SPORTS AND STOCK RETURNS VOLATILITY: A CASE OF CRICKET MATCHES PLAYED BY PAKISTAN WITH ASIAN COUNTRIES.

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ABSTRACT: *The research examines the impact of Twenty20 (T20) and One Day International (ODI) cricket matches results on the Karachi Stock Exchange (KSE) returns and volatility. For this purpose, matches played by Pakistan with Asian countries such as India, Sri Lanka and Bangladesh are considered from 1992 to 2012. The impact of T20 and ODI matches result is examined and analyzed on the same day and next day returns and volatility. The current study uses ARCH/GARCH methodology for analysis. Results shows that win or lose have no influence on returns but significant influence on volatility. The volatility is less which indicates less trading on the same day and on the next day. The analysis suggests that there is asymmetric behavior in the market which means Lose of match results has more impact on the volatility than Win match results.*

Key Words: *Cricket, Karachi Stock Exchange, Volatility, Pakistan, India, Bangladesh, Sri Lanka*

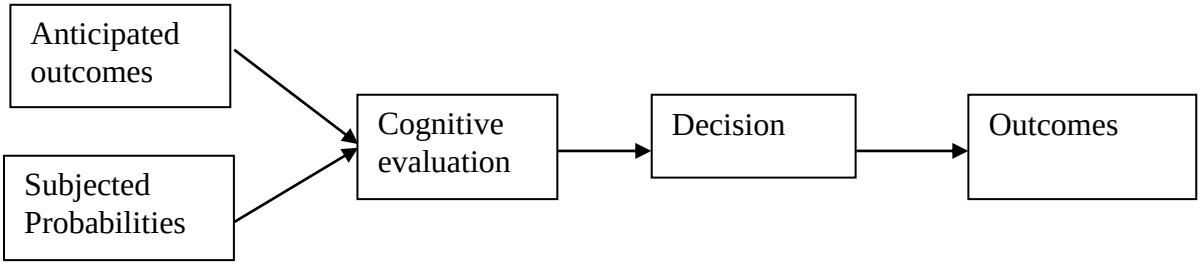
1. INTRODUCTION

Sport is an activity involving skills in which team or individual compete against each other for entertainment. Cricket is a major sport today that attracts players, spectators, investors and even media interest as well. One day international (ODI) and Twenty20 (T20) is a kind of cricket match which is a play between two international teams. Do the ODI, T20 cricket matches affect the stock market performance? Behavioral finance explains psychology based theories and stock market anomalies. Behavioral finance considers that information and behaviors of people influence the investor's decision making [1] In order to create the link in this case of ODI and T20 cricket matches and Stock market the link is established between irrational decision making and investor mood in Figure 1.1.

Figure shows that decision makers weigh benefits and costs of all decisions. They decide outcomes by analyzing the tradeoff of risk and benefits. Bower and Wright [2] hypothesized that people in happy and sad moods assigned different probabilities for future either positive or negative. They found people assigned higher probabilities when they are in good mood.

Many people are Cricket fan closely following the Cricket world cup matches and watching the stock market simultaneously. This basically attracts our attention to do some investigation about the relationship between ODI and T20 cricket matches and the stock markets performance. Our main focus is to analyze the impact of ODI and T20 cricket matches held by Pakistan with Asian countries on the Karachi Stock exchange on the Returns and Volatility.

Industry managers may use this study to capture the Cricket results and their impact on stock market. This study can be used by different investors for making investment decision. These researches will help different stakeholders especially spectators of ODI and T20 cricket matches in decision making. This research is based on vast and recent data of major stock exchange of Pakistan i.e. KSE. This study investigates the same day impact of ODI and T20 matches on stock market returns and volatility. It also considers the next day impact of ODI and T20 on the stock market returns and volatility. It gives empirical evidences to support investors and managers' decision making.



Source: *Wright and Bower[2]*

Figure 1.1: Link between irrational decision making and investor mood

All previous studies analyzed the impact of football and soccer on stock market except few studies of cricket on stock market at international level like Mishra and Smyth [3] and Srinivasan, [4] done in our neighboring country India. This study provides a broader view to help investors and managers in decision making for investment. This research will contribute a lot of knowledge to students, investors, managers etc.

The next section of the study presents review of the previous literature on the topic followed by the research methodology which explains about data, variables and model specification. Results and discussion is presented in the next section. Finally the conclusion of the study include finding and policy implications is presented in the last section.

2. LITERATURE REVIEW:

There is a huge impact of sports on people. Their behaviors and sentiments are influenced to a great extent by sports activities and events. Efficient market Hypothesis (EMH) presented by Fama, [5] explains that the prices completely reproduce all the information that is available which means the markets are 'Efficient'. Excess returns are not possible because the prices of the stocks are impartial and not predictable. But in behavioral finance there is a lot of criticism on the EMH and the events like major stock market bubbles are an example of the failure of EMH. There is evidence from the behavioral finance that the speculative bubbles that lead to the market boom or crashes are due to the psychological thinking errors of the human mind [6]. There is mostly a positive effect on the returns when there is a good news because the good news indicate a good mood and thus the returns increase but after a bad news there is a greater negative influence on the returns because of bad mood and the sentiments are high [7].

There are varied results from different studies as it is seen that the betting results have no effect on the returns. In some studies no relation found between the sports match's results and returns in Australia, New Zealand and South Africa. The investors can hold the upsets in their moods [8] but some studies show strong results about the moods effects on the returns like it is concluded from different studies that the loss has much more impact on returns but win has very less negligible effect [9,10,11]. There are no significant results whether these abnormal returns are exploitable or not.

In individual sports it is found profoundly that the sports generated moods have a great effect on the returns but the foremost result is that losses have much more impact than that of the victory. Victory is taken for granted but loosing generates a really bad mood and effects the loosing country returns and also the surprising loss has much more negative impact on returns. One study by Klein et al., [12], denies the surprise effect on returns and supports the market efficiency view. For hosting the events the country who wins to host the event has a positive effect on its market but no negative effect on the losing country. There is more impact on the small countries [13] and also loss is more meaningful for the big successful teams but win is meant more for the less successful small teams [14].

All previous studies examined only the impact of football and soccer on stock market except few studies of cricket on stock market at international level. One study is to determine the effect of performance of the cricket team of India on its Stock market by [3] which showed that the matches have no impact on the trading volume. Returns are low following the day after the lost match than the following days of normal or won match and returns are low more than any other countries after the lost match. Returns after a win are not more than the normal non-match day but loss has a greater negative impact. Thus the victory follows normal returns but loosing has a substantial influence on returns especially after Tendulkar plays and loses. Thus the implication can be taken from the study that individuals rate loss contrarily as of gain. The positive effect presented from the success is not so huge in size as per the negative waves resulting the defeat. Another study is to prove whether there is a significant negative impact of losing (ODI) matches on the returns in India by Srinivasan, (2002) [4], it showed that there is a significant effect of the defeat on the returns but very less impact of a win. And defeat in India has more effect than outside. Worse mood is generated from a defeat than happiness from a win.

This study make more contribution to field of research by analyzing the impact of ODI and T20 cricket matches results of matches played by Pakistan with Asian countries on KSE. The hypothesis for the study is to uncover that the results of Cricket ODI and T20 matches played by Pakistan with Asian countries have a significant impact on Pakistan Stock Market (KSE) returns and Volatility on the same day and on the next day after the match is played.

3. DATA AND METHODOLOGY

The study analyzes the impact of Cricket, both one day and T20 matches, on stock market of Pakistan (KSE). The stock market data is gathered from Pakistan's major stock Market which is Karachi stock exchange of Pakistan (KSE) for the period 1992 to 2012 and the Index data is transformed into the Returns. Following Mishra and Smyth (2010) [3], the formula used for calculating returns is shown in Equation 3.1.

$$R = Ln\frac{I_t}{I_{t-1}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

The data for the ODI and T20 matches is obtained from the website www.howstat.com.au. This website contains the pool of information regarding every kind of match played in cricket History held in every country with a wide variety of Statistics.

Win (W) and lose (L) are the dummy variables representing whether Pakistan succeed or be defeated. In the ODI cricket matches the dummies become W_{ODI} and L_{ODI} and for the T20 matches theses dummies are W_{T20} and L_{T20}. There are 288 of ODI and 21 of T20 matches played by Pakistan in total with Bangladesh, Sri Lanka and

India. Detailed summary of the data is given in Table 3.1.

Table 3.1: Data on matches played by Pakistan with Asian countries

Match Impact on	Match Type	Total	Total after Exclusion	Won By Pakistan	India Won	Sri Lanka Won	Bangladesh won	Tied/No Results
Next Day	T20	21	17	11	2	4	0	0
	ODI	288	132	77	27	26	1	1
Same Day	T21	21	15	10	3	2	0	0
	ODI	288	127	74	24	25	1	3

Source: www.howstat.com.au.

We are analyzing effect of team performance on returns by two ways. One is to see the impact of the match played on the same day Returns and volatility while the other way is to see the impact of the match played on the next day Returns and volatility. Thus 161 of ODI and 6 of T20 matches are excluded from the Analysis for which the Index Returns were not available on the same day and the same procedure is repeated and 156 of ODI and 4 of T20 matches are excluded for which the Index returns of the next day of match played are not available. Also Matches that are tied or those ended with no results are excluded.

Autoregressive Conditional Heteroskedasticity (ARCH) models are popular models to measure volatility as used by number of studies such as Berument and Ceylan [14], Berument *et al.* [15] and Edmans *et al*. [9]; Nicolau [16]. The Volatility in this model is the variance of the error terms. ARCH models can proficiently and quite easily represent the findings in financial time series i.e. the conditional Heteroskedasticity. The (ARCH) model was originally established by Engle [17] and is used broadly for modeling the financial time series. Here it is used to model the link between the market returns of KSE indices and other variables as dummies of win and lose of the Cricket matches. Heteroskedasticity is observed in time series data especially in the high frequency data i.e. in the daily data used in this paper and it is the main reason of volatility so it is needed to be incorporated in the model. The general ARCH (q) model for the returns is shown where Equation 3.2 is the mean equation and Equation 3.3 is the variance equation.

$$R_t = \beta_t X_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

$$\sigma_t^2 = \gamma_0 + \sum_{i=1}^{q} \gamma_i \varepsilon_{t-i}^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

We are using the extension of the ARCH model which is the Generalized Autoregressive Conditional Heteroskedasticity also called GARCH. ARCH had volatility depending on lagged errors terms squared but GARCH adds to this lags of volatility itself which is the lag of the variance of the error terms. To find out the dynamic behavior of variance a higher order ARCH is needed but GARCH solves this problem in its simple form. The general GARCH (p, q) model for the returns is shown wherever Equation 3.4 is the mean equality and Equation 3.5 is the variance equality.

$$R_t = \beta_1 X_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

$$\sigma_t^2 = \gamma_0 + \sum_{i=1}^{q} \gamma_i \varepsilon_{t-i}^2 + \sum_{j=1}^{p} \lambda_j \sigma_{t-j}^2 \ldots\ldots\ldots(5)$$

The first figure 'p' in the bracket in the above GARCH (p, q) model mentions the number of moving average lags which is recognized as the quantity of GARCH expressions, whereas the subsequent figure 'q' denotes the number of autoregressive (AR) lags also called the ARCH expressions. In Equation 3.4, t is used for the time, X_t are the lags of the dependent variable (R_t) returns calculated from the KSE index, ε_t are the error terms and ε_{t-i}^2 are the lags of the error expressions. Where in Equation 3.5, σ_t^2 is the conditional variance of the error terms and σ_{t-j}^2 are the lags of the conditional variance of the error terms and is the only addition to convert ARCH (q) model into GARCH (p ,q) model.

ARCH/GARCH models ignore the evidence on the direction of returns. However, there is very conclusive evidence that the direction also affect the volatility. The behavior of data whether symmetric or asymmetric can be checked by using the TARCH model which is an extension of the ARCH model. Here in financial term symmetric behavior means that there is an equal reaction for both the bad and good news or it can be said that every kind of shock has the same reaction. Thus the impact on the returns is same for every kind of surprise (positive or negative).

We are using the dummy Regression with the GARCH (1, 1) and TARCH (1, 1) modeling (p = 1, q = 1) to check the Returns and volatility of the model which is the simplest form with both ARCH and GARCH terms equal to one.

4. DATA ANALYSIS AND DISCUSSION

The descriptive analysis of the Returns series is shown in table 4.1. It can be seen that there are 5063 total number of observations. The Mean of the returns or it can also be called the average of the returns is 0.000577. The maximum return is 13.61% and the minimum return is -12.38%. The standard deviation or the spread of the data is 1.56%.

Table 4.1: Descriptive Statistics of the Return series

Mean	0.000577
Median	0.000744
Maximum	0.136124
Minimum	-0.123775
Std. Dev.	0.015618
Skewness	-0.115974
Kurtosis	8.493894
Observations	5063

.2

Table 4.2: Results through running simple Regression with AR term of returns

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.000506	0.000218	2.322167	0.0203
RETURN (-1)	0.122126	0.013953	8.752760	0.0000

Table 4.3: Testing ARCH (1) effects in the KSE returns.

Heteroskedasticity Test: ARCH				
F-statistic	280.3855	Prob. F (1, 5059)		0.0000
Obs*R-squared	265.7667	Prob. Chi- Square (1)		0.0000
Dependent Variable: RESID^2				
Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.000185	9.60E-06	19.31355	0.0000
RESID^2(-1)	0.229158	0.013685	16.74472	0.0000

Table 4.4: Cricket Matches and Stock Returns of the Same Day-ARCH (1).

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
RETURN (-1)	0.143030	0.010185	14.04284	0.0000
WIN_ODI	0.003024	0.001497	2.020655	0.0433
LOSE_ODI	0.001532	0.001722	0.889727	0.3736
WIN_T20	-0.000531	0.005212	-0.101930	0.9188
LOSE_T20	0.002124	0.010096	0.210420	0.8333
	Variance Equation			
C	0.000143	2.01E-06	71.39349	0.0000
RESID (-1) ^2	0.436871	0.020041	21.79905	0.0000

As a first step simple Regression is run through OLS estimation method, the lag of the dependent variable Return (-1) is significant which indicates that auto correlation is present in the series and the present results can be used to predict the future returns. The result can be seen in the following table 4

The same results are tested for the Heteroskedasticity presence. The results in table 4.3 suggest that ARCH model can be applied on this data.

4.1 Analyzing the Impact on the Same Day Returns and Volatility

The impact of ODI and T20 cricket matches result on the same day KSE returns are tested by using ARCH. Results are presented in Table 4.4.

Table 4.4 shows that RETURN (-1) is significant which means current returns can be predicted from the past results. All the variables are insignificant except WIN ODI. WIN ODI dummy has significant impact on the returns on the same day. It means WIN ODI matches results effect the KSE returns. Other independent variables have no impact on the same day returns.

Results from running Regression through the ARCH (1) estimation method to check the impact of the matches results on the Volatility. Volatility is determined from the variance equation in the ARCH model. Results are given in the Table 4.5.

Table 4.5: Cricket Matches and Returns Volatility of the Same Day-ARCH (1).

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	0.000816	0.000177	4.606479	0.0000
RETURN (-1)	0.137446	0.010048	13.67878	0.0000
	Variance Equation			
C	0.000143	2.03E-06	70.53123	0.0000
RESID (-1) ^ 2	0.438905	0.020139	21.79354	0.0000
WIN_T20	-5.09E-05	4.65E-05	-1.094960	0.2735
LOSE_T20	-0.000105	2.95E-05	-3.565596	0.0004
WIN_ODI	-5.19E-06	1.82E-05	-0.285853	0.7750
LOSE_ODI	8.56E-07	3.63E-05	0.023602	0.9812

Table 4.6: Cricket Matches and Returns Volatility of the Same Day GARCH (1, 1).

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	0.000769	0.000149	5.163819	0.0000
RETURN (-1)	0.124417	0.015217	8.176146	0.0000
	Variance Equation			
C	1.60E-05	7.29E-07	21.98819	0.0000
RESID (-1) ^ 2	0.250526	0.009787	25.59737	0.0000
GARCH (-1)	0.697199	0.006138	113.5850	0.0000
WIN_T20	-4.98E-05	1.91E-06	-26.15138	0.0000
LOSE_T20	-5.03E-05	3.01E-06	-16.72758	0.0000
WIN_ODI	-1.43E-05	4.50E-06	-3.165613	0.0015
LOSE_ODI	-1.69E-05	1.20E-05	-1.415761	0.1568

Results in Table 4.5 shows that LOSE T20 are significant and has significant impact on the volatility on same day. Here it can be seen that the variable RESID (-1) ^ 2 is significant that means that the volatility can be predicted from the past volatility. Other dummies are insignificant, it means results of WIN T20, WIN ODI and LOSE ODI cricket matches has no impact on volatility on the same day.

GARCH (1, 1) Model is used to check the persistency of volatility results. It is an extension of ARCH. ARCH effect exists in the data; therefore GARCH is applied to generalize the results. Variance equation of GARCH is derived from variance equation of ARCH model. GARCH (1, 1) is applied and results are as follows in the Table 4.6.

The GARCH (1, 1) results are shown in the Table 4.6, where it can be seen that the GARCH term is significant where means the volatility pattern of today can be predicted through the past prices volatility behavior and volatility results can be generalized. It is persistent and can be generalized over the period. The independent variable are significant at 1% in the variance equation except the dummy of loss for the ODI which is insignificant. The variables show that the winning or losing of T20 and losing of the ODI contribute to the volatility in the returns. The coefficients of the significant dummies are negative this means that the variables cause the volatility to decrease. This can be due to less trading on the same day match is played.

It means that WIN T20, LOSE T20 and WIN ODI results are significant and volatility result can be generalized. It affect the investor‘s behavior and their focus is on cricket match rather than the KSE. Less trading takes place on the same day that’s why coefficients are negative.

The GARCH was also tested for the Impact on Returns which shows that all of the variables are insignificant even at 10% significance level. So it can be concluded that the

Table 4.7: Cricket Matches and Returns Volatility of the Same Day TARCH (1, 1)

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	0.000599	0.000206	2.912827	0.0036
RETURN (-1)	0.132386	0.016579	7.984976	0.0000
	Variance Equation			
C	7.96E-05	1.50E-06	53.20661	0.0000
RESID (-1) ^ 2	0.209236	0.020515	10.19922	0.0000
RESID (-1) ^ 2 * (RESID (-1) < 0)	0.237853	0.031421	7.569962	0.0000
GARCH (-1)	0.377816	0.014336	26.35379	0.0000
WIN_T20	-0.000127	4.21E-06	-30.13127	0.0000
LOSE_T20	-0.000103	1.16E-05	-8.867061	0.0000
WIN_ODI	-6.58E-05	1.29E-05	-5.105258	0.0000
LOSE_ODI	-2.70E-05	2.75E-05	-0.981989	0.3261

Table 4.8: Cricket Matches and Stock Returns on the Next Day ARCH (1)

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
RETURN (-1)	0.142217	0.010135	14.03218	0.0000
WIN_ODI	-0.001023	0.001476	-0.693083	0.4883
LOSE_ODI	0.003094	0.001655	1.868996	0.0616
WIN_T20	0.001982	0.009537	0.207849	0.8353
LOSE_T20	-0.001174	0.014658	-0.080064	0.9362
	Variance Equation			
C	0.000144	2.01E-06	71.52475	0.0000
RESID (-1) ^ 2	0.434357	0.019922	21.80284	0.0000

Table 4.9: Cricket Matches and

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
RETURN (-1)	0.142217	0.010135	14.03218	0.0000
WIN_ODI	-0.001023	0.001476	-0.693083	0.4883
LOSE_ODI	0.003094	0.001655	1.868996	0.0616
WIN_T20	0.001982	0.009537	0.207849	0.8353
LOSE_T20	-0.001174	0.014658	-0.080064	0.9362
	Variance Equation			
C	0.000144	2.01E-06	71.52475	0.0000
RESID (-1) ^ 2	0.434357	0.019922	21.80284	0.0000

Returns Volatility on the Next Day ARCH (1)

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	0.000803	0.000176	4.555040	0.0000
RETURN (-1)	0.137530	0.010040	13.69763	0.0000
	Variance Equation			
C	0.000143	2.03E-06	70.48046	0.0000
RESID (-1) ^ 2	0.436756	0.020022	21.81395	0.0000
WIN_ODI	-2.52E-06	1.86E-05	-0.135368	0.8923
LOSE_ODI	5.02E-05	4.14E-05	1.210505	0.2261
WIN_T20	-0.000119	9.30E-06	-12.83194	0.0000
LOSE_T20	-0.000124	2.13E-05	-5.799205	0.0000

Table 4.10: Cricket Matches and Returns Volatility on the Next Day GARCH (1, 1)

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
C	0.000792	0.000148	5.354738	0.0000
RETURN (-1)	0.129676	0.014833	8.742653	0.0000
	Variance Equation			
C	8.42E-06	4.06E-07	20.75853	0.0000
RESID (-1) ^ 2	0.178889	0.007996	22.37099	0.0000
GARCH (-1)	0.796461	0.006008	132.5699	0.0000
WIN_T20	-4.64E-05	9.42E-06	-4.932979	0.0000
LOSE_T20	-2.93E-05	6.21E-06	-4.714117	0.0000
LOSE_ODI	-2.93E-05	4.97E-06	-5.893061	0.0000
WIN_ODI	1.36E-05	6.80E-06	2.003625	0.0451

Table 4.11: Cricket Matches and Returns Volatility on the Next Day TARCH (1, 1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.000216	0.000310	-0.695821	0.4865
RETURN(-1)	0.124200	0.019093	6.504867	0.0000
Variance Equation				
C	0.000160	2.42E-06	66.28884	0.0000
RESID(-1)^2	0.134726	0.022681	5.940085	0.0000
RESID(-1)^2*(RESID(-1)<0)	0.069816	0.029376	2.376649	0.0175
GARCH(-1)	0.389907	0.007318	53.28310	0.0000
WIN_ODI	-0.000126	1.75E-05	-7.202071	0.0000
LOSE_ODI	-0.000108	1.63E-05	-6.606533	0.0000
WIN_T20	-0.000198	4.50E-05	-4.398389	0.0000
LOSE_T20	-0.000252	6.13E-06	-41.16095	0.0000

The results of the regression are shown in the Table 4.8 where it can be seen that except the lag term all the variables are insignificant which that the independent variable have no effect on the returns.

matches have no impact on the Returns directly but have the impact on Volatility only.

The behavior of data whether symmetric or asymmetric can be checked by using the TARCH model. The model itself adds a dummy variable in the variance equation. The TARCH results are shown in the Table 4.7.

It can be seen in Table 4.7 that RESID (-1) ^2 * (RESID (-1) < 0) is the dummy variable and it is significant and shows an asymmetric behavior and the bad news has more influence than the good news. It means loss of cricket matches has negative influence on the volatility. The results of TARCH shows that all of the variables are highly significant at 1% except loss of ODI match. This shows that the winning or losing of T20 and winning of ODI contribute to the volatility in the returns. The negative coefficients of the dummies show that the variables are causing the volatility to decline. This can be due to not trading on the same day match is played and thus investors are making less transactions due to the craze of the match.

Negative news has more impact on the investors. Loss has more effect than good news, it makes the investor's behavior negative and in decision making they become risk averse.

4.2 Analyzing the Impact on the Next Day Returns and Volatility

To test the impact of ODI and T20 cricket matches result on the next day KSE returns are tested by using ARCH. Results are presented in Table 4.8.

The results in Table 4.9 indicate that the dummies of win and lose of T20 are significant and has impact on the volatility. Here it can be seen that the variable Return (-1) is significant which means that the volatility can be predicted. This regression can also be run with higher order ARCH terms i.e. ARCH (q) but this is tested here with GARCH.

The GARCH (1, 1) results are shown in the Table 4.10 where it can be seen that the GARCH term is significant which means the volatility pattern of today can be predicted through the past prices volatility behavior. It is persistent and can be generalized over the period. The independent variable are significant at 1% in the variance equation except the dummy of win for the ODI which is insignificant but significant at 5%. The variables show that the winning or losing of T20 and ODI contribute to the volatility in the returns. The coefficients of the significant dummies are negative which means that the variables cause the volatility to decrease. This can be due to less trading on the next day after a match is played.

The behavior of data whether symmetric or asymmetric can be checked by using the TARCH model as shown in table 4.11.

Here it can be seen in Table 4.11 that RESID (-1) ^2*(RESID (-1) <0) is the dummy variable to see the behavior of the data and it is significant which means the data shows an asymmetric behavior and the negative news has more influence than the positive news. The results of TARCH show that all of the variables are highly significant at 1%. This shows that the winning or losing of T20 and ODI contribute to the volatility in the returns. Also the negative coefficients of the dummies show that the variables are causing the volatility to decline. This can be due to not as much of trading on the next day after a match is played and thus investors are making less transaction due to the excitement of the match or they might be busy watching the match.

4.3 DISCUSSION OF RESULTS

The results show that there is no impact on the returns whether it is analyzed on the same day returns or the next day returns when a match is played. Our results are not consistent

with a studies where it was said that mood related events can be traded [3,4,9,10,18]

Many papers have found no relationship between the returns and the match played like one study done in New Zealand about the Rugby matches impact on returns [8]. The study showed that there is no impact of the Rugby match results on the returns and people are aware and can handle the shocks to their emotions and Self-Esteem. Our results are also consistent with another study done in New Zealand and Australia [19], where it was found no effect of any sports event on the returns for either of the stock markets studied. Another study done in the Dutch market also gave the same results [20] where it was concluded that the market is efficient. No evidence is found of any association concerning sporting team success and market return performance [8] Investors are aware and can handle the shocks to their emotions and Self-Esteem.

The results also showed that there is a great impact of the match outcome on the Volatility in the returns whether on the same day or the next day of the match played. Where the loss of the ODI match has no impact on the same day but has an impact on the next day of the match played. This can be justified by a paper in which the results were given that market reactions to the bad news is very slow as compared to the wins of the matches [21] done for the British soccer game. In many papers the impact on the volatility is also seen which was consistent with our results, like in a paper [22] it was found that when the domestic team was performing, the quantity of trade and the volume let fall, market activity was influenced by match events. For illustration, a goal caused the trading activity to fall by 5%. Also in a different study it is seen that the volatility changes with the results of the match [14]. One other study done in our neighboring country India showed the results against our results that matches has no influence on the trading volume [3].

Our results also showed that the negative news has more impact than the good news which is an asymmetric behavior of the data. These results are consistent with [3] where returns after a win is not more than the normal non-match day but loss has a greater negative impact. There is a significant effect of the defeat on the returns but very less impact of a win in another study [4].

Thus Concluding the Discussion it can be implicit that the winning or the loosing of the cricket matches have significant impact on volatility but no impact on KSE returns. So, on the basis of the results it can be said that the investors and speculators cannot take any advantage because there is no impact on returns.

5. CONCLUSION

This study analyzed the impact of ODI and T20 cricket matches results on the KSE returns and volatility of the same day and next day. The results of the study show that the explanatory variables have significant impact on volatility but no impact on KSE returns. The current volatility can be predicted from the past volatility and the results can be generalized. The asymmetric behavior result showed that people give more importance to the losses than gain. It is also concluded that in Asian countries, people are crazier about cricket. They take so much interest in cricket. Investors are paying more attention on cricket rather stock market. The response of the market against the winning or losing of the match is that the volatility is reduced and from this it can be inferred that there is less business on the day a match is held. Hence, profitable transactions are not possible for the investors or speculators. Only the risk of frequent changes in the prices will be reduced in the market due to less trading.

In future, this study can be done by testing the Asian cricket matches results i.e. Bangladesh, India, Sri Lanka and Pakistan on the Asian stock exchanges of Asian countries. Mood of audiences vary from country to country. This study can be done by involving all the countries participated in T20 and ODI matches and their effect on KSE returns and volatility.

Furthermore, we cannot generalize our results on all stock exchanges of other countries because this research is limited to KSE only. We considered only mood swings like positive and negative and will have upward and downward effect on stock market returns and volatility. While realistic psychological mood swings also involve sadness, disappointment, anger and frustration where it depends on the subject how he behave in a given emotion or mood.

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