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The Impact of the Performance of English Cricket Team on Stock Returns: Evidence from the Ashes Tournament

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Abstract

This paper investigates three main issues in the sports economics literature that are loss effect, venue effect, and hot match effect in relation to the Ashes test cricket tournament in the perspective of England. Three main methods employed in the paper are standard event study methodology using mean adjusted model, panel ordinary least square regression, and panel cointegration analysis. There were robust findings in support of loss effect confirming the previous literature. Results for venue and hot match effects are mixed between methodologies and do not provide a clear sense of direction emphasising the requirement of further inquiry by future researchers. The findings of this study are useful to both investors and market practitioners in formulating trading strategies and investment decision making in financial markets.

Keywords: Loss effect, Venue effect, Hot match effect, Test cricket, Ashes tests

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Introduction

The relationship between market efficiency and non-economic events is crucial to understanding security price movements. The concept of market efficiency postulates that all relevant economic information is reflected in security prices (Fama, 1970). The three main hypotheses of market efficiency are weak form, semi-strong form, and strong form efficiency. Weak form efficiency assumes all past information is reflected in the prices of assets such as equities and bonds. Semi-strong form explains that all public information, including past and current information, is incorporated in asset prices. Strong form efficiency reflects all information in asset prices, including internal data that was not available to the public (Fama, 1970; Fama, 1991). Fama (1970) assumes all information is rational and economically relevant information. However, there are several empirical findings on the impact of non-economic events on asset prices. Some examples are weather (Saporoschenko, 2011), sleeping patterns (Kamstra et al., 2000), and mega sporting events (Mirman & Sharma, 2010). These non-economic events exert a material influence on investor sentiment and impact to investor decision making (Statman, 1999). There is mixed evidence on the impact of the results of various sports events on stock returns. Some notable empirical evidences are soccer (Ashton et al., 2003), Rugby (Boyle & Walter, 2003), Cricket (Mishra & Smyth, 2010); Horse Racing (Worthington, 2007). Important work by Camerer et al. (1993); Barberis et al. (1998); Baker and Wurgler (2007) described that individuals with optimistic mindsets will make positive and proactive decisions, and ones with pessimistic moods will engage in negative and defensive judgments. Sports victories will lead to a good mood in investors and ultimately optimistic decisions that result in bullish market behaviour. Similarly, defeats of the favourite sports team will lead to a pessimistic mindset of investors who will follow defensive trading patterns, with most likely the end result of bearish market conditions noted by Iqbal et al. (2023); Gao et al. (2023); Dimic et al. (2018); Edmans et al. (2007) and Ashton et al. (2003). Further, if a home team is defeated, it will impact the market returns negatively, as investigated by Benkraiem et al. (2009); Kaplansky and Levy (2010). Further, hot games such as knock-out matches (Markman & Hirt, 2002) and rivalry games like cricket matches between India and Pakistan (Fan & Wang, 2018) would strongly impact stock returns than ordinary games.

This study addresses a critical gap in sports economics literature by focusing on cricket, specifically the Ashes tournament, and its impact on stock returns. Cricket is the second most popular sport and has a fan base of more than 2.5 billion all over the world (Muktadir, 2025). However, most of the sports economics literature focuses on soccer (Ashton et al., 2003; Edmans et al., 2007) and comparatively little attention has been given to cricket. Further, the impact of test cricket is the least studied format of Cricket, even though the test cricket is the oldest and most recognised version of the game. One Day Internationals (ODIs) with 50 overs per inning and T20s with 20 overs per inning are the formats mostly covered by the literature, such as Mishra and Smyth (2010); Hiremath and Venkatesh (2019); Gkillas et al. (2020). The key focus of this paper is to analyse the impact of the results of Ashes test matches on the returns FTSE 100 index of the London Stock Exchange. Ashes test match series is the most

popular and oldest test tournament in the world, starting in 1882 between Australia and England.

Date (2023) classified the ODIs played by India as live rubbers (LRs) and dead rubbers (DRs) in his Cricinfo web article. Live Rubbers are matches played before winner of the series is decided, and DRs are matches played after winner of the series is decided. Live Rubbers are further divided into can lose (CLs) and must win (MWs) matches. Can Lose are matches that a team can lose and still stay in contention to win the series. Must Wins are matches that a team must win to stay in contention to win the series. Dead Rubbers are also classified into two categories, namely series won (SW) and series lost (SL). Series Wons are matches played after a team has won the series already. Series Lost are the matches played after a team has lost the series already.

This paper intends to investigate the impact of the above match categories by Date (2023) classification in the Ashes tournament on stock returns of the FTSE 100 index in England. 97 test matches in Ashes tournaments from 1985 to 2023 are categorised according to the classification by Date (2023) in this paper. The main purpose of this paper is threefold. First is to examine the loss effect that investigates whether losses are more impactful compared to wins among the categories of matches in the Date (2023) classification. The second objective is to identify the impact of the venue on whether the English team performs worse in Australia than on their home soil in the Ashes tournament. The third aim of the paper is to check the existence of the hot match effect, which examines whether the results of hot matches impact on investor sentiment and ultimately stock returns. Hot matches are considered as LRs and their two variants, CLs and MWs in this paper. The short-run impact of the results of Ashes matches is evaluated by employing standard event study methodology and ordinary least square (OLS) panel data regression. The long-run impact of Ashes matches on post-event cumulative abnormal return (PECAR) is analysed through panel cointegration analysis. The findings of this paper will be useful to investors, who they can make better financial decisions using the insights of this paper. Professionals in financial markets such as stock brokers, research analysts, and portfolio managers can optimise their investment strategies on behalf of clients. The rest of the paper is structured as follows. Section two of this paper discusses theoretical and empirical literature together with the formulation of hypotheses. Section three discusses methodology, and section four presents the analysis and discussion of results. Section five concludes the paper.

Literature Review and Hypothesis Development

The literature review presents three main themes, which are the loss effect, venue effect, and hot match effect. Wann et al. (1994), Ashton et al. (2003); Berument et al (2009); Ashton et al. (2011) observed positive returns after wins and negative returns after losses in soccer matches. Similar results were observed in different versions of cricket matches such as limited over matches (Abhijeet, 2011; Iqbal et al., 2023) and Indian premier league (Hiremath & Venkatesh, 2019). Edmans et al. (2007) further investigated this issue and found that losses in sports events trigger significant negative returns in stock markets. However, market

reactions to wins were insignificant as per Edmans et al. (2007) and reconfirmed the earlier research findings of Markman and Hirt (2002). Mishra and Smyth (2010) found the same result concerning the ODIs. Curatola et al. (2016) explained the reasons for significant negative returns after losses. They described it as losses of the supporting team would lead to a bad mood of investors representing that country, leading to bearish market behaviour and subsequently negative returns. Theoretical support for this argument could be drawn from the prospect theory of Kahneman and Tversky (1979). Losses are more painful for individuals compared to the joy experienced by the gain of a similar magnitude. This may be the reason why Ashton et al. (2003); Edmans et al. (2007) and Curatola et al. (2016) found significant negative returns after losses in soccer matches compared to wins. Edmans et al. (2007) further found negative significant returns after losses in other sports such as Cricket, Rugby, Basketball and Ice Hockey. However, Gerlach (2011) examined the results of Edmans et al. (2007) by comparing the matching countries where there were no sporting events took place; however obtained similar results. Therefore, Gerlach (2011) argued that the existence of abnormal negative returns may not be due to the results of sporting events. However, there is a fair amount of empirical literature to the prevalence of loss effect, including Tufan (2004); Klein et al. (2009); Boyle and Walter (2003); and Botha and Beer (2013). Therefore, the following hypothesis is proposed.

H_1: Losses by England in Ashes test matches will result in negative returns in the FTSE 100 index.

Results of hot matches influence stock returns in a larger magnitude compared to less important matches. For example, a loss in the knockout stage or a final match in a tournament would have a greater impact on the stock returns of the losing country (Markman & Hirt, 2002). Further, upsets such as Afghanistan's victory over Australia in the T20 world cup in 2024 would have an impact on the losing nation. This phenomenon was previously documented by Berument and Ceylan (2012). Further, Fan and Wang (2018) confirmed that stock returns are heavily affected after games between rival nations in the context of sports. Good examples of sporting rivalries are Cricket matches played between India and Pakistan, as well as Soccer matches played between Argentina and Brazil. The Ashes tournament between Australia and England is the oldest rivalry in Test cricket. Therefore, it is possible to estimate that the results of hot matches that attract a lot of spectators would exert a strong influence on stock returns compared to less attractive matches. In the context of this paper, LRs and their two categories, CLs and MWs, are considered as hot matches. SLs and SWs are considered less attractive games. Therefore, following hypotheses were proposed.

H_2: LRs in the Ashes tournament strongly influence the FTSE 100 index compared to DRs.

H_3: CLs and MWs in the Ashes tournament strongly influence the FTSE 100 index compared to SWs and SLs.

The venue is an important factor in Cricket and favours to home team due to better-known local conditions and home crowd. Benkraeim et al. (2009) found that losses of the home team would drive down the stock returns of its country. Kaplansky and Levy (2010) further supported this argument and justified that disappointed spectators would divest their portfolios the next day after a loss of the home side. However, Gerlach (2011) challenged the above argument with his results that show the same negative returns were reported for matching countries, also where there are no sports events that took place. So Gerlach's (2011) logic is that negative returns in the home country were not due to the losses of the home team. Therefore, following hypotheses were proposed.

> *H_4: Ashes test matches played by English team in England will significantly influence the stock returns to the FTSE 100 index than the matches played in Australia.*

Data and Methodology

Data for England's FTSE 100 index were retrieved from the Bloomberg website on 24th March 2024. Data on Ashes tests were obtained from the ESPN Cricinfo website. This paper employs three main methods to analyse the loss effect, venue effect, and the hot match effect. They are standard event study analysis, panel ordinary least square regression, and panel cointegration method.

Event study analysis in this study investigated 97 Ashes tests played by England from the 1984/85 season to the 2023 season. The mean adjusted return approach was used to calculate the expected return. The Market model or Capital Asset Pricing Model (CAPM) couldn't be used to calculate expected return since the market index (FTSE 100) is analysed using the event study technique. The estimation window is considered as 100 days prior to the beginning of the Ashes tournament in each season. Post-event period is only analysed due to the varying nature of the event period since the duration of a test match changes from one to another, subject to a maximum period of five days. The post event period is determined as three trading days immediately after the end of each match. Average abnormal returns and cumulative average abnormal returns were calculated as follows.

$$R_{it} = (P_{it} - P_{it-1})/P_{it-1} \quad \text{Eq1}$$

$$AR_{it} = R_{it} - E(R_{it}) \quad \text{Eq 2}$$

$$AAR_{it} = 1/N \sum_{i=1}^{N} AR_{it} \quad \text{Eq 3}$$

$$CAAR_i = \sum_{t=t1}^{t2} AAR_{it} \quad \text{Eq 4}$$

$$t = CAAR_i/(\frac{\sigma_{AAR}}{\sqrt{T}}) \quad \text{Eq 5}$$

Where, Rit = stock return for index *i* for period *t*; Pit = index value for period *t*; Pit-1 = index value for period *t-1*; ARit = Abnormal return for index *i* for period *t*; E(Rit) = Expected return for index *i* calculated based on mean adjusted return approach; AARit = Average

abnormal returns for index *i* and period *t*; CAAR*i* = Cumulative average abnormal return for index *i*; t = t statistic for CAARi; σAARit=Standard deviation of AAR; N = Number of events; T = Number of days in the post event period.

The second method of analysis used was panel OLS regression. The cumulative abnormal return for the post-event period was the dependent variable, and the following regressions with dummy variables were performed in the analysis. 19 seasons of the Ashes tournament from the 1984/85 season to the 2023 season were considered as time periods, and 5 test matches played in each season were considered as cross sections. Assumptions of OLS regressions that are no serial correlation, homoscedasticity, normality, and no multicollinearity were tested using Breusch-Godfrey serial correlation LM test (Breusch, 1978; Godfrey, 1979), Breusch-Pagan-Godfrey Heteroscedasticity test (Breusch & Pagan, 1979; Godfrey (1978), Jarque-Bera normality test (Jarque & Bera, 1980; 1987), and variance inflation factors (Belsley, 1980), respectively. Cross-sectional dependence was tested using three tests, namely the Breusch-Pagan LM test, Pearson scaled LM test, and Pearson CD test.

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 LR_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 6}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 CL_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 7}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 MW_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 8}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 DR_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 9}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 SL_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 10}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \beta_2 Away_{it} + \beta_3 SW_{it} + \beta_4 PECAR(-1)_{it} + \varepsilon_{it} \quad \text{Eq 11}$$

Where, PECARit = Post event cumulative abnormal return for an *ith* match at Ashes season *t*; Lossit = dummy variable takes value 1 for a loss of an *ith* match at Ashes Season *t* otherwise zero; Awayit = dummy variable takes value 1 for an *ith* match played in Australia at Ashes season *t* otherwise zero; LRit = dummy variable takes value 1 for a live rubber for an *ith* match at Ashes season *t* otherwise zero; CLit = dummy variable takes value 1 for a can lose match for an *ith* match at Ashes season *t* otherwise zero; MWit = dummy variable takes value 1 for a must win match for an *ith* match at Ashes season *t* otherwise zero; DRit = dummy variable takes value 1 for a dead rubber for an *ith* match at Ashes season *t* otherwise zero; SLit = dummy variable takes value 1 for a series lost match for an *ith* match at Ashes season *t* otherwise zero; SWit = dummy variable takes value 1 for a series won match for an *ith* match at Ashes season *t* otherwise zero.

Panel cointegration analysis was conducted as the last method in order to investigate the long run relationship between post-event cumulative abnormal return (PECAR) and different match categories considered above, such as lost matches, matches played in Australia, and hot matches. Pedroni cointegration tests (both intercept only and intercept together with trend) (Pedroni, 1999; Pedroni, 2004) and Kao cointegration (Kao, 1999) tests were used to test the long-run relationship between PECAR and different match categories. The long-run loss effect was examined in the above cointegration tests using PECAR, and the lost matches were

represented by a dummy variable. The long-run impact of the venue was investigated between matches played by England in Australian soil and PECAR. Finally, the long run association between live rubbers (LRs) as well as dead rubbers (DRs) with PECAR were tested to examine the impact of hot matches and ordinary matches. Long-run cointegration models are given below. The null hypothesis of the cointegration tests is that there is no cointegration between the respective variables.

$$PECAR_{it} = \alpha_{it} + \beta_1 Loss_{it} + \varepsilon_{it} \quad \text{Eq 12}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 Away_{it} + \varepsilon_{it} \quad \text{Eq 13}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 LR_{it} + \varepsilon_{it} \quad \text{Eq 14}$$

$$PECAR_{it} = \alpha_{it} + \beta_1 DR_{it} + \varepsilon_{it} \quad \text{Eq 15}$$

Results

England has played 97 Ashes matches from 1985 to 2023. They have won 25 matches and lost 52 matches to Australia. The number of drawn matches is 20. Wins of Ashes matches were followed by the positive stock returns irrespective of whether matches were played in the home venue or not, and whether they were live rubbers or dead rubbers. Standard deviation of stock returns for wins is in the range of 0.07% to 0.51% . Losses are followed by negative stock returns except for three categories that are dead rubbers, must win matches, and series lost matches. The series won category under losing matches reports the highest standard deviation, which is much higher than other categories. All drawn matches are also followed by positive stock returns.

Table 1

Descriptive Statistics of the Returns of the FTSE Index Sorted by Ashes Matches

Match Type	Wins			Losses			Draws		
	Mean	**SD**	**Number of Matches**	**Mean**	**SD**	**Number of Matches**	**Mean**	**SD**	**Number of Matches**
Home	0.10%	0.14%	18	-0.10%	0.15%	23	0.23%	0.26%	12
Away	0.21%	0.51%	7	-0.01%	0.04%	29	0.35%	0.24%	8
LRs	0.11%	0.07%	21	-0.08%	0.06%	42	0.26%	0.23%	16
DRs	0.23%	0.35%	4	0.10%	0.45%	10	0.35%	0.16%	4
CLs	0.19%	0.17%	9	-0.18%	0.07%	28	0.42%	0.35%	10
MWs	0.06%	0.21%	12	0.11%	0.10%	14	0.00%	0.16%	6

SWs	-	-	-	-1.03%	3.91%	1	-	-	-
SLs	0.23%	0.35%	4	0.22%	0.10%	9	0.35%	0.16%	4

Unit root tests were conducted for PECAR, which is the main dependent variable of the study. The Levin, Lin & Chu unit root test was used for this purpose. PECAR was not significant at the level under both conditions of constant only and constant together with trend. However, PECAR becomes stationary when it was tested with the first difference under both above conditions. Therefore, the first difference of PECAR has been used for the subsequent panel data regression. Other variables were not tested for unit roots since they were dummy variables.

Table 2

Results of Unit Root Tests

	Level	**Level**	**1st Difference**	**1st Difference**
	Constant only	**Constant & Trend**	**Constant only**	**Constant & Trend**
Levin-Lin-Chu Statistic	0.7557	0.6865	4.1231	2.5207
Probability	0.2249	0.2462	0.0000	0.0059

Table 3 provides cumulative average abnormal returns (CAARs) for wins, losses, and drawn matches under three event windows, namely day 0 to day 1; day 0 to day 2, and day 0 to day 3. Day 0 is the last date of the test match that is considered the event date. Wins by the English team were associated with positive statistically significant CAARs for all three event windows. Drawn matches also exhibit similar results. Lost matches by England were presented with negative statistically significant CAARs. These observations confirm the loss effect hypothesis and are in line with previous literature such as Iqbal et al. (2023); Gao et al. (2023); Dimic et al. (2018); Abhijeet (2011); Edmans et al. (2007); Ashton et al. (2003), to name a few.

Ashes tests that were held in England (home matches) resulted positive statistically significant stock returns for all three event windows. Wins and drawn matches also showed positive statistically significant CAARs for Ashes tests played on English soil. Lost home matches by England exhibit negative statistically significant stock returns. This also confirms the loss effect hypothesis and above mentioned studies. Dimic et al. (2018) emphasised that investors overreact to the location of the game, which is in line with the findings of the present study, which confirms the venue effect where home wins and losses report significant positive and negative CAARs, respectively. Ashes tests played in Australia (away matches) have produced negative statistically significant CAARs for the event window of day 0 to day 1.

Surprisingly, wins by the English team in away matches are followed with negative statistically significant CAARs for the event window of day 0 to day 1. However, this statistical significance gradually dies away when it is computed for extended event windows that are day 0 to day 2 and day 0 to day 3.

Live rubbers had produced negative, statistically significant results for the event window of day 0 to day 1. By segregating the results of live rubbers, it is clear that wins and drawn matches of live rubbers in Ashes tests show positive statistically significant CAARs. Further, losses in live rubbers led to negative statistically significant CAARs for all three event windows. Dead rubbers have produced positive statistically significant CAARs for two event windows, namely day 0 to day 2 and day 0 to day 3. Under the classification of Date (2023), live rubbers were classified into can lose (CLs) and must win (MWs), and dead rubbers into series won (SW) and series lost (SL) matches. CLs have resulted in negative statistically significant CAARs for the event window from day 0 to day 1. However, CLs were statistically insignificant for the other two event windows. All MWs have produced negative statistically significant results except for the event window of day 0 to day 2. With a further analysis on MWs, there were negative returns for wins by the English team in the MW category and positive returns for losses and drawn matches, except for one observation. It requires further inquiry for this unusual result. All wins, losses, and drawn matches in the SL category were produced with positive statistically significant CAARs. There was only one drawn match in the SW category that exhibited negative statistically significant CAARs, except for the event window of day 0 to day 2. When these results were analysed, there were mixed results in relation to the match categories, such as live rubbers and its variants, as well as dead rubbers and its variants. There were no solid findings and not absolute confirmation of previous literature, such as Markman and Hirt (2002); Berument and Ceylan (2012); Fan and Wang (2018).

Table 3

Standard Event Study Analysis

Panel A			
	Cumulative Average Abnormal Returns (CAARs)		
Event Window	**Day 0 to Day 1 (2 Days)**	**Day 0 to Day 2 (3 Days)**	**Day 0 to Day 3 (4 Days)**
Wins	0.2277%	0.2651%	0.5270%
	(15.7172)	(9.8805)	(11.1306)
Losses	-0.2967%	-0.1929%	-0.2770%
	(-16.5307)	(-2.27854)	(-4.6107)
Draws	0.1977%	0.3866%	0.8924%
	(4.2094)	(9.5599)	(9.0627)

Home	0.0945%	0.1108%	0.1554%
	(3.5863)	(6.0324)	(11.8333)
Away	-0.1944%	0.0573%	0.2477%
	(-10.7754)	(0.4908)	(2.6630)
Live Rubbers	-0.0755%	-0.0468%	0.0636%
	(-4.4291)	(-1.9303)	(1.7734)
Dead Rubbers	0.0105%	0.4459%	0.6441%
	(0.1107)	(2.9059)	(5.8975)
Can Lose	-0.0951%	-0.0647%	-0.0160%
	(-3.5086)	(-2.1323)	(-0.5774)
Must Win	-0.0468%	-0.0205%	0.1806%
	(-20.4762)	(-1.2382)	(3.3880)
Series Won	-7.3877%	-4.2394%	-5.8641%
	(-8.0450)	(-1.8106)	(-3.5400)
Series Lost	0.4457%	0.7215%	1.0269%
	(9.6515)	(22.5557)	(36.8943)

Panel B

Match Category	**Result**	**Event Window**		
		Day 0 to Day 1 (2 Days)	**Day 0 to Day 2 (3 Days)**	**Day 0 to Day 3 (4 Days)**
Home	Wins	0.4816%	0.4606%	0.5389%
		(86.6851)	(5.2735)	(8.3486)
	Losses	-0.4196%	-0.3614%	-0.5773%
		(-15.7329)	(-3.9860)	(-8.4393)
	Draws	0.5420%	0.5306%	1.0453%
		(7.3696)	(5.1384)	(9.3634)
Away	Wins	-0.4251%	-0.2375%	0.4964%
		(-6.4373)	(-1.7120)	(2.1994)
	Losses	-0.1075%	0.0959%	0.0789%
		(-1.4843)	(1.0058)	(1.1521)
	Draws	-0.3187%	0.1706%	0.6630%
		(-1.3992)	(0.6740)	(3.1652)
Live Rubbers	Wins	0.1929%	0.2409%	0.4337%
		(25.2315)	(14.3879)	(14.2052)

	Losses	-0.3092%	-0.3243%	-0.4151%
		(-29.8142)	(-6.9110)	(-12.4068)
	Draws	0.1856%	0.3039%	0.8345%
		(3.9540)	(10.7000)	(7.6428)
Dead Rubbers	Wins	0.4108%	0.3925%	1.0168%
		(3.1432)	(3.6998)	(7.0422)
	Losses	-0.2439%	0.3587%	0.3031%
		(-1.7818)	(1.4115)	(1.6387)
	Draws	0.2462%	0.7175%	1.1240%
		(5.2282)	6.0180	(11.9429)
Can Lose	Wins	0.7975%	0.9360%	0.9925%
		(40.9894)	(10.7053)	(11.1637)
	Losses	-0.4418%	-0.5412%	-0.7675%
		(-40.8574)	(-13.2147)	(-24.6433)
	Draws	0.0722%	0.3689%	1.1803%
		(0.6296)	(3.3777)	(6.2569)
Must Win	Wins	-0.2606%	-0.2805%	0.0146%
		(-9.3171)	(-6.9847)	(0.1443)
	Losses	-0.0441%	0.1097%	0.2897%
		(-4.6512)	(1.8628)	(5.2716)
	Draws	0.3747%	0.1955%	0.2580%
		(5.6863)	(1.5276)	(2.8508)
Series Won	Draws	-7.3877%	-4.2394%	-5.8641%
		(-8.0450)	(-1.8106)	(-3.5400)
Series Lost	Wins	0.4108%	0.3925%	1.0168%
		(3.1432)	(3.6998)	(7.0422)
	Losses	0.5498%	0.8696%	0.9883%
		(10.9829)	(26.7258)	(20.3446)
	Draws	0.2462%	0.7175%	1.1240%
		(5.2282)	(6.0180)	(11.9429)

Note: t statistics are presented in parentheses.

Six ordinary least square regression models have been tested to check the impact of loss effect, venue, and hot match effect on the post-event cumulative abnormal returns of the FTSE 100 index. Intercepts of all six models are positive but not significant. The dummy variable loss is negative and significant for all six models, indicating losses of Ashes matches will impact on the mood of English investors immediately resulting in bearish market conditions. The result is consistent with Edmans et al. (2007), who postulate significant negative returns for losses compared to the lesser impact of gains. This roots back to the theoretical foundation laid by Kahneman and Tversky (1979). They explained and confirmed that losses are more painful to individuals than the joy of gains.

Away variable is modeled as one for matches played in Australia and zero for matches played in England. However, this was not significant in any of those models and had a marginal positive coefficient. This finding was against the previous literature of Benkraeim et al. (2009); Kaplansky and Levy (2010). However, it supports the findings of Gerlach (2011). Further, hot matches have been hypothesised as live rubbers and their two sub-elements, CLs and MWs. Dead rubbers and their two components, SWs and SLs, are considered normal matches. However, none of them were statistically significant in all six models. Lag variable of the PECAR was included to mitigate the serial correlation problem in regression models, and all of them were negatively significant at the 1% level. According to the Hausman test results, all six models were conducted as random effect models. There was cross-sectional dependence except in the 6th model. Approximately 20% of the variation of PECAR was explained by the models according to R-squared statistics. Further F test is significant at the 1% level, indicating all factors of the model jointly explain the behavior of PECAR. All models were free from the problems of non-normality, heteroscedasticity, and serial correlation.

Table 4

OLS Panel Regression Results

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Constant	0.0055	0.0032	0.0047	0.0031	0.0037	0.0029
	(1.2279)	(0.9401)	(1.3793)	(1.0211)	(1.2389)	(0.9790)
Away	0.0015	0.0018	0.0015	0.0010	0.0011	0.0004
	(0.3965)	(0.4712)	(0.4007)	(0.2688)	(0.2756)	(0.1072)
Loss	-0.0080**	-0.0083**	-0.0084**	-0.0084**	-0.0075*	-0.0083**
	(-2.0555)	(-2.1247)	(-2.1588)	(-2.1742)	(-1.9480)	(-2.1751)
LR	-0.0027	-				
	(-0.6140)					

CL	-	0.0008 (0.2030)				
MW	-	-	-0.0032 (-0.7884)			
DR	-	-		0.0045 (0.9131)		
SW	-	-			-0.0281 (-1.6000)	
SL	-	-				0.0071 (1.4190)
DPECAR(-1)	-0.3814*** (-3.7328)	-0.3909*** (-3.8485)	-0.3797*** (-3.7204)	-0.3836*** (-3.8074)	-0.3989*** (-3.9840)	-0.3813*** (-3.8335)
Hausman Test	Random	Random	Random	Random	Random	Random
Cross-section Dependance	Yes	Yes	Yes	Yes	Yes	No
R squared	0.1862	0.1829	0.1887	0.1907	0.2075	0.2018
F statistic	4.8629	4.7562	4.9416	5.0067	5.5628	5.3734
F stat (prob)	0.0014	0.0016	0.0012	0.0011	0.0005	0.0007
Durbin-Watson Statistic	2.0746	2.0748	2.0943	2.0734	2.0029	2.0566
Cross-section Heteroscedasticity LR Test (Prob)	0.2348	0.3165	0.2739	0.2664	0.2006	0.2283
Jarque-Bera (Prob)	0.6428	0.6866	0.5922	0.6268	0.5587	0.5366

*Note: t statistics are presented in parentheses. ** and *** present 5% and 1% statistical significance. DPECAR(-1) denotes the lag variable of the first difference of PECAR.*

Long-run cointegration was tested based on three tests namely Pedroni (constant only), Pedroni (constant and trend), and Kao (constant only). The long-run negative relationship

between PECAR and the loss dummy was established since the majority of tests were significantly negative. This finding further affirms the impact of the loss effect to the returns of the FTSE 100 index, confirming the previous findings of Ashton et al (2003); Edmans et al. (2007); and Hiremath and Venkatesh (2019).

The long-run relationship between PECAR and the away dummy is also proved, indicating two variables are related in the long run. Further, this long-run relationship was negative against the previous findings of Benkraeim et al. (2009); Kaplansky and Levy (2010). However, it is in line with Gerlach (2011) that states there is no difference in stock returns between the countries where games were played and not.

Live rubbers were considered as hot games and dead rubbers as ordinary matches. However, the majority of the statistics of the Pedroni and Kao tests were not significant. Therefore, it is concluded that there is no long-run relationship between PECAR and proxies of hot matches, live rubbers. Further, the same result was obtained for dead rubbers, which were considered just ordinary matches. This was against the previous literature of Markman and Hirt (2002); Berument and Ceylan (2012); and Fan and Wang (2018).

Table 5

Long-run Relationship Between PECAR and Different Match Categories Based on Result, Venue, and Hot Match Status

Trend Assumption				
Panel A: Pedroni – Constant Only				
Cointegrated Variables	**PECAR and LOSS**	**PECAR and AWAY**	**PECAR and LR**	**PECAR and DR**
Panel v – Statistic	1.8692**	0.0541	0.4920	1.4285
Panel rho – Statistic	-4.1619***	-3.6971***	-2.7687***	-2.2908**
Panel PP – Statistic	-4.6350***	-3.9102***	-2.7527***	-2.2047**
Panel ADF – Statistic	-2.1416**	-2.3716***	-1.2341	-1.0173
Panel v - Weighted Statistic	1.1957	0.0018	0.3644	1.2275
Panel rho - Weighted Statistic	-4.0068***	-3.8010***	-2.7530***	-1.8797**
Panel PP - Weighted Statistic	-4.2789***	-3.9362***	-2.7294***	-1.8554**
Panel ADF - Weighted Statistic	-2.0969**	-2.1533**	-1.2479	-1.1751

Group rho – Statistic	-2.6429***	-2.0853**	-1.6397	-1.3649
Group PP – Statistic	-4.4832***	-3.3745***	-2.4595***	-1.8902**
Group ADF – Statistic	-1.7468**	-1.9064**	-1.1406	-1.0377

Trend Assumption

Panel B: Pedroni – Constant and Trend

Cointegrated Variables	**PECAR and LOSS**	**PECAR and AWAY**	**PECAR and LR**	**PECAR and DR**
Panel v – Statistic	-0.2773	-1.8417	-1.0138	0.1925
Panel rho – Statistic	-2.6314***	-1.8337**	-1.8195**	-1.4724
Panel PP – Statistic	-5.0721***	-3.9169***	-3.2700***	-2.7345***
Panel ADF – Statistic	-2.3819***	-2.7190**	-1.5782	-1.8672**
Panel v - Weighted Statistic	-0.8983	-1.8883	-1.1437	0.0584
Panel rho - Weighted Statistic	-2.5100***	-2.0061**	-1.7520**	-1.1283
Panel PP - Weighted Statistic	-4.6744***	-4.0691***	-3.1530***	-2.2635**
Panel ADF - Weighted Statistic	-2.2855**	-2.6063***	-1.4528	-2.1275**
Group rho – Statistic	-1.2497	-0.6160	-0.7553	-0.5675
Group PP – Statistic	-4.5700***	-3.4493***	-2.7709***	-2.2118**
Group ADF – Statistic	-1.9059**	-2.692***	-1.8356**	-2.1356**

Trend Assumption

Panel C: Kao – Constant Only

Cointegrated Variables	**PECAR and LOSS**	**PECAR and AWAY**	**PECAR and LR**	**PECAR and DR**
ADF t-statistic	-1.1591	-0.9076	-0.1658	-0.7984

*Note: ** and *** present 5% and 1% statistical significance.*

Conclusion

The main focus of this paper is threefold: loss effect, venue effect and hot match effect. Three methods were used to investigate the loss effect of Ashes test matches on the FTSE 100 index in England. They were standard event study methodology with mean-adjusted returns approach, panel ordinary least square regression analysis, and panel cointegration analysis. Results of all three methods support the loss effect hypothesis and conclude that losses lead to pessimistic investor moods and bearish market returns. These results were in line with Ashton et al. (2003); Edmans et al. (2007); Curatola (2016); Dimic et al. (2018); Hiremath et al. (2019) and Gao et al. (2023). This is confirmed empirically and theoretically with Kahneman and Tversky's (1979) prospect theory and loss aversion literature such as Camerer (2000). However, the other two elements investigated in this paper, namely venue and hot match effects were found to be insignificant related to the Ashes tournament providing mixed evidence without clear direction. This study is important to identify the psychology of investors towards sporting outcomes in England. It will be useful to professionals in the investment industry to formulate successful trading strategies. This study has analysed the FTSE 100 index in the United Kingdom, it limits the researcher's capacity to use multifactor models such as Fama and French (1993, 2015) three-factor and five-factor models for the purpose of estimating expected returns. Future researchers may analyse different stock portfolios formulated according to different risk factors such as size, value, investment, and profitability rather than a market index as studied in this paper. Further, this study can be expanded to all nations that play test Cricket. A comparison of all three formats (one-day internationals, T20s, and tests) would be another avenue for future research.

References

Abhijeet, C. (2011, March 25). *Cricket World Cup and Indian stock market: Is there any relationship?* Behavioral Finance Research. https://behavioralfinance.wordpress.com/ 2011/03/25/cricket-world-cup-and-indian-stock-market

Ashton, J. K., Gerrard, B., & Hudson, R. (2003). Economic impact of national sporting success: Evidence from the London Stock Exchange. *Applied Economics Letters, 10*(12), 783–785. https://doi.org/10.1080/135048503 2000133307

Ashton, J. K., Gerrard, B., & Hudson, R. (2011). Do national soccer results impact the stock market? *Applied Economics, 43*(28), 3709–3717. https://doi.org/10.1080/00036846. 2010.500275

Baker, M., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives, 21*(2), 129–151. https://doi.org/10.1257/jep.21.2.129

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics, 49*(3), 307–345. https://doi.org/10.1016/S0304-405X(98)00027-0

Belsley, D. A., Kuh, E., & Welsch, R. E. (1980). *Regression diagnostics: Identifying influential data and sources of collinearity.* John Wiley & Sons.

Benkraiem, R., Louhichi, W., & Marques, P. (2009). Market reaction to sporting results: The case of European listed football clubs. *Management Decision, 47*(1), 100–109. https://doi.org/10.1108/00251740910929648

Berument, M. H., Ceylan, N. B., & Ogut-Eker, G. (2009). Soccer, stock returns, and fanaticism: Evidence from Turkey. *The Social Science Journal, 46*(3), 594–600. https://doi.org/10.1016/j.soscij.2009.05.002

Berument, M. H., & Ceylan, N. B. (2012). Effects of soccer on stock markets? The return–volatility relationship. *The Social Science Journal, 49*(4), 368–374. https://doi.org/ 10.1016/j.soscij.2012.02.001

Botha, F., & De Beer, C. (2013). Does national sporting performance affect stock market returns in South Africa? *Journal of Economic and Financial Sciences, 6*(1), 67–82. https://hdl.handle.net/10520/EJC133624

Boyle, G., & Walter, B. (2003). Reflected glory and failure: International sporting success and the stock market. *Applied Financial Economics, 13*(3), 225–235. https://doi.org/10.1080/0960310022000020924

Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17*(31), 334–355. https://doi.org/10.1111/j.1467-8454.1978.tb00635.x

Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica, 47*(5), 1287–1294. https://doi.org/10.2307/1911963

Camerer, C. F. (2000). Prospect theory in the wild: Evidence from the field. In *Advances in behavioral economics* (pp. 148–161).

Camerer, C. F., Johnson, E., Rymon, T., & Sen, S. (1993). Cognition and framing in sequential bargaining for gains and losses. In K. Binmore, A. Kirman, & P. Tani (Eds.), *Frontiers of game theory* (pp. 27–47). MIT Press.

Curatola, G., Donadelli, M., Kizys, R., & Riedel, M. (2016). Investor sentiment and sectoral stock returns: Evidence from World Cup games. *Finance Research Letters, 17*, 267–274. https://doi.org/10.1016/j.frl.2016.02.010

Date, K. (2023, February 27). *Does India choke in high-profile ODIs? Here's what the numbers say.* ESPN Cricinfo. https://www.espncricinfo.com/story/kartikeya-date-do-india-choke-in-high-profile-odis

Dimic, N., Neudl, M., Orlov, V., & Äijö, J. (2018). Investor sentiment, soccer games and stock returns. *Research in International Business and Finance, 43*, 90–98. https://doi.org/10.1016/j.ribaf.2017.07.158

Edmans, A., Garcia, D., & Norli, O. (2007). Sports sentiment and stock returns. *The Journal of Finance, 62*(4), 1967–1998. https://doi.org/10.1111/j.1540-6261.2007.01262.x

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance, 25*(2), 383–417. https://doi.org/10.2307/2325486

Fama, E. F. (1991). Efficient capital markets: II. *The Journal of Finance, 46*(5), 1575–1617. https://doi.org/10.1111/j.1540-6261.1991.tb04636.x

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics, 116*(1), 1–22. https://doi.org/10.1016/j.jfineco.2014.10.010

Fan, Q., & Wang, T. (2018). Game day effect on the stock market: Evidence from four major sports leagues in the US. *Journal of Behavioral and Experimental Finance, 20*, 9–18. https://doi.org/10.1016/j.jbef.2018.03.002

Gao, Y., Wang, Y., & Hafsi, T. (2023). Stock market reaction to affiliated sports teams' performance: Evidence from China. *Chinese Management Studies, 17*(4), 787–807. https://doi.org/10.1108/CMS-06-2021-0262

Gerlach, J. (2011). International sports and investor sentiment: Do national team matches really affect stock market returns? *Applied Financial Economics, 21*(12), 863–880. https://doi.org/10.1080/09603107.2011.556590

Gkillas, K., Gupta, R., Lau, C. K. M., & Suleman, M. T. (2020). Jumps beyond the realms of cricket: India's performance in one-day internationals and stock market movements. *Journal of Applied Statistics, 47*(6), 1109–1127. https://doi.org/10.1080/02664763.2020.1722195

Godfrey, L. G. (1978a). Testing for higher order serial correlation in regression equations when the regressors include lagged dependent variables. *Econometrica, 46*(6), 1303–1310. https://doi.org/10.2307/1913829

Godfrey, L. G. (1978b). Testing for multiplicative heteroscedasticity. *Journal of Econometrics, 8*(2), 227–236. https://doi.org/10.1016/0304-4076(78)90044-7

Hiremath, G. S., & Venkatesh, H. (2019). Sports sentiment and behavior of stock prices: A case of T-20 and IPL cricket matches. *Review of Behavioral Finance, 11*(3), 266–276. https://doi.org/10.1108/RBF-10-2018-0102

Iqbal, H., Nadeem, F., & Riaz, T. (2023). Stock market reaction to Pakistan's performance in international cricket events. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 12*(3), 920–931. https://doi.org/10.6007/ IJARAFMS/v12-i3/13292

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters, 6*(3), 255–259. https://doi.org/ 10.1016/0165-1765(80)90024-5

Jarque, C. M., & Bera, A. K. (1987). A test for normality of observations and regression residuals. *International Statistical Review, 55*(2), 163–172. https://doi.org/10.2307/ 1403192

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–292. https://doi.org/10.2307/1914185

Kamstra, M. J., Kramer, L. A., & Levi, M. D. (2000). Losing sleep at the market: The daylight saving anomaly. *American Economic Review, 90*(2), 1000–1005. https://doi.org/10.2139/ ssrn.150049

Kaplansky, G., & Levy, H. (2010). Exploitable predictable irrationality: The FIFA World Cup effect on the US market. *The Journal of Financial and Quantitative Analysis, 45*(2), 535–553. https://doi.org/10.1017/ S0022109010000071

Kao, C. (1999). Spurious regression and residual-based tests for cointegration in panel data. *Journal of Econometrics, 90*(1), 1–44. https://doi.org/10.1016/S0304-4076(98)00023-2

Klein, C., Zwergel, B., & Heiden, S. (2009). On the existence of sport sentiment: The relation between football match results and stock index returns in Europe. *Review of Managerial Science, 3*(3), 191–208. https://doi.org/10.1007/s11846-009-0030-6

Markman, K., & Hirt, E. (2002). Social prediction and the allegiance bias. *Social Cognition, 20*(1), 58–86. https://doi.org/10.1521/soco.20.1.58.20942

Mirman, M., & Sharma, R. (2010). Stock market reaction to Olympic Games announcement. *Applied Economics Letters, 17*(5), 463–466. https://doi.org/10.1080/13504850 801947804

Mishra, V., & Smyth, R. (2010). Impact of India's performance in one-day cricket internationals on the Indian stock market. *Pacific-Basin Finance Journal, 18*(3), 319–334. https://doi.org/10.1016/j.pacfin.2010.01.003

Muktadir, G. (2025). *Top 10 list of the world's most popular sports*. Surprise Sports. https://surprisesports.com/ others/top-10-worlds-most-popular-sports

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics, 61*(S1), 653–670. https://doi.org/10.1111/1468-0084.0610s1653

Pedroni, P. (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests. *Econometric Theory, 20*(3), 597–625. https://doi.org/10.1017/ S0266466604203073

Saporoschenko, A. (2011). The effect of Santa Ana wind conditions and cloudiness on Southern California stock returns. *Applied Financial Economics, 21*(11), 649–683. https://doi.org/10.1080/09603107.2011.556593

Statman, M. (1999). Behavioral finance: Past battles and future engagements. *Financial Analysts Journal, 55*(6), 18–27. https://doi.org/10.2469/faj.v55.n6.2317

Tufan, E. (2004). Do World Cup football matches affect the Istanbul stock exchange? *Journal of Naval Science and Engineering, 2*(1), 117–126. https://hdl.handle.net/11421/14211

Wann, D., Dolan, T., McGeorge, K., & Allison, J. (1994). Relationships between spectator identification and perceptions of influence, emotions, and competition outcome. *Journal of Sport and Exercise Psychology, 16*(4), 347–364. https://doi.org/10.1123/jsep.16.4.347

Worthington, A. (2007). National exuberance: Melbourne Cup effect in Australian stock returns. *Economic Papers, 26*(2), 170–179. https://doi.org/10.1111/j.1759-3441.2007. tb01018.x