Risk or Sentiment: Value and Size Premium under Terrorism

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Abstract

This study aims to identify the effect of terrorism on size and value premium using value weighted monthly returns for non-financial firms from January 2001 to December 2010. In addition to Independent size and BE/ME sorted portfolios, two dimensional portfolio formation methodology of Dimson, Nagel, and Quigley (2003) is also used. The results reveal that market, size, value premium and terrorism have a significant positive impact on stock returns. The study further suggests that value and size premiums are dependent on the level of psychosocial impact caused by terrorist incidents. Findings suggest that the small stocks generate higher returns than large stocks and the size premium occurs mainly during the months of higher terrorism activities. In contrast, value premium is more profound during the months of low (high) terrorist activities for portfolios sorted on one (two) dimension. This indicates that both size and BE/ME premiums are effected by investors sentiment.

Key words: Value premium, size premium, terrorism, Pakistan.

1. Introduction

The motive of every investor is to earn higher return on their investments. Most of the research work in finance has focused on these preferences of investors and especially on the factors that derive the higher risk-adjusted returns. According to Fama and French (1993), in addition to excess market return, size premium and value premium are the factors that determine the return on asset. The size factor explains that small capitalization stocks have the tendency to outperform large capitalization stocks also known as size premium in literature. The value factor which is proxied by HML captures the value risk. The difference between the returns of high B/M ratio and low B/M ratio firms is called value premium. The positive HML indicates that investors will earn higher return for investing in value stocks as compare to growth stocks.

Although value premium seems to be a simple phenomenon, however there exist controversies about its interpretation and source. Some researchers explain that value premium is proxy for risk. It explains that riskier stocks will earn higher return as compared to less riskier stocks (Fama & French, 1992, 1993; Zhang, 2005). Fama and French (1995) argue that high B/M stock is consistently under stress whereas low B/M stocks have sustained profitability. This implies that above average return for high book to market stocks is justified, because it is a compensation for buying riskier and less profitable stock. In addition to value premium, size premium has also been characterized as a risk based phenomenon. Chan and Chen (1991) find that the major portion of small portfolio consists of marginal firms

Another group of researchers explain that higher return of high B/M stocks is not because of buying riskier stocks, rather it is because of investor's overreaction i.e. investors give lesser weight to past information whereas overweight recent information, and this overreaction is the reason behind the departure of stock prices from their fundamental value (De Bondt & Thaler, 1985, 1987; Lakonishok, Shleifer, & Vishny, 1994). They concluded that investors amplify the estimates about the future returns of growth stocks, and as a result of investors overreaction to earnings, stock prices may temporarily depart from their fundamental values. Due to which the growth stocks are overpriced whereas value stocks are underpriced which would make value stocks more attractive investment than growth stocks. And hence conclude that these premiums depend on the investor's mood, sentiments and risk perception. Baker and Wurgler (2006) show significant effects of investor sentiment on both the size and value factors.

The effect of terrorist attacks on stock market returns can be moderated through investor's sentiments. Assuming that terrorist attack is a proxy for investor's mood, then any deviation in investor's mood caused by terrorist attack could lead to a deviation in stock prices. There are two principal approaches identified in literature to investigate the effect of investor's mood on asset prices. Asset prices can either be linked to a specific event or to a continuous variable that impact investor's mood. Previous research has utilized a variety of variables as mood indicators, such as sunshine (Hirshleifer & Shumway, 2003), lunar phases (Yuan, Zheng, & Zhu, 2006), temperature (Cao & Wei, 2005), SAD (Seasonal Affective Disorder) (Kamstra, Kramer, & Levi, 2003). In addition to studying the effect of continuous variable on investor's mood, some studies have identified the impact of a specific event of investor's sentiment using event study approach. The effect of soccer match (Edmans, GarcÍA, & Norli, 2007), terrorist/military attacks on U.S capital markets (Chen & Siems, 2004), September 11 attacks on airline stocks (Drakos, 2004) have also been studied. Terrorism in Pakistan, as contrast to any other country, is a reoccurring variable and produces substantial mood changes in a large proportion of countries population. These characteristics of Pakistan provide strong motivation for using terrorist attacks to capture mood swings among investors.

This leads us to post a question that whether terrorist activity can be considered as a mood proxy. Edmans et al. (2007) presented three criteria's that must be satisfied to link the selected mood indicator with stock returns. First, the selected variable must drive mood in a substantial and unambiguous manner, so that its effect is vigorous enough to be reflected in asset prices. Secondly, the affect of the variables must be on large part of the population to increase the probability of the variables impact on investors and thirdly it must be correlated across majority of individuals within a country. It is hard to imagine events, other than terrorist attacks, that would generate highly correlated mood swings across majority of individuals within a country and that would also satisfy the other two criteria.

The paper makes unique contribution to the literature. Previous researches has focused on selected major terrorist acts, however, in case of Pakistan, terrorism in not an act rather it's a phenomenon, therefore this study tests the effect of overall terrorist activity on stock returns. This research explores whether size and value premium are function of the level of psychosocial impact caused by terrorist incidents. This study has important implications for portfolio

managers, mutual fund managers, investment bankers and corporate managers. Investors are willing to know when and where to invest, therefore the presence of terrorism effect in size, value premium will help investors in their decision making. In addition to that, academicians have been debating on the possible source of value premium, and if there is a terrorism effect in size and value premium then it can be concluded that these premiums are driven by investor's behavior and therefore are behavioral phenomenon.

2. Literature Review

2.1 Explanatory power of CAPM versus FF model

Fama and French (1993) suggest that BE/ME ratio and size when combined with market beta can explain almost all of the variations in stock returns and that these cross-sectional variations cannot be explained when beta or market risk factor is solely used. Dennis, Perfect, Snow, and Wiles (1995) argue that BE/ME ratio is a significant illustrative factor for explaining expected returns even after adjusting for the differing rebalancing time periods and adjusting the cost of transaction. Loughran (1997) show that in UK market, small capitalization stocks drive the value premium. Using the data of KSE for the years starting from 2003 to 2007, Nawazish (2008) have confirmed the validity of FF three factor model for KSE. In addition to that Hassan and Javed (2011) explain that FF three factor model have 15% higher explanatory power over CAPM in Pakistan.

2.2 Value Premium and Size Premium

Value premium was identified by Rosenberg, Reid, and Lanstein (1985), and its existence has been confirmed U.S (Fama & French, 1992), U.K (Dimson, Nagel, & Quigley, 2003), 12 major EAFE countries (Fama & French, 1998) and emerging markets (Claessens, Dasgupta, & Glen, 1995; Rizova, 2006). Banz (1981) conducted the first empirical study to analyze the effect of size in U.S stock returns. He reported that small market cap stocks earn 0.40% per month higher risk adjusted return than the remaining firms. In addition to that Fama and French (1993) using the data from NYSE, Amex and Nasdaq reported a size premium of 0.63% per month and concluded that size is a proxy for sensitivity to common risk factors in returns. Chan and Chen (1991) finds that the size effect is mainly driven by marginal firms in distress. Reinganum (1983), who found a return premium on small stocks in the USA. The size effect or size premium

was later confirmed by Blume and Stambaugh (1983) using US data and by Brown, Keim, Kleidon, and Marsh (1983) using Australian data. Similarly Keim (1983) demonstrate a 2.5% per month of size premium in stock returns for the period of 1963-1979 in the U.S market. Fama and French (1998) confirmed the effect of size in 12 out of 16 emerging markets. Fama and French (1993) interpret this as evidence that size and book-to-market are proxies for sensitivity to common risk factors in stock returns. So it has been empirically proved that size and value premium exists in both developed and emerging markets.

2.3 Source of Value Premium

2.3.1 Behavioral Explanation or Overreaction Hypothesis

There is no contradiction on the existence of value premium however, its source is controversial. One group of researcher explains that value premium is a behavioral phenomenon. De Bondt and Thaler (1985, 1987) explain that the stock prices departure from their fundamental value is because people show inclination to overreaction (i.e. they give higher weight to recent information where as under-weight base information) therefore, they support the overreaction explanation for the above average stock returns. Hong and Stein (1999) concluded that all investors can be divided into two groups, news watchers (investors focusing only on fundamentals) and momentum traders (investors following price trends only). They explain that both of these groups of investors are not fully rational, rather boundedly rational i.e. each of these groups of investors is only able to absorb and analyze some amount of information and not all. Because news watchers only focus on fundamentals, they cause under reaction in stock prices for short period of time, and that momentum traders can earn above average profit by only chasing the trend of news watchers. In addition to that, investors tend to show overreaction to signals generated through private information and they have the tendency to under react to signals generated from public information (Daniel, Hirshleifer, & Subrahmanyam, 1998). Results by Lakonishok et al. (1994) suggest that buying securities that have low market price relative to its fundamental value (Value strategy) generate above average returns because the expectation of investors about the growth rate of glamour stocks are high as compared to value stocks, therefore suggesting a behavioral explanation for value premium.

2.3.2 Risk based explanation

Another group of researcher supports the risk-based explanation for the story of value premium. They explain that systematic risk is the main factor that determines value premium. Berk, Green, and Naik (1999) argues that stocks should earn high risk premium when they face high systematic risk, and to measure the systematic risk of a firm, B/M ratio of that firm can be used, therefore high B/M firms earns higher return. Chan and Chen (1991); Fama and French (1995) provided economic reason for value premium and suggested that it is compensation for relative distress factors in the economy. Results of Chen and Zhang (1998) indicate that there is a low risk spread between growth stocks and value stocks in the time when economy is in good condition and large when the economy is in bad condition. Growth stocks tend to get riskier than value stocks when the economy is in good shape and the expected market risk premium is low however, study of Petkova and Zhang (2005) suggest that growth stocks are less risky than that of value stocks in the time when economy is in good shape. Liew and Vassalou (2000) find that SMB and HML factors have the forecasting power for future GDP (Gross Domestic product). Hahn and Lee (2006) argue that size and value premium is due to the risk of variation in interest rate and the unstable credit market. However, Berk (1995) argues that there do not exist any economic interpretation for the phenomenon of value premium, the higher returns may be because of the way size and B/M portfolios are constructed.

The explanation of value premium may differ for different markets. Results of Black and Fraser (2003) indicate that the value premium in Japan and UK can either fall into the risk based or behavioral category. However, the result of U.S market suggests that the value premium is an incentive for systematic risk associated with financial distress. Hence concluding that the values premium display different characteristics for different markets.

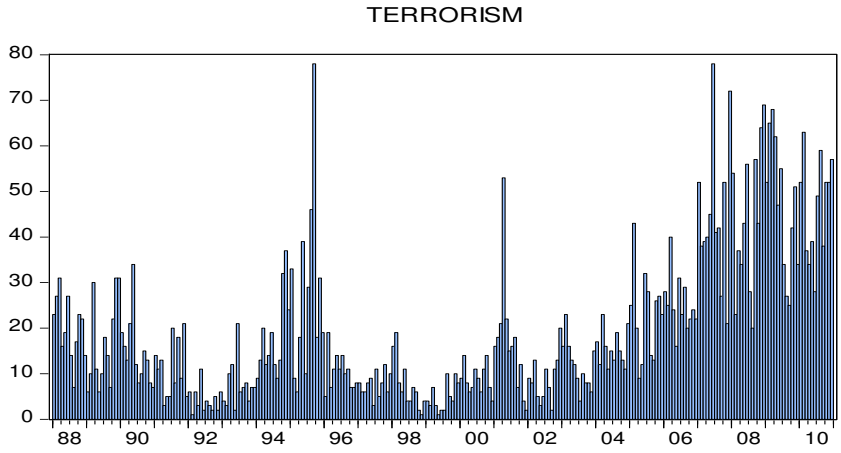
Evidence suggests that politically motivated violence in general and terrorism in particular have a strong negative effect on economic prosperity. Although there is no reason to believe that terror attacks have a homogeneous impact across all economic activities, the extant literature seldom probes terrorism in terms of its impact on stocks of different characters.

3. Data and Methodology

3.1 Data Overview

The present study cover monthly stock returns of firms listed at Karachi Stock Exchange for the year starting from January 2001 to December 2010. Stock prices are collected from www.Brecorder.com, whereas book equity data is collected from balance sheet analysis files published by State bank of Pakistan. The reason for limiting the study to post 2000 data is that the terrorism events kept on systematically increasing in Pakistan after 2000 as can be seen in Fig 1.

Fig 1: Number of Terrorism events



Mean	19.26
Std. Dev.	16.38
Skewness	1.42
Kurtosis	4.53
Jarque-Bera	119.65
Probability	0.0000
Observations	276

Stocks that satisfied the following criteria were selected.

- The firm must be a public limited company listed at Karachi Stock Exchange.
- Firms that have constant prices continuously for one year were excluded from the data.
- Stocks with negative B/M ratio were not included in sample.
- Stocks that belonged to financial sector (banks, insurance companies, modarabas, investment funds, leasing companies and mutual funds) were not included in data.

Table 1 includes the number of companies in sample for each year. On average there were 309 companies.

Table 1: Total number of Companies

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
No. of Companies	316	289	296	306	316	335	308	316	298	307

We have extracted the terrorism data from BFRS political violence data set compiled by Empirical Studies of Conflict (ESCO) project by Princeton University. The database on terrorist events other than BFRS may under or overstate events based on international interest or potential impact and may provide a dramatically incomplete picture of true situation Bueno de Mesquita et al. (2014). BFRS has defined terrorism as "premeditated, politically motivated violence against *noncombatant* target by sub national groups of clandestine agents" (Bueno de Mesquita et al. 2014 p.5). The "significance" of terrorism events has then been ascertained according to the U.S. Department of State definition: An International Terrorist Incident is judged significant if it results in *loss of life or serious injury to persons*, abduction or kidnapping of persons, major property damage, and/or is an act or attempted act that could reasonably be expected to create the conditions noted. We employ a dummy variable to capture whether or not an attack is an international significant attack by calculating the monthly median value for all terrorist activities for the sample period. The months in which numbers of terrorist attacks were more than the median value were categorized as high terrorist activity months and low if otherwise.

3.2 Portfolio Formation and Estimation

3.2.1 Size, Value and Terrorism effect

After descriptive analysis, study examines the presence of size and value premiums and its sensitivity with terrorism through following Ordinary Least Square (OLS) regression:

$$r_t - r_{ft} = \alpha_t + \beta_M\left(r_{mt} - r_{ft}\right) + \beta_S r_{SMB,t} + \beta_V r_{HML,t} + \beta_{TR} TR_D + \mu_t \qquad (1)$$

Where, $r_t$is the portfolio return, r_{ft} is the risk free return, r_{mt} is the return on the market, $r_{SMB,t}$ is the size premium and $r_{HML,t}$ is the value premium at time t. TR denotes terrorism events dummy variable which takes the value of "1" for high terrorism activities month, and "0" otherwise. β_M, β_S, β_V and β_{TR} present co-efficient of market, size, value premium and terrorism,

respectively. This variable is meant to capture the effect of terrorist attacks on excess portfolio returns.

$\mu_t$is the error term

α_t is the intercept of the regression equation (E(α_t)=0)

3.2.2 Size and BE/ME effects – one dimensional portfolio formulation

This study follows two strategies for the construction of portfolios. All stocks are independently sorted on the basis of size (market capitalization) and value growth indicator (BE/ME). In order to calculate market capitalization, closing price for each share is multiplied by the number of shares of that respective stock at last trading day of December each year at time t-1. Stocks in sample are then sorted on the basis of size (market capitalization) in an ascending order and are equally divided into five portfolios to form five quintiles of size ranging from small stock portfolio to big stock portfolio. Market capitalization value weighted portfolio returns are then estimated for each size portfolio for the period from month j (January) of year t to month j-1 (December) of year t+1. In a similar fashion, all stocks are divided into five equal quintiles on the basis of BE/ME and their portfolio returns are estimated. Then size premium is estimated subtracting the return on biggest size quintile from smallest size quintile. Similarly value premium is estimated by subtracting the returns on growth quintile from value quintile.

3.2.3 Size and BE/ME effects – two dimensional portfolio formulation

In addition to the one dimension portfolio, following the methodology of Dimson et al. (2003) two dimension portfolios are also formed. All stocks are first divided into big and small portfolios for being above or below median. Both small and big portfolios are then divided into three BE/ME groups, low (L), medium (M) or high (H). The low (L) BE/ME portfolio consisted 30% of stocks with low B/M ratio, next 40% of the stocks were allocated to medium BE/ME (M) portfolio and the remaining 30% stocks with high BE/ME ratio were allocated to high BE/ME (H) portfolio. So the subdivision of small and big portfolios on the basis of BE/ME ratio formed six size-BE/ME portfolios. Monthly value weighted returns are then calculated for all six portfolios. Premiums have been calculated for six portfolios using following formula:

SMB = 1/3(Small Value + Small Neutral + Small Growth) – 1/3(Big Value + Big Neutral + Big Growth).

HML = 1/2 (Small Value + Big Value) – 1/2 (Small Growth + Big Growth).

This study applied t-test to analyze whether calculated size and value premiums are significantly different from zero for all the sample data. Further, paired comparison t-test and F-test have been applied to examine the equality of mean and variance of these premiums under less and high terrorist activities.

4. Findings

This study first explores that whether there is significant market, size, value and terrorism effect on stock returns or not. Table 2 presents the regression of excess stock returns on market, size, value premium and terrorism. Variables are step by step added in model to check the consistency of variable coefficients. Market, size, value and terrorism effect are significantly positive, suggesting that there is a positive effect of these variables on stock return.

Table 2: Market, Size, Value and Terrorism Effect

Model 1: $r_t - r_{ft} = \alpha_t + \beta_M(r_{mt} - r_{ft}) + \mu_t$

Model 2: $r_t - r_{ft} = \alpha_t + \beta_M(r_{mt} - r_{ft}) + \beta_S r_{SMB,t} + \mu_t$

Model 3: $r_t - r_{ft} = \alpha_t + \beta_M(r_{mt} - r_{ft}) + \beta_V r_{HML,t} + \mu_t$

Model 4: $r_t - r_{ft} = \alpha_t + \beta_M(r_{mt} - r_{ft}) + \beta_S r_{SMB,t} + \beta_V r_{HML,t} + \mu_t$

Model 5: $r_t - r_{ft} = \alpha_t + \beta_M(r_{mt} - r_{ft}) + \beta_S r_{SMB,t} + \beta_V r_{HML,t} + \beta_{TR} TR_D + \mu_t$

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
C	0.049* (19.85)	0.051* (20.32)	0.046* (18.07)	0.048 (18.29)	0.040* (13.10)
MRP	0.462* (22.48)	0.508* (21.04)	0.436* (20.37)	0.477* (18.56)	0.523* (19.52)
SMB	-	0.153* (3.54)	-	0.125* (2.84)	0.153* (3.51)
HML	-	-	0.168* (3.95)	0.144* (3.34)	0.110** (2.57)
TR	-	-	-	-	0.022* (5.16)
R-squared	0.413	0.423	0.426	0.432	0.453

Note: Values in the parenthesis are of t-statistics. The *' ** & *** indicate significance at 1%, 5% and 10% level, respectively.
All returns series were examined for potential heteroskedasticity issue, however, not found and thus the standard errors reported are calculated without adjustments.

This study then explored the size and BE/ME effects on stock returns during less and high terrorism activity months. Table 3 reports the average return differences between the smallest and biggest size quintile (Size premium) and highest BE/ME and lowest BE/ME (Value premium) quintiles for one dimensional portfolio sorting using KSE dataset from January 2001 to December 2010. Returns are reported on value weighted basis.

Panel A of Table 3 shows that for the full sample size, the average return on portfolio decrease monotonically as the size of firm increases, with exception to big size portfolio. The average monthly return of the small size portfolios is 3.31% (significant at 1%), whereas that for big size portfolio is 2.06% (significant at 5%). The difference between small and big portfolio is 1.25% significant at 10% level. An interesting fact is that the standard deviation for small size portfolio is 2.2% lower than big size portfolio. During the period of low terrorism activities, the small size

portfolio earn an average return of 3.02% (significant at 1%), which is 0.33% higher than big size portfolio. In months of high terrorism activities, the average monthly return of the smallest size portfolios has increase to 3.60%. It can be noted, that the major contribution toward the higher size premium (2.16%, significant at 10%) is because of decrease in big portfolio returns (1.44%) during high terrorism activities. The effect of terrorism on big size firms can be specially seen on portfolio four, where the average return has decreased by 1.52% due to high terrorism activities. Findings of this study suggest that small stocks generate higher returns than large stocks and the size premium is prominent mainly during the months of high terrorism activities. The differential return is significant at conventional levels for the months of higher terrorist activities.

Panel B present the results for portfolios formed on the basis of BE/ME. Firms with low BE/ME ratio (growth stocks) earn lower returns than firms with high BE/ME ratios (value stocks). Value stocks on average earn 0.89% (significant at 10%) higher monthly return than growth stocks for full sample size. This number increases to 2.13% (significant at 5%) in the months of less terrorism activities while the average monthly value premium is negative (-0.33%) in high terrorist activity months. Value stocks beat growth stocks during the months of low terrorist activities. The difference in returns between value and growth stocks is larger (2.13%, significant at 5% level) in months of less terrorist activities but relatively negative and statistically insignificant in higher terrorist activity months.

Table 3: Size and Value premium analysis – one dimensional sorting (January 2001 – December 2010)

	All Return	Std. Dev.	Low Terrorism Periods (L) Return	Std. Dev.	High Terrorism Periods (H) Return	Std. Dev.	Paired Comparison t-test	F-test of equality of variances
Panel A: Returns and standard deviation based on size of firm								
Small	3.31%* (5.268)	6.89%	3.02%* (3.351)	6.98%	3.60%* (4.082)	6.84%	(0.502)	[1.041]
2	2.20%* (3.773)	6.37%	2.33%** (2.527)	7.15%	2.06%* (2.871)	5.56%	(0.243)	[1.654]*
3	2.18%* (4.108)	5.81%	2.52%* (3.010)	6.48%	1.84%* (2.800)	5.10%	(0.641)	[1.613]**
4	1.62%* (2.691)	6.60%	2.38%* (2.462)	7.49%	0.86% (1.207)	5.53%	(1.960)**	[1.832]*
Big	2.06%** (2.486)	9.09%	2.69%** (2.068)	10.09%	1.44% (1.387)	8.01%	(0.798)	[1.584]**
SMB	1.25*** (1.82)	9.22	0.33 (0.287)	8.78	2.16*** (1.746)	9.62	(1.72)***	[0.833]
Panel B: Returns and standard deviation based on value-growth indicator								
Low	1.71%** (2.549)	7.33%	1.59%*** (1.956)	6.30%	1.82%*** (1.702)	8.29%	(0.162)	[0.578]**
2	1.57%** (2.376)	7.24%	1.74%*** (1.909)	7.05%	1.40% (1.453)	7.48%	(0.249)	[1.371]
3	1.18%*** (1.659)	7.79%	1.87% (1.662)	8.69%	0.49% (0.565)	6.77%	(0.973)	[0.888]
4	2.38%* (2.997)	8.70%	2.81%** (2.226)	9.77%	1.95%** (2.005)	7.54%	(0.525)	[1.647]**
High	2.60%* (2.957)	9.65%	3.72%* (2.780)	10.35%	1.49% (1.308)	8.84%	(1.395)	[1.680]**
HML	0.89*** (1.72)	8.89	2.13** (2.012)	9.48	-0.33 (0.267)	8.15	(1.822)***	[0.738]
No. of Obs.	112		60		52			

Note: Reported mean values are in percentage. Values in the parenthesis are of t-statistics and values in brackets are F statistics. The *' ** & *** indicate significance at 1%, 5% and 10% level, respectively.

Student's t test with Null hypotheses; μ=0; Paired comparison t test with null hypothesis; $\mu_H - \mu_L = o$, &

F-test with null hypothesis; $\theta_H - \theta_L = o$.

All returns series were examined for potential heteroskedasticity issue, however, not found and thus the standard errors reported are calculated without adjustments.

Size premium is mainly concentrated in the months of high terrorist activities whereas BE/ME premium during the months of less terrorist activities, indicating that both size and BE/ME premiums are effected by terrorism.

Table 4 reports average value weighted returns and standard deviation for two dimensional portfolio formed on the basis of size and BE/ME. The small and big stocks have been further divided into three value categories i.e. low, medium and high BE/ME. As expected, small value portfolio generates highest average returns (2.84%, significant at 1%) for full sample period. The size premium and value premium for full sample period is 0.70% and 0.76% respectively, both significant at conventional level. This difference decreases during the periods of low terrorist activities and increases during the months of higher terrorist activities. Size premium is high during the months of high terrorism activities and these results are in line with independent sorted portfolios. However, in contrast to the independent sorted portfolios, value premium on two dimensional portfolios explain a different story. Value premium is high during high terrorism activities as compared to low terrorism activities and this decrease in value premium is mainly because of decrease in big portfolio returns. Findings of two dimensional portfolios suggest that investors require higher returns for small and value stocks during the periods of higher terrorism.

Table 4: Size and Value premium analysis – Two dimensional sorting (January 2001 – December 2010)

	All Return	Std. Dev.	Low Terrorism Periods (L) Return	Std. Dev.	High Terrorism Periods (H) Return	Std. Dev.	Paired Comparison t-test	F-test of equality of variances
SL	1.81%* (3.337)	5.93%	2.32%* (2.970)	6.06%	1.29%*** (1.721)	5.80%	(0.960)	[1.092]
SM	2.25%* (4.324)	5.71%	2.36%* (3.136)	5.82%	2.15%* (2.952)	5.65%	(0.188)	[1.058]
SH	2.84%* (4.070)	7.64%	2.78%* (2.667)	8.09%	2.89%* (3.097)	7.23%	(-0.084)	[1.249]
BL	1.49%** (2.074)	7.85%	2.11%** (2.090)	7.82%	0.86% (0.845)	7.89%	(0.823)	[0.981]
BM	1.34%*** (1.919)	7.63%	1.76%*** (1.880)	7.25%	0.91% (0.881)	8.03%	(0.584)	[0.815]
BH	1.97%** (2.295)	9.42%	2.89%** (2.183)	10.26%	1.05% (0.962)	8.47%	(1.127)	[1.468]***
HML	0.76%** (1.973)	5.21%	0.62% (0.932)	5.16%	0.90% (1.313)	5.29%	(-0.299)	[0.951]
SMB	0.70%*** (1.736)	5.75%	0.23% (0.369)	4.91%	1.17% (1.943)***	6.49%	(-0.924)	[0.570]**
No. of Obs.	112		60		52			

Note: Reported mean values are in percentage. Values in the parenthesis are of t-statistics and values in brackets are F statistics. The *' ** & *** indicate significance at 1%, 5% and 10% level, respectively.
Student's t test with Null hypotheses; μ=0; Paired comparison t test with null hypothesis; $\mu_H - \mu_L = o$, &
F-test with null hypothesis; $\theta_H - \theta_L = o$.
All returns series were examined for potential heteroskedasticity issue, however, not found and thus the standard errors reported are calculated without adjustments.

5. Conclusion

The literature is unclear about the sources of abnormal stock's returns. Value firms (higher book to market ratio) provide higher returns in comparison with growth firms (low book to market ratio) and these unjustified returns (based on systematic risk) are termed as value premium. Similarly small stocks also tend to outperform the big stocks (Fama & French, 1992, 1993). These premiums either have a risk based or behavior based explanation which makes the source a puzzle. This leads us to post a question that whether terrorism, a mood proxy can explain these premiums or not. This study for the first time treats terrorism as a phenomenon rather than an event in case of Pakistan. The variables (market excess returns, value, size premium and terrorism) included in this study are found to have significant positive impact on stock returns. The study further explores whether value and size premiums depend on the level of psychosocial impact caused by terrorist incidents. Findings suggest that the small stocks generate higher returns than large stocks and the size premium occurs mainly during the months of higher terrorism activities. In contrast, value premium is more profound during the months of less (high) terrorist activities for portfolios sorted on one (two) dimension. This indicates that both size and BE/ME premiums are effected by investors sentiment.

Reference

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