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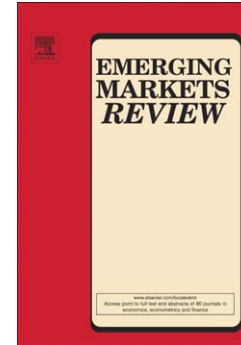
What is the Value of Corporate Sponsorship in Sports?

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ABSTRACT

This paper investigates the stock market reaction to investor mood swings resulting from the Indian Premier League (IPL) cricket matches. We find that stocks listed on the Bombay Stock Exchange (BSE) that sponsor the IPL cricket are unaffected by the cricket matches. This finding is robust along two lines: (a) the effect is insignificant both statistically and economically which we demonstrate using a simple trading strategy; and (b) results hold across a wide range of portfolios. Our results, both statistical and trading strategy-based, suggest that the portfolios of companies that sponsor cricket in India are efficient. Our findings stand in sharp contrast to the evidence obtained by the broader sports literature suggesting that sports actually impact stock returns, driven principally by psychological factors.

Keywords: *Stock Market; Cricket; Trading Strategy; Profits.*

I.   Introduction

In this paper, we examine whether investor mood affects stock returns on the Indian stock exchange.[5] Our measure of investor mood is motivated by the sports-stock returns literature, where, typically, sports events and/or outcomes dictate investor psychology, which has implications for investment decisions and, ultimately, stock market performance. We investigate the sport of cricket—the most popular sport in India with huge commercial interests—and examine whether it impacts on stock market performance. Using a sample of 22 stocks listed on the Bombay Stock Exchange (BSE) of India, we find two interesting results. First, unlike the rich body of evidence accumulated in the literature that sports influence stock returns, we find no such evidence. Second, apart from statistical tests, we undertake an economic significance analysis of the effect of cricket on stock returns. Using both a simple buy-sell trading strategy and the widely used momentum trading strategy, we fail to find evidence that investors can devise a successful/profitable trading strategy based on cricket match events. This evidence, both statistical and economic, suggests that cricket is not a source of stock market inefficiency in India.

There are four differences between our study and the literature. First, when it comes to investor mood and sports events, soccer typically appears as the most influential sporting event affecting stock markets. This is not surprising as soccer is the world's most popular sport and, naturally, influences human behaviour and, as a result, investor behaviour. It is true that soccer is the most dominant global sport. It is also true that in some countries, such as India, it is not soccer which stops the nation; rather, it is the sport of cricket (see Mishra and Smyth, 2010). We, therefore, consider a different sport, namely, cricket and examine how

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cricket-induced mood change affects stock market performance in the case of India.[6] In India cricket is by far the largest sport. The introduction, in 2007, of a new form of cricket, a short-version of cricket played over four hours known as Indian Premier League (IPL) Twenty20 cricket, was established by the Board of Control for Cricket in India (BCCI)[7]. It generated significant public as well as commercial interest. For example, in November 2012, Pepsi won the title sponsorship of the IPL for five years (2012–2017) by paying US$72 million to the BCCI (Gupta *et al*., 2013). The overall estimated sponsorship for the IPL in 2013 was US$272 million (Brand-Finance, 2013).

Similarly, for cricket players, IPL gives the best opportunity to earn money. As per the Annual Review of Global Sports Salaries published by sportingintelligence.com in April 2010, the IPL was the second highest-paid league in the world after the National Basketball Association (Chakraborty *et al*., 2012). In the IPL 2013 auction, 37 players were bought by various franchises for US$11.89 million (BCCI Annual Report, 2012-13). The Annual Report states that, "the viewers of IPL 2013 reached 100 million in the first seven games of the season, and 175 million in the first 48 games, which is 12 million more than the whole 2012 season" (p. 88). The overall brand value of IPL is estimated to be around US$3.03 billion (Brand-Finance, 2013).

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[6]While Mishra and Smyth (2010) also consider cricket there are important differences between the two studies. First, we consider a new version, T20, of cricket introduced only recently. The T20, as we explained here, is commercially driven drawing the interest of sponsors—firms that are also listed on the national stock exchange. In this regard, there is a direct relation between T20 and the Indian stock market. Second, we only consider stocks that sponsor cricket in India as opposed to the entire set of listed stocks. Third, we focus on the economic significance, through using trading strategies, of the effect of cricket on the stock market. In other words, we go beyond the statistical analysis.

[7]The IPL follows a franchise system, by creating franchises in eight major cities in India. The franchise rights of eight major cities were sold by the IPL for 10 years through an auction, where the highest bidder won the rights to own the team representing a city[7]. The auction took place on January 24, 2008, with the total base price of US$400 million. The auction went on to fetch US$723.59 million and attracted some of the top industrialists and other celebrities in the country. Similarly, the broadcasting rights for the IPL matches scheduled to be played over a month-and-a-half every year were sold for around US$1,000 million, to be paid over a period of ten years (Chakraborty *et al*., 2012).The IPL gathered more than a hundred sponsorship contracts between events/teams and brands belonging to different industries, in different categories such as title sponsor/partner, official sponsor/partner and associate sponsor/partner. To sponsor the event, Indian real estate developer, Delhi Land and Finance (DLF) group, paid US$50 million to the IPL for acquiring the title sponsorship, naming the tournament as DLF-IPL, for the initial first 5 years (2008–2012).

The IPL has attracted huge interest not only in India but also globally. It follows that our choice of cricket as a sport that induces mood change adds to the already rich body of literature based on the impact of soccer on stock market performance.

Second, the literature when examining the impact of sports on stock markets considers in its sample all stocks listed on a stock exchange. Since the empirical model is almost always cross-sectional, it means inevitably stocks are included which are relatively unaffected by sports as not all stocks are affected by investor mood swings generated by sports events. Our treatment of stocks is different, however. We only consider those company stocks most likely to be affected by sports. In our sample, therefore, we only consider those company stocks that are directly affiliated with the IPL cricket, thus the 22 stocks we have chosen are all companies that sponsor the IPL cricket. This implies that we are considering only those company stocks most directly related to cricket.[8]

Third, we also test for the potential economic significance of the IPL cricket on the stock market. We test this in two ways. (1) We implement a strategy whereby an investor buys stocks during the IPL window and buys risk-free assets in the non-IPL window. (2) We compute portfolio (consisting of all 22 stocks) profits using a momentum trading strategy and examine using a regression model whether the IPL event has any effects on the time-series of momentum profit. Our results suggest that none of the firms that sponsor IPL cricket can make statistically significant and economically meaningful profits. Our study, therefore, goes beyond mere statistical tests of the impact of sports on stock markets to an economic significance analysis.

Lastly, the literature considers the effect of the outcomes of sports (either win or loss) on stock returns; while we do this, we do not take these results seriously. Our concern is only

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[8] One referee of this journal correctly pointed out that this is a natural experiment. This strategy, therefore, does not introduce a sample selection bias because our idea is to simply analyse those firms that sponsor cricket. The remainder of the stocks, which do not sponsor the cricket event are excluded although this does not in any way mean that they are immune from the cricket event. We exclude them give our research question.

about the impact on the stock market from staging a particular sporting event. In the case of the IPL cricket and the Indian stock market, there are at least two reasons which motivate us to deviate from the literature and consider the impact of the event itself as opposed to the outcomes/results of games. The first reason relates to the fact that IPL cricket is very different from other sports in terms of team composition. Each team, by virtue of IPL rules, only allows four foreign players to play in a team of 11, therefore, each IPL team has seven Indian players. All teams have high-profile Indian cricketers—cricketers who have or are representing India at international level. The second reason relates to our proposal of only considering those companies listed on the Indian stock exchange which sponsor the event, suggesting that one should be, at least from the point of view of investors, concerned about how the event is affecting stock market performance. Moreover, many of the 22 companies actually sponsor more than one IPL team, suggesting that win/loss of one team over another is not a source of mood swing (see Appendix A for details on sponsorship of teams). In fact to confirm this, we only briefly mention the findings here. Only eight out of 22 firms are negatively affected when either Chennai (CSK), Kolkata (KKR), Mumbai(MI), Bangalore (RCB), or Rajasthan (RR) lose while only six out of 22 firms are positively affected when either KKR, Punjab (KXIP), MI, RCB, Hyderabad (SRH) or RR win. On the other hand, there are eight firms which are positively impacted when either RR, SRH, RCB, KXIP, or CSK lose; and there are two firms which are negatively impacted when either MI or Delhi (DD) win. The main message here is that while on the whole a win has a positive effect on sponsoring firms and a loss has a negative effect on the sponsoring firm, consistent with the literature, there are at least 10 cases where results are inconsistent with the literature. This is because the main source of mood swing, if at all, is the IPL event itself, and not necessarily whether or not a team wins or loses.[9] This is where the focus of our paper is.

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[9]Detailed results span multiple pages and for this reason we do not tabulate these results in the paper. They are

The rest of the paper is organised as follows. Section II undertakes a discussion on the motivation for investigating the sports—stock returns nexus. In Section III, we discuss the empirical framework. Section IV discusses the data and analyses the empirical model proposed in Section III. Finally, Section V summarises our main findings and concludes.

II.   Conceptual Framework and Motivation

That investor mood swings, induced by sporting events, affect stock market performance is now well understood. Two theories motivate an investigation of the sports-stock market performance nexus. The first is the efficient market hypothesis, popularised by Fama (1991), which perceives asset prices as rational in that they reflect all information relevant to their future economic prospects. The implication emanating from the tenets of the efficient market hypothesis is that sports events should have no effects on stock returns.

Behavioural finance theory based on the psychology literature actually challenges the efficient market hypothesis by arguing that psychological factors influence stock prices (see Stracca, 2004). Investors' emotional state is argued to affect asset prices (see Loewenstein, 2000; Romer, 2000). In this literature, investor mood swings have been attributed to weather conditions including sunshine, daylight, temperature, and lunar cycles (see, *inter alia*, Hirshleifer and Shumway, 2003; Kamstra *et al*., 2000; Cao and Wei, 2005; Yuan *et al*. 2006), and these psychological factors actually do influence stock returns. This evidence suggests, therefore, contrary to the efficient market hypothesis, that behavioural finance theory can be used to explain why financial markets can be informationally inefficient (see Shiller, 2003).

The preponderance of studies on the effect of sports events on stock returns rejects the efficient market hypothesis.[10] The evidence predominantly sees a role for behavioural finance where emotions and mood swings resulting from sporting events influence stock returns. In

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available on request however.

[10] There is another literature that examines costs of benefits and sports events; see, inter alia, Kasimati and Dawson (2009), Li, Blake and Thomas (2013), Biner (2013, 2014), and Barros and Garcia-del-Barrio (2008)

this literature, the outcomes from a range of sporting events (soccer, international cricket, basketball, and rugby) have been shown by Edmans *et al.* (2007) to have a significant effect on stock returns for a cross-section of 39 countries; the effect of outcomes from international cricket matches on stock returns for India have been shown by Mishra and Smyth (2010); the effect of outcomes from Boston Celtics' baseball games on Boston Celtics' stock returns have been shown by Brown and Hartzell (2001); the effects of British soccer and world cup games' outcomes on stock returns have been reported by Palomino *et al.* (2009) and Kaplanski and Levy (2010); and, the effects of National Football League games on NASDAQ firms have been analysed by Chang *et al.*(2012).

The main trend in these studies, which perhaps explains to a large extent why they have rejected the efficient market hypothesis, is that they tend to examine the effects of sports events on all stocks listed on the stock exchange. The problem is that stocks are heterogeneous and not all stocks may be affected by sporting events. It is, therefore, possible that the statistically significant effect of sports events and outcomes from games documented by the literature could well be due to other uncontrolled factors, such as firm-specific news announcements. Our response to this issue is to only consider stocks of companies that are sponsors of the game of cricket. In our case, we have a sample of 22 stocks listed on the BSE which actually sponsor the IPL cricket in India. In this way, we only consider stocks of companies that are directly related to the game. This focus provides a relatively more robust test of the efficient market hypothesis versus the tenets of behavioural finance that emotions and mood swings resulting from sports results influence stock returns. We conclude with robust evidence, accumulated both statistically and economically, that favour the efficient market hypothesis.

III.   Data and Results

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A. Data

Our data set consists of stock prices and the IPL cricket dates on which games are played. We have a total of 22 stocks, listed on the BSE which is the leading Indian National Stock Exchange. The 22 companies are sponsors of the IPL cricket associated with either sponsoring the event or sponsoring one or more of the eight teams that participate in the cricket league. While there are more than 22 companies that sponsor the IPL cricket or its franchises, our choice of 22 reflects the fact that of all the companies involved in sponsorship roles, only 22 are listed on the Bombay stock exchange. Using these 22 stocks we create 23 time-series equal-weighted portfolios. The first portfolio includes all 22 stocks while the remaining 22 portfolios are based on excluding one stock from the portfolio at a time. The complete list of companies is provided in column 2 of Table I. The sample size varies from company-to-company and covers the period 03 January 2000 to 12 June 2014. The specific dates for each stock are also noted in Table I.

INSERT TABLE I

Regarding the start and end dates of the IPL cricket league and the days on which the cricket matches are played, we obtained the data from the IPL website at www.ipl.in. We then created two measures of IPL cricket, both of which appear in a dummy variable form. First, we consider the days on which an IPL cricket match is played. If games are played on day t then day $t+1$ takes a value one, and a value of zero is set on other days. We consider a value one for day $t+1$ because on day t games are played in the evening when the stock market is closed. We call this dummy variable DIPL. This is our first measure of the IPL cricket. Our second measure is based on taking a value of one for all days in the six-week period over which the IPL is played, and a value of zero on those days on which no IPL game is played. The IPL is played over six weeks continuously covering days in the months of April and May of each year, and began in 2008. We call this variable DAM.

Moreover, as will become clear in the next section, we adjust stock returns. For the purpose of this adjustment, we use the BSE 100 price index as the proxy for market returns, and we also control for day-of-the-week effect, for which we created separate dummy variables for each day of the week (including Wednesday). The stock price and the market price index data are all downloaded online from the BSE website—http://www.bseindia.org/historicaldata.

B. Descriptive Statistics

This section is on descriptive statistics and is based on adjusted portfolio returns. The adjustment procedure is explained in Section D; but briefly we adjust returns for serial correlation, market risks, and day-of-the-week effects. A range of commonly used statistics of interest is presented for the period of time-series data on hand. The results are presented in Table II. In terms of mean returns over this period, all portfolios have a positive mean return, which is in the range [0.0005, 0.0032]. All portfolios have a positive skewness, suggesting that the chances of making a significant loss are extremely slim. The kurtosis statistic reveals a very leptokurtic distribution. A test of the null hypothesis of no auto-correlation at lags six and 12, based on the Ljung-Box (1978) test, suggests strong evidence of auto-correlation for portfolio adjusted returns.

INSERT TABLE II

C. Results Based on Raw Returns

We consider two models in this section. In the first model, we simply estimate the effect of the IPL cricket-playing window, proxied by our two dummy variables (DIPL and DAM), on excess stock returns. In the second model, we estimate a stock return model, where the independent variables (DIPL and DAM) are simply interacted with the BSE market index excess return variable. The models are of the following form:

$$r_t - rf_t = \lambda_0 + \lambda_1 DIPL_t * (r_{mt} - rf_t) + \epsilon_t \qquad (1)$$

$$r_t - rf_t = \lambda_0 + \lambda_1 DAM_t * (r_{mt} - rf_t) + \epsilon_t \qquad (2)$$

In these equations, stock returns is denoted by r, the risk-free rate, proxied by the 91-day Treasury bill rate is denoted by rf, and $DIPL$ and DAM represent the two dummy variables measuring the impact of the IPL cricket, as explained earlier. In these models, abnormal returns is represented by λ_0. The null hypothesis is that the IPL cricket does not affect stock returns, that is, $\lambda_1 = 0$. The model is estimated using a GARCH (1,1) specification, where the mean equation is as specified above, and the variance equation has a specification where return variance is modelled as a function of squared news terms from the mean equation and the one-period lagged variance term which measures volatility persistence. Regardless of our measure of the IPL cricket, we are unable to reject the null hypothesis that $\lambda_1 = 0$. We also examine the null hypothesis that $\lambda_0 = 0$. We cannot reject the null hypothesis for any one of the 22 stocks. Therefore, none of the stocks experiences any abnormal returns, suggesting that the IPL cricket does not have any impact on stock returns. Detailed results are available upon request.

D. Results Based on Adjusted Returns

Our empirical framework is motivated by Edmans*et al*. (2007) and follows a two-stage process. In the first stage, we run time-series regression models for each stock. Each stock's return is regressed on a lagged stock return, market return, one lead and one lag of market return, and dummy variables denoting day-of-the-week effects. This regression model has the following specification:

$$r_t = \alpha_0 + \alpha_1 r_{t-1} + \alpha_2 r_{mt} + \alpha_3 r_{mt+1} + \alpha_4 r_{mt-1} + \alpha_5 D_{M,t} + \alpha_6 D_{T,t}$$

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$$+\alpha_7 D_{TH,t} + \alpha_8 D_{F,t} + \mu_t \tag{3}$$

where r_t is the log stock returns, computed as $ln(P_t/P_{t-1}) * 100$, where P is simply the stock price index; r_m is the BSE market index return computed as log returns; and dummy variables denoting day-of-the-week, Monday, Tuesday, Thursday, and Friday, are represented by D_M, D_T, D_{TH}, and D_F, respectively. The motivation for this time-series specification of stock returns, as explained nicely in Edmans *et al*. (2007), is as follows. The first-order serial correlation is dealt with through the inclusion of the autoregressive component. The market return is included to control for potential correlation of domestic stocks with the domestic market. The lead and lag domestic market return variable potentially takes into account cases where the domestic stock is leading or lagging the market. Finally, the day-of-the-week effects are a styled fact of stock returns; the dummy variables account for the day-of-the-week effects.

The second stage simply takes the residuals, $\hat{\mu}_t$, from the time-series regression as a proxy for adjusted-returns and runs stock-specific regressions of adjusted returns on IPL cricket matches. Three models are considered here, as follows:

$$\hat{\mu}_t = \beta_0 + \beta_{DIPL} DIPL_t + \epsilon_t \tag{4}$$

$$\hat{\mu}_t = \beta_0 + \beta_{DAM} DAM_t + \epsilon_t \tag{5}$$

These models are estimated using a GARCH (1,1) framework, as explained earlier. We begin by reporting results for each stock before exploring the effects on the 23 portfolios of stocks. The objective here is to understand first whether the event affects individual companies. The results are presented in Table III. When considering DIPL as a measure of IPL cricket, we cannot reject the null hypothesis that $\beta_{DIPL} = 0$ at the 1% level for any one of the 22 stocks; at the 5% level, however, we are able to reject the null in the case of ACC Cement. When considering the DAM variable, at the 5% we could only reject the null

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hypothesis that $\beta_{DAM} = 0$ for ACC Cement. For none of the other 21 stocks can we reject the null, suggesting that IPL cricket actually has no effects on the companies listed on the BSE which actually sponsor the IPL cricket.

INSERT TABLE III

We conclude this section by forming various portfolios of stocks and then running the portfolio of returns on the two IPL dummy variables. The portfolios cover the sample period from 28 May 2008 to 12 June 2014. Each stock has a different start date. For portfolio construction, we need a common start date. Given this requirement, the common start date turns out to be 28 May 2008. We have a total of 23 equal-weighted portfolios. The first portfolio includes all 22 stocks while the subsequent portfolios exclude one-by-one each stock from the portfolio. The excluded stock is noted in column 1. The excluded stock is denoted following "_". The results are reported in Table IV. Our main finding from this portfolio-based analysis is that for none of the portfolios the IPL dummy variables are statistically different from zero. Taken on the whole, therefore, regardless of portfolio formation—and we consider no fewer than 23 portfolios—the IPL seems to have no effect on adjusted portfolio returns. In this regard, given our approach of considering multiple portfolios, our results are robust.

INSERT TABLE IV

E. Results on Economic Significance

We begin this section with a univariate analysis of returns. Here, we simply compute adjusted returns for each of the 22 stocks (and later for each of the 23 portfolios) over the period when the IPL games are played, and compare them with returns obtained during the non-IPL cricket period. The results for individual stocks are reported in Table V. Columns 2 and 3

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contain mean returns over the non-IPL game days and mean returns over the days on which the IPL games are played, respectively. The fourth column contains the t-test statistic examining the null hypothesis that mean returns over the two periods are equal. The standard deviation of mean returns appears in parentheses. The corresponding statistics treating the entire 6-week window as the IPL period (as represented by our dummy variable DAM) are reported in columns 5-7. The main results can be summarised as follows. First, based on DIPL, for 12 stocks, returns are maximised during the time when IPL games are played, while for the remaining 10 stocks the non-IPL days provide highest returns. However, the null hypothesis that mean returns are equal in the two periods is rejected only for two stocks—namely, United Spirit Ltd and Gulf Oil Corporation Ltd. Next, we consider corresponding evidence from DAM. Here the entire time period, from April to May when the IPL games are played, is treated as the IPL window. The results generally corroborate those obtained from the DIPL analysis. For nine stocks, the DAM returns are higher than non-DAM returns. However, the null hypothesis that mean returns are different is only rejected at the 10% level in the case of DHFL Ltd. On the whole, these results suggest that if the days on which IPL cricket games are played, or even the entire window of six-weeks over which the IPL is played, has any effect on stock returns, it is only very limited and is restricted to only one of the 22 companies that sponsor the IPL cricket.

INSERT TABLE V

Table VI reports the results for adjusted portfolio returns. The results are not only consistent with the individual firm results but also stronger because there is no statistically significant difference between adjusted returns on IPL (and DAM) days and non-IPL days (non-DAM). Adjusted returns are unaffected and the IPL event does not matter. The results hold regardless of portfolio formation.

INSERT TABLE VI

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Finally, we consider whether investors who sponsor the IPL cricket can potentially make profits based on the days over which the IPL cricket is played using simple trading strategies. Two strategies are considered. The first strategy is about taking a short position during the IPL event and a long position during the non-IPL event. These results for individual stocks and for portfolios of stocks are reported in Tables VII and VIII, respectively. While profits are statistically different from zero for 4/22 stocks none of the portfolio profits are statistically different from zero.

Finally, to confirm the robustness of our results on profits (or lack of it), we undertake a momentum trading strategy following the proposal of Jegadeesh and Titman (JT, 1993). The JT strategy amounts to buying past winners and selling past losers. We consider a range of ranking (r) and holding (h) periods, from 1 day to 6 days, in order to again check the robustness of the results. The results, momentum profits (winner minus loser) and a t-test of the null hypothesis that profits are zero, are reported in Table IX. In the first column, we note the various combinations of ranking and holding periods. We find that regardless of the holding and ranking periods, none of the momentum profits are statistically different from zero.

IV.   Concluding Remarks

This paper adds to the literature on sports and stock returns. Our goal is different from the literature on several fronts, including the fact that we consider the effect on stocks of a new version of the sport, T20 cricket, popularly known as the Indian Premier League (IPL)— apparently, the most popular sport in India. And, we only consider the effect of IPL cricket on stocks of companies which actually sponsor the IPL cricket and are listed on the BSE. While stocks of companies that sponsor cricket should be most directly affected by cricket, we find limited evidence that they actually are. There is very limited evidence, and nor is it

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robust, that (a) the IPL cricket affects stock returns or portfolios of stock returns; and (b) successful trading strategies can be devised to profit from the IPL cricket. Our results, which are both statistical and have an economic significance base, stand in sharp contrast to the existing literature, which documents relatively strong evidence that sports (whether it be soccer, baseball, or cricket) influence stock returns. With respect to the 22 stocks we analysed, evidence points to the fact that the advent of the IPL cricket has not made the Indian stock market inefficient.

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Table I: Companies listed on the BSE who sponsor the IPL cricket

This table shows the full names of the 22 companies listed on the Bombay Stock Exchange that sponsor the Indian Premier League cricket. The start and end dates of data on stock returns are different and differ from stock to stock. The start and end dates are listed in the last two columns.

Sl.No	Name of the company	Start date	End date
1	ACC Cement Ltd	03 January 2000	12June 2014
2	Bajaj Allianz	26 May 2008	12 June 2014
3	DHFL Ltd	02 January 2007	12 June 2014
4	Dish TV	18 April 2007	12 June 2014
5	DLF Ltd	05 July 2007	12 June 2014
6	Finolex Industries	03 January 2000	12 June 2014
7	Gitanjali Group	10 March 2006	12 June 2014
8	Gulf Oil Corporation Ltd	01 January 2004	12 June 2014
9	Hercules Ltd	02 January 2006	12 June 2014
10	India Cement Ltd	03 January 2000	12 June 2014
11	Linc Pen Plastic Ltd	02 January 2006	12 June 2014
12	McDowell Holdings Ltd	30 May 2007	12 June 2014
13	Muthoot Capital Ltd	01 April 2005	12 June 2014
14	Nissan Corporation	04 January 2007	12 June 2014
15	Provogue India Ltd	07 July 2005	12 June 2014
16	Spiecejet	03 January 2005	12 June 2014
17	State Bank of Bikaner	03 January 2005	12 June 2014
18	Sun TV	24 April 2006	12 June 2014
19	Tata Consultancy Service Ltd	03 January 2005	12 June 2014
20	Ultratech Cement Ltd	24 August 2004	12 June 2014
21	United Spirit Ltd	04October 2001	12 June 2014
22	Videocon Industries	03 January 2005	12 June 2014

Table II: Selected descriptive statistics

This table reports some commonly understood descriptive statistics of the adjusted stock returns. We have stock returns for 22 companies—these companies are all listed in column 1. This regression model has the following specification:

$$r_t = \alpha_0 + \alpha_1 r_{t-1} + \alpha_2 r_{mt} + \alpha_3 r_{mt+1} + \alpha_4 r_{mt-1} + \alpha_5 D_{M,t} + \alpha_6 D_{T,t} + \alpha_7 D_{TH,t} + \alpha_8 D_{F,t} + \mu_t$$

where r_t is the log stock returns, computed as $ln(P_t/P_{t-1}) * 100$, where P is simply the stock price index; r_m is the BSE market index return computed as log returns; and dummy variables denoting day-of-the-week, Monday, Tuesday, Thursday, and Friday, are represented by D_M, D_T, D_{TH}, and D_F, respectively. The adjusted return is simply $\hat{\mu}_t$. The mean of $\hat{\mu}_t$, its standard deviation, skewness, and kurtosis are reported in columns 2-5. The last two columns report the Ljung-Box (1979) Q-statistics examining the null hypothesis of no autocorrelation at lags of six and 12. The statistical significance of the Q-statistics is denoted by * (**) *** at the 10% (5%) and 1% levels, respectively.

Portfolio name	Mean	Std. dev.	Skewness	Kurtosis	LBQ(6)	LBQ(12)
P_All firm portfolio	0.0015	0.3742	0.4656	8.1626	42.337***	56.674***
P_ACC Cement Ltd.	0.0012	0.3864	0.4941	8.2122	43.254***	55.636***
P_Bajaj Allianz	0.0016	0.3838	0.4700	8.0543	34.581***	49.083***
P_DHFL Ltd.	0.0016	0.3742	0.4068	7.2425	44.693***	56.385***
P_Dish TV	0.0005	0.3741	0.4801	8.1177	40.296***	54.941***
P_DLF Ltd.	0.0017	0.3809	0.5617	9.0401	42.803***	56.203***
P_Finolex industries	0.0006	0.3768	0.4182	7.5994	40.586***	55.334***
P_Gitanjali Group	0.0021	0.3696	0.4504	7.8646	37.731***	50.178***
P_Gulf Oil Corporation Ltd.	0.0016	0.3728	0.5086	8.5696	38.994***	54.741***
P_Hercules Ltd.	0.0023	0.3734	0.3546	7.2898	44.610***	61.974***
P_India Cement Ltd.	0.0018	0.3776	0.4715	8.2298	44.359***	56.165***
P_Linc Pen Plastic Ltd.	0.0006	0.3804	0.5369	8.6944	38.672***	50.664***
P_McDowell Holding Ltd.	0.0012	0.3790	0.4366	8.2595	30.040***	42.375***
P_Muthoot Capital Ltd.	0.0023	0.3771	0.4246	8.1828	35.926***	49.171***
P_Nissan Corporation	0.0005	0.3761	0.4514	8.1046	34.845***	52.876***
P_Provogue India Ltd.	0.0032	0.3665	0.3660	7.6228	35.090***	50.063***
P_Spiecejet	0.0011	0.3648	0.4530	7.7238	43.986***	58.026***
P_State Bank of Bikaner	0.0015	0.3832	0.4490	8.2396	37.131***	49.777***
P_Sun TV	0.0012	0.3811	0.4894	8.2431	44.044***	58.785***
P_Tata Consultancy Service Ltd.	0.0009	0.3964	0.4490	7.9996	46.873***	63.106***
P_ Ultratech Cement Ltd.	0.0010	0.3860	0.4681	7.9775	43.818***	56.231***
P_United Spirit Ltd.	0.0027	0.3815	0.4608	7.7933	45.473***	61.741***
P_Videocon Industries	0.0018	0.3773	0.3920	7.4109	44.102***	56.945***

Table III: Results based on adjusted returns

The results here are based on a two-stage procedure. In the first stage, we adjust raw returns for each stock by using the following time-series regression model:

$$r_t = \alpha_0 + \alpha_1 r_{t-1} + \alpha_2 r_{mt} + \alpha_3 r_{mt+1} + \alpha_4 r_{mt-1} + \alpha_5 D_{M,t} + \alpha_6 D_{T,t} + \alpha_7 D_{TH,t} + \alpha_8 D_{F,t} + \mu_t$$

where r_t is the log stock returns, computed as $ln(P_t/P_{t-1}) * 100$, where P is simply the stock price index; r_m is the BSE market index return computed as log returns; and dummy variables denoting day of the week, Monday, Tuesday, Thursday, and Friday, are represented by D_M, D_T, D_{TH}, and D_F, respectively. The second stage simply takes the residuals, $\hat{\mu}_t$, from the time-series regression as a proxy for adjusted returns and runs stock-specific regressions of adjusted returns on IPL cricket matches. Two models are considered here, as follows:

$$\hat{\mu}_t = \beta_0 + \beta_{DIPL} DIPL_t + \epsilon_t$$
$$\hat{\mu}_t = \beta_0 + \beta_{DAM} DAM_t + \epsilon_t$$

These models are estimated using a GARCH (1,1) framework where the mean equation as above and the variance equation are standard; the variance of returns is specified as a function of squared news (residual) from the mean equation and the one period lagged variance term, measuring volatility persistence. *, ** and *** denote statistical significance at the 10% (5%) and 1% levels, respectively.

Name of the company	DIPL		DAM	
	Constant	Coefficient	Constant	Coefficient
ACC Cement Ltd.	-0.01108	-0.0877	-0.0150	-0.0930
	(-0.9838)	(-1.9873)**	(-0.9273)	(-2.1724)**
Bajaj Allianz	-0.0261	-0.0006	-0.0232	-0.0233
	(-1.1528)	(-0.0108)	(-1.0165)	(-0.3929)
DHFL Ltd.	-0.0997	0.0026	-0.1034	0.03346
	(-3.7126)*	(0.0514)	(-4.1775)*	(0.4835)
Dish TV	-0.04287*	0.0270	-0.0426***	0.0277
	(-1.7198)	(0.3989)	(-1.7084)	(0.4049)
DLF Ltd.	-0.0059	-0.0388	-0.0054	-0.0412
	(-0.2649)	(-0.6138)	(-0.2443)	(-0.6583)
Finolex industries	-0.0652*	0.0042	-0.0665*	0.0325
	(-4.8846)	(0.0676)	(-4.9680)	(0.5507)
Gitanjali Group	-0.0153	-0.0119	-0.0176	0.0042
	(-0.7078)	(-0.1983)	(-0.8111)	(0.0728)
Gulf Oil Corporation Ltd.	-0.1069	0.0889	-0.1062	0.0794
	(-4.9056)*	(1.2099)	(-4.8656)*	(1.1059)
Hercules Ltd.	-0.1290	0.0456	-0.1290	0.0417
	(-7.0651)*	(0.8521)	(-7.0489)*	(0.7850)
India Cement Ltd.	-0.0573	-0.0070	-0.0578	0.0013
	(-3.6253)*	(-0.1143)	(-3.6483)*	(0.0223)
Linc Pen Plastic Ltd.	-0.0908	0.0674	-0.0893	0.0525
	(-3.4764)*	(0.8148)	(-3.4136)*	(0.6474)
McDowell Holding Ltd.	-0.0825	-0.0364	-0.0867	-0.0045
	(-2.9152) *	(-0.4352)	(-3.0572) *	(-0.0552)
Muthoot Capital Ltd.	-0.0840	0.1007	-0.0856	0.1131
	(-3.5985)*	(1.3108)	(-3.6500)*	(1.5367)
Nissan Corporation	-0.0138	-0.0612	-0.0183	-0.0221
	(-0.4732)	(-0.7257)	(-0.6256)	(-0.2700)
Provogue India Ltd.	-0.07249	-0.0446	-0.0737	-0.0308
	(-3.0380)*	(-0.5807)	(-3.0840)*	(-0.4051)
Spiecejet	-0.1025	-0.0294	-0.1019	-0.0347
	(-3.3673)*	(-0.2893)	(-3.3448) *	(-0.3469)
State Bank of Bikaner	-0.0527	0.0296	-0.0521	0.0217
	(-4.1460)*	(0.7310)	(-4.0986)*	(0.5439)
Sun TV	-0.0216	-0.02013	-0.0202	-0.0302
	(-1.0482)	(-0.3320)	(-0.9807)	(-0.5061)
Tata Consultancy Service Ltd.	0.0019	-0.0771	0.0012	-0.0636
	(0.1517)	(-1.6440)	(0.0987)	(-1.3897)

Ultratech Cement Ltd.	-0.0097 (-0.6660)	-0.0456 (-0.9573)	-0.0083 (-0.5703)	-0.0574 (-1.2278)
United Spirit Ltd.	-0.0871 (-5.0560)*	-0.0446 (-0.6365)	-0.0921 (-5.3222)*	0.0273 (0.4134)
Videocon Industries	-0.0651 (-4.3948)*	0.0156 (0.3247)	-0.0655 (-4.4089)*	0.0194 (0.4163)

Table IV: Results based on various portfolios of stocks

The results here are based on a two-stage procedure. In the first stage, we adjust raw returns for each stock by using the following time-series regression model:

$$r_t = \alpha_0 + \alpha_1 r_{t-1} + \alpha_2 r_{mt} + \alpha_3 r_{mt+1} + \alpha_4 r_{mt-1} + \alpha_5 D_{M,t} + \alpha_6 D_{T,t} + \alpha_7 D_{TH,t} + \alpha_8 D_{F,t} + \mu_t$$

Where r_t is the equal-weighted log of stock returns for 23 different portfolios. The first portfolio includes all 23 stocks while the subsequent 22 portfolios are based on excluding one firm from the portfolio at a time. The name of the firm excluded from the portfolio is noted in column 1. Returns are computed as $ln(P_t/P_{t-1}) * 100$, where P is simply the equal-weighted stock price index; r_m is the BSE market index return computed as log returns; and dummy variables denoting day of the week, Monday, Tuesday, Thursday, and Friday, are represented by D_M, D_T, D_{TH}, and D_F, respectively. The second stage simply takes the residuals, $\hat{\mu}_t$, from the time-series regression as a proxy for adjusted returns and runs stock-specific regressions of adjusted returns on IPL cricket matches. Two models are considered here, as follows:

$$\hat{\mu}_t = \beta_0 + \beta_{DIPL} DIPL_t + \epsilon_t$$
$$\hat{\mu}_t = \beta_0 + \beta_{DAM} DAM_t + \epsilon_t$$

These models are estimated using a GARCH (1,1) framework where the mean equation as above and the variance equation are standard; the variance of returns is specified as a function of squared news (residual) from the mean equation and the one period lagged variance term, measuring volatility persistence. The second column reports portfolio statistics, namely mean and standard deviation of each of the 23 portfolios, while the final two columns contain results from the DIPL and DAM models.

Portfolio name	DIPL		DAM	
	Constant	Coefficient	Constant	Coefficient
P_All firm portfolio	0.0039	-0.02152	0.0034	-0.0166
	(0.4669)	(-0.8597)	(0.4052)	(-0.6905)
P_ACC Cement Ltd.	0.0038	-0.0180	0.0030	-0.0117
	(0.4330)	(-0.6976)	(0.3464)	(-0.4714)
P_Bajaj Allianz	0.0026	-0.0231	0.0023	-0.0192
	(0.3012)	(-0.8961)	(0.2631)	(-0.7706)
P_DHFL Ltd.	0.0041	-0.0186	0.0038	-0.0150
	(0.4832)	(-0.7378)	(0.4419)	(-0.6176)
P_Dish TV	0.0022	-0.0210	0.0020	-0.0187
	(0.2597)	(-0.8363)	(0.2405)	(-0.7738)
P_DLF Ltd.	0.0033	-0.0177	0.0029	-0.0135
	(0.3866)	(-0.7037)	(0.3341)	(-0.5560)
P_Finolex industries	0.0021	-0.0244	0.0018	-0.020911
	(0.2420)	(-0.9626)	(0.2073)	(-0.8501)
P_Gitanjali Group	0.0021	-0.0183	0.0015	-0.0132
	(0.2481)	(-0.7327)	(0.1821)	(-0.5487)
P_Gulf Oil Corporation Ltd.	0.0052	-0.0235	0.0046	-0.0182
	(0.6116)	(-0.9295)	(0.5439)	(-0.7471)
P_Hercules Ltd.	0.0046	-0.0197	0.0040	-0.0141
	(0.5332)	(-0.7804)	(0.4607)	(-0.5808)
P_India Cement Ltd.	0.0042	-0.0186	0.0035	-0.0125
	(0.4909)	(-0.7315)	(0.4072)	(-0.5108)
P_Linc Pen Plastic Ltd.	0.0017	-0.0071	0.0021	-0.0095
	(0.2046)	(-0.2850)	(0.2492)	(-0.3910)
P_McDowell Holding Ltd.	0.0040	-0.0164	0.0041	-0.0157
	(0.4707)	(-0.6511)	(0.4800)	(-0.6509)
P_Muthoot Capital Ltd.	0.0031	-0.0237	0.0024	-0.0176
	(0.3644)	(-0.9629)	(0.2899)	(-0.7381)
P_Nissan Corporation	0.0023	-0.0202	0.0016	-0.0142
	(0.2662)	(-0.7941)	(0.1850)	(-0.5809)
P_Provogue India Ltd.	0.0051	-0.0169	0.0048	-0.0139
	(0.6096)	(-0.6923)	(0.5745)	(-0.5905)
P_Spiecejet	0.0036	-0.0244	0.0034	-0.0213
	(0.4448)	(-0.9990)	(0.4172)	(-0.9038)
P_State Bank of Bikaner	0.0050	-0.0206	0.0045	-0.0159
	(0.5857)	(-0.8157)	(0.5254)	(-0.6549)

P_Sun TV	0.0020 (0.2343)	-0.0215 (-0.8523)	0.0018 (0.2100)	-0.0186 (-0.7615)
P_Tata Consultancy Service Ltd.	0.0033 (0.3662)	-0.0231 (-0.8770)	0.0026 (0.2885)	-0.0169 (-0.6693)
P_ Ultratech Cement Ltd.	0.0038 (0.4319)	-0.0206 (-0.7911)	0.0033 (0.3732)	-0.0159 (-0.6334)
P_United Spirit Ltd.	0.0048 (0.5631)	-0.0255 (-1.0089)	0.0043 (0.5023)	-0.0202 (-0.8269)
P_Videocon Industries	0.0049 (0.5746)	-0.0224 (-0.8810)	0.0044 (0.5151)	-0.0178 (-0.7271)

Table V: Univariate test of returns (adjusted) in the IPL (DAM) and non-IPL (DAM) time periods

This table summarises adjusted returns over the IPL (DAM) cricket playing period and the non-IPL (DAM) cricket playing period. The average returns over these two sample periods are computed and reported. In parentheses, the standard deviation of mean returns is reported. The t-test statistic examines the null hypothesis that mean returns in the two periods are equal. Results based on the IPL dummy are reported in columns 2 and 3, with the associated t-test statistic appearing in column 4, while results based on the DAM dummy are reported in columns 5 and 6, followed in the final column by the t-test statistic. * denotes statistical significance at the 10% level.

Name of the company	Mean (and SD) of returns—Non-DIPL Days	Mean (and SD) of returns—DIPL Days	t-test	Mean (and SD) of returns—Non-DAM days	Mean (and SD) of returns—DAM days	t-test
ACC Cement Ltd	0.0152 1.9754	-0.0151 (0.4001)	0.8705	-0.2899 (-1.6968)	0.0169 (-2.0314)	0.9140
Bajaj Allianz	-0.0054 (-2.5749)	0.0146 (-0.9223)	-0.2577	-0.0020 (2.5723)	0.0113 (0.9295)	-0.1715
DHFL Ltd	0.0002 (2.9364)	-0.0044 (0.9655)	0.0602	0.0009 (2.9351)	-0.0050 (0.9696)	1.6458
Dish TV	0.0002 (2.6664)	-0.0021 (0.9801)	0.0310	-0.0018 (2.6595)	-0.0002 (0.9985)	-0.0218
DLF Ltd	0.0332 (2.3846)	-0.0090 (0.5386)	0.6601	0.0387 (2.3775)	-0.0144 (0.5686)	0.8308
Finolex Industries	-0.0350 (2.4980)	0.0144 (0.7295)	-1.0974	-0.0305 (2.5418)	0.0098 (0.5585)	-0.8958
Gitanjali Group	0.0038 (2.9719))	-0.0030 (0.7149)	0.0948	0.0028 (2.9898)	-0.0020 (0.6363)	0.0651
Gulf Oil Corporation Ltd	-0.0068 (4.6879)	0.0072 (0.6984)	1.6455*	-0.0065 (4.6874)	0.0069 (0.7019)	-0.1377
Hercules Ltd	0.0550 (0.2345)	0.0329 (0.1813)	0.1386	0.0530 (0.2302)	0.0349 (0.1868)	0.1132
India Cement Ltd	0.0146 (2.6538)	-0.0165 (0.5433)	0.6643	0.0174 (2.6515)	-0.0192 (0.5540)	0.7819
Linc Pen Plastic Ltd	-0.0051 (3.3216)	0.0053 (0.8078)	-0.1308	-0.0102 (3.3192)	0.0105 (0.8175)	-0.2589
McDowell Holdings Ltd	0.0000 (3.1548)	0.0057 (0.9471)	-0.0672	0.0063 (3.1473)	-0.0007 (0.9717)	0.0825
Muthoot Capital Ltd	-0.0155 (3.4378)	0.0141 (1.1190)	-0.3669	-0.0127 (3.4359)	0.0114 (1.1248)	-0.2987
Nissan Corporation	0.0090 (9.0838)	-0.0099 (0.9303)	0.0820	0.0239 (9.0697)	-0.0248 (1.0590)	0.2115
Provogue India Ltd	-0.0083 (4.9470)	0.0072 (0.9095)	-0.1361	-0.0121 (4.9395)	0.0110 (0.9497)	-0.2023
Spiecejet	-0.0072 (3.6351)	0.0064 (1.1430)	-0.1628	-0.0100 (3.6327)	0.0093 (1.1507)	-0.2310
State Bank of Bikaner	0.0021 (5.0665)	-0.0011 (0.7344)	0.0285	-0.0009 (5.0656)	0.0019 (0.7408)	-0.0249
Sun TV	-0.0389 (4.2692)	0.0202 (0.6832)	-0.5743	-0.0312 (4.2648)	0.0125 (0.7108)	-0.4246
Tata Consultancy Service Ltd	-0.0327 (2.7227)	-0.0054 (0.6194)	-0.4465	-0.0342 (2.7214)	-0.0038 (0.6252)	-0.4974
Ultratech Cement Ltd	0.0505 (1.8692)	-0.0116 (0.4865)	1.5001	0.0492 (1.8684)	-0.0102 (0.4897)	1.4354
United Spirit Ltd	0.0090 (2.9529)	-0.0085 (0.6630)	1.6454*	0.0087 (2.9521)	-0.0083 (0.6665	0.3022
Videocon Industries	-0.0053 (2.3039)	0.0051 (0.7377)	-0.1954	-0.0058 (2.3032)	0.0056 (0.7399)	-0.2160

Table VI: Univariate test of returns (adjusted) of portfolios in the IPL (DAM) and non-IPL (DAM) time periods

This table summarises adjusted returns for portfolios over the IPL (DAM) cricket playing period and the non-IPL (DAM) cricket playing period. The average returns over these two sample periods are computed and reported. In parentheses, the standard deviation of mean returns is reported. The t-test statistic examines the null hypothesis that mean returns in the two periods are equal. Results based on the IPL dummy are reported in columns 2 and 3, with the associated t-test statistic appearing in column 4, while results based on the DAM dummy are reported in columns 5 and 6, followed in the final column by the t-test statistic.

Portfolio name	Mean (and SD) of returns—Non-DIPL Days	Mean (and SD) of returns—DIPL Days	t-test	Mean (and SD) of returns—Non-DAM days	Mean (and SD) of returns—DAM days	t-test
P_All firm portfolio	-0.0012 (0.3404)	0.0027 (0.1551)	0.4082	-0.0003 (0.3367)	0.0021 (0.1634)	0.2516
P_ACC Cement Ltd.	-0.0022 (0.3506)	0.0034 (0.1619)	0.5604	-0.0013 (0.3469)	0.0028 (0.1703)	0.4127
P_Bajaj Allianz	-0.0012 (0.3496)	0.0027 (0.1580)	-0.3948	-0.0002 (0.3455)	0.0020 (0.1670)	-0.2307
P_DHFL Ltd.	-0.0012 (0.3419)	0.0028 (0.1514)	-0.4314	-0.0002 (0.3384)	0.0021 (0.1595)	-0.4314
P_Dish TV	-0.0023 (0.3398)	0.0027 (0.1561)	-0.5273	-0.0012 (0.3360)	0.0020 (0.1645)	0.3485
P_DLF Ltd.	-0.00121 (0.3455)	0.0029 (0.1599)	-0.4200	-0.0002 (0.3420)	0.0022 (0.1676)	0.2588
P_Finolex industries	-0.0015 (0.3435)	0.0021 (0.1545)	-0.3837	-0.0006 (0.3395)	0.0014 (0.1634)	0.2111
P_Gitanjali Group	-0.0003 (0.3363)	0.0024 (0.1529)	-0.2987	0.0003 (0.3328)	0.0021 (0.1609)	0.1832
P_Gulf Oil Corporation Ltd.	-0.0010 (0.3382)	0.0025 (0.1565)	0.3753	-0.0002 (0.3348)	0.0020 (0.1639)	0.2349
P_Hercules Ltd.	-0.0003 (0.3397)	0.0026 (0.1546)	0.3049	0.0004 (0.3357)	0.0021 (0.1635)	0.1777
P_India Cement Ltd.	-0.0012 (0.3442)	0.0030 (0.1547)	0.4419	-0.0004 (0.3407)	0.0026 (0.1626)	0.3172
P_Linc Pen Plastic Ltd.	-0.0017 (0.3451)	0.0023 (0.1597)	0.4165	-0.00076 (0.3415)	-0.0007 (0.3415)	0.2532
P_McDowell Holding Ltd.	-0.0017 (0.3444)	0.0029 (0.1577)	0.4753	-0.0006 (0.3401)	0.0022 (0.1673)	0.2926
P_Muthoot Capital Ltd.	0.0002 (0.3436)	0.0020 (0.1550)	0.1797	0.0010 (0.3400)	0.0015 (0.1630)	0.0437
P_Nissan Corporation	-0.0016 (0.3431)	0.0022 (0.1537)	0.3995	-0.0009 (0.3401)	0.0018 (0.1607)	0.2823
P_Provogue India Ltd.	0.0003 (0.3353)	0.0027 (0.1475)	0.2506	0.0012 (0.3321)	0.0022 (0.1549)	0.1035
P_Spiecejet	-0.0011 (0.3324)	0.0022 (0.1496)	0.3682	-0.0003 (0.3289)	0.0016 (0.1577)	0.2113
P_State Bank of Bikaner	-0.0011 (0.3491)	0.0026 (0.1574)	-0.3799	-9.3E-05 (0.3450)	0.0018 (0.1666)	0.1985
P_Sun TV	-0.0018 (0.3466)	0.0029 (0.1580)	-0.4850	-0.0008 (0.3429)	0.0023 (0.1663)	0.3180
P_Tata Consultancy Service Ltd.	-0.0022 (0.3607)	0.00309 (0.1639)	0.5178	-0.0012 (0.3567)	0.0025 (0.1730)	0.3691
P_ Ultratech Cement Ltd.	-0.0021 (0.3511)	0.0031 (0.1598)	0.5275	-0.0011 (0.3474)	0.0023 (0.1683)	0.3490
P_United Spirit	-0.0004	0.0030	0.3545	0.0005	0.0024	0.1897

Ltd.	(0.3471)	(0.1578)		(0.3431)	(0.1666)	
P_Videocon	-0.0009	0.0027		-6.6E-05	0.0022	0.2342
Industries	(0.3444)	(0.1536)	0.3747	(0.3406)	(0.1623)	

Table VII: Profits from short-long trading strategy

This table reports returns from a trading strategy that takes a short position during the IPL period and a long position during the non-IPL period. From this strategy, we report the average profits of individual stocks, the t-test statistic examining the null hypothesis that the profits are zero, and the standard deviation of profits. *, ** and *** denote statistical significance at the 10% (5%) and 1% levels, respectively.

Name of the company	Average profits (%)	t-test statistic	Standard deviation
ACC Cement Ltd	2.5900	1.4754	1.0522
Bajaj Allianz	-0.0200	-0.0070	1.2047
DHFL Ltd	1.3500	0.3831	1.5101
Dish TV	-3.1700	-0.9247	1.4413
DLF Ltd	-3.3800	-0.8913	1.5729
Finolex Industries	0.3900	0.1901	1.2430
Gitanjali Group	-2.1400	-0.6078	1.5922
Gulf Oil Corporation Ltd	1.5400	0.5032	1.5544
Hercules Ltd	2.1100	0.6164	1.5615
India Cement Ltd	0.7100	0.2959	1.4404
Linc Pen Plastic Ltd	-3.3500	-0.9733	1.5727
McDowell Holdings Ltd	-3.0900	-0.8219	1.5694
Muthoot Capital Ltd	2.6800	0.7922	1.6069
Nissan Corporation	-8.9700	-2.3678***	1.6186
Provogue India Ltd	-2.8600	-0.8842	1.5158
Spiecejet	-2.9700	-0.7945	1.8071
State Bank of Bikaner	1.3900	0.6682	1.0027
Sun TV	0.8800	0.3092	1.2843
Tata Consultancy Service Ltd	3.6900	1.9067*	0.9364
Ultratech Cement Ltd	3.8100	1.9485*	0.9639
United Spirit Ltd	5.6800	2.2419**	1.4236
Videocon Industries	-0.6500	-0.2640	1.1960

Table VIII: Profits from short-long trading strategy

This table reports returns from a trading strategy that takes a short position during the IPL period and a long position during the non-IPL period. From this strategy, we report the average profits earned by each portfolio, the t-test statistic examining the null hypothesis that the profits are zero, and the standard deviation of profits.

Portfolio Name	Average profits (%)	t-test statistic	Standard deviation
P_ACC Cement Ltd.	-1.8387	-1.0091	0.7031
P_Bajaj Allianz	-1.6334	-0.8896	0.7084
P_DHFL Ltd.	-1.6891	-0.9453	0.6894
P_Dish TV	-1.5968	-0.899	0.6854
P_DLF Ltd.	-1.4761	-0.8428	0.6758
P_Finolex industries	-1.6118	-0.8904	0.6985
P_Gitanjali Group	-1.4468	-0.8092	0.6899
P_Gulf Oil Corporation Ltd.	-1.5879	-0.8906	0.6879
P_Hercules Ltd.	-1.6126	-0.9007	0.6908
P_India Cement Ltd.	-1.6583	-0.9275	0.6899
P_Linc Pen Plastic Ltd.	-1.5315	-0.8271	0.7144
P_McDowell Holding Ltd.	-1.4852	-0.8185	0.7001
P_Muthoot Capital Ltd.	-1.5568	-0.8565	0.7014
P_Nissan Corporation	-1.2451	-0.6857	0.7006
P_Provogue India Ltd.	-1.4336	-0.8014	0.6902
P_Spiecejet	-1.4503	-0.8244	0.6788
P_State Bank of Bikaner	-1.4080	-0.7737	0.7022
P_Sun TV	-1.7262	-0.9528	0.6990
P_Tata Consultancy Service Ltd.	-1.8799	-1.0231	0.7090
P_ Ultratech Cement Ltd.	-1.8345	-1.0026	0.7060
P_United Spirit Ltd.	-1.6872	-0.9384	0.6938
P_Videocon Industries	-1.5419	-0.8599	0.6919

Table IX: Momentum profits

This table reports momentum profits (winner minus loser) based on the Jegadeesh and Titman (1993) momentum trading strategy. Given a small number of stocks, two rules to define the winner and loser portfolio are adapted. We select the top-3 and bottom-3 as winners and losers and then change this to top-5 and bottom-5 in subsequent analysis. The ranking (r) and holding (h) periods are report in column 1. In parentheses we report the t-statistic testing the null hypothesis that profits are zero.

Ranking and holding periods	Top-3/bottom-3	Top-5/bottom-5
r=1, h=1	-0.022 (-1.419)	-0.008 (-0.640)
r=1, h=3	0.001 (0.056)	0.002 (0.292)
r=1, h=6	0.002 (0.298)	0.000 (0.029)
r=3, h=1	0.012 (0.641)	0.005 (0.299)
r=3, h=3	0.024 (1.477)	0.006 (0.413)
r=3, h=6	0.007 (0.495)	0.000 (-0.014)
r=6, h=1	0.022 (1.095)	0.014 (0.868)
r=6, h=3	0.019 (0.999)	0.006 (0.371)
r=6, h=6	-0.001 (-0.079)	-0.011 (-0.763)

Appendix A: Details on Sponsors

Sl.No	Sponsor	Sponsoring Team
1.	ACC Cement	Kings XI Panjab
2.	Bajaj Allianz	Mumbai Indians
3.	DHFL	Mumbai Indian
4.	Dish TV	Kolkata Knight Riders
5.	DLF	Lead sponsor for first five editions of IPL
6.	Finolex Industries	Pune Warriors India (2010-2013)(IPL 4 to IPL 6 only)
7.	Gitanjali Group	Kolkata Knight Riders
8.	Gulf Oil	Chennai Super Kings
9.	Hercules	Chennai Super Kings
10.	India Cement	Chennai Super Kings
11.	Linc Pen	Kolkata Knight Riders, Pune Warriors India
12.	McDowell	Most of the Teams
13.	Muthoot Group	Delhi Daredevils
14.	Nissan Ltd	Most of the Teams
15.	Provogue India	Rajasthan Royals
16.	Spiecejet	Sunrisers Hyderabad
17.	State Bank of Bikaner	Rajasthan Royals
18.	Sun TV	Sunrisers Hyderabad
19.	Tata-TCS	Rajasthan Royals
20.	Ultratech Cement	Rajasthan Royals
21.	United Spirit	Royal Challengers Bangalore
22	Videocon Industry	Mumbai Indians