Why do Goals Matter? Sport Events and Capital Market Returns

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Abstract

Expected utility theory and Efficient Market Hypothesis (EMH) seem to be unable to properly explain the returns' evolution in the stock market. The players does not act as rational as the theories assume and the prices seldom follow the EMH rules. The football clubs stock prices represent a good example for this statement since their stockholders have both rationale and emotional reasons for their investment. On the one side, they act as a regular investor who decide been driven by profit but on the other side they are usually fans of those clubs and have an emotional determinant for holding the stocks. The aim of this paper is analyses the relationship between the football matches outcomes and price returns on a time span that range during ten seasons 2006/2007 – 2015/2016), for Borussia Dortmund (Germany), AFC Ajax (Holland), Lazio (Italy) and a nine seasons time span(2007/2008 – 2015/2016) for SL Benfica (Portugal).

Key words: sport, return, emotion, victories
J.E.L. classification: C2, G14, G17

1. Introduction

Despite the economics mainstream that consider and analyse the financial decision based on expected utility maximisation, in reality the decision matrix is much more complex. Our brain is bombed each day with thousands of information and stimulus and very often individuals find very hard to understand, process and decide based on such a huge amount of information. In this context the decision arise as a product of personal circumstances, feelings, emotions and intuition rather than from a rational planning.

Mood was proven to play a very important role in the decision process since it can affect individual decisions though two channels: *cognitive-evaluation* and *risk-tolerance.*

Good mood is considered responsible for an increase in the ability of categorization, creativity in response-generation tasks and efficiency in solving multi-attribute decision problems (Pham, 2007). In the case of problem-solving tasks that require ingenuity, individuals in better mood seem to perform better (Greene and Noice, 1988). On the other hand, positive mood individuals tend to rely on stereotypes and judgmental heuristics and have a higher propensity to optimism and overconfidence biases (Barberis and Thaler, 2003; Hoffrage, 2004). A negative mood seems to produce different effects depending on its cause. Sadness decreases the use of scripts and stereotypes and triggers a more systematic, data-driven form of reasoning since sad moods represent a signal for the individual that a more vigilant form of processing is required (Schwarz, 2002). Anger and disgust lead to heuristic rather than systematic processing (Triedens and Linton, 2001; Lerner and Keltner, 2001).Evidence that mood affects individual's risk taking is overwhelming, even though there is no agreement on the nature of the effect (Forgas,1995; Isen

et.al., 1998; Andrade and Cohen, 2007). It is important to note that emotional and mood states can have a self-reinforcing effect over risk attitude. Affect could modify the cognitive evaluation of risk: for instance bad mood could lead to a higher perceived risk associated with a line of action. This cognitive evaluation could, in turn, determine a self-reinforcing feedback effect on the initial mood in such a way that even a relatively mild fear could generate a severe panic reaction (Lang, 1995).

Considering these, the present paper asses the influence exercised by the feelings of euphoria/sadness (associated with a positive or negative outcome of a football match in which the favourite team is engaged) and the stock returns, particularly the stocks that belong to the same club whose team played the game. The connection between the matches outcome and stock returns is supposed to be channelled by mood since a positive result will clearly determine a positive mood that will affect the risk-tolerance and in the final the stock returns.

The paper is structured as follows: the section 2 is dedicated to the literature presentation, in section 3 we present data and methodology, section 4 includes the main results and the section 5 conclude.

2. When sport outcomes make us happy

Wining seems to be extremely important for individual mood. When their team wins the supporters are feeling proud and happy. As the mood is proven to influence risk aversion is easily assumable that if their team wins the supporters will be more prone either to engage in riskier activities (if they follow the assumption of Affect Infusion Model (Forgas, 1995) either to stay aside and try to maintain theory good mood (if they follow the assumption of The Mood Maintenance Hypothesis, proposed by Isen et. al,1998).

The AIM model suggests instead that subjects in bad mood have a more pessimistic view of the world, perceive situations as riskier, and have, as a result, a lower propensity toward risk taking. On the other hand, individuals in a positive affective state, who usually have a more optimistic view and perceive a safer environment, should to be more prone to risk taking. The key assumption in the AIM model is that the effects of mood tend to be exacerbated in complex situations (HAIS – high affect infusion strategies) that demand substantial cognitive processing, comparing with little generative, constructive processing (LAIS-low affect infusion strategies). In other words, as situations become more complicated and unanticipated, mood becomes more influential in driving evaluations and responses.

The MMH model is based on the idea that, independently of the current mood, the main goal of any individual is to achieve and maintain well-being. In a good mood, the individual will avoid risky situations in order to preserve the good state. In the case of a bad mood situation, the individual will choose riskier alternatives hoping that the possible gains will lift his spirit.

In both cases the stock returns will be affected, in the first case in a positive way and in the second case in a negative way.

Ashton et.al (2003) found a positive relationship between English teams games and London Stock Exchange. Edmans et.al (2007) tested the capital market reactions at losses in football matches in 49 countries. They found a positive negative correlation between losses and return, especially I the case of more important games as the one in the World Cup. The authors have shown that losing an international football game could lead to smaller returns in the next day even with 49 points.

Palomino et.al (2009) analyses the performance of 16 British clubs between 1999 and 2002 and conclude, based on share bets evolution, that loses have a more intense negative effect on returns if the initial bets were mostly orientated towards winning that that towards loses. Expected winning seems to lead to higher increases in stock prices than the unexpected ones.

Bernile and Lyandres (2011) concentrate their analysis on the football matches in the World and European cup. They notice that losses have a more significant impact on investors' mood due to their ante-too optimistic attitude. Similar conclusions have been drawn by Ehrman și Jansen (2012) analysing the games from FIFA World Cup 2010.

3. Data and methodology

Football club performances, the matches results in other words have a very important role in the fans life. When a fan is also a stockholder is easy to notice that his decision will be biased by his emotions and feelings and that he will be incapable of a very rational analyse and decision. Football became a way of life for many of those individuals and as a result, the decision of selling the stocks of their favourite club seems to be a harder choice that for other type of stockholders. The euphoria that occurs when the favourite team scores and wins and the sadness when the opposite happens are very strong feelings that affect de investors' decision.

Since these conclusions are rather intuitive we will employ an econometrical model in order to analyse the relationship between the matches outcomes (win, lose or deuce) and the football club's stock returns. The time span of our analysis range during ten seasons 2006/2007 – 2015/2016), for Borussia Dortmund (Germany), AFC Ajax (Holland), Lazio (Italy) and a nine seasons time span(2007/2008 – 2015/2016) for SL Benfica (Portugal), since the last one was listed on the stock exchange just in 2007 (we have selected clubs which have a large number of supporters and which are listed on the stock exchange).

Based on the historical daily prices we computed the daily returns for all four clubs and we tested the variables for stationarity with Augmented Dickey-Fuller, Dickey–Fuller GLS (ERS) and Phillips–Perron tests in order to avoid erroneous results.

The impact of matches outcome is captured using a dummy variable, MC which takes the value 1 if the ream wins , -1 if the team lose and 0 if it is a deuce or there is no match in that day. Starting from here a simple OLS model could help us understand the nature of the relationship between games outcome and stocks return.

$$\mathbf{R_t = c + \beta_1 * R_{t-1} + \beta_2 * R_{t-2} + \ldots. \beta_n * R_{t-n} + \lambda * MC_t + \varepsilon_t} \quad (1)$$

where:

R t – return
c – intercept
ε_t – standard error
MC_t- dummy variable used as a proxy for investors behaviour

Since usually the international games have a higher stake than the domestic ones the impact of those results on the capital market return could be also more important. In order to valuate it we are proposing a supplementary model, designed in the same shape, for the international games:

$$\mathbf{R_t = c + \beta_1 * R_{t-1} + \beta_2 * R_{t-2} + \ldots. \beta_n * R_{t-n} + \lambda * MI_t + \varepsilon_t} \quad (2)$$

where:

MI_t - dummy variable used as a proxy for investors behaviour following the international games (CHAMPIONS LEAGUE and EUROPA LEAGUE). Following the same algorithm, MI which takes the value 1 if the ream wins, -1 if the team lose and 0 if it is a deuce or there is no match in that day.

4. Results

The model is tested both for domestic and international games and the main results for the clubs in the sample are presented in the tables bellow:

Table no. 1 Stock returns and victories for Borussia Dortmund

Domestic games		**International games**	
Variables	**Coefficients**	**Variables**	**Coefficients**
C	-0.0007 (0.0007)	C	-2.2505 (0.0007)

R(-1)	-0.1513*** (0.0279)	R(-1)	-0.1492*** (0.0281)
MC	0.0189*** (0.0025)	MI	0.0152*** (0.0056)
R-squared	0.0350	R-squared	0.0161
Adjusted R-squared	0.0323	Adjusted R-squared	0.0133

Source :author's estimations

*, **, *** significant at 10%, 5%, 1%

() standard error

As one could see from the results displayed in the table, the positive, significant at 1% coefficient of the MC and MI variables show a positive, not very strong but statistically significant relation between the returns offered by the Borussia Dortmund stocks and their wins. Even if apparently the results are somehow unexpected judging the cultural features shared by Germans: order, rationality, long term planning, still, the team is the most loved in Germany, highly supported both in domestic and international games.

The situation seem to dramatically change for the AFC Ajax where the effect of emotions driven by game results seems to be absent. Holland is a highly culturally diversified country with citizens from all over the world but as the rest of other Nordic countries people are here generally more rational then emotional.

Table no. 2. Stock returns and victories for AFC Ajax

Domestic games		**International games**	
Variables	**Coefficients**	**Variables**	**Coefficients**
C	-0.0027*** (0.0046)	C	-0.0024** (0.0011)
R(-1)	-0.3917*** (0.0587)	R(-1)	-0.3941*** (0.0587)
MC	0.0052 (0.0003)	MI	0.0006 (0.0065)
R-squared	0.0189	R-squared	0.0180
Adjusted R-squared	0.0162	Adjusted R-squared	0.0153

Source :author's estimations

*, **, *** significant at 10%, 5%, 1%

() standard error

As one could easily expect judging from the mail Italian cultural features, here the results of the games has a greater influence on stock returns than the one seen in Germany. Pasion in everything lead the decision very often in Mediterranean countries and sport results are proven to determine an important mood improvement. Plus the Italian preference for football is already well known. In Italy 69% of fans prefer to miss an important event in the family in order to attend to a football game and more than 50% prefer to lose a day of work for that.

Table no. 3. Stock returns and victories for S.S. Lazio

Domestic games		**International games**	
Variables	**Coefficients**	**Variables**	**Coefficients**
C	0.0005 (0.0008)	C	0.0007 (0.0009)
R(-1)	-0.0598*** (0.0219)	R(-1)	-0.0614*** (0.0221)
MC	0.0207*** (0.0026)	MI	0.0288*** (0.0069)

R-squared	0.0349	R-squared	0.0156
Adjusted R-squared	0.0322	Adjusted R-squared	0.0129

Source :author's estimations

*, **, *** significant at 10%, 5%, 1%

() standard error

Similar results can be seen for the last club where the supporters share the same appetite for football but also the same the same cultural features. Portuguese individuals' decisions are more often driven by passion, by emotion and by personal circumstances than in the Northern countries. SL Benfica has the highest number of fans from all the Portuguese clubs and the highest number of fans abroad (around 14 millions).

Table no. 4. Stock returns and victories for SL Benfica

Domestic games		**International games**	
Variables	**Coefficients**	**Variables**	**Coefficients**
C	-0.0005 (0.0012)	C	0.0007 (0.0011)
R(-1)	-0.3065*** (0.0224)	R(-1)	-0.3024*** (0.0224)
MC	0.0206*** (0.0038)	MI	0.0250*** (0.0062)
R-squared	0.0847	R-squared	0.0822
Adjusted R-squared	0.0846	Adjusted R-squared	0.0793

Source :author's estimations

*, **, *** significant at 10%, 5%, 1%

() standard error

5. Conclusions

Several researches point out that emotions and feelings could be considered extremely important determinants for the investor's behaviour. Tests' results have shown undoubtedly that especially in the countries in which individuals are characterised to a more extroverted behaviour as Italy and Portugal there is a positive correlation, statistically significant between the games results and the clubs' stocks returns.

We would expect to obtain stronger results for international games but the results does not show a higher impact in the case of more important games. For many individuals in different cultures the footfall is more than a passion, is a way of life and for a dedicated supporter each game no matter if it is played in an important international competition or in the domestic championship is equally important.

The extremely complex decision mechanism seems to be driven in a part also by emotions since the investors, especially in this field feel hard to separate their love for the football club by their investments. In this context, including euphoria, sadness and anger as main feelings that occur due to the football match results, in the decision matrix seems to be a reasonable step.

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