibilities for further research. The potential influence of the general economic trend can be examined by analyzing a specific timeframe of stock quotations before the date at which the terrorist attack occurred. The trend should then be used to adjust the stock quotations after the terrorist attack. The difference between the real number and the adjusted number can then be explained as a result of general economic trend.

8. Reference List

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