Drone Strikes and Stock Market Behavior: Empirical Evidence from Pakistan

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Abstract

This study aims to examine the effect of US drone strikes on stock returns in the context of Pakistan. The sample of the study consists of pro-active drone strikes, executed by the US forces against terrorist operating in Pakistan. The study use event methodology to determine the impact of each drone strike on the Pakistani equity market. The theoretical underpinning of the study is provided by the recent behavioral finance literature on stock market anomalies. The study incorporates twelve major drone strikes during the period of 2004-2015. The event has been selected on the basis of significant media coverage, including leading national and international news channels. On average the findings of the study exhibit a statistically significant positive equity market reaction to prominent successful drone strikes. The initial market response to most drone strike remains negative and then revives according to the event specific characteristics and expected ramification. Unlike the various previous studies expounded in the literature on terror effects, this is the first study to examine the market reaction to prominent drone strikes as counter-terrorism operations.

Keywords: Drone Strikes, Event Study, Counter terrorism

Introduction

Conflicts have the detrimental effect on the social and economic wellbeing of the people. Most often these conflicts result in violent behavior like terrorism. These terrorist activities generate terror and fear in the community which, in turn, increase the propensity of risk and uncertainty. The increased level of risk and uncertainty adversely affect the stock market behavior, foreign investment and other economic activities (Wagner, 2006). The word terrorism is a subjective phenomenon and the literature contains different definitions. However, most of the definitions agreed on two principle components and posit that an event is considered terrorism based on its publicity and

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severity(Enders, Sachsida, & Sandler, 2006; Llusa & Tavares, 2007). The terror events against combatant targets create economic and political turmoil. Hence, the terrorism is an act of hostile violence intended to disrupt the economic and political gains(Enders et al., 2006). There are numerous studies expounded in literature which posits about the adverse effect of these terror events. Particularly, these events destabilizethe social and economic wellbeing of the people. However, limited evidence exists about the effect of anti-terrorism acts by a government.

As the terror event adversely affects the economic wellbeing, one would expect that anti-terrorism acts should result in inverse impacts. These counter-terrorism acts lead by the government would have a positive impact on the stock market behavior, foreign investment and other economic activities(Afik, Lahav, & Mandelzweig, 2016). The literature in this regard offers no such findings to determine the effect of these counter-terrorism effects on the stock market. According to best of our knowledge, there is only one study conducted by(Afik et al., 2016), which addresses this issue and reveals a positive impact of anti-terrorism acts on stock market return in the context of Israel.

This paper on the other hand study the economic effects of anti-terrorism acts lead by United State of America in Pakistan. After 9/11 the US started its anti-terrorism operations, especially in Afghanistan. The geopolitical position of Pakistan as a neighbor country of Afghanistan also remains hostile and severely affected. Accordingly the US government considers the tribal areas of Pakistan as the safe havens for Al-Qaida and Taliban militants. Therefore, US government started drone strikes in Pakistan to chase the Al-Qaida and Taliban militants' operating from Pakistan. Regardless of the fact that Pakistan continuously protests these strikes and considers it as the violation of its sovereignty. Although the substantive literature suggests that counter-terrorism acts lead by the government agencies positively impacts the stock market behavior. However, evidence remains sporadic to suggest that what will be the impact when counter-terrorism acts are led by a foreign country. Therefore the main concern of the study is to investigate how the US drone strikes effect stock market behavior of Pakistan besides countering the threat of terror?

The rationale of the study is provided by(Afik et al., 2016), which examine the inverse effect of anti-terrorism acts on stock market return. The findings of the study reveal that anti-terrorism acts led by Israeli forces positively impact the respective stock market behavior and result in abnormal returns. However, the study discusses these impacts in the context of anti-terrorism acts led by native forces not by a foreign country forces.

This study aims to investigate the economic effect of anti-terrorism acts led by foreign country forces. Therefore, one would expect that such events may have a negative effect on the stock market of host country. Because, although these comeback operations by foreign forces mitigate the risk and uncertainty but also have a negative impact on the sovereignty of the host country. Therefore, it may have a negative impact on the mood of the investor which in turn may adversely impact the stock market returns. The current study therefore; aim to determine that how drone strikes carried out by US forces impact the stock market behavior of Pakistan.

Literature Review

There are numerous studies in various context which examine the negative terror effects and we limit our discussion here to a few examples only.Johnston and Sarbahi (2016), examines the historical trends of international terrorism and their impact on the economy. The findings of the study suggest that terrorism has a negative effect on economic growth. Another study conducted by(Johnston & Sarbahi, 2016), posit that terrorism effect the investor confidence and reduce spending incentives due to high propensity of risk and uncertainty. The empirical evidence of terrorism and its negative impacts on the stock market can be found in the past studies conducted by(Arin, Ciferri, & Spagnolo, 2008; Aslam & Kang, 2015; Barros & Gil-Alana, 2009; Karolyi & Martell, 2010; Shahzad, Zakaria, Rehman, Ahmed, & Fida, 2016). The study of(Karolyi & Martell, 2010), is a comprehensive investigation incorporating 75 terrorist attacks on publically listed firms located in 11 different countries between 1995 and 2002. The study findings revealed that there is -0.83 percent average change in stock prices for the entire sample.

As our investigation is in the context of Pakistan, we discuss here a few examples of related prior research.Shahzad et al. (2016), observes causal and integration relationship among foreign direct investment, terrorism and economic growth in Pakistan. The findings of the study suggest that terrorism has a deteriorating impact on FDI and economic growth in Pakistan. Another empirical investigation conducted by(Shahbaz, Shabbir, Malik, & Wolters, 2013), examines the causal relationship between economic growth and terrorism in Pakistan by including trade and capital openness in the production function. The result of the study confirms the presence of long-run relationship between economic growth and terrorism. The study also suggests that feedback effect is revealed between trade openness and terrorism, while there is a bidirectional relationship between terrorism and capital. The

next most recent study about the impact of drone attacks on terrorism in Pakistan and Afghanistan has been conducted by(Johnston & Sarbahi, 2016). The study examines how drone strikes carried out by US forces increases the propensity of terrorism in Pakistan. The study although is not about assessing the consequences of these strikes on economic events, however, it does reveal that such strikes negatively impact the psychological wellbeing of the inhabitants and increase the risk of terrorism in Pakistan and Afghanistan.

Extending this notion(Feridun & Shahbaz, 2010)have extensively reviewed related literature which focused particularly on the impact of defense spending on economic growth. These studies have yielded mixed results. For instance(Faini, Annez, & Taylor, 1984)suggests that defense spending has a positive effect on economic growth in less-developed countries. Mover over on the other hand studies such as(Arora & Bayoumi, 1993; Bayoumi, Hewitt, & Schiff, 1993; Dunne & Nikolaidou, 2012)suggested that a fall in military spending leads to an increase in economic growth. Accordingly(Malik & Zaman, 2013), explored the influencing directions and magnitude between macroeconomic factors and terrorism incidence in Pakistan over a period of 1975–2010. Datawas analyzed by integration theory, Granger causality test, and variance decomposition. The result reveals that macroeconomic indicators act as an important driver for the increase in terrorism in Pakistan. The results indicate that macroeconomic factors i.e., population growth, price level, poverty and political instability have a long-run relationship with terrorism incidence in Pakistan. However, income inequality, unemployment, and trade openness have no long-run relationship with the terrorism incidence in Pakistan.

Substantive literature reviewed in the context of Pakistan however, reveals no such study which directly investigates the impact of US drone strikes on stock market behavior. Furthermore, the inverse impact of counter-terrorism acts has not been discussed in the context of Pakistan. This study aims to analyze the effect of counter-terrorism acts on stock returns. The study propose that how proactive defense drone strikes performed by the US military and government agencies with significant media coverage effect the stock market returns in Pakistan.

Data &Methodology

As opposed to mass data event studies on terrorism, the current study focus on fewer drone strikes which seems to be outstanding in terms of numbers of terrorist killed and audacity. The drone strikes selected for this study were not carried out as a response to a particular terror attack. The strikes were carried out under a long-term policy, adopted by US

governments, to purposefully attack terrorists endangering the US troops in Afghanistan. Therefore, the timing of each drone attack was determined by target availability and operation reasons and not by urgency to some terror act. This underlying characteristic allows to presume no pre-event effects and to select event window on the day the event first became publically known. However, by considering the principle of precision, current study tests for pre-event effects by examining a five-day event window prior to the event.

The rationale to select only outstanding drone strikes is due to the fact that in recent year; especially after 2005 drone strikes became a frequent event in Pakistan. The main source of data used in this study was accessed through the media. Starting our research for drone strikes from 2004, the study only focuses on strikes with significant media coverage in leading national and international channels. This criterion is aligned with the objective of the study to determine the long-term effect of these strikes on stock prices. Therefore, drone strikes with limited media coverage have been excluded (such as strikes with single day coverage in a domestic paper).The result is a list of twelve major drone strikes during the period of 2004-2015.

The study use PSX-100 a value-weighted index of the 100 largest firms listed on Pakistan Stock Exchange, as a measure of the equity market performance. The source of the data is provided by PSX website. For each drone strikes, time series data of 127 daily observations, of which the last 26 days begin five days prior to the strike date and 20 days after the strike date was collected. Moreover, the first 101 days and 20 days before the event date was collected to assess the effect of drone strikes on stock market return in the context of Pakistan.
Event study methodology has been adopted which was described in the study of(MacKinlay, 1997). The event methodology has been used by various other researchers. We start event methodology by the definition of abnormal returns (AR) at time t of event i:

$$ARi,t = ri,t - E(r,t/Xt) \qquad (1)$$

Where i is the event while t=0 is the day in which event is first announced in the public through official acknowledgment or media, ri,t is the actual return on time t related to event j, $E(r,t/Xt)$ is the normal return for the same time and event and X_t is the conditioning information for the normal return model. The constant mean return is used to estimate normal common return model. Though the model adopted is most simple, butBrown and Warner (1985), analyzed that its results are often similar to those of more complicated models. The parameters for the normal model are better estimated at a "normal" period, usually in an estimation time window prior to the event window.

For the estimation period we use 101 trading days $t \in [-120, -20]$, where t= 0 is the announcement day. This length of period is selected due to two reasons, first that it is long enough for statistical estimation on the one hand and second shorter enough to avoid earlier returns, moreover than 120 days prior to the drone strike announcement as it may be related to other informational events and thus contaminate the selected observations. In case the event, drone strike happen at a non-trading day, first trading day was used following the news announcement.

The mean return model presumes a constant drift μt for the event I widow and random innovation ζi,t

$r = \mu i + \zeta \mathrm{i}, \mathrm{t}$ (2)

Where:

$E(\zeta \mathrm{i}, \mathrm{t}) = and\ var(\zeta \mathrm{i}, \mathrm{t}) = \sigma 2\zeta \mathrm{i}$ (3)

Where: μi and $\sigma 2\zeta$ state sample mean and variance of the returns in the estimation period $t\epsilon\ [-120, -20]$ respectively.

The abnormal return estimation assumes $(ri, t\ /\ Xt\ ) = \mu, therefore$:

$ARi, t = ri, t - \mu i$ (4)

In the window $t\epsilon[-5, -25]\ days$. It is conventional to assume that drone strike remains secret and reported in media prior to t=0, therefore, a pre-event window of five days has been selected. After pre event window cumulative abnormal return for the event of interest $t\epsilon\ [k, \iota] days$:

$CARi\ (k, \iota) = \sum_{t=k}^{\iota} ARit$ (5)

The increases in estimation period length, the variance of cumulative abnormal return is:

$\sigma_i^2\ (k, \iota) = (\iota - k + 1)\sigma_{\zeta i}^2$ (6)

A normal distribution for the cumulative abnormal return has been assumed to test the hypothesis:

$CARi\ (k, \iota) \backsim N(0, \sigma_i^2\ (\mathrm{k},\iota))$ (7)

Selected N individual events are aggregated by taking average CAR (k,ι) for the same time period:

$\overline{CAR}\ (\mathrm{k},\iota) = \frac{1}{N} \sum_{i=1}^{N} CARi\ (k, \iota)$ (8)

Where the average cumulative abnormal return variance is estimated as:

$var\overline{CAR}\ (\mathrm{k},\iota) = \frac{1}{N2} \sum_{i=1}^{N} \sigma_i^2\ (k, \iota),$ (9)

Where it is supposed that the drone strikes independent, having this assumptions inferences about $\overline{CAR}$ can be inferred using the following normal distribution"

$\overline{CAR}\ (k, \iota) \backsim N(0, var\ \overline{CAR}\ (k, \iota))$ (10)

Firstly, CAR is observed through charts and, then quantitatively testing its mean value for determining its statistical significance (Justification will be provided after data analysis.).

Drone Strike Events

18 June 2004: The first drone strike carried out by the US, resulting in the killing of Taliban renowned leader Nek Muhammad Wazir. Beside this US drone strike also killed 5-8 people. The strike got widespread national and international media coverage. Initially, Pakistan claimed that it was carried out by Pakistani's army. However, later it was disclosed that strike was carried out by the US.

30 November 2005: The second drone strike which has been selected for the study result in the killing of Al-Qaeda's 3rd in command leader named, Abu Hamza Rabia near Miran shah, North Waziristan. The CIA drone strike also killed four other militants. The event was addressed by both national and international media, due to the significance of target killed, named Abu Hamza Rabia.

30 October 2006: The deadly hostile drone strike allegedly attacks a madrassa in Bajaur area and kills 70-80 people. The Pakistani military officials claimed that madrassa was occupied by militants, however, provisional minister Siraj-ul-Haq and local witnesses posit that they were innocent pupils. The strike results in a major protest against US drone policy and the issue got wide media coverage due to the killing of innocent pupils.

16 January 2007: The drone strike near SalamatKele, Zamzola South Waziristan killed up to 30 Taliban militants. The drone strike was noticed by national and international media due to its significant mass killing of Taliban.

13 August 2008: Taliban 1st in command leader, Gulbud din Hekmatyar along with Islam Wazir was killed in a drone strike by CIA. Besides this high-value target killing a compound run by Gulbud din Hekmatyar was also destroyed. The event received wide national and international media coverage due to high-profile Taliban leader killing and three Turkmen and several Arab fighters. According to media, up to 25 militants were killed in this drone strike.

23 June 2009: The strike by CIA misses Bait ullahMehsud however, killed at least 80 militants in the town of Makeen, South Waziristan. Bait ullahMehsud leading the Tarek Taliban Pakistan remains allegedly involved in planning attacks on US and Pakistani forces.

11 May 2010: In two separate drones strike carried out by CIA killed 24 militants in the Doga area of North Waziristan. Beside this, a compound in the Gorwek area of North Waziristan was destroyed by killing the brother of a reputed Taliban commander, MaulviKaleem. These two strikes on different places result collectively killed 34 militants.

17 March 2011: American drone strike killed forty-eight militants and 50 others wounded in DattaKhel in North Waziristan. However, according to media mostly civilians were killed involved in a Jirga. However, according to American press release, 12 Taliban leader including Sherabat Khan Wazir was also there and reportedly killed in this strike. The strike results in an end to the peace talks between Pakistani government which was initiated four years earlier. The Chief of Army Staff of Pakistan, AshfaqParvezKayani argued that attack was a clear violation of human rights. The strike results in intensifies protest throughout Pakistan and Punjab Assembly passed a resolution and demanded that the national government should take a clear stance on the issue.

16 February 2012: Two different drone strike by CIA in two different places killed almost 21 suspected Taliban militants. The first strike destroyed a compound in the town of Spalga situated nearby Miran shah and killed 5 militants while wounded several others. The second drone strike killed 15 Uzbek militants near Mir Ali.

3 July 2013: According to Pakistani security officials almost 16 militants killed in a US drone strike. The strike was marked as the biggest such attack of this year since Prime Minister Nawaz takes charge of his office. According to US officials most of those killed were militants from Haqqani network, allegedly an ISI (Pakistani Army) supported wing of Taliban. However, Pakistan always condemned these allegations and agreed to continue their resistance against the war on terrorism.

16 July 2014: The drone strike by CIA in Dattakhel area of North Waziristan reportedly killed at least 18 militants. However, according to Pakistani media victims were innocent civilians. The drone strikes majorly result in collective damage and cause a serious offense against American forces in Pakistan.

16 May 2015: The drone attack by the US at least killed 13 militants in Wana area of North Wazirstan Agency. According to Pakistani intelligence official's missiles fired from a drone reportedly struck a compound killing Uzbeks and Pakistani militant. The compound was used by Taliban leaders to plan the surgical strikes against US forces in Afghanistan.

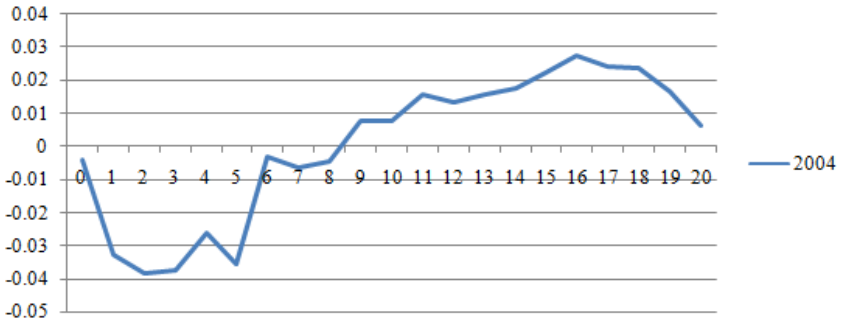
Analysis

Figures 1, 2 and 3 demonstrate the development of the CAR of PSX-100 index during each of the twelve events in the period [0, 20] estimating through mean return model(Seyyed, Abraham, & Al-Hajji, 2005). The average CAR of these events is presented in Figure, 4. The result shows

a diverge trend in each event, it is apparent from Figure, 1,2 and 3 that market respond divergently to each single event. However, on average bullish behavior is exhibited by stock market, while some of the event exhibits bear market response. Also most events seem to exhibit an immediate negative reaction which slowly follows with a pattern idiosyncratic to the event and its circumstances. According to government of Pakistan drone strikes carried out by US forces are against their national sovereignty and each drone strike carried out a strong protest.

However, it is also evident that Pakistan is one of the major allies of USA in war against terrorism. After 9/11 Pakistan joined the USA alliance and become the major non-NATO ally in war against terrorism. Pakistan is the 5th Islamic country to receive the title of non-NATO ally after Jordan, Egypt, Bahrain and Kuwait(Shahzad et al., 2016).Hypothetical explanations for these diverse patterns could be mood related and due to the international alliance of Pakistan against war on terrorism and we discuss this in section 5.

Figure 1:
18 June 2004, First Drone Strike

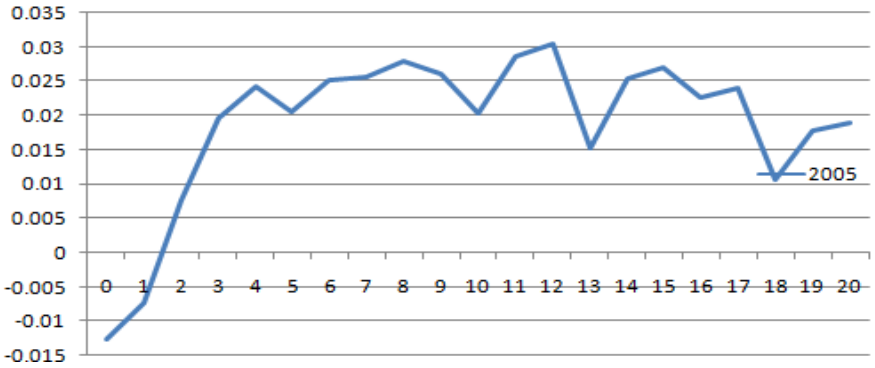


Notes: *The vertical axis represent CAR in decimal fraction while horizontal axis exhibit event time in days, t=0 is the event date.*

The drone strike in Pakistan started in 2004. The first event results in bearish response in PX-100 index. It is exhibited in Figure 1 that market show a negative drift after first drone strike. It is apparent in all events that the post event effect remains significant for a short time (For example the window, [2-6] reflect negative effect of the first drone strike in Pakistan). The bearish effect on stock market started from event day to day six, after that market show a normal upward trend. The first drone attack result in high national and international media coverage due to which the affect remain negative contrary to study hypothesis (Counter terrorism operations positively affect the stock market). The

downward trend of the market become absolute shortly and market show a steady upward trend by overcoming the ramification of drone strike. However, on average the analysis reflect that there is a positive effect of

Figure 2, November 2005



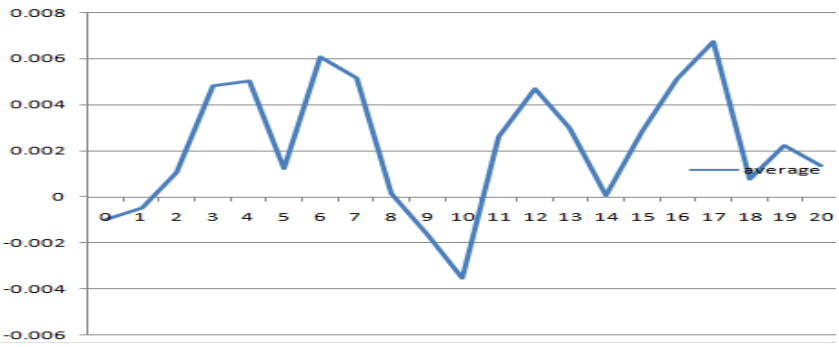
US drone strikes on Pakistani stock market.

Notes: *The vertical axis represent CAR in decimal fraction while horizontal axis exhibit event time in days, t=0 is the event date.*

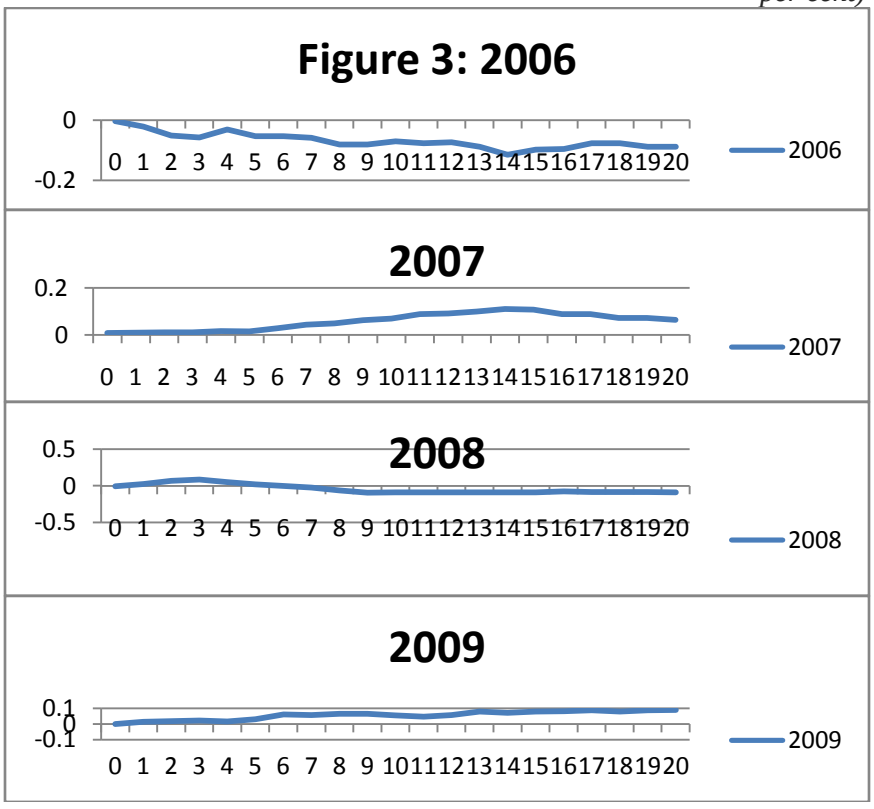
The next strike which results in killing of prominent Al-Qaeda's 3rd in command leader named; Abu Hamza Rabia received massive media coverage, both nationally and internationally. The event day reflect a negative affect however, the very next day market show a sharp positive trend. The above reflected trend proves the notion that counter terrorism operations positively impact the stock market behavior. However, one of the interesting findings evolved through analysis is that foreign counter terror operation also leads to positively affect the host country stock market. The findings are contrary to the sovereignty theory. Politically the sovereignty theory posits that full power and right entitled to the governing body to regulate itself without any external interference. The result refutes the sovereignty theory advocacy and confirms that elimination of terrorism leads not only to peace and harmony but also result in economic benefits.

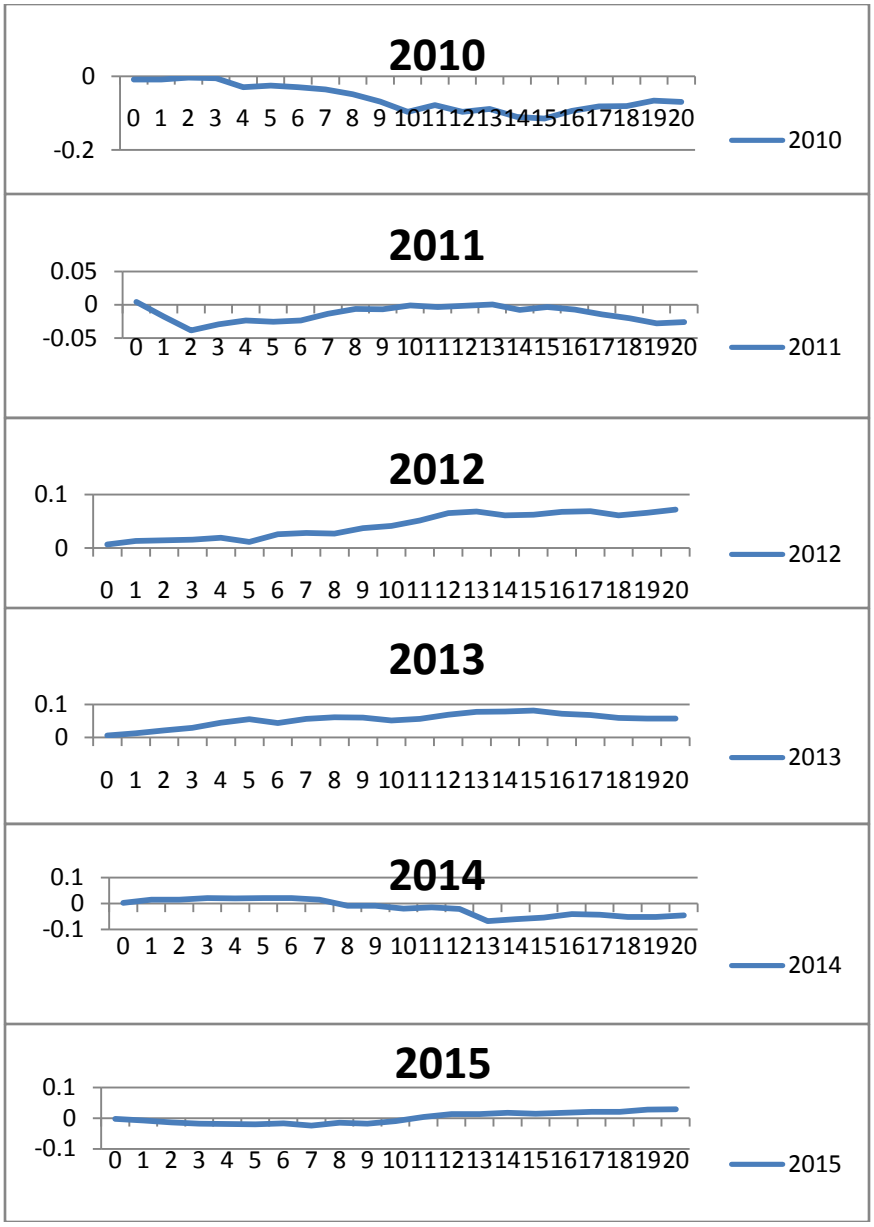
To validate that such miscellaneous market response is not distinctive to the Pakistani market, previous studies confirms that two famous counter terrorism events of US, the killing of Bin Laden and the capture of Saddam Hussain result negative impact on S&P-500 index(Afik et al., 2016). The current study also gauge the effect of Bin Laden killing as it was happen in Pakistan. The result indicates a negative impact on Pakistani stock market, as this event leads to raise various questions about the role of Pakistan against the war of terrorism.

Figure 4: Average CAR of 12 events



Notes: *The horizontal axis is event time in days, t = 0 is the event date; The vertical axis is returns (in decimal fraction, e.g. on day 17 CAR ≈ 7 per cent)*




2010
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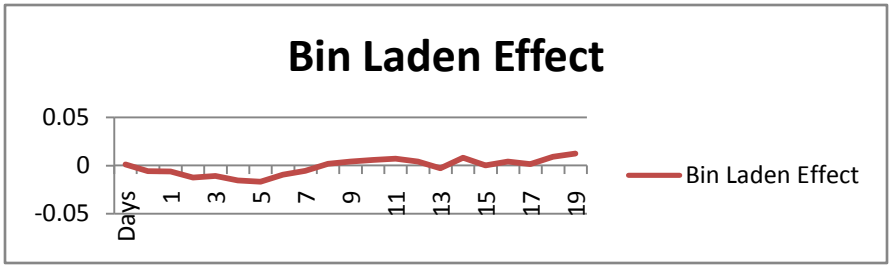

Discussion

The Bin Laden killing represents an end to an era of uncertainty and more diffused threat far away from US territory. The killing of Bin Laden results a decline in stock market of both PSX-100 index and S&P 500 index. The reason of this decline is due to a more diffused threat which might materialize as a fatal retaliation act almost anywhere and anytime by any of the alliance countries including Pakistan. The operation was carried out by US forces in Abbottabad, Pakistan. The event was largely covered by both national and international media due to the significance of target. The killing of Bin Laden represents an end to an era of uncertainty however, rest various question about the integrity of Pakistan about its role against the war of terrorism. The confident level of national and international investor scrambled with uncertainty about the future economic prospect of Pakistan. Actually, this is most probably the rationale for the bearish response to the Bin Laden operation.

The results from such a small sample should be generalize with care and thrift, these twelve significant drone strikes over almost a decade , tell a narration. The figure 3 tells the average CAR for the twelve events. On event day the market drops about 1.5 per cent. After initial decline the market started upward trend which continues on average until days 7-8. The total climb in this period is approximately 5.5 percent, of which about 6 percent happens on day 6. The average CAR (Cumulative Abnormal Return) then vacillates during days 9-10 and then starts another upward trend resulting 7 per cent by day18.

To examine whether these observed CAR (Cumulative Abnormal Return) are statistically significant, even in our relatively small samples of twelve events, the study examine four time-periods in the observation window: [-5,-1], [2,6], [6,20], [2,20]. For each time-period [k,l], we test whether its mean is significantly different than zero. The results are presented in Table 1, supporting the observations in Figure1, 2,3 and 4. The average CAR for the pre-time event window [-5,-1], remains insignificant with t-value of 0.56. This reflects that pre event

window has no such significant impact on PSX-100 index. The average CAR for the time period [2,6] is greater than 0.65 per cent and is statistically significant with t-value of 1.98. For the period [6,20] the CAR is -0.47 percent having a negative insignificant effect. Thus third widow which also reflect an insignificant affect. Overall for the period [2,20], result typically the t-value remains insignificant. The table also reflects no evidence of pre-event effect, using the event window [-5,-1].
The size of the sample is relatively small (only twelve strikes), therefore one should be careful in drawing general conclusions from study findings. Subject to that disclaimer, the study concludes the following findings:

- The initial reaction reacts of equity market to counter terrorism is often negative after the news break;
- The equity market response positively to counter terrorism acts (drone strikes), even in a country that is relatively saturated by terrorist and homeland security activities such as Pakistan.
- Despite the small sample the reaction is often positive, as hypothesized and it is statically significant in the window [2,6].
- The counter terrorism operation remains a shorter period [2, 6], statistically this period of time in whole sample remains statistically significant.
- The reaction of the drone strike depends on the type of the strike, its circumstances, and its potential consequences (significance of the target killed and retaliation).
- The PSX-100 show a positive response to drone strike carried by US forces in Pakistan, regardless of the government protest to consider as the violation of international laws and attack to the national sovereignty.
- Beside these drone strikes the study also analyze the Bin Laden effect on stock market behavior, the result reveal a negative market response to this event.

The initial negative equity market response seems to be an inherent i.e. the panic of investors, relevant with an increase in general uncertainty about the market. The market shows a revival gradually once the event and its initial consequences are disclosed and analyzed. Often a sharp upward trend starts on about Day 2-3 when investor realize that lower prices are an opportunity given the potential consequences of the event. Similar to the findings by(Afik et al., 2016). The study finds a notable difference between various drone strikes and their possible impact on PSX-100 index. The operation which got wide national and international media coverage exhibit significant market response on average. The first drone strike in 2004 received massive coverage of

media both at national and international level, though it shows a negative effect on stock market furthermore, the Bin Laden event also result in bearish response. Both of these events in selected data sample received intense media hype due to their significance.

Table 1: The average CAR of PSX-100 index, for post- event periods and assessing their statistical significance.

[k,l]	(-5,1)	(2,6)	(6,20)	(2,20)
Average (%)	0.209802	0.653029	-0.47071	0.182324
variance	0.000175	0.000544	-0.00039	0.000152
t-value	0.561531	1.98178	-1.25983	0.100959

Investor Mood and Decision Making

Evidence regarding the possible impact of investor mood on decision making is expounded in recent experimental economics literature. Most of the studies argued that positive mood is associated with optimism while the negative mood is associated with pessimistic which cause individuals to be more detail oriented when processing information (Wright & Bower, 1992). According to (Capra, 2004), who examines the impact of mood effects on subjects in one shot games, disclose that respondents induced with diverse types of mood play differently(Kirchsteiger, Rigotti, & Rustichini, 2006), disclose that good mood exhibit more generosity and bad mood induce more reciprocity.

However, investigating mood effects on real market is more challenging because it is difficult to analyze such effects outside an experimental laboratory. Most of the previous studies use actual market data and proxies for mod to determine the investor mode effect on stock market returns. The most common is day and weather effects. The study of(Saunders, 1993), advocate that local weather systematically affect the security markets. (Hirshleifer & Shumway, 2003), finds out the effect of cloudiness on 26 stock exchanges around the globe.(Edmans, Garcia, & Norli, 2007), investigate the effects of sports events on local stock markets and find that local equity market reacts to the national win or loss. Beside these behavioral phenomena, (Gibbons & Hess, 1981)provide evidence regarding the day of the week effect, in which stock returns are lower on Mondays. (Ariel, 1990), confirms to the "Holiday" effect where stock returns show a higher returns on the day before holidays. According to the empirical investigation of(Seyyed et al., 2005) which investigate the impact of Ramadan (Muslim holy month) on stock market volatility. The paper documents a systematic pattern of decline in volatility during Ramadan; reflect a predictable variation in the market price of risk.

The calendar anomalies and seasonality in stock returns are well documented. Less obvious is the existence of anti-terrorism in stock return volatility. The behavioral finance base literature shows that investors are not only affected by asset pricing factors but also other non-economic factors such as counter terrorism activities. The behavioral effects on stock markets show that investor's mode is affected by various events, which in turn affect their decisions(Hirshleifer & Shumway, 2003). Therefore it is surprising that behavioral finance literature documenting terrorism effect on asset prices does not discuss mood effect. The possible reason for this ignorance may be the fact that most terror events have only short term effects. The exceptions are major events such as 9/11 attack and Bin Laden killing which received lager and sensational media coverage and remain in the public memory for a longer period of time. Successful anti-terrorism operations are relatively rare and therefore much difficult to examine empirically. Therefore, following the same rationale it is strongly believe that drone strike in Pakistan plays a vital role in shaping investor mood to trade more frequently and proactively.

Conclusion

The main objective of this paper was to examine the Pakistani equity market reaction to drone strikes carried out by US forces from 2004 to 2015 using event study methodology. The findings of the study on average to prominent successful events suggest a positive and statistically significant stock market reaction. The findings of the study suggest that initial market response is usually negative and then respond to the type of event, based on event significance, expected ramifications and endanger of retaliation.

The finding of the study extends the existing behavioral finance literature in three ways:

- Most of the literature is documented with the effect of terror events however, this study focus on anti-terror (drone strikes) operation effect.
- According to best of our knowledge this is relatively a rare and first empirical investigation which confirms the statistical relationship of drone strikes and stock market behavior.
- The study also indicates that US drone strikes in Pakistan not only mitigate the threat of terrorism but also leads to resort the investor trust which in turn result into positive equity market response.

The study focuses only fewer drone strikes with reduced heterogeneity. The drone strike for each year (2004-2015) has been selected on the basis of number of terrorist killing and event coverage of

the national and international media. This principal of parsimony allows to more in-depth study of each drone strike and a clearer connection with stock market response. Finally, past literature on the negative market reaction to terror events, it is worthwhile to disclose that the PSX-100 index react positively on average to the antidote, the counter terrorism acts through drone strikes.

The stock market has traditionally been viewed as an indicator or "predictor" of the economy. The implications of the study can be discussed in the context of investor investing behavior. Beside microeconomic event the macro geo political events also affect the market returns. The counter terrorism operation restore the investor trust by mitigating uncertainty which in turn positively affect the level of investor's risk tolerance and trading behavior.

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