The Impact of Terrorist Attacks on the Capital Market in the Last Decade

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Abstract

Over the last decades, terrorism has become a global phenomenon which almost every society finds itself exposed to her from time to time. Terrorist organizations operate under common principles that can be called a terrorist strategy. Terrorist phenomenon, significantly affects the lives of citizens in different countries all over the world. In this study I tried to examine how terrorist events affect the capital market in general and the event characters, when the test for TA-100 index, was examined in the Israeli capital market. In the study I examined five tests:1. general impact of the terrorist event, 2. impact of event by location in relation to the green line, 3. impact of event by location within the green line, 4. comparison of terrorist events with fatalities to terrorist events without fatalities, 5. comparison of terrorist attacks with the IDF's response to terrorist events and without the IDF's response. From the research results we can see that terrorist events affect financial markets, but their influence is not uniform. The location of the event, the intensity of the event and the response after it, will determine the intensity of the impact of the event on the capital market.

Keywords: Terrorist event, Market Efficiency, Mean Market Adjusted.

1. Introduction

Over the last decades, terrorism has become a global phenomenon which almost every society finds itself exposed to her from time to time. Terrorism is a global problem that threatens many countries. Moreover, we find that most organizations use a similar course of action to achieve their political, ideological and religious goals. Terrorist organizations operate under common principles that can be called a terrorist strategy. Terrorist phenomenon, significantly affects the lives of citizens in different countries all over the world. In addition, it attracts the attention of many researchers, who deal with comprehensive studies for the development of various concepts and theories which designed to ease coping with the phenomenon of terrorism that has accelerated in recent years.

A study by Johnston & Nedelescu (2006) examined what is the effective response of policy and regulation in order to protect financial markets at terrorist attacks. The study focused on the terrorist attacks in New York (2001) and Madrid (2004). From the research result, they found that diversity, liquidity and firm financial markets are efficient tools to absorb the shock of the terrorist attacks, but in addition, the flexible response of the competent authorities, is also important. A new study by Karolyi and Martell (2010) examine the stock price impact of terrorist attacks, and identify 75 attacks between 1995 and 2002 in which publicly traded firms are targets. They find that human capital losses, such as kidnappings of company executives, are associated with larger negative stock price reactions than physical losses, such as bombings of facilities or buildings.

There is a fundamental difference between individual terrorist attacks, severe as it is, that occur in relatively long intervals and between continuous and ongoing terror. Individual events cause a temporary shock, which after it, within a relatively short time, returning to normal life and the public and private systems return to function reasonably. However, when terrorism is a constant and continuous phenomenon, it is also develops a sense of atmosphere of terror that causes fear, non-security and high level of non-certainty. Implications in this case may be more serious, Lifshitz (2009). In an earlier research, Chen and Siems (2004), dealt with the extent of the impact of permanent on terror attacks on economic costs, while examining 14 cases of terrorist attacks or war in the U.S. since 1915. Empirical findings indicate that over time the financial markets have become more durable than ever, and that the recover from the damage involved in terrorist attacks, is faster. Terrorism is a weapon commonly used all over the world. Terrorist organizations execute sabotage operations in different levels against different populations from soldiers to women and children, powered for international goals and criminal purposes. Today, terrorism is part of our life and like anything that has accompanied us, it's also had an impact on the economy in general and on the capital market in particular. Frey, Luechinger and Stutzer (2007) measured empirically terrorist damage through the indicator number of terrorist events.

In their study, they offer a new approach based on life satisfaction or subjective well-being data, which are collected separately from the data on terrorist activities, and therefore are not biased by the immediate impacts. The finding is that terrorism leads to a reduction in life satisfaction, individual citizens will need to get a substantial pay increase to compensate for the damage inflicted on terror. Impact of terrorism on the economy is divided into two parts: the direct impact and the indirect impact. The direct impact refers to industries and sectors that were affected in the market (such as airlines, tourism, investments, etc.). And the indirect impact refers to the negative atmosphere that the attacks soak, such as uncertainty and insecurity. Capital Markets combines both of these impacts: The relevant shares will suffer as a result of the direct impact and all of the stocks and indices will suffer from the uncertainty following the psychological impact of terrorism. Several articles have investigated the impact of terrorism on tourism. Terrorist events, in some countries, form a negative external impact on tourism in neighboring countries.

A study conducted by Drakos and Kutan (2003) examined the effect of terrorism on tourism in Greece, Turkey and Israel, in 1991-2000, in terms of market share, it was found that the impact of terrorism has caused a decline in Israel's market share by 1%, of Turkey on 5% and Greece at 9%.

More comprehensive work examined impacts of terrorism on the movement of tourists from the G-7, for a sample of 134 targets in 2001-2003, Llorca-Vivero (2008). Terrorism measured by the number of events or casualties in different versions. The results showed that the overall number of terrorist events did not have a significant impact on tourism, while the overall number of casualties did have a significant negative impact. His conclusion was that the intensity of terrorism affects the risk perception of tourists more than the occurrence of an event in itself.

Another study deals with the impact of terrorism on the tourism industry is done through internal flights market in the United States following the events of September 2001 Ito and Lee (2005). Calculations, in terms of miles - paying passengers, have shown that a temporary decrease in demand was at a rate of 30% and a constant decrease in demand by 7.4%, and 90% of overall decrease in demand are explained by the terrorist attacks. Drakos (2004) investigate the effects of terror attacks of 9/11 on a set of airline stocks listed at various international stock markets. The study found that conditional systematic risk has on average more than doubled which would have implications for portfolio diversification and the cost (and ability) of airlines in raising capital.

September 11 in 2001, constituted a decisive turning point in relation to the world against global terrorism. Although this is not the first terrorist attempt in the USA but it is known, no doubt, as an event that changed the face of the American nation and the face of the whole world. Several studies have tried to quantify the impacts of terrorist attacks on the U.S. economy (Becker and Murphy (2001); IMF (2001); Navarro and Spencer (2001); Lenain, Bonturi and Koen (2002); Hobijn (2002); Bram, Orr and Rapaport (2002); Saxton (2002a)) the estimates included non-recurring impacts and lasting impacts that can not be connecting. Research results indicate that the direct costs of the event totaled at about - 10-20 billion dollars, and losses of human capital as a result of death and injuries reached to 25-40 billion dollars. This loss is equivalent to 0.06% of total productive assets in the U.S. economy. There were also indirect losses caused by paralysis systems amounted to approximately 47 billion dollars.

Looking at history shows that terrorism negatively affected the Israeli economy. Besides the nature and severity of attacks, there is great significance also to the frequency of attacks. At a period of severe terrorism, the al – Aqsa Intifada, the capital markets reacted by a sharp declines. From Independence Day and to this day, citizens of Israel are experiencing firsthand the meaning of terrorism and its implications. The last intifada, starting in 2000, unlike previous terrorist events and the first intifada, was fatal and more focused from its predecessors, the Palestinians were able to hit Israel's major city centers, public transportation and more. During the five quarters by the end of 2001, the wave of terror caused a loss of about 2% of potential GDP, in 2002 – it caused a loss of about 3.1% to 3.8% of potential GDP (Bank of Israel, 2004: 21-24). According to another study, in early 2004, if it wasn't for the impact of three years of terrorism, the GDP per capita could be higher in at about 10% Eckstein and Tsiddon (2004). Economic impact of this battle is different from its predecessors and unusual of its proportion, in part because the Palestinians use means and methods that allow fatal harm Israeli citizens wherever they are. Intensification of the battle with the Palestinians led to an increase in defense expenses, when the Israeli public and the political system in Israel, which have supported since 1985 in reducing defense spending or at least limit it, demanded in these years to increase it.

Elder and Melnick (2004) analyzed the impact of Palestinian terrorist attacks on Israel's stock market prices and exchange rates in Israel using daily time series data from 1990 until 2003. They found that the attacks had a permanent effect on both stock and foreign exchange markets but location of terrorist attack had no effect in either of the markets.

Other studies examined the impact of terrorism on the Israeli economy. Fielding (2003a, 2003b) found in his study, which was done in the years1988-1999, that a total cessation of terror may result in multiplication, approximately, of the private savings rate, an increase of about 28% of investments in buildings, and to 15% invested in machinery and equipment. In another research that address the impact of terrorist events with casualties, found Haj-Yehia (2003) that a doubling of the number of killers in the "Green Line", in a given quarter, causing a decrease by 2.3% in the total private consumption in the year after that quarter.

Tourism industry also suffered a hit resulting from the wave of terrorism in Israel. Fleischer and Buccola (2002) found for research conducted in 1991-1999, an increase of two standard deviations of the terrorist attacks index reduced the demand for overnight stays of foreign tourists on average of 7.5% monthly. Another study found that the wave of terrorism that began in September 2000 resulted in a decrease of one third of the number of incoming tourists, on a monthly average in the period up to 2003 compared to mid nineties Saleh (2003). On the side of losing sectors, there are also earning sectors from terrorism.

Berrebi and Klor (2005) examined changes in stock prices of Israeli companies traded in U.S. stock prices than changes of similar American companies, from the beginning of 1998 to September 2001, and found that the terrorist events have a positive impact on market value of the security of Israeli companies and a negative impact on the value of Israeli companies market that is not secure.

Eldor, Hauseri and Melnick (2005) test a sample of 460 terrorist attacks and 58 targeted killings in 2000 to 2003, and examined what extent the impact of terrorist attacks and the policy of anti - terrorism on financial markets is permanent on an economy that has experienced terrorism for a long time and with almost no break. The main results are, stock prices go down in response to the terrorist attacks, stock prices hardly affected by the targeted killings of these attacks that were made in response to terrorist attacks and accumulation of terrorist attacks causing investors to switch from the stock market into more solid investment channels such as short-term government bonds. Further research in the field was done by Zussman and Zussman (2005). They explored means of targeted killings to eliminate terrorism, by examining the response of the Israeli stock market following the assassinations of Palestinian terrorists in the Al-Aqsa Intifada. Based on the information of more than hundred targeted killings during the intifada, they found that the capital market reaction on the killings depends on two factors: the target seniority and his rank - political or military. The stock market does not respond to the assassinations of junior but strongly reacts to the assassinations of senior goals. Also, try to harm a political senior does not help to reduce terrorism and a hit on a military target, contributes to reduce terrorism.

2. Methodology

To test the degree of impact of terrorist attacks on the capital market I used the model: Mean Market Adjusted (MMA). The Abnormal Market Return (AMR) is defined as a gap between the actual market return to the conditional return. Implementation of the return stock can be called "abnormal", only in relation to the return defined as "normal" or conditional. The model shown here is a common model in use of event studies method. The abnormal market return on day t, defined as the difference between actual return to conditional return.

1. $AMR_t = R_{Mt} - E(R_{Mt}|I_t)$

When:

AMR_t - the abnormal market return on day t.

R_{Mt} - the actual market return on day t.

$E(R_{Mt}|I_t)$ - normal return on market index, given the market information on day t, I_t.

To check the returns by the model, I will check two windows: 1**.** Estimation window (L1) - In this window I will estimate the statistical variables of the sample**, 2.** Event window (L2) - in this window I will check the impact of the event on the market returns in the sample.

Now I will define a number of notations: t = 0 as the day of the event, t = T2 +1 through t = Tn as the event window (L2), and t = T1 to t = T2 as the estimation window (L1). So that the estimation window L1 = T2-T1 +1, and the size of the event window is L2=Tn-T2.

2. $$E(R_{Mt}|I_t) = \frac{1}{L1}\sum_{t=T1}^{T2} R_{Mt}$$

One of the most common techniques for analyzing market behavior and its response to different events over time is monitoring the average abnormal return and the cumulative average abnormal return. The Average Abnormal Market Return (AAMR) is calculated cross section by averaging the market's abnormal return for a certain time period relative to the zero date.

3. $$AAMR_t = \frac{1}{N}\sum_{i=1}^{N} AMR_{it}$$

When:

AMR_{it} - abnormal market return of event i on day t.
N - number of events in the sample.
The Cumulative Average Abnormal Market Return (CAMMR) is measured as the sum of the average abnormal returns over a period of time. Measurement period generally begins at a point where there is an expectations to a terrorist event that reflected in market returns (T2 +1) and ends at defined period according to the purpose of the study (Tn).

4. $$CAAMR_{T2+1,Tn} = \sum_{t=T2+1}^{Tn} AAMR_t$$

Behavior of the CAAMR during the event is of great importance, since that the CAAMR indicates market behavior after the deduction of historical fluctuations. The average is greatly reduces the effect of macroeconomic responses, unique or unusual reactions in the market. By isolating abnormal reactions and isolating the market fluctuations, CAAMR supposed to reflect the market's reaction to the investigated event. Statistical significance of the average abnormal return will be determined based on usual literature t test.

The t-statistic for the AAMR is given by:

5. $$T_{AAMR_t} = \frac{AAMR_t}{\frac{1}{N}\left\{\sum_{i=1}^{N}\left[\frac{1}{K-2}\sum_{t=1}^{K}\left(AMR_{it} - \overline{AMR}_{it}\right)^2\right]\right\}^{1/2}}$$

When:

T_{AAMR_t} - t-statistic of the average abnormal market return of the sample in time t

K - Number of observations during the estimation period

$\overline{AMR}_{it}$ - Average abnormal market return during the estimation period

The denominator in the equation above is the average of the root amount of the AMR variances of the events in the sample. The expression in the brackets describes the variance abnormal return for event i as calculated in the estimation period. Statistical significance of cumulative average abnormal return is given by:

6. $$T_{CAAMR_t} = \frac{\sum_{t=T1}^{Tn} AAMR_t}{\frac{1}{N}\left\{\sum_{i=1}^{N}\left[\frac{1}{K-2}\sum_{t=1}^{K}\left(AMR_{it} - \overline{AMR}_{it}\right)^2\right]\right\}^{1/2}}$$

When:

T_{CAAMR_t} - t-statistic of the cumulative average abnormal return on time t.

3. Research

For the research work, there was a wide use on news web sites, while doing a precise record of the terrorist event character. The study focuses on 116 terrorist events occurred in Israel over the last decade. For each terrorist event, 311 days of the Tel Aviv 100 Index Return (TA100), which was selected to represent the Israeli capital market, have been collected. In the Sample I characterize the terrorist event by several features: Events within the Green Line compared to events outside the Green Line, events by location within the Green Line, events with fatalities compared to events with no fatalities and events with response compared to events without response. Based on the foregoing, the purpose of this research is to examine how capital markets respond to different terrorist events by segmentation of the sample.

3.1 Looking at the terrorist event in a general way

Terrorist event is intended to sow terror and fear among the public that is attacked and cause him demoralized and confusion and disrupted his daily life. Sometimes it's even an act of revenge carried out a bloody cycle of violence. Much of the terror weapons is the massive publicity he gets in the public, through printed and electronic media. Terrorism hits the "soft underbelly" of the country (citizens) to force Israel to surrender the demands of terrorists. There is also the foundation of terrorism undermining the basis of current government's legitimacy, that it is unable to ensure the safety of its citizens to maintain public order. In this section, there will be an examination of the market's response in light of the connection with the TA-100 index in a general way according to the abnormal return. So we review how terrorism affects an investor's response to the financial markets for the entire sample, a total of 116 events. Table 1 and Figure 1 describe the influence of terrorism in general.

	All The Events		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-0.87%	-1.71	48.7%
-3,-1	-0.45%	-1.37	40.2%
0	-0.23%	-1.22	33.8%
+1	-0.07%	-0.37	36.2%
+1,+30	-0.53%	-0.51	51.8%

Table 1: Impact of terrorist events on the Tel Aviv 100 Index for the whole sample. When the $CAAMR_{i,j}$ describes the cumulative average abnormal return in the interval from day i to day j, t-Value represents the t statistic for the CAAMR on the relevant range and the PCAAMR represents the percentage of stocks with positive cumulative return on the given range.

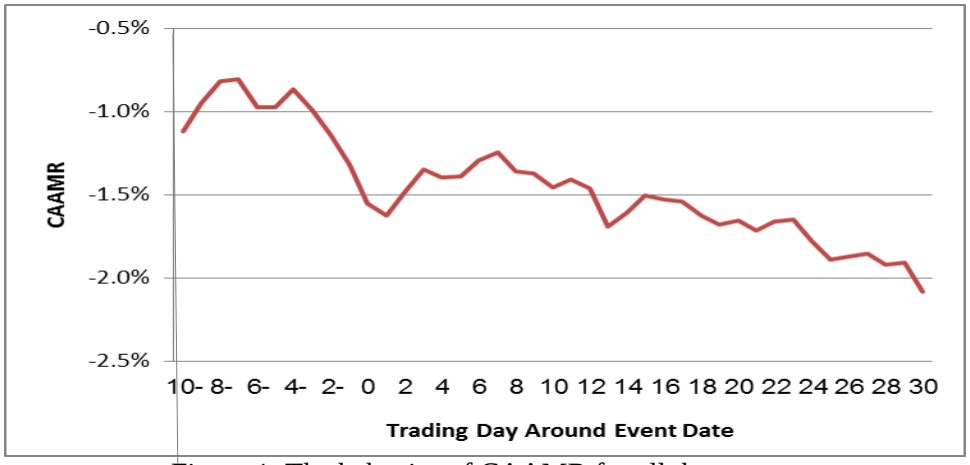

Figure 1: The behavior of CAAMR for all the events.

Figure 1 and Table 1 shows that during the 10 days before the terrorist event, the CAAMR is down by 1.32%, indicating that during the terrorist events the capital market was negative atmosphere so he decreased even before the event. Even on the day of the event, there is also another drop at AAMR. On this day, only for 33.8% of the sample firms have positive abnormal return.

Negative trend continues during the 30 days following the terrorist event, when investor's expectations come true and they fear more terrorist event that may occur during this period. From an observation in a general way, we can see that a terrorist event creates a negative atmosphere on the capital market before the event and thereafter. The event causes uncertainty and harm personal safety which is also expressed in market declines.

3.2 Impact of the terrorist event by event location in relation to the Green Line

The Green Line is the truce line of the state of Israel with Egypt, Jordan, Syria and Lebanon, as determined at the truce agreements in 1949. It was not an official border but a disengagement line between Israel and its neighbors. Most parts of the Green Line are used today as an administrative border between territories which Israel has sovereignty on them, and between managed areas by Israel through military rule or according to agreements with the Palestinian Authority. The question of whether Israel should withdraw back to the Green Line is one of the major controversies of the Palestinian – Israeli conflicts and in the internal political discourse.
In this section there will be an examination of the market response in light of the event location relative to the Green Line; in particular I will check whether investors react differently to events inside the Green Line and to events outside the Green Line. The sample contains all 116 terror events as follows: 81 terrorist events within the Green Line and 35 terrorist events outside the Green Line. Table 2 and Figure 2 describe the impacts of terrorism by the event location relative to the Green Line.

	Within the Green Line			Outside the Green Line		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-0.62%	-1.05	41.8%	-1.11%	-2.32	48.4%
-3,-1	-0.62%	-1.61	43.0%	-0.28%	-0.90	46.2%
0	-0.45%	-2.02	30.8%	-0.01%	-0.08	39.2%
+1	-0.31%	-1.39	33.8%	0.17%	0.92	41.0%
+1,+30	-1.80%	-1.48	54.4%	-0.16%	-0.16	52.1%

Table 2: Impact of the terrorist event by event location in relation to the Green Line.

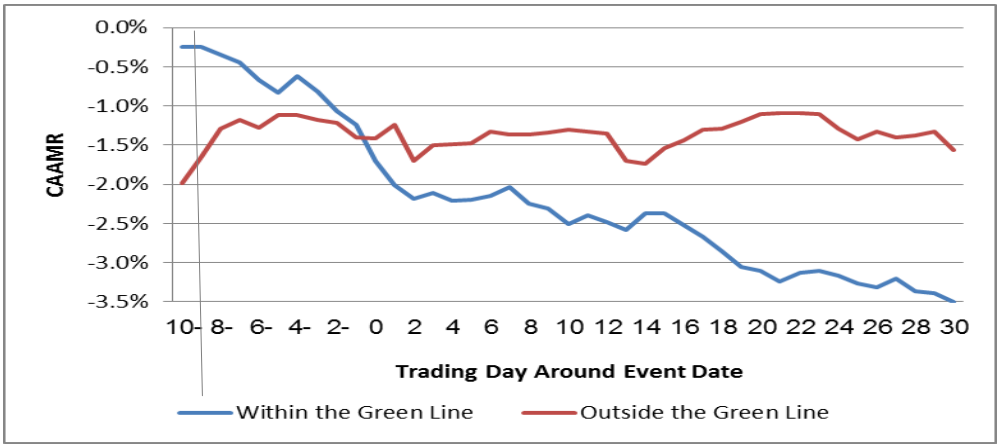

Figure 2: Impact of the terrorist event by event location in relation to the Green Line.

Figure 2 and table 2 shows that during the 10 days before the terrorist event, the CAAMR decreases at events that take place within the Green Line and does not change at events that take place outside the Green Line (except CAAMR-10 =- 1.99%). On the day of the event, the market reacts in an abnormal decline of 0.45% at events inside the Green Line, and with no changes at events outside the Green Line. Investors, in this case, react strongly due to the severe hit at his economic and personal safety when the attack takes place within the Green Line. Even in a Period of 30 days after the event, the CAAMR decreases by 1.8% at events inside the Green Line, and with no changes at events outside the Green Line. A possible explanation for differences between the groups is that the area outside the Green Line is in constant fighting, and in this war there are soldiers and settlers.

The Israeli public has developed strength in relation to the fighting that take place over there, except for exceptional events. But a terrorist event that takes place within the Green Line marks a serious blow in the public's personal safety, so they react in a capital market declines.

3.3 Impact of the terrorist event by location within the Green Line

An area, where an event took place, can lead to a different response depending on its location. The State of Israel can be divided into four main areas: northern, central, southern and Jerusalem area. 1. The northern region, over the past decade, was accompanied by rocket attacks from Hezbollah in Lebanon, when the prominent event was the Second Lebanon War in July 2006 and the suicide attacks on buses during the Intifada. 2. At the central region there were suicide bombings and attempted kidnapping during the Intifada. 3. At the southern region, inside the Green Line, in recent years were constant rocket attacks. The reason is that during this time, the Hamas (Islamic Resistance Movement) organization could increase its rocket range and used it harm the southern cities of Israel. 4. Over the past decade in the Jerusalem area there were numerous kidnapping attempts, suicide bombings and murders. Because of the importance of the city, as the capital city of Israel's and as holy to all religions, I took the test in this city as a separate zone.

In this section I will check whether investors react differently, in different regions, on terrorist events inside the Green Line. The sample contains 81 terrorist events inside the Green Line as follows: 18 events in the North, 24 events in the central region, 19 events in the southern region and 20 events in the Jerusalem area. Table 3 and Figure 3 describe the impacts of terrorism by location within the Green Line.

	Jerusalem			North		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-1.65%	-2.25	41.7%	-0.01%	-0.02	52.5%
-3,-1	-0.44%	-0.92	40.2%	-0.62%	-1.39	40.8%
0	-1.37%	-4.96	25.4%	-0.58%	-2.27	31.9%
+1	-1.13%	-4.09	28.5%	-0.34%	-1.31	47.8%
+1,+30	-2.59%	-1.71	52.8%	-0.08%	-0.05	53.7%

	Center			South		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-1.37%	-1.70	48.7%	0.54%	0.63	51.8%
-3,-1	-0.95%	-1.81	42.8%	-0.48%	-0.86	52.7%
0	-0.98%	-3.23	51.9%	-0.12%	-0.38	45.7%
+1	-0.14%	-0.45	56.5%	0.37%	1.12	42.8%
+1,+30	-1.77%	-1.06	45.7%	-1.89%	-1.06	50.7%

Table 3: Impact of the terrorist event by location within the Green Line.

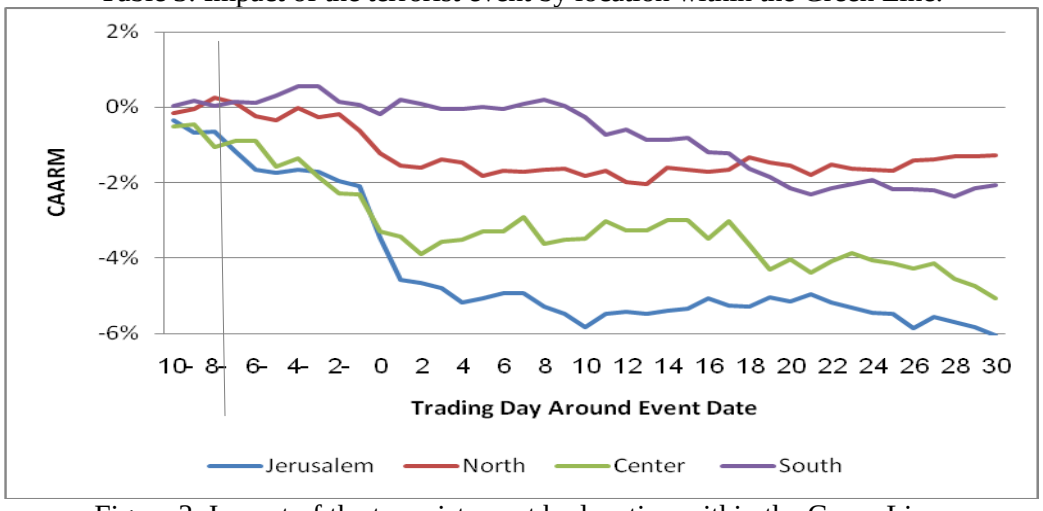

Figure 3: Impact of the terrorist event by location within the Green Line.

Figure 3 and Table 3 shows that during the 10 days before the terrorist event, the CAAMR decreases in the center region and in Jerusalem and does not change in the north region and in the south region. On the day of the event, the AAMR decreases in all regions, however in the Jerusalem region and in the center region, there is a sharper decline. A day after the event there is another sharp decline in the Jerusalem region and no significant change in the other areas. One possible reason is that the public gives great importance to this region.
During the 30 days following the event there is a negative trend in all regions. Attack causes a general negative atmosphere which reflected in the declining returns of the index.

General observation on terrorist event based on performance area, we can see that the greatest effect was in the Jerusalem region and in the center region. The reason is that because damage to these two regions marks, for most of the Israeli public, severe hit in the economic and personal security. Jerusalem is the capital city and therefore it represents a symbol for the public, as well as for terrorist organizations that trying to hurt her. The central region represent the center of financial strength of the State of Israel and damaging it, represents damage the economic security of the public.

3.4 Comparison between terrorist events with no fatalities and terrorist events with fatalities.

Terrorist organizations execute attacks to harm the country's soft underbelly, i.e., its citizens. As there are more fatalities in a terrorist event, it is considered to be of higher quality and more successful. In recent years the State of Israel invested enormous efforts to protect its citizens from terrorist organizations through: targeted assassinations, taking over the control areas, a separation fence to prevent infiltrators, protected shelters etc. As a result most of the attempts of attacks are disabled. The attacks that the terror organizations managed to carry out cause in some to deaths, in some to injuries or no casualties at all. At this section I will check whether the market reacts differently to an event with fatalities and to an event without fatalities. The sample contains all 116 terror attacks as follows: 92 terrorist events with fatalities and 24 terrorist events without fatalities. Table 4 and Figure 4 describe the impact of the terrorist event according to terrorist event with fatalities and without fatalities.

	Attacks with casualties			Attacks without casualties		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-1.73%	-3.06	51.3%	-0.68%	-1.46	47.3%
-3,-1	-0.33%	-0.88	41.3%	-0.90%	-2.96	43.3%
0	-1.31%	-6.16	29.3%	-0.12%	-0.68	39.3%
+1	-0.13%	-0.63	48.3%	0.01%	0.07	47.3%
+1,+30	-1.19%	-1.02	49.2%	-0.44%	-0.46	51.3%

Table 4: impact of the terrorist event according to terrorist event with fatalities and without fatalities

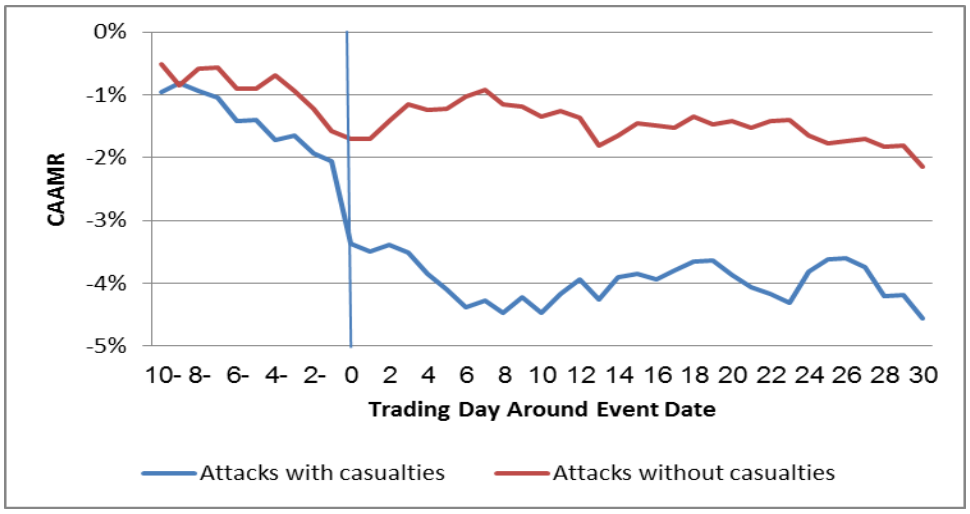

Figure 4: impact of the terrorist event according to terrorist event with fatalities and without fatalities

Figure 4 and Table 4 shows that during the 10 days before the terrorist event, the CAAMR, in the two types of groups, descending similarly. The decrease is caused by a negative atmosphere in the public following the struggle with terrorist organizations. On the day of the event, it can be seen that there is a sharp decline by 1.31% in the abnormal return in events with fatalities. This decline continued during the six days following the event when the CAAMR down as 1.01%, and afterwards the CAAMR stabilized. In events without fatalities, there is not a significant change on CAAMR on the day of the event and at the next period. A comparison between two types of groups is shown that an event with fatalities, impact the investing public during the day of the event and the next period. When the event causes serious atmosphere in public, it is also referred to the capital market. While in an events with no fatalities, the capital market quickly adapts and maintains the stability in the period after it.

3.5 Comparisons of terrorist events with response to terrorist events and without response.

The IDF's response to terrorist events may be due to several reasons including two main reasons: raising public morale and military effect. First type of events is designed to mute public and usually have no military effect, for example: damage to abandoned houses, artillery towards open areas, etc. Whereas reaction with military effect is a strategic event aimed to hurt terrorist organizations, for example: attacks on terrorists and their senders, targeted killings, making arrests, taking over Strategic areas, closures etc. At this section I will examine whether the market reacts differently events with the IDF's response to events and with no response. The sample contains all 116 terror attacks as follows: 69 terrorist events with a response and 47 terrorist events without a response. Table 5 and Figure 5 describe the impact of the terrorist event according to terrorist events with a response and terrorist events without a response.

	Event with a response			Event without a response		
Time Interval	CAAMR (%)	t - Value	PCAAMR(%)	CAAMR (%)	t - Value	PCAAMR(%)
-10,-4	-1.22%	-1.81	57.3%	-0.57%	-1.11	46.3%
-3,-1	-0.30%	-0.68	43.6%	-0.52%	-1.56	38.2%
0	-0.82%	-3.19	28.5%	-0.06%	-0.33	44.3%
+1	-0.10%	-0.37	41.8%	-0.06%	-0.31	35.7%
+1,+30	0.89%	0.64	54.4%	-1.07%	-1.01	46.3%

Table 5: impact of the terrorist event with a response and without a response.

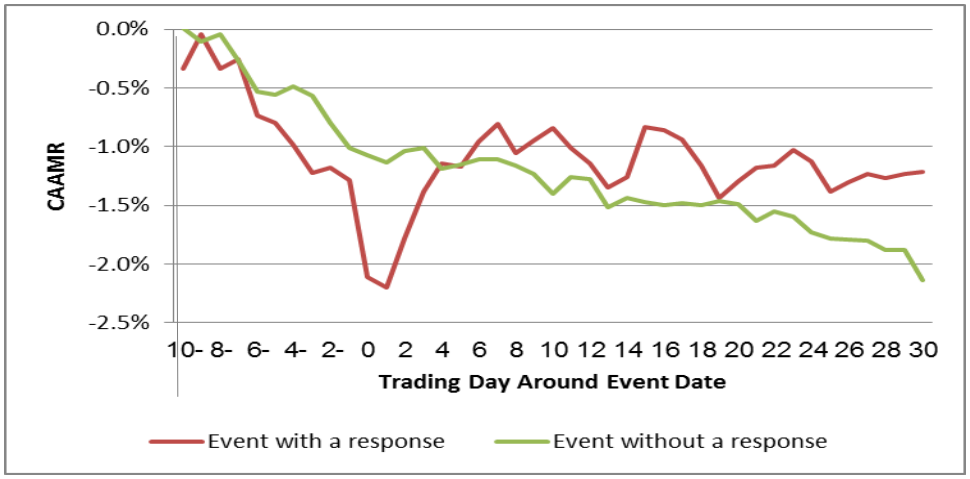

Figure 5: impact of the terrorist event with a response and without a response.

Figure 5 and Table 5 shows that during the 10 days before the terrorist event, the CAAMR decreases in the two types of groups similarly. The decrease is due to the negative atmosphere existing in the public following the struggle with terrorist organizations. On the day of the event, the AAMR is down by 0.82% in an event with response and with no change in an event without a response. A possible explanation is that the IDF responds to most major events of wide public awareness and these events cause damage to economic and financial situation of the public.

During the seven days following the event, accompanied by the IDF's response, the CAAMR rises at 1.3% and then stabilized in events with response. Events without response have a negative trend during the period after the event. A comparison between two types of groups is shown that in both events there is a similar drop in the period before the event, and differences between the groups is on the day of the event an on the period following the event. In events without response, there is a negative atmosphere and therefore has a slow but continuous decline in the cumulative abnormal return. In events with a response, there is a sharp drop on the day of the event, but with the IDF's response, the public morale is rising, which also reflected price increasing in the capital market.

4. Conclusions

Over the last decades, terrorism has become a global phenomenon which almost every society finds itself exposed to her from time to time. Terrorist organizations operate under common principles that can be called a terrorist strategy. Terrorist phenomenon, significantly affects the lives of citizens in different countries all over the world, so it attracts the attention of many researchers, who deal in comprehensive studies for the development of various concepts and theories designed to facilitate coping with the phenomenon of terrorism which has gained momentum in recent years. In this study I tried to examine how terrorist events affect the capital market in general and by the event characters, when the test for TA-100 index, was examined in the Israeli capital market. In the study I examined five tests:**1**. general impact, **2**. impact of event by location in relation to the green line, **3**. impact of event by location within the green line, **4**. comparison of terrorist events with fatalities to terrorist events without fatalities, **5.** comparison of terrorist attacks with the IDF's response to terrorist events without the IDF's response.

In a general examination it can be seen that a terrorist event creates a negative atmosphere on the capital market before the event and thereafter. The event causes uncertainty and harm personal safety which is also expressed in market declines. Under the influence of placement in relation to the Green Line, I received that there is a difference between the groups. While the market reacts moderately in relation to terrorist events outside the Green Line, he responds in sharp declines in terrorist events within the Green Line. A possible explanation for differences between the groups is that the area outside the Green Line is in constant fighting and the Israeli public has developed strength in relation to the fighting that take place over there, except for exceptional events. But a terrorist event that takes place within the Green Line marks a serious blow in the public's personal safety, so they react in a capital market declines.

In the third test I wanted to test whether the market reacts to all events within the Green Line in equal measure. In the test, I focused on four areas in Israel: Northern, Central, Southern and area of Jerusalem. From the test results, we can see that the greatest effect was in the Jerusalem region and in the center region. The reason is that because damage to these two regions marks, for most of the Israeli public, severe hit in the economic and personal security. Jerusalem is the capital city and therefore it represents a symbol for the public, as well as for terrorist organizations that trying to hurt her. The central region represent the center of financial strength of the State of Israel and damaging it, represents damage the economic security of the public.

A comparison between terrorist event with fatalities to terrorist event without fatalities is shown that an event with fatalities, impact the investors during the day of the event and the six days after it. When the event causes serious atmosphere in public, it is also referred to the capital market. While in an events with no fatalities, the capital market quickly adapts and maintains the stability in the period after it. In the last test, I examined the comparison of terrorist events with the IDF's response to terrorist events without the IDF's response. A comparison between two types of groups is shown that in both events there is a similar drop in the period before the event and differences between the groups is on the day of the event and on the period following the event. In events without response, there is a negative atmosphere and therefore has a slow but continuous decline in the accumulated abnormal return. In events with a response , there is a sharp drop on the day of the event, but with the IDF's response, the public morale is rising, which also reflected price increasing in the capital market. In a general examination it can be seen that terrorist events affect financial markets, but their influence is not uniform. The location of the event, the intensity of the event and the response after it, will determine the intensity of the impact of the event on the capital market.

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