

Sport sponsorship and stock returns during Covid-19: an event management review in Switzerland

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Abstract:

The purpose of this study was to examine the Switzerland professional football league teams event management and jersey sponsors stock price returns fluctuations following the match day during COVID-19. Since few jersey sponsors are not listed companies, we focus on sponsors which are listed in the financial markets. Furthermore, for reasons of media coverage and spectator numbers, we focus on “Credit Suisse Super League” since has had the largest TV audience during COVID-19 in Switzerland. Strategic partners, rivals, clients, and other stakeholders need to know essential details about the general health and well-being of publicly listed companies in order to make informed decisions. We investigate, if victories or defeats yield positive or negative stock price fluctuations and if the team performance has different affect in newly growing or well-established firms. Initially, it is observed that in sporting events where teams experience defeat, the presence of jersey sponsors is associated with adverse abnormal returns. The disparity in the impact of victories and losses can be elucidated by the presence of an allegiance bias. Moreover, it was observed that matches exhibiting goal differences exceeding two goals displayed considerably higher positive or negative returns within the initial week following the match. The football and the financial market industry should take into account these recent empirical findings to for the efficacy of sports sponsorship. Finally, the size of this effect is expected to depend on the relevance of matches and should be most pronounced for the most popular teams. This makes good economic sense since victory or defeat easily has more direct consequences for a team and hence for a sponsor.

Keywords: Marketing, Financing of Sports, Football, Company Treasury, Sponsorship

Introduction

The association between a sponsor, usually a company, and a sport club, a sportsperson or a sporting event, is admittedly one of the most powerful marketing techniques. It is a well-known fact that several companies annually invest an inordinate amount of their funds in sponsorship. Companies are concerned that scandals related to football events the resulting media coverage might adversely affect their own marketing-related outcomes of sponsorship. There is evidence that sponsorship of events like the Olympics can improve brand reputation, regardless of the financial performance of the firm or the amount of sponsorship (Wally & Hurley, 1998). Cornwell et al., (2001), discuss the underlying principles of sport sponsorship behind marketing programs. Sponsorship has been steadily growing as a popular marketing tool over the past 30 years. In 1987, sponsorship spending was \$5.6 billion and in 2017 it was \$62.7 billion, growing tenfold during the past thirty years (Statista, 2018). Sports sponsorships account for approximately 70% of all sponsorship activities in North America. As a result of the strong economic growth in Asia Pacific, it is likely to catch up to Europe and North America in terms of sponsorship spending. A key benefit of sponsorships is that more consumers become aware of the goods and services a firm offers and are attracted to them through image transfer, resulting in increased purchases and higher firm value. Evidently, there are a number of common patterns in sport sponsorship and conventional advertising campaigns.

To begin with, increased corporate sales deriving from excessive media coverage is commonplace primarily for eminent sport competitions. Many companies are implementing cost-cutting measures as a result of the COVID-19 pandemic in order to avoid going out of business, putting a hold on most new sponsorship agreements. Nearly 20,000 sports and entertainment properties have postponed events or temporarily closed their doors to date, impacting 120,000 active sponsorship agreements. Approximately 5,000 brands must determine how to regain lost value (IEG, 2020). Sponsor and property partnerships will be affected by the COVID-19 pandemic as well. The current focus should be on how both sides can collaborate to engage and add value outside of the event itself, instead of letting both sides rely too heavily on assets like signage and media that exist during the live event itself. Based on Two Circles (2020), innovation that will take place during the COVID-19 lockdown period will strengthen sports sponsorship as an important marketing platform. In more detail, sport's economy will thrive in the long term, and when the impending recession bottoms-out, all sectors will rely on the best marketing platforms available to grow their businesses. The sports properties that use the pandemic period to invest in their sponsorship propositions, moving away in particular from analogue-led logo exposure to

digitally driven, tangible audience engagement, will be those that thrive most during the post-COVID-19 period (Koronios et al., 2021). Seeing that a wide range of sponsorships has been incorporated into sports, the investigation of sponsorship effectiveness has been a subject of great interest recently (Lacey et al., 2010; Deitz et al., 2013). Through this emphasis, the importance of understanding consumers' responses to sponsors and researching how sponsorship impacts consumers is essential. Based on Meenaghan (2013), since the 2008 financial crisis, the interest in straightforwardness and accountability in sponsorship investments has expanded, resulting in the need for measures of performance efficiency and appraisal.

Event management in sport industry

Before we delve into event management, it is imperative that the notion of 'event' be clarified. Any activity – whether it may be an art, sports, tourism, social-related or formal one construed by a large corporation – aiming to a particular purpose is defined as an event (Argan, 2007). Typical examples of events comprise conventions, exhibitions, fairs, festivals, meetings, incentives, conferences, retail events, reunions, social life cycle and hallmark events, sports and tourism events (Goldblatt, 2005). Following Park, K., & Park, S. (2016), an event is '*a unique moment in time aside from everyday occurrences*'. Silvers (2004) also adds that events are both quantitative and qualitative since they produce a foreseeable outcome while allowing people to share experiences and hence, encourage interconnectedness. In business terms, the event industry entails both small and large-scale corporate and personal events like festivals, formal parties, concerts, exhibitions, conferences and seminars. These are activities that gather the target group at a given time and place where a message is communicated across all the participants and an end-product is created (Eckerstein, 2002). The underlying principle of an event is to foster communication and increase the participants' involvement and engagement (Silvers, 2004). According to Theoharis (2008), the event industry is affluent and dynamic, providing opportunities for growth as well as exerting tremendous economic influence. Taking the above into consideration, the application of project management to the creation and development of such events is known as 'event management'. It involves defining the objectives and goals of the event, assigning roles, delegating responsibilities, planning and constructing tools, designating success factors and standards, determining processes and procedures. Andersson and Wesslau (2000) argue that events can have a direct impact on consumers giving organizers an edge over their competitors during, or even after, the event. More importantly, events are associated with ad hoc services since they mainly create impalpable experiences shared by a given group in an ephemeral, controlled environment besides the tangible elements, such as food, refreshments and other products used. As a result, this experiential end-product, which is coincidentally produced and consumed, is highly heterogeneous and to this extent, difficult to quantify (O'Neil et al., 1999).

In the last decades, a substantial amount of research has been conducted on the effects of marketing on the stock market. New branding initiatives are especially well received by the financial market. Positive reactions to branding initiatives occur when the firm changes its name (Horsky and Swyngedouw, 1987) improves customer service, (Nayyar 1995) wins a quality award, (Hendricks and Singhal 1996) uses celebrity endorsers, (Agrawal and Kamakura 1995) and sponsors the Olympics (Miyazaki and Morgan 2001). Furthermore, the market appears to respond positively to improvements in organizational customer-based brand equity, as reflected in improved customer quality perception, as well as brand attitude. Upon examining the response of the stock market to marketing actions, (Mizik and Jacobson 2003) conclude that the stock market, in general, reacts positively when organizations shift their strategic emphasis from value creation to value appropriation. It appears only commercial sponsorship events generate abnormal returns according to the study by Calderon et al., (2005). Companies' size and the event's relation to their activities are two of the most important determining factors. Therefore, major football tournaments provide ample evidence for the impact of sport sponsorship on a company's stock price. In the event that sport sponsorships impact future earnings, this will be reflected in the stock price at the time of the announcement. The examination of the sponsors of the sport as an investor in advertising and advertising strategy is becoming more important to the success of the firm from a financial and strategic perspective (Elasri et al., 2020; Kumar 2015). For publicly traded firms, investor reaction, as reflected in changes in firm stock price, signals essential information to strategic partners, competitors, clients, and other stakeholders as to the overall health and well-being of the firm (Drózdź, 2021; Deitz et al., 2013). Investors will orient their behavior toward the firm in a way that reflects how they view firm strategic initiatives and actions that may prove to be beneficial to the firm. Thus, the event study methodology allows researchers to examine the impact of sponsorship on firm value through stock price reactions.

Another construct which has also been associated with sport sponsorship is brand awareness, or corporate image (Koronios, et al., 2021). Sponsorships are able to increase brand loyalty to a higher extent than advertising, according to Mazodier and Merunka (2012). More surprisingly, the impact of the sport outcome constitutes a key contributing factor of sport sponsorship. However, Dimitropoulos (2011) argues that aggressive earnings management and manipulation by football managers and particularly, board-independent clubs, undermine the principles and quality of corporate governance.

Event management and social entrepreneurship

It is common knowledge that definitions of entrepreneurship abound. In the same vein, various scholars have proposed a number of definitions of social entrepreneurship (Short et al., 2009, Kim et al., 2018). In fact, there are over thirty both supplementary and contradictory definitions of the concept according to a meta-

analysis conducted on the term (Dacin et al., 2010). Among others, (Bjarsholm et al., 2017) argues for a holistic approach towards the study of social entrepreneurship in sports science in an attempt to avoid ambiguity, or any other inconsistencies. Any creative and innovative activity performed within or across an institution or organization aiming to shape, instill, and promote social values is referred to as social entrepreneurship. Moreover, (Ratten 2011) also adds that this entails the pursuit of a social goal as well as the effort to reap financial benefits. The fulfillment of social objectives and goals constitutes the common denominator despite the existing discrepancies among the assortment of entrepreneurial definitions (Austin et al., 2006).

In this study, social entrepreneurship is viewed as an ongoing process through which an individual or organization uses sports as a means to explore, examine, and address social issues, achieve social goals and derive financial benefits. Besides, it entails both organizational and technical innovation and exploitation of business opportunities. The pivotal role of social entrepreneurship in sports business ventures has heavily been cited (Gilmore et al., 2011, Gallagher et al., 2012) while a plethora of studies have indicated its effectiveness in the resolution of social issues, including psychological, health, and gender-discrimination issues. It is also worth mentioning that the concept of social entrepreneurship is frequently associated with Corporate Social Responsibility (CSR). Although the terms are commonly used interchangeably, there are salient differences between them. To begin with, (Defourny and Nyssens 2010) claim that CSR constitutes a segment of the social entrepreneurship gamut. Instead of making social contributions, the underlying principle behind CSR is to create a positive corporate image as well as improve the target audience's perceptions in order to increase financial benefits. According to (Bjarsholm, 2017), social values are regarded as an end in themselves and thus, they are manipulated as a means to increase profits whereas in social entrepreneurship they are placed in the center of attention and any profits gained are afterwards reinvested in the corporation. Last but not least, innovation – a key idea in social entrepreneurship- seems to be impertinent to CSR.

Another feature of a prominent, successful company is brand equity representing brand awareness and loyalty, a positive corporate image, favorable brand perceptions and associations, and the idea of high product quality (Aaker, 1991). In fact, sports sponsorship can prove a useful tool in the attempt of fulfilling brand management objectives and establishing brand equity in the marketplace (Amis, 2003; Sandler & Shani, 1993). Roy and Cornwell (2003) claim that developing a partnership agreement with a sport property results in both a boost of brand equity and an increase in brand value. Various other scholars (Amis et al., 1997; Cornwell et al., 2001; Gwinner & Eaton, 1999; Irwin & Asimakopoulos, 1992) also indicate the critical role of sports sponsorship in enhancing brand image and reputation, raising brand awareness and familiarity, and establishing positive perceptions. Furthermore, Amis et al. (1999) and Cornwell et al. (2001) argue for a positive impact on brand personality and brand differentiation.

Evidently, this impact is intensified in partnership agreements of major sporting events, such as the Olympic Games. In his study, Brown (2000) highlights how two leading companies in the service industry, AMP and Visa, exploited their Olympic sponsorship of the 2000 Olympics to promote brand development and differentiation initiatives. More specifically, Crimmins and Horn (1996) illustrate the swift of public awareness and perceptions of Visa granting it the edge over its chief competitor, MasterCard, thanks to its Olympic sponsorship. According to Stipp (1998), it is people's attitude and high regard of the Olympic Games that attaches great value to Olympic sponsorship. The special features of Olympic advertising, the positive public perceptions and attitudes to Olympic sponsorship, and the correlation between the sponsor and the Olympics are among the contributing factors to a positive brand image to name just a few (Stipp, 1998). Nonetheless, the effectiveness of sports sponsorship, including Olympic sponsorship, depends on a number of other parameters that should be taken into serious consideration. For instance, active management (Amis, 2003; Cornwell et al., 2001), appropriate and adequate leveraging (Chalip & Leyns, 2002), and long-term partnership agreements allowing enough time for strong associations between the event and the brand to be developed (Keller, 1993). Finally, Amis et al. (1999) suggest that sport sponsorship agreements be viewed as an additional, distinct resource, which should be integrated into other business activities to produce competitive and sustainable outcomes.

Link between event management and social entrepreneurship

In this section, we will delve deeper into social entrepreneurship as well as two other concepts which are inextricably interwoven with it; these are 'Corporate Social Responsibility' (CSR) and 'philanthropy' (Huybrechts et al.; Nicholls, 2012). According to the European Commission (2011), CSR encompasses the strategies employed by a company as part of its business management to ensure that it is both socially and ethically accountable to itself, its stakeholders, and the general public. As it was also mentioned in the previous section, CSR is considered to be a part of the broader spectrum of social entrepreneurship (Defourny et al.; Nyssens, 2010) and thus, it has managed to gain momentum in the business industry over the past few years (Trivedi et al.; Stokols, 2011). Although both social entrepreneurship and CSR do share some common goals, there are important differences between them. First and foremost, they differ in terms of corporate priorities and goals as well as profit management (Huybrechts et al.; Nicholls, 2012; Trivedi et al.; Stokols, 2011). In particular, the focal point of social entrepreneurship is social values with incidental monetary benefits, either partly or entirely, reinvested in the company. On the contrary, CSR projects are of secondary importance to

companies while the primary goal is to increase profits. Another difference is that CSR, unlike social entrepreneurship, is not strictly innovative nor is it exclusively entrepreneurial (Huybrechts et al. & Nicholls, 2012). Rahman (2014) argues that companies resort to CSR to forge commercial relationships and promote their brand in the light of profit-maximizing goals and objectives. The feature of innovation is also absent in philanthropies, whose sole purpose is to - mainly financially- support social entrepreneurship (Bjerke et al; Karlsson, 2013). Undeniably, attracting donations might be pivotal for the survival of some companies (Górecka, 2021; Austin et al., 2006; Bacq, Hartog et al.; Hoogendoorn, 2013) while for others it could constitute a source of additional revenues (Dees, 2007).

Research hypothesis

As it might have become evident, sport sponsorship plays a vital role in corporate stock price. Nevertheless, sport sponsorship literature has primarily concentrated on the evaluation of abstract sponsorship activity disregarding the team sponsor per se. The constituent parts of the sponsor image which shape sponsorship behavioral outcomes entail sport activity involvement, team achievement and attachment. Furthermore, sport activity involvement is defined as an imperceptible motivation or enthusiasm about a recreation activity (Koronios et al., 2021; Havitz and Dimanche, 1997). Yet, in sport sponsorship terms this notion refers to the extent to which individuals are exposed to a sponsorship. In other words, a sport fan's involvement relates to the amount of time they spend on watching a particular sport. It goes without saying that the more an individual is involved with a sport, the higher the likelihood to identify a sponsorship (Walraven et al., 2012). Stock market investors' expectations usually reflect changes in investments after a lag. An investment in sponsorship is long-term because coordinating joint promotions of a club and its sponsor takes time. In addition, it is going to take time to identify the company's relationship with the team and to see how it affects football fans. Moreover, product characteristics and the sponsors' reputation as football fans influence the rate at which sales increase. It is likely that sponsors and sponsored properties are privy to sponsorship announcements as negotiated decisions between a sponsoring organization and a sponsored property. Using Audi as an example, speculation about a new sponsor (BMW) appeared in the news in advance of the new deal being announced. In the absence of new information, stock market prices will follow a stochastic process, or a random walk (Easley et al., 1998). Growing literature uses event study methodology as one of the primary impact measures for sport sponsorships to estimating stock price reactions to sponsorship announcements. Sponsorship can pay off via short-term sales uplifts, especially if additional activations are built in. According to Cornwell and Kwon (2020), financial markets rank second after consumers as the audience most frequently examined. A qualitative review of the event study literature in marketing by Johnston (2007) analyzed 17 event studies in sponsorship to summarize the findings from a prior quantitative meta-analysis. Live sports matches may have resumed, but viewing data shows not all audiences have returned after the break in play due to COVID-19. The pandemic has cemented video streaming services as audiences' preferred consumption path. Coronavirus has dramatically impacted professional sports during 2020/21 season, with most experiencing an enforced pause in activity. However, sponsors tend to seek broader and longer-lasting benefits for their brands, whether it is increased brand awareness, improved brand image, or other improvements to brand equity. Financial theory suggests that given the rational investors in an efficient market, current stock prices reflect all publicly available information and move only in response to unexpected events possibly affecting a firm's future profitability. In finance, volatility, i.e. the degree of variation of a trading price series, changes over time. Following Cornwell's et al. (2001) and Edmans' et al. (2007) lines, we aspire to investigate changes in jersey sponsors' stock price in the aftermath of a football match involving sponsored teams. Here, it is worth mentioning that it is highly debatable whether stock price is associated with team performance since several football clubs are listed in stock exchanges. Yet, football indeed constitutes the most predominant and widely viewed sport and hence, has a profound effect on investors (Boido and Fasano 2007). In the marketing literature, corporate sport sponsorship is one of the very few forms of marketing communication that is discussed in any depth in order to reach consumers and influence them to buy their products. A key to effective sponsorship is the understanding of how consumer attitudes are formed and change. We will examine the relationship between sponsorship and stock price return in this conceptual piece. Cornwell et al. (2005) pioneered in their attempt to quantify the value of winning in the Indianapolis 500-mile race, identifying abnormal returns for the winners' sponsors, which are -by all means- affiliated with a number of race and sponsorship-related variables. Consequently, we hypothesize:

H₁: Daily sponsors stock price returns changed significantly after the teams' victory or defeat compared to the pre-event period.

There is an abundance of – both theoretical and empirical– evidence that proves the interrelation between stock returns and volatility and positive events (Zullo, 2022; Ghani, Szweczyk et al.; Shabbir, 2007; Mellers, Schwartz, et al.; Ritov, 1999; McDonald et al.; Hirt, 1997; Raaij, Veldhoven, et al.; Warneryd, 1988), particularly sporting events (Edmans et al., 2007). According to Srinivasan and Hanssens (2009), both financial and non-financial outcomes might arise from an exhaustive, all-inclusive analysis of stock returns reflecting actions, signals, and changes in business strategies. As far as stock price volatility is concerned, the greater the risk undertaken, the more vulnerable the cash flow will be inducing higher costs of capital financing and ultimately, damaging the brand in the long run (Srinivasan & Hanssens, 1988). These two parameters have been

extensively cited in event studies in marketing literature. Among others, Spais and Filis' (2006) study aims to probe into the impact of the Olympic sponsorship announcement for the 2004 Olympics on the stock market based on daily stock returns, stock volatility, and transaction volumes. The research results indeed corroborate the assumption that Olympic sponsorship programs positively affect the investors' behavior. In another case study, Filis and Spais (2007) exemplify how an official football club sponsorship announcement impacts on the stockholders' behavior of the football clubs by measuring daily stock returns and volatility. More recently, Spais and Filis (2008) investigate the sponsorship agreement between Fiat and Juventus Football Club to determine whether it is the sponsor or the sponsored organization that is the most benefitted in a partnership agreement. Surprisingly, the data reveal that the agreement had a greater impact on Juventus' (sponsoree) rather than Fiat's (sponsor) stock returns. It goes without saying that there are significant variations in stock returns and volatility in the during- and/or post-event period compared to the pre-event one.

In a meta-analysis of event studies, we can observe if an event that is known by many people before announcement might reach the market before the announcement is made. Furthermore, if the event results from negotiations across organizations, the likelihood of a leak might be high. In a similar vein, sports activity involvement has extensively been investigated in relation to team attachment. In their exploration of the impact of football outcomes on stock price, Edmans et al. (2007) have identified significant changes in market, or investor, sentiment the following trading day of an unexpected result. In particular, wins and defeats of the national football team have an asymmetric effect on the home country's stock market indices. By contrast, knockout games have apparently a stronger effect while unanticipated losses have the strongest effect on stock price. It seems that when fans misjudge their team's probabilities of winning, stock price impacts of winning decline whereas price impacts of losing rise. Nevertheless, the assumption that a defeat of a country's football team can affect its economy comes into sharp contrast with Fama's (1970) investment theory and his semi-strong form of the efficient market hypothesis. Consequently, we hypothesize:

H₂: The stock price volatility is higher after the team victory or defeats a day after an unexpected result.

According to the empirical data that is currently available in the context of stock market reaction, Clark, Cornwell, and Pruitt (2009) demonstrated that new and renewed sponsorships caused outcomes that varied significantly by athletic event. Building a relationship between the sponsor and the property in the eyes of the various audiences has been one of the classic justifications for continuing a sponsorship commitment over time (Cornwell, Roy, & Steinard, 2001). Furthermore, Fahy, Farrelly, and Quester (2004) demonstrated that continued sponsorship activity is necessary to guarantee that the intricate and unspoken routines that are crucial to sponsorship efficacy are amassed in the company via practice and ongoing effort. As a result, we anticipate that investigating how sponsors' strong and intermittent presence at athletic events affects investors' behavior may provide significantly diverse outcomes. Additionally, we contend that investors' behavior on sponsorship programs coming from newly emerging organizations as opposed to those from well-established firms may differ. Consequently, we hypothesize:

H₃ The sponsors stock price volatility is different between newly growing and well-established firms.

Materials and Methods

Underlying all of our analyses is an assumption of market efficiency, that stock prices correctly incorporate all publicly available information. Considering the full sample of home and away games, which includes all pre-season, regular season, and post-season games, we do not expect a strong effect. Most "Credit Suisse Super League" games are played simultaneously with other games, and the most important have been played in prime-time hours. On the other hand, there are matches which are not nationally televised, and do not attract particular post-game media attention unless their outcome is unexpected. To measure the relationship between teams' performance during the COVID-19 period 2020/21 and sponsors' stock prices, the authors adopted panel regression in calculating abnormal returns. Panel data regression is an efficient way to assess dependencies of unobserved, independent variables on a dependent variable, which can lead to biased estimators in traditional linear regression models. Furthermore, panel data can be imposed as a combination of cross-sectional and time series data. Cross-sectional data is triggered as one observation of multiple objects and corresponding variables at a specific point in time. Nonetheless, there is no ubiquitous approach due to its ambiguity and by taking into consideration that there is no single model being effective with each and every stock market, or stock, forecasting market fluctuation might as well be considered a heavy toll (Bhowmik and Wang, 2020). A variety of statistical models have widely been employed in stock returns and volatility analysis literature ranging from Autoregressive Conditional Heteroscedasticity (ARCH) and Generalized Autoregressive Conditional Heteroscedastic (GARCH) models to Autoregressive Moving Average (ARMA) ones. Mean Absolute Deviation (MAD), Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), and Normalized Mean Squared Error (NMSE) are to name but a few. Evidently, different multivariate models have some inherent limitations on the dynamic behavior of the variances, covariances and correlations. This hypothesis aims to investigate the unexpected results in football matches on the returns of jersey sponsors' stock prices and volatility. Using data from the "Credit Suisse Super League" games during the COVID-19 pandemic between 2020/21, it presents the results and develops efficient markets hypothesis with sufficient economic sense for a sport sponsors' overview.

Results

Due to numerical events over extended periods of time, our methodology differs from the event study methodology followed by many of the papers mentioned above. The game result obtained from the teams' official websites and the stock prices from Datastream. For each team, an investigation took place the identification of any national matches played and the associated dates of the matches. These national matches serve as important marketing events for both the teams and the leagues. Furthermore, national exposure also serves as an important marketing event for the teams' and the leagues' major sponsors. The event in our case is the final score result if it is a victory, draw or defeat. Let $t = 0$ represent the event day, which, is different for each team. Cross-sectional and time series data used for modelling volatility in this study is the stock market daily closing price of three stocks from September 19, 2020, until May 21, 2021. In total, our data set consists of 350 matches. The dataset covers three different business sectors which are multinational electronics, healthcare and athletic kit. To measure the impact of the aforementioned football teams' results on the stock price of the relevant jersey sponsor, we mainly use the companies' logarithmic return on the first trading week following the match day. Ordinarily, the match was completed after the close of trading at the relevant stock markets. For these matches, the first change in the companies' stock prices the week following the matchday based on the teams' results was measured. These returns were used as the dependent variable:

$$\ln(P_{\beta}) - \frac{\sum_{t=1}^T P_{\beta}}{5} \quad (1)$$

$$R_{\beta,t} = \ln(P_{\beta,t}) - \ln(P_{\beta,t-1}) \quad (2)$$

where $\beta \in \{KSE, NVS, ADS\}$ denotes the ticker symbol and $t = 2, \dots, T$ the trading weekdays. In addition, we

assume that a victory or defeat force consumers to buy a company's products. Consequently, trigger additional interest in the company by investors, leading to increased demand for the company's stocks reflected in positive abnormal returns. Equation (3) defines the OLS.

$$Q_{i,t} = \gamma_1 + \beta_1 Q_{i,t}^M + \sum_{d=1}^4 \rho_{i,d} WEEK_{d,t} + \beta_{AR,i} AR(1)_i + \varepsilon_{i,t} \quad \forall i \quad (3)$$

To capture possible weekly effects, we include dummies $\sum_{d=1}^4 \rho_{i,d} WEEK_{d,t}$. Moreover, $Q_{i,t}^M$ account the market

index return. Possible autocorrelation is captured by first-order AR(1) terms. The residuals $\varepsilon_{i,t}$ of stock i of

equation (4) serve as the dependent variable in the base-case panel regression model with i cross-sections and t

observations over time:

$$\varepsilon_{i,t} = \gamma + \beta_1 GOAL_DIFFERENCE_{i,t} + \beta_2 DEFEAT_{i,t} + \beta_3 NATIONALMATCH_{i,t} + \varepsilon_{i,t} \quad (4)$$

In principle, the dummy variable $GOAL_DIFFERENCE_{i,t}$ is set to 1 if the match with a team sponsored by

company i was with over two goal difference in absolute values at day t and 0 otherwise. $DEFEAT_{i,t}$ equals 1 if

the sponsor i at day t has negative returns, zero otherwise. Finally, $NATIONALMATCH_{i,t}$ equals 1 if the sponsor

i at day t has spooned national team match, zero otherwise. White period coefficient covariance method applied

to capture the heteroscedasticity and non-gaussianity in the residuals. Firstly, we run an OLS-regression for each stock i to arrive at the residual series for our model (see Table 2). There is a significant positive association between the market index return and LG Electronics Inc, Novartis AG and Adidas. The results indicate a significant positive association between the first week after the match and sponsor stock return. This effect is primarily present for LG Electronics Inc and Novartis AG. Moreover, factors WEEK2 and WEEK3 behave in the same way, each of them is positively associated with LG Electronics but they are negatively associated with

Novartis AG and Adidas. So, the effects of these two weeks increase the return of LG Electronics Inc sponsor and drive the returns of Novartis AG and Adidas in reduction. Finally, the last factor WEEK4 has a negative consequence on LG Electronics Inc but a positive consequence on the other two sponsors, Novartis AG and Adidas. The explanation of the behavior of this factor is that it reduces the return of LG Electronics Inc but increases the return of Novartis AG and Adidas.

Table 1: OLS-regression for each sponsor stock return

Factors	KSE	NVS	ADS
γ	0.018 (0.527)	0.015 (0.624)	0.038 (0.331)
Q_1^T	52.029 ⁺⁺⁺ (0.000)	59.008 ⁺⁺⁺ (0.000)	29.886 ⁺⁺⁺ (0.001)
WEEK1	0.128 ⁺⁺ (0.05)	0.173 ⁺⁺ (0.05)	-0.026 (0.491)
WEEK2	0.271 (0.209)	-0.053 (0.830)	-0.026 (0.715)
WEEK3	0.326 (0.398)	-0.030 (0.452)	-0.104 (0.683)
WEEK4	-0.109 (0.697)	0.077 (0.690)	0.126 (0.409)
AR(1)	2.025 ⁺ (0.097)	1.993 ⁺ (0.098)	2.206 ⁺ (0.074)
R^2	0.194 ⁺⁺⁺	0.183 ⁺⁺⁺	0.168 ⁺⁺⁺
N	106	106	106

Notes: The superscripts +, ++, and +++ indicate significance at 10%, 5%, and 1% respectively. The dependent variable is the weekly log returns. Coefficient values are given in percentage points and p-values.

Furthermore, Table 2 provides us with the following answers to our research questions. Wins show a significantly positive impact on the jersey suppliers' stock returns. There is a significantly positive association between sponsor and defeat as well as between sponsor and goal difference. Also, there is a significantly positive association between defeat and goal difference. The effects described are not only statistically significant but also economically relevant. Both the coefficients for victories and defeats increase when including the goal difference. As a robustness check for national match results, we also added this variable in both equations and find that remains unaffected in both scenarios.

Table 2: Matches result impact on the stock market performance of the jersey suppliers.

Factor	DEFEAT	NATIONALMATCH and SPONSOR	GOALDIFFERENCE
γ	0.010 (0.337)	0.014 (0.351)	0.009 (0.298)
SPONSOR	0.761 ⁺⁺⁺ (0.000)	-0.119 (0.551)	0.814 ⁺⁺⁺ (0.000)
DEFEAT	-	0.018 (0.395)	0.619 ⁺⁺⁺ (0.000)
GOALDIFFERENCE	0.581 ⁺⁺⁺ (0.000)	0.009 (0.442)	-
NATIONALMATCH	-0.129 (0.862)	-	-0.092 (0.711)
R^2	0.472 ⁺⁺⁺	0.014	0.319 ⁺⁺⁺
N	106	106	106

Notes: The superscripts +, ++, and +++ indicate significance at 10%, 5%, and 1% respectively. The dependent variable is the error term $\varepsilon_{i,t}$ and coefficient values are given in percentage points and t-values.

Discussion

This article presents the most used econometric techniques to evaluate the stock prices return and sporting performance in the last 10 years in peer review journals. Additionally, time series analysis is one of a number of new methods of data analysis appropriate for longitudinal data. Whether the same techniques and methods can be applied in individual sports remains an unanswered question. Furthermore, the source data limitation is the reason the research is not expanded to other team or individual sports such as basketball, tennis, volleyball or handball. Moreover, the data sample covers a limited time due to COVID-19 pandemic. This may have a consequence in a large number of samples of professional matches. We investigated the impact of football results on jersey sponsors' stock prices and found abnormal returns following matches at major European football tournaments. Initially, this study provided a literature review of the theoretical framework as

well as its underlying principles. Under this prism, it examined three listed companies that have sponsored national league games in relation to their daily stock returns. Firstly, in matches where teams are defeated, the jersey sponsor leads to negative abnormal returns. The asymmetry between the effects of wins and defeats can be explained by an allegiance bias. Secondly, the national match result does not affect the sponsor impact. Thirdly, matches with over two goals difference have significantly higher positive or negative returns the first week after the match. This new evidence regarding the value of sponsorships in sport should be taken into account by marketing practitioners. For a single organization seeking to figure out the financial value of their sponsorship investment, event study measures are not appropriate. From a finance point of view, profitable trading strategies based on these results could have been followed during our observation period. In principle, the documented stock price effects of sponsorship activities could be used to assist in pricing sponsorship agreements. The observed changes in market value can be interpreted as the stock market's assessment of the value of sponsorship activities to the company.

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