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Sport sponsorship announcement and stock returns: A meta-analytic review

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Responses for the Editors and Reviewers

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Abstract

Purpose – Given the public availability of secondary data on investments in events such as the Olympics, FIFA World Cup and professional sports, event studies that measure stock market response to these investments have grown. Previous findings are mixed however, with some studies suggesting that the announcement of sponsorship contracts is a positive event and others finding detrimental effects of the announcement on shareholder value. This review analyzes the mixed findings from event studies in sport sponsorship to determine if sponsorship announcements influence stock market response.

Design/methodology/approach – The meta-analysis examines more than 20 years of research on event studies in sponsorship (34 studies).

Findings – Overall results show a positive, but non-significant effect of partnership deal announcements on shareholder wealth. Further analysis considers the effects of sponsorship announcements by each type of event window to see the impact of the announcement relative to time (pre-announcement, announcement day, post-announcement, and pre- to post-announcement). This closer examination of the event window shows that stock prices of sponsoring organizations increased in the pre-announcement window.

Originality/value – Quantitative meta-analytic findings indicate that information about sponsorship deals appears to leak to share markets and positively influence share price. This finding suggests that sponsoring the sports and events found in these event studies is seen as value enhancing for sponsoring firms.

Keywords Event study, Meta-analysis, Sponsorship, Stock market, Brand value

Introduction

The importance of understanding sponsorship investments as strategic marketing platform cannot be overstated. Global sponsorship spending grew from $55.3 to $65.8 billion from 2014 to 2018 (IEG, 2018). Sports sponsorship accounts for 70 percent of the total sponsorship market. In the U.S. alone, spending on sport sponsorship reached $14.7 billion and is expected to grow over $20 billion by 2024 (Statista, 2020). Relatedly, a systematic review of sponsorship-linked marketing shows academic interest in the financial impact of sponsorship investments has increased (Cornwell and Kwon, 2020), however the ability to connect investments in sponsoring precisely to brand value has been challenging.

One approach to understanding the market value of sport sponsorship is to analyze stock market response to the announcement of sponsorship contracts. Event studies that capture these reactions to sponsorship announcements play an important role in marketing and managerial decision making (Deitz *et al*., 2013; Mishra *et al*., 1997) and offer "some justification for employing sponsorship-linked marketing communications strategies" (Johnston, 2010, p. 173).

Although there is a consensus on the value of event studies, previous findings are not consistent regarding the financial effects of sport sponsorship announcement. For example, some studies find positive abnormal stock market returns (e.g., Miyazaki and Morgan, 2001), while others find negative abnormal returns (Martinez and Janney, 2015; Mazodier and Rezaee, 2013). Of the various criticisms of the event study methodology (see MacKinlay 1997; McWilliams and Siegel, 1997; McWilliams *et al*., 1999) one issue, the nature of the event window (Margolis *et al*., 2007) may be particularly important here. For longer windows the confounding effects of other events can occur during the period under review, whereas with short windows the full effect of the event of interest cannot be captured (McWilliams *et al*., 1999). Indeed, studies of sport sponsorship have shown methodological variation but fortunately most studies include two or more windows and this allows consideration of window effects across studies.

Admittedly, event studies of announcements are not a total measure of the relationship between a firm's sponsorship investment and its financial performance. We assert, however, that event studies can be a powerful tool to indicate marketplace valuations (see Flickinger, 2009; Frooman, 1997; Jones and Murrell, 2001; Margolis *et al*., 2007). Acknowledging the general limitation, that meta-analyses depend on the nature of analyzed studies, efforts to minimize methodological and statistical heterogeneity among selected studies are essential. Therefore, industry best practice for quantitatively synthesizing research results (Borenstein *et al*., 2009; Flickinger, 2009; Frooman, 1997; Higgins *et al*., 2019), are followed including:

- Developing the criteria to select the length of event window and statistical measures from each individual study in the data collection phase
- Performing sensitivity analyses to ensure that the results are robust to the decisions made during the data collection process
- Employing subgroup meta-analyses to analyze the impact of event windows, and
- Conducting meta-regression to explore possible study characteristic moderators that influence the effect of sponsorship announcement

With the mixed findings of previous event studies on sport sponsorship announcement, a meta-analytic review of event studies on sponsorship announcement is needed (Cornwell and Kwon, 2020). The purpose of this research is to determine whether an effect exists across studies and whether the effect is positive or negative (see Palmatier *et al*., 2006). This work utilizes a large corpus of information to determine whether sponsorship announcements affect share price. In addition, moderators that cannot be examined in a single study are considered. Importantly, the work considers various windows utilized in event studies and holds the potential to resolve concern over past mixed findings on market response to sponsorship announcements.

Research background

Event study methodology

Event study methodology is a well-established approach for studying the financial impact of unanticipated events. That is, event studies underscore the importance of new information associated with an event in the market. The fundamental theoretical assumption for the methodology is the efficient market hypothesis introduced by Fama (1970). When new information is announced to the market, the news spreads rapidly and is reflected in stock prices. If the information is positive, the market reacts accordingly delivering abnormal positive returns. In contrast, negative news may deliver abnormal negative returns.

Because the current work proposes a meta-analysis of event studies, it is important to understand what event studies are and how they are conducted. Event studies originate in finance but are now widely applied across other disciplines including marketing. Designing an event study requires: (1) defining the event and related sample decisions, (2) addressing confounds stemming from overlapping event activities, (3) selecting the metric to measure investor response, and the window of measurement, (4) testing significance, (5) examining the determinants of abnormal returns and (6) controlling for any sampling bias (Sorescu *et al.*, 2017).

Event studies in sport sponsorship and meta-analysis

Sponsorship as marketing platform is employed by organizations in ways similar to advertising, public relations, marketing, and promotion (IEG, 2018); however, unlike traditional marketing, sponsoring is more challenging to measure. Measuring sponsorship effectiveness varies depending on the target audience (e.g., consumers, general public, financial markets) and the nature of the sponsored activity. In keeping with theory in sponsorship (Cornwell *et al*., 2005) consumer-focused sponsorship effectiveness in terms of cognitive affective and behavioral response has been the focus of past research (Kim *et al*., 2015). Cornwell and Kwon (2020) report, however, that financial markets are the second most frequently examined audience after consumers. While there has been no prior quantitative meta-analysis of event studies in sponsorship, Johnston (2007) conducted a qualitative review of the event study literature in marketing summarizing the findings from 17 event studies in sponsorship.

Beginning in 1997 with the work of Farrell and Frame on sponsorship announcements of the 1996 Summer Olympic Games, event studies have grown in popularity and breadth to include topics such as doping scandals (e.g.,Drivdal *et al*., 2018) and corruption (e.g., Hundt and Horsch, 2019). Nonetheless, partnership announcement studies are still the most common event studies in sponsorship.

Factors influencing stock market reaction of sponsors

If there is no new information in a market, stock market prices will follow a random walk, or stochastic process (Easley *et al*., 1998). Event studies are designed to capture the influence of new information that is expected to influence stock price. The thinking is that the influence of information on stock prices will be immediate but could leak before an official announcement of interest and could lag the announcement as investors learn of the announcement or react to the behavior of other investors. The current work considers the overall influence of sport sponsorship on stock price across event studies. The work further considers (1) event windows, (2) event character, and (3) host country as possible explanatory variables.

Event windows are an analytic partition of time during and surrounding events that seek to capture leaks and lags in information and may carry information about the timing of stock market response. The narrow event window is typically the day of the announcement (or a day or two before and after the event). Larger windows on either side of the event aim to capture information leaks and reactions that ripple through the market. In their review of event study methodology in marketing, Sorescu *et al*. (2017) find that few articles consider the extent to which investors form expectations about occurrence of the event and note, "we can only use the stock market reaction to an announcement as a metric of its added value to the firm if the announcement is a complete surprise for investors." Thus, the use of multiple event windows seeks to capture when that surprise took place.

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. Thus, events emanating from a single organization, such as CEO succession (Friedman and Singh, 1989), should have fewer leaks than events emanating from multiple organizations, such as product placement in movies (Wiles and Danielova, 2009). Sponsorship announcements as negotiated decisions between a sponsoring organization and a sponsored property are likely known by many people in two or more organizations. As an example, Audi was a sponsor of FC Bayern Munich, a professional German football club based in Munich; however, speculation about a new sponsor (BMW) appeared in the news before the new deal was announced (SBNation, 2018). Thus, we argue that in sponsoring, an analysis of event windows may show a greater stock market response from announcements in a window before the formal announcement of a sponsorship deal than in a window contemporaneous with the announcement or following it.

In addition, two aspects of event character are considered: size (mega event or not) and host country (US or not). Event character, specifically in terms of size, may influence stock market response through the sheer ubiquity of communication in mega events as compared to other national and international events. Mega events such as the Olympics and the FIFA World Cup are some of the most protected from a legal perspective (McKelvey and Longley, 2015) but due to their worldwide character, they are seemingly some of the most aggressively ambushed by competitors. Ambushing occurs when a non-sponsoring brand seeks association with a sponsored event, and in doing so detracts attention from the true sponsor. The potential for competitor ambushing may be incorporated in the market's valuation of the sponsorship deal.

Hosting country could influence stock market response if information about the host country –such as pollution or human rights (see Bouchet *et al*., 2015) overshadows information about the event. Hosting countries also vary in their capacity in terms of legislative infrastructure (see Ellis *et al*., 2011), and historical inclination to address ambushing. The United States is considered to have stable policies across the time period examined and is therefore contrasted to other host countries (with some having historic variation in protection of sponsor rights).

Method

Data collection

Given the interdisciplinary nature of sponsorship research, electronic databases (e.g., ABI/INFORM, EBSCO, ISI Web of Knowledge, PsychoInfo, Google Scholar) were searched for the years 1997–2018. We selected 1997 as the starting year because this was when the first event study in sponsorship was published (i.e., Farrell and Frame, 1997). The following key terms were used: "sponsor," "sponsorship," "stock," "event study," "stock market," "shareholder wealth," "announcement," "return," and "value." We also used forward and backward citation analyses to identify articles and conducted an issue-by-issue search of major journals dealing with sponsorship. It is important to note that although the key terms did not include "sport," the shareholder wealth in all the articles found were related to sport events when we focused on "the announcement of sponsorship." The initial search identified various events (e.g., performance, organizational corruption, doping, and sponsorship announcement) on stock prices; however, events other than sponsorship announcements were insufficient in number to obtain meaningful results with a meta-analysis. The final search on sponsorship announcements identified 27 articles, however, we removed two articles—that of Tsiotsou and Lalountas (2005), who concluded that their finding was biased, and that of Mellaci *et al*. (2012), who examined only one announcement (on April 23, 2009 since this would offer zero degrees of freedom in our meta-analysis). Thus, we examined 34 studies (Table 1) from 25 articles to assess the effects of sponsorship announcements.

Insert Table 1 about here

Dependent variable coding: effect size based on test statistic values[1]

Three approaches could be used in conducting a meta-analysis of event studies 1) reported size-of-return data in a replication analysis (Datta *et al*., 1992), 2) correlation results from previous studies (Stahl and Voigt, 2008), and 3) estimated effect size based on test statistic values (Lipsey and Wilson, 2001; Frooman, 1997). The last approach is preferentially employed in a meta-

[1] In an event study the sponsorship announcement is an independent variable, while a stock price of a sponsor is the dependent variable. The meta-analysis event studies should observe the relation between independent and dependent variables in the event study; thus, the sample size, p-value, and test statistic value of each event study used in the meta-analysis were coded to obtain the effect size of each study (Table 1).

analysis of event studies, especially because information on correlation coefficients from previous studies is limited (Flickinger, 2009). Lipsey and Wilson (2001) argue that "the effect size statistic produces a statistical standardization of the study findings such that the resulting numerical values are interpretable in a consistent fashion across all the variables and measures involved" (p. 4). That is, the effect size based on test statistics in event studies allows the aggregated results from studies to be statistically combined and compared. Frooman (1997), asserts that "the meta-analysis has to be performed on the test statistics" (p. 235). Thus, this study follows the approach suggested by Frooman (1997) and Lipsey and Wilson (2001) by utilizing standardized mean difference effect size with test statistic values.

With regard to finding an appropriate effect size statistic, Lipsey and Wilson (2001, p. 58) suggest an effect size decision tree for studies involving group contrasts on dependent variables (e.g., dichotomous or continuous) and the type of statistical measure (e.g., *t* or *z* tests). The studies included in the current work use different measures (*t*-, *z*-, and *p*- values). Indeed, of the 34 event studies analyzed in this meta-analysis (Table 1), 13 reported *t*-statistic values, 19 reported *z*-statistic values, and two reported *p*-values[2]; thus, on the recommendation of Frooman (1997), we undertook a process of converting those values for meta-analysis. To change the *p*s into *t*s, we used a *t*-table and the appropriate degrees of freedom for these two studies (i.e., studies 15 and 16). These studies did not provide exact *p*-values, but instead reported categorical *p*-values (i.e., $p < .05$ and .05, respectively), thus, we assumed that the *p*-values were exactly .05 and used their respective *t*-values from the student's *t*-table. We also assumed that the *p*-values presented were for a two-tailed test (see Martinez and Janney 2015) because event studies in

[2] Note that five studies reported both t- and z-values (e.g., Clark *et al*., 2002; Farrell and Frame, 1997; Pruitt *et al*., 2004; Reiser *et al*., 2012; ; Tsiotsou, 2011). Two studies used ANOVA with t-test (e.g., Martinez and Janney, 2015; Spais and Filis, 2008). To further examine other variables previously found important in sponsorship, twenty studies conducted cross-sectional regression, and three studies performed ANOVA.

sponsorship test for the possibility of the relationship between market reaction and sponsorship announcements in both directions. We converted the *z* statistics (referred to as "*z*s" subsequently) into *t* statistics (referred to as "*t*s" subsequently) under the assumption that the *t*-distribution approaches normality as the degrees of freedom (sample size) increase (Marascuilo and Serlin, 1988). Of the 19 studies (i.e., 5, 7, 11–14, 17–19, 21–25, 27, 29–31, and 34) using *z*s, the sample sizes of studies 21, 22, and 25 were above 100, which is large enough to convert *z*s into *t*s. The other 16 studies had sample sizes below 100. In particular, studies 11, 13, 18, 19, 24, 29, 30, and 31 (with sample sizes of 23, 9, 29, 6, 6, 23, 11, and 22, respectively) were questionable candidates for the change from *z*s into *t*s. Frooman (1997) addressing this question, suggested comparing the results of a sample using *t* or *z* with a large sample size and those of a sample using *t* distribution with the results of a full sample.

Following the approach of Frooman (2009), we performed sensitivity analyses (see Higgins *et al*., 2019, p. 277). After testing the full sample of 35 studies, statistical tests were further conducted with the two different samples: a sample of 15 studies using *t*s (including two studies using *p*s) and a sample of 18 studies using *t*s plus *z*s with sample sizes over 100. Another aspect of heterogeneity across studies that needs to be controlled is the type of metrics measuring returns: average abnormal returns (AARs) and cumulative average abnormal returns (CAARs). To examine whether the finding of the full sample is robust to those characteristics, we conducted additional tests with the two separate samples: a sample of 16 studies that reported AARs and a sample of 18 studies that reported CAARs.

Main meta-analysis

Researchers select a narrow event window to avoid spillover effects around the announcement day (McWilliams and Siegel, 1997) but as stated may add windows to capture leaks and lags of information. In the current study for the “main event window,” following the suggestion of McWilliams *et al*. (1999), we selected the narrow event window. Additionally, it is important to note that we, considering the notion that the full effect of the event of interest may not be captured at too short lengths (McWilliams *et al*., 1999), tested the two types of event window model (1-day and larger windows; Table 2 and 3; Frooman, 1997). Additionally, we considered an overall effect of the announcement of sponsorship when a study provides both the overall effect and the subgroup effects, to maintain the consistency of the selection criteria across event studies meta-analyzed in the current work (Frooman, 1997).

In this analysis, we investigated the effects of sponsorship announcements in the main event window and further examined those effects by each type of event window (i.e., pre-announcement, announcement day [t=0], post-announcement, and pre- to post-announcement). We focused on abnormal returns surrounding the announcement and further considered how abnormal returns differ by the four types of event windows to test the differential impacts of the announcement. We used the conversions of test statistics employed in the main study in this subsequent analysis.

Data analysis for main meta-analysis

Calculation of effect size for individual studies

In the meta-analysis, we calculated effect sizes using the method Hedges and Olkin (1985) suggest. Because size-of-return data and their standard deviations were not available in all studies, we used *t* statistics and sample sizes to compute the effect size values by following the formula for Hedge’s g, a commonly used effect size estimator (see also Rosenthal, 1994):

$$g = \frac{2t}{\sqrt{n}}.$$

We then adjusted each effect size by using Hedges's (1981) correction because measures tend to be upwardly biased when based on small sample sizes. We computed the unbiased effect size estimator d by multiplying the effect size with the correction factor 1 – [3/(4n – 9)]:

$$d = \left(1 - \frac{3}{4n-9}\right)g.$$

We estimated the variance of d (Hedges and Olkin, 1985) as

$$var(d) = \frac{n}{n-1} + \frac{d^2}{2n}.$$

Homogeneity test

We examined the homogeneity of the effect size distribution to ensure that effect sizes were drawn from the same population. The homogeneity test statistic is distributed as a chi-square with $N - 1$ degrees of freedom, where N is the number of studies. The null hypothesis of homogeneity is rejected when the test statistic is greater than the critical value at the .05 level. Rejection would suggest that the variability among effect sizes is due to factors other than sampling error alone. We calculated the test statistic (TS) (Hedges and Olkin, 1985) as

$$(TS)\chi^2 = TWDS - \frac{(TWD)^2}{TW} = \sum \frac{d^2}{var(d)} - \frac{\left(\sum \frac{d}{var(d)}\right)^2}{\sum \frac{1}{var(d)}},$$

where TW refers to the total of the weights (reciprocals of the variances), TWD refers to the total of the weighted ds, and TWDS refers to the total of the weighted d-squares.

Significance test

After calculating individual effect sizes, we weighted each effect size by the inverse of its variance and computed the weighted grand mean of effect size of a set of studies as

$$D = \frac{TWD}{TW} = \frac{\sum\frac{d}{var(d)}}{\sum\frac{1}{var(d)}}.$$

We conduct significance testing of the null hypothesis that the population effect size is zero by using the z score computed from the weighted grand mean divided by its standard error of estimate. The formula is as follows:

$$(TS)z = TWD * (TW)^{-\frac{1}{2}} = \sum\frac{d}{var(d)}[\sum\frac{1}{var(d)}]^{-1/2}.$$

Moderator analysis based on the restricted study-level sample

Moderating tests were conducted with restricted study-level samples since not all studies reported event character and host country. An event character is size in terms of the event's significance and/or spectatorship. Even though some motorsports events might be thought of as mega-sport events, they are lower in participation and spectatorship compared with the Olympics and FIFA World Cup; therefore, a mega-event in this study includes these typical events (Cornelissen, 2008). Of the 34 studies, 12 studies examined mega events (18 other domestic and mixed: 1, n/a: 3).

Hosting country in the 34 studies was most often the United States (18). The contrast group was composed of countries (England, Germany, Greece, Italy, Korea/Japan, and countries in Africa: 10, mixed: 3, unknown: 4). The four event windows (i.e., pre-announcement, announcement day, post-announcement, and pre- to post-announcement) were used to understand how the effect of announcement on shareholder wealth varies across event windows. Of the 34 studies, we excluded seven studies from analyses given a lack of information or mixed and inseparable information on these three categories (Table 1).

Meta-regression is a statistical method that aims to relate the magnitude of an effect to characteristics of the studies used in a meta-analysis (Borenstein *et al*., 2009). There are two computational models: a fixed-effect and a random-effect meta-regression model. The fixed-effect model that does not account for residual heterogeneity assumes that:

$$y_i \sim N(\theta_i, v_i)$$

$$\theta_i = x_i^t \beta$$

where the y_i is the estimated effect of interest in the ith study, the θ_i is the corresponding true effect in the ith study, the v_i is the variance of the estimated effect from the ith study, the x_i is a vector of study-level moderators[3] including a constant term for the intercept and the β is a vector of regression coefficients for each moderator.

As opposed to a fixed-effect model, a random-effect model allows for heterogeneity between studies. However, when it is dubious that a meta-analysis comprises a large enough number of studies, a fixed-effect model is considered as an option because a random-effect model likely provides limited power to estimate the between-studies variance. Thus, given the number of studies tested, this study employed a fixed-effect model with a conservative perspective (Borenstein et al., 2010).

Results

Tables 2 and 3 show the results of the test for homogeneity, the estimate of effect size, and the test for significance. This study includes all 34 event studies, as well as by event windows (pre-announcement [8 studies], announcement day [6 studies], post-announcement [15 studies], and

[3] An effect size represents the relation between sponsorship announcement and stock returns in meta-analysis of event studies; thus, any variable that predicts the effect size is a moderator (Borenstein *et al*., 2009).

pre- to post-announcement [5 studies] windows). In the following sections, we interpret the results of homogeneity, effect size, and significance.

Homogeneity test

Following the approach of Hedges and Olkin (1985), we first conducted a homogeneity test for the full sample of 34 event studies. The test statistic was 19.172 (df=33), which was not greater than the critical value of 47.400 (df=33, a significance level=.05). Thus, we failed to reject the null hypothesis of homogeneity, indicating that the assumption that all effect sizes estimate the same population mean is reasonable. Second, in a sensitivity analysis (Higgins *et al*., 2019) homogeneity tests were performed with the four sample groups (i.e., the sample of studies reporting *t* statistics, *t* or *z* statistics with a sample size of 100 or more, AARs, and CAARs), relative to the full sample of 34 studies. Results were not statistically significant at a 95% confidence level (Table 2).

Subsequently, we carried out homogeneity tests within each four event window groups (pre-announcement, announcement day, post-announcement, and pre- to post-announcement window). The test statistics for all event window groups (including the four sample groups) were not statistically significant at a 95% confidence level (Table 3[4]). Therefore, we retained the null hypothesis that each effect size estimates a common population mean for all groups.

Insert Table 2 and 3 about here

[4] It should be noted that we also conducted subgroup analyses on other potential variables; however, the number of the studies were insufficient. For example, of the 34 studies analyzed, for motorsports events, we obtained three studies from NASCAR sponsorship (see Pruitt *et al*., 2004; Clark *et al*., 2009; Kudo *et al*., 2015) and one study from F1 (see Cobbs *et al*., 2012). The NASCAR studies showed that the effect of the NASCAR event was not significant at $p < .05$ (D = 0.753, 95% CI: -0.411 to 1.917). We did not examine the effect of the F1 event because we only had one study (if we do, df would be zero in the analysis). For Olympic Games, there were nine studies, but two studies were excluded because they analyzed multiple events together and did not provide the results of Olympic Games separately (e.g., Abril *et al*., 2018). The findings were not significant at $p < .05$ (D = -0.187, 95% CI: -0.989 to 0.616). We also considered other variables (e.g., non-Olympic sports, individual sports, team sports); but no meaningful findings were obtained.

Effect size estimate and significance test

For the full sample of the 34 event studies (Table 2), the forest plot (Figure 1) effect size estimate was positive but close to zero (D = 0.204)[5]. As the effect size estimate approaches zero, the magnitude of the effect size declines. In other words, according to Cohen (1988), D = 0.204 indicates a small effect of sponsorship announcement on stock returns of sponsors. The z test value of 1.150 for D = 0.204 did not exceed the critical value of 1.96 at .05 level of significance, indicating that the mean effect size for the full sample was not statistically significant. Correspondingly, the 95% confidence interval (CI) around the mean effect size (–0.144 to 0.553) included zero, which suggests that the population effect size (D = 0.204) was not statistically different from zero. We also found non-significant results for the other four samples (Table 2).

Insert Figure 1 about here

We found non-significant results for three of the announcement window groups. The z test statistic of the estimates of effect size was 0.732 for announcement day (D = 0.307, 95% CI: –0.514 to 1.128), –0.391 for the post-announcement window (D = –0.105, 95% CI: –0.632 to 0.422), and 0.049 for the pre- and post-announcement window (D = 0.023, 95% CI: –0.879 to 0.924). All test statistics were less than the critical value of 1.96 at .05 level of significance, indicating that we failed to reject the null hypothesis that the population effect size is zero for the three event window groups. Significance tests on the other samples also produced non-significant results (Table 3). For the pre-announcement window, the estimate of effect size was 0.819 (95% CI: 0.099 to 1.539), indicating a large effect of sponsorship announcement on shareholder wealth. The test statistic of 2.229 was greater than the critical value of 1.96 at .05 level of significance, which indicates that we can reject the null hypothesis that the population

[5] Following Cohen's (1988) suggestions for interpreting the practical significance of an effect size, d = 0.2 represents an effect of small magnitude (e.g., 0.50: medium and 0.80: large).

effect size is zero. Additionally, as seen in the scatterplot (Figure 2), the announcement effect in the pre-announcement window is pronouncedly different (having a larger effect size and a narrower confidence interval) than in other windows.

To estimate publication bias (the concern that studies not identified and included could influence the results) two indicators were used - a funnel plot and Rosenthal's (1979) fail-safe N. The fail-safe N is 3 based on the findings of Rosenthal's indicator (the fail-safe N = 3, z-value = 2.259, p-value with two-tailed = 0.024). This means that we would need to locate and include 3 'null' studies in order for the combined two-tailed p-value to be less than .05. That is, three missing studies with countering results would be needed to nullify our effect. This suggests confidence in the finding.

In summary, the test of mean effect size with the full sample did not yield significant results, which suggests that, on average, the abnormal returns were not different from expected normal returns. The sponsorship announcements neither increased nor decreased abnormal returns during the main window immediately surrounding the event. However, on closer examination of the results by event window, the effect of sponsorship announcement on shareholder wealth is visible in the pre-announcement window. The tests of the event character and host country moderators were insignificant.

We also tested for any overlap bias that could occur when the same events appeared in more than one study. Three studies (Deitz *et al*., 2013; Farrell and Frame, 1997; Miyazaki and Morgan, 2001) examined the influence of the 1996 Summer Olympic sponsorships on shareholder wealth. A sensitivity analysis was employed by evaluating the significance test results with and without the inclusion of those studies (Higgins *et al*., 2019). All possible combinations were tested, but the impacts were negligible, and none yielded different results (the estimates of effect size ranged from 0.193 to 0.274, $p > .10$).

Testing moderating effects

We conducted a meta regression to investigate if substantive aspects of studies are associated with variation in effect sizes across the studies included in a meta-analysis. Specifically, an event window, event character, host country, and the interaction between event character and host country were assessed as potential moderators of the relationship between sponsorship announcement and stock market returns.

Insert Table 4 about here

Insert Figure 2 about here

The Q value for the residual was 11.447 (df = 20, p = 0.93), meaning that the assumption of the fixed-effect model is not violated. The Q value for the model was 6.653 (df=6, p=0.35), indicating the effect size is not related to the moderators. However, when referencing a pre-announcement window, a post-announcement window had a coefficient of -1.088 (95% CI: -2.092 to -0.084), which was significant at $p < .05$ ($Z = -2.21$). This indicates that the announcement is less effective in post-announcement windows, as opposed to pre-announcement windows (Table 4). The scatterplot in Figure 2 also shows that the difference of effect size between pre- and post-announcement windows was more pronounced than the one between other windows.

Mega sports events have a coefficient of 0.425, indicating that the announcement effect is more pronounced in the studies examining mega sports events as opposed to the non-mega sporting events, but this moderating effect was not significant ($Z = 0.47$, $p = 0.64$). The results also showed that the effect of announcements was more pronounced in the US when compared to other countries (coefficient = 0.359). However, this finding was also not significant (Z = 0.42, p = 0.68). As well, the interaction between event character and host county was not significant (Z = -1.08, p = 0.28; Table 4).

Discussion and Conclusions

Despite intense research efforts during past decades, measuring sponsorship effectiveness in practice still remains a challenge for both sponsoring corporates and sponsored properties (Stotlar, 2004). We conducted a meta-analysis of 34 event study outcomes from 25 empirical manuscripts published from 1997 to 2018 to identify abnormal stock returns around the announcement of a sponsored event. The results show that abnormal returns are positive across studies, but not significant, which indicates that shareholder wealth neither increases nor decreases significantly in the event days examined. The findings could be consistent with the observations of Miyazaki and Morgan (2001), that the Olympics sponsorships may be seen as a justifiable expenditure, not particularly beneficial or detrimental to the firm's value. However, the lack of statistically significant abnormal returns examined in the study does not necessarily indicate the absence of an effect of sponsorship investment.

The finding also can be explained by the efficient market hypothesis that asserts that the current asset price reflects all available information (Fama, 1970). In an informationally efficient market, the unpredictable and unexpected component of new information should lead to changes in stock prices (Malkiel, 1989). As shown in the work of Coates and Humphreys (2008), Japanese professional baseball teams' on-field performance and surprise wins (or losses) had a significant impact on the stock prices of owning corporations. Capturing the timing of information introduced to the marketplace is key. Our findings show the positive effect of sponsorship announcements on shareholder wealth in the pre-announcement window suggesting that this is the time when information is introduced to the marketplace. Miller *et al*. (2008) argue that there are two types of information leakage. Highly positive information is more likely to result in higher *ex ante* profits, while less positive information is more likely to lead to lower *ex ante* profits. We find evidence of the former, but not the latter.

In an attempt to explore other factors affecting stock market reactions to sponsorship, moderating effects of event windows, event character, host country, and the interaction between event character and host country were tested with restricted study-level samples but were not significant. Examination of other potential moderators such as individual and team sports or women's and men's sports will have to wait until there are more studies from which to draw.

Researcher implications

Our study offers several theoretical contributions to sport management and business domains. First, this work presents the first meta-analysis of event studies examining the impact of sponsorship announcement on shareholder wealth in the sport context. Given the mixed findings from past research in sport sponsorship, our meta-analytical approach synthesizes findings from independent studies and provides quantitative insights into the importance of sponsorship effect, especially in the pre-announcement period. This finding invites future research across disciplines on the types of events that may be misidentified in event studies as unimpactful. Events that unfold quickly, as when a baseball game is won or lost in the space of a few minutes, are very different than events that are the culmination of negotiations. If a single event study is limited in statistical power, the effects of pre-event leaks overtime may be lost. Future research is needed to examine the time horizons of information dissemination in event studies.

Second, our research re-confirms substantial variations in event study methodology. This is in keeping with previous critiques on event study methodology (see Johnston, 2007; MacKinlay, 1997; McWilliams and Siegel, 1997; McWilliams *et al*., 1999). We support the previously mentioned approaches advocated and utilized here to provide more accurate findings in meta-analysis of event studies.

Managerial implications

Marketing practitioners should appreciate this new evidence regarding sport sponsorship value. With regard to performance measurement in sponsorship, event study type measures are not appropriate for a single firm seeking to understand the financial value of their investment. What this study does offer is an understanding that financial values are positive but that the information about this positive view of sponsorship investments leaks to the marketplace early. If there is a concern, it might be regarding any stock trading that takes place before contracts are finalized and announced. Marketers can still rely on measures of return on investment (ROI), return on objectives (ROO), and return on purpose (ROP) (Cornwell 2020) to gage the value of investments, assuming their willingness to collect granular data that captures sponsorship spending, leveraging and activations and related outcomes of interest.

Limitations and future directions

It is necessary to acknowledge the limitations of the present study. Whereas the current meta-analysis has controlled some issues raised regarding the event study methodology, there may still be opportunities for improvements. Some issues that futures studies should consider include careful consideration of limited event study models employed[6] (e.g., Market Adjusted Return,

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[6] Most event studies selected in the meta-analysis used the Market model (Table 1). Only few studies reported more than one event study model in the sport sponsorship literature (e.g., the Market Adjusted Return: Bouchet *et al*., 2015; the Fama and French 3-Factor plus Momentum: Hundt and Horsch, 2019).

Market, Fama and French 3-Factor, etc.), various lengths of the event window, and different methods of controlling for confounding events and industry effects.

While three possible moderators of the link between an announcement and the shareholder value of a sponsor were examined, other logical moderators could not be examined. For example, sponsoring company's industry type, sponsoring company's size, fit, and spectator size could not be considered due to small sample sizes and the inability to disentangle specific variables. In addition, there are many factors that could influence stock market reactions to sponsorship that are not investigated in event studies as yet, such as regional importance of a sport, or saturation of the ecosystem with commercial sponsorships (see Cornwell and Kwon, 2020). Importantly, event analysis in sponsorship may be sensitive to confounding factors that may have not been captured. For example, the political stance of a celebrity may negatively or positively impact stock prices (e.g., NFL player Colin Kaepernick activist ad and NIKE stock), and would be easily identified as a confound, but the issues of international public policy (e.g., boycotts of the 2020 Tokyo Olympics for dolphin slaughter or the 2008 Beijing Olympics for air pollution), that might also influence an announcement of a new sponsorship deal might be overlooked.

In terms of the minimum number for a meta-analysis, Valentine *et al*. (2010) suggest that "a meta-analysis of two studies will likely only be informative if the studies are direct (or 'statistical') replications of one another" (p. 241). In this sense, the 34 event studies have the same dependent variable and although having sample variations, are replications in a broad sense. Nonetheless, future research with larger samples would be desirable to allow further investigation of moderating effects.

With regard to capturing noise around the announcement day, for consistency, we selected the narrowest length in the windows provided. Given that most studies offered different selected event windows associated with cumulative abnormal returns, there may have been a noise effect across studies that might be addressed in future meta-analyses that consider event studies. It is suggested that a standard window in a discipline be included and reported, even if only in an appendix, in order to support both comparison to other studies and future meta-analyses.

Future event studies might address the stock price impact of the sponsorship announcement from a sponsee perspective. While the number of organizations with adequate data is limited, some properties owned by private companies are listed on stock market exchanges. For example, Manchester United Plc (MANU on the New York Stock Exchange) is involved in the operation of the professional football club Manchester United in England and has some of the most valuable sponsorship deals in the world.

Lastly, for future research, the findings here show that in partnerships, leakages may pre-date official announcement in terms of stock market response. While past concern of leaks were related to weak regulatory environments (Miller *et al*., 2008) here, announcements following multi-organization negotiations are naturally subject to leakages. Future research might consider the complexity of negotiations that precede official announcements across event studies and their impact on market values relative to sponsorship.

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Figure 1. Forest plot: Impact of sponsorship announcement on shareholder wealth

Study name	Effect size	CI Lower limit	CI Upper limit	Weight
Farrell and Frame (1997)	-0.711	-2.719	1.297	3.01%
Mishra et al. (1997)	0.459	-1.515	2.434	3.11%
Miyazaki and Morgan (2001)	0.567	-1.436	2.570	3.02%
Clark et al. (2002)	0.666	-1.318	2.651	3.08%
Becker-Olsen (2003)	0.866	-1.129	2.861	3.05%
Pruitt et al. (2004)	0.820	-1.196	2.835	2.99%
Cornwell et al. (2005)	0.628	-1.354	2.610	3.09%
Spais and Filis (2008)	0.251	-1.717	2.220	3.13%
Samitas et al. (2008)_a	0.957	-1.151	3.066	2.73%
Samitas et al. (2008)_b	-1.081	-3.200	1.039	2.70%
Clark et al. (2009)_a	0.664	-1.349	2.678	2.99%
Clark et al. (2009)_b	-0.586	-2.575	1.403	3.07%
Clark et al. (2009)_c	-1.000	-3.129	1.130	2.67%
Johnston (2010)	0.298	-1.683	2.278	3.09%
Kim (2010)_a	1.228	-0.890	3.347	2.70%
Kim (2010)_b	1.454	-0.759	3.667	2.48%
Lei et al. (2010)_a	0.645	-1.329	2.619	3.11%
Lei et al. (2010)_b	-0.632	-2.633	1.370	3.03%
Tsiotsou (2011)	-1.084	-3.317	1.149	2.43%
Cobbs et al. (2012)	-0.764	-2.742	1.213	3.10%
Reiser et al. (2012)	0.260	-1.701	2.222	3.15%
Deitz et al. (2013)_a	0.561	-1.409	2.531	3.12%
Deitz et al. (2013)_b	0.611	-1.369	2.592	3.09%
Deitz et al. (2013)_c	-1.489	-3.796	0.817	2.28%
Mazodier and Rezaee (2013)	-0.348	-2.312	1.615	3.15%
Zouaoui et al. (2013)	0.935	-1.105	2.975	2.91%
Kruger et al. (2014)	0.835	-1.170	2.840	3.02%
Baim et al. (2015)	1.217	-0.917	3.350	2.66%
Kudo et al. (2015)_a	-1.084	-3.112	0.944	2.95%
Kudo et al. (2015)_b	1.176	-0.938	3.290	2.71%
Kudo et al. (2015)_c	0.774	-1.245	2.794	2.97%
Martinez and Janney (2015)	-0.509	-2.478	1.459	3.13%
Bouchet et al. (2017)	-0.317	-2.281	1.647	3.14%
Abril et al. (2018)	0.400	-1.571	2.370	3.12%

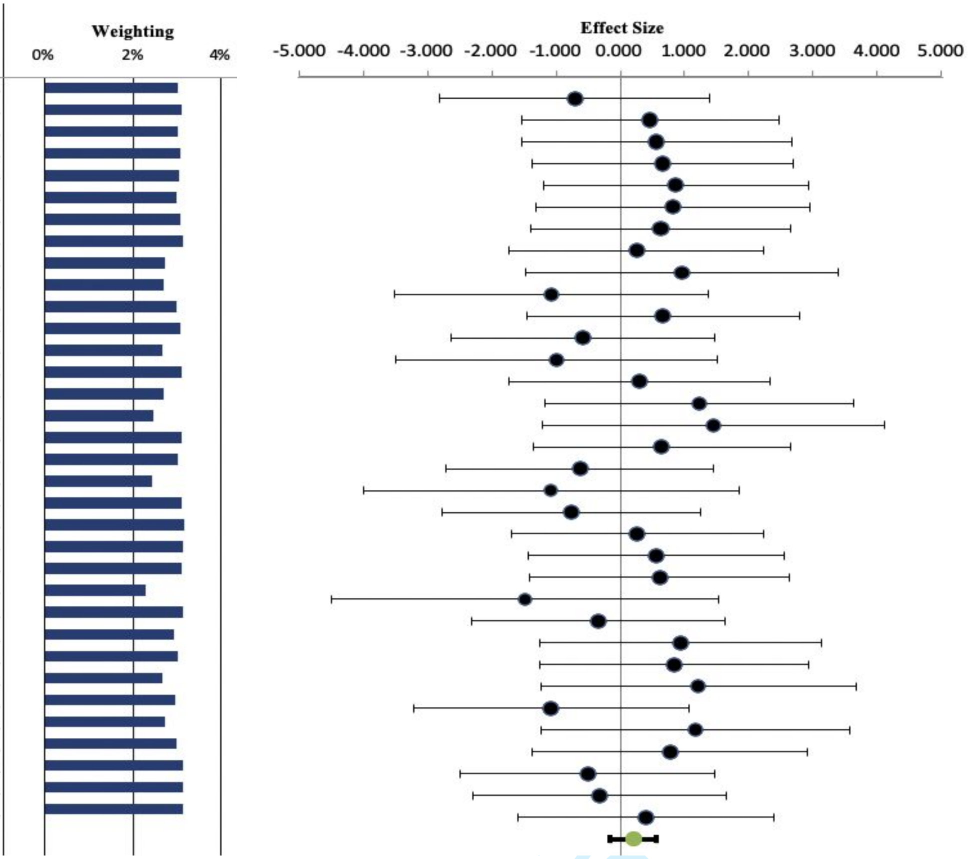
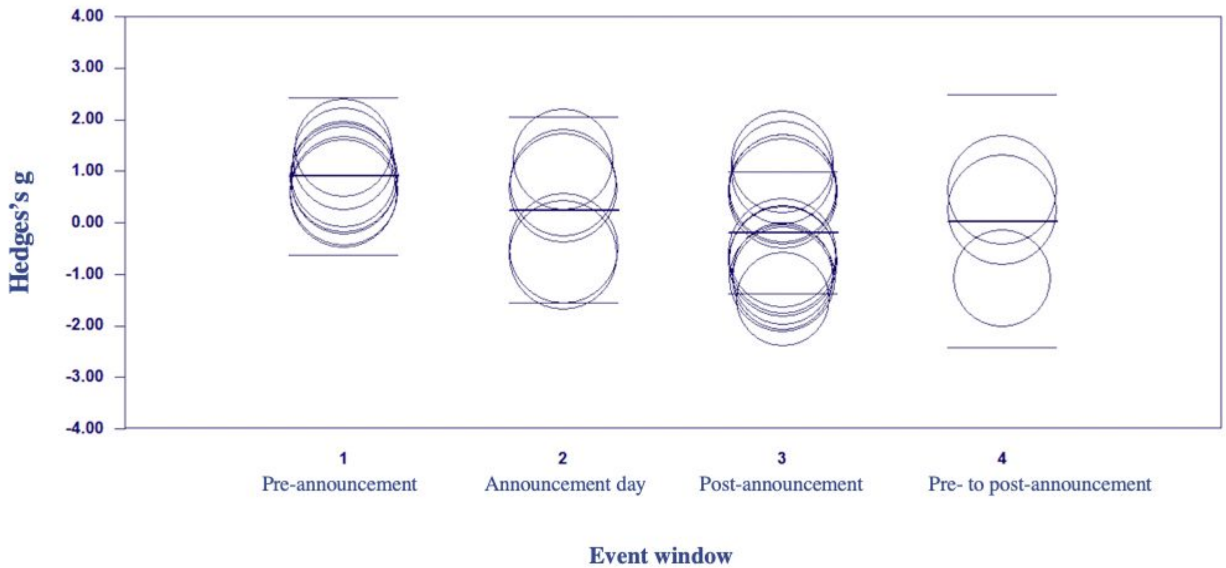


Figure 2. Scatterplot: Regression of Hedge's on event window type



Note: The scatterplot helps to understand the relationship between event window and effect size (representing the effects of announcement on shareholder wealth) with other moderators (i.e., event character, hosting county, and interaction between the two variables) included. A circle represents each study analyzed for moderating tests. The upper and bottom lines indicate the confidence interval of the effect size (Hedges's g). The middle solid line represents the overall effect size from the meta-analysis. Since event window is a categorical variable, the scatterplot here does not provide a regression line connecting event windows 1 to 4; however, the visual analysis of scatterplot confirms the findings of Table 4: (1) pre- and post-announcements are pronouncedly different relative to other combinations and (2) the pre-announcement window has a larger effect size and a narrower confidence interval than post-announcement (see the difference of effect size lines between pre- and post-announcement windows).

Table 1. Details of studies included in the meta-analysis listed in chronological order

Num.	Study	Host country	Event	Event character	Approach to calculate abnormal returns	Size-of-return data	Sample size	*p*-value	Test statistics
1	Farrell and Frame (1997)	US	1996 Olympic games	Mega	Market model	AAR	26	$p < .10$	-1.87
2	Mishra et al. (1997)	N/A	Sports, Olympics, Miscellaneous	Mixed	Market model	AAR	76	$p < .05$	2.02
3	Miyazaki and Morgan (2001)	US	1996 Olympic games	Mega	N/A	CAAR	27	$p < .10$	1.52
4	Clark et al. (2002)	US	NFL, NHL, NBA, MLB	Others	Market model	AAR	49	$p < .05$	2.37
5	Becker-Olsen (2003)	US	NFL, NHL, NBA, MLB	Others	N/A	CAAR	39	$p < .01$	2.76
6	Pruitt et al. (2004)	US	NASCAR	Others	Scholes-Williams standardized cross-sectional market model	CAAR	24	$p < .05$	2.08
7	Cornwell et al. (2005)	US	NFL, NHL, NBA, MLB, PGA	Others	Scholes-Williams standardized cross-sectional market model	CAAR	53	$p < .05$	2.32
8	Spais and Filis (2008)	Italy	Juventus Football Club S.p.A.	Others	N/A	MDA	123	$p < .10$	1.40
9	Samitas et al. (2008)	Greece	2004 Olympic games	Mega	Market model	AAR	10	$p < .05$	1.68
10	Samitas et al. (2008)	Greece	2004 Olympic games	Mega	Market model	AAR	10	$p < .05$	-1.89
11	Clark et al. (2009)	US	NASCAR	Others	The precision-weighted Scholes-Williams standardized cross-sectional market model	CAAR	23	$p < .10$	1.65
12	Clark et al. (2009)	US	NCAA	Others	The precision-weighted Scholes-Williams standardized cross-sectional market model	CAAR	40	$p < .10$	-1.89
13	Clark et al. (2009)	US	Tennis tournament	Others	The precision-weighted Scholes-Williams standardized cross-sectional market model	CAAR	9	$p < .10$	-1.69

14	Johnston (2010)	N/A	N/A	N/A	Market model	AAR	51	p < .05	1.08
15	Kim (2010)	Korea/ Japan	2002 World Cup	Mega	N/A	CAAR	11	p < .05	2.23
16	Kim (2010)	Germany	2006 World Cup	Mega	N/A	CAAR	8	p < .05	2.37
17	Lei et al. (2010)	US	NFL, MLB, NBA, NASCAR, NHL, PGA	Others	Market model	AAR	85	p < .01	3.00
18	Lei et al. (2010)	US	NFL, MLB, NBA, NASCAR, NHL, PGA	Others	Market model	AAR	29	p < .05	-1.75
19	Tsiotsou (2011)	Greece	2004 Olympic games	Mega	Market model	CAAR	6	p < .10	-1.66
20	Cobbs et al. (2012)	US	F1	Others	Market model	CAAR	73	p < .01	-3.30
21	Reiser et al. (2012)	N/A	N/A	N/A	Market model	CAAR	629	p < .01	3.27
22	Deitz et al. (2013)	US	NFL, NHL, NBA, MLB, NASCAR, PGA	Others	Scholes-Williams standardized cross-sectional market model	AAR	112	p < .01	2.99
23	Deitz et al. (2013)	US	NFL, NHL, NBA, MLB, NASCAR, PGA	Others	Scholes-Williams standardized cross-sectional market model	AAR	58	p < .05	2.36
24	Deitz et al. (2013)	US	1996 Olympic games	Mega	Market model	CAAR	6	p < .05	-2.28
25	Mazodier and Rezaee (2013)	N/A	N/A	N/A	Market model	AAR	293	p < .05	-2.99
26	Zouaoui et al. (2013)	Countrie s in Africa	African Nations Championship Handball	Mega	Market model	CAAR	18	p < .01	2.08
27	Kruger et al. (2014)	Mixed	Rugby, Cycling, Athletics, Golf, Football, Triathlon, Cricket	Others	12-parameter style model	CAAR	30	p < .05	2.35
28	Baim et al. (2015)	England	2012 Olympic games	Mega	Capital asset pricing model	AAR	10	p < .05	2.13
29	Kudo et al. (2015)	US	PGA	Others	Market model	AAR	23	p < .01	-2.70
30	Kudo et al. (2015)	US	LPGA	Others	Market model	AAR	11	p < .05	2.13
31	Kudo et al. (2015)	US	NASCAR (SPRINT)	Others	Market model	AAR	22	p < .05	1.89
32	Martinez and Janney (2015)	England	EPL in UEFA Champions tournaments	Others	Market adjusted returns model	AAR	130	p < .01	-2.92

33	Bouchet et al. (2017)	Mixed	National football teams for World Cup, UEFA, Confederation of North, Central America and Caribbean Association Football, Confederacio´n Sudamericana de Fútbol	Mixed	Scholes-Williams market model	CAAR	251	p < .05	-2.52
34	Abril et al. (2018)	Mixed	Olympic Games, FIFA World Cup, UEFA European Championship, America's Cup	Mixed	Two-step market model	CAAR	98	p < .05	1.99

Table 2. Results of meta-analysis for the main event window

Sample	Effect size and 95% confidence interval						Test of null		Heterogeneity		
	Num. Studies	Effect size estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	p-value	Q-value	df(Q)	p-value
Main study											
Full sample[a]	34	0.204	0.178	0.032	-0.144	0.553	1.150	0.250	19.172	33	0.974
Sample using *t* or *z* with large sample size[b]	18	0.289	0.243	0.059	-0.188	0.766	1.186	0.236	8.950	17	0.942
Sample using *t* distributions[c]	15	0.317	0.268	0.072	-0.209	0.843	1.182	0.237	8.460	14	0.864
Sample using AARs[d]	16	0.179	0.257	0.066	-0.325	0.684	0.697	0.486	8.464	15	0.904
Sample using CAARs[e]	18	0.227	0.246	0.060	-0.254	0.708	0.924	0.356	10.691	17	0.872

Note:

[a] The full sample including 34 event studies (Table 1).

[b] The 18 studies that used *t* statistic values or *z* statistic values but had a sample size of 100 or more: 1–4, 6, 8–10, 15, 16, 20–22, 25, 26, 28, 32, 33 (Table 1).

[c] The 15 studies that used *t* statistic values: 1–4, 6, 8–10, 15, 16, 20, 26, 28, 32, 33 (Table 1).

[d] The 16 studies that used AARs: 1, 2, 4, 9, 10, 14, 17, 18, 22, 23, 25, 28-32 (Table 1).

[e] The 18 studies that used CAARs: 3, 5-8, 11-13, 15, 16, 19-21, 24, 26, 27, 33, 34 (Table 1). Study 8 where the authors examined the differences on mean daily returns two months before the announcement and two months after the announcement was combined with the 17 studies using CAARs for the analysis.

Table 3. Results of meta-analysis by event windows

Sample	Effect size and 95% Confidence Interval						Test of null		Heterogeneity		
	Num. Studies	Effect size estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	p-value	Q-value	df(Q)	p-value
Pre-announcement											
Full sample[a]	8	0.819	0.367	0.135	0.099	1.539	2.229	0.026*	0.889	7	0.996
Sample using *t* or *z* with large sample size[b]	6	0.848	0.428	0.183	0.009	1.686	1.982	0.047*	0.840	5	0.974
Sample using *t* distributions[c]	5	0.979	0.473	0.224	0.052	1.907	2.069	0.039*	0.418	4	0.981
Sample using CAARs[d]	7	0.851	0.394	0.156	0.078	1.624	2.157	0.031*	0.840	6	0.991
Announcement day	6	0.307	0.419	0.176	-0.514	1.128	0.732	0.464	2.559	5	0.768
Full sample[e]	4	0.428	0.513	0.263	-0.578	1.434	0.834	0.404	1.452	3	0.693
Sample using *t* distributions[f]											
Post-announcement	15	-0.105	0.269	0.072	-0.632	0.422	-0.391	0.696	9.776	14	0.778
Full sample[g]	6	-0.233	0.421	0.177	-1.059	0.592	-0.554	0.579	2.971	5	0.704
Sample using *t* or *z* with large sample size[h]	4	-0.417	0.523	0.274	-1.442	0.608	-0.797	0.425	2.210	3	0.530
Sample using *t* distributions[i]	9	0.043	0.345	0.119	-0.633	0.718	0.124	0.901	5.473	8	0.706
Sample using AARs[j]	6	-0.334	0.429	0.184	-1.176	0.507	-0.779	0.436	3.834	5	0.574
Sample using CAARs[k]											
Pre- to post-announcement											
Full sample[l]	5	0.023	0.460	0.212	-0.879	0.924	0.049	0.961	1.610	4	0.807
Sample using *t* distributions[m]	2	-0.033	0.709	0.503	-1.424	1.357	-0.047	0.962	0.161	1	0.689

Note: * Significant at the 5% level

<u>Pre-announcement window</u>

[a] The full sample of 8 studies: 3, 5, 6, 15, 16, 21, 23, 26 (Table 1).

[b] The 6 studies that used *t* statistic values or *z* statistic values but had a sample size of 100 or more: 3, 6, 15, 16, 21, 26 (Table 1).

[c] The 5 studies that used *t* statistic values: 3, 6, 15, 16, 26 (Table 1).

[c] The 7 studies that used CAARs: 3, 5, 6, 15, 16, 21, 26 (Table 1).

<u>Announcement day</u>

[e] The full sample of 6 studies: 2, 4, 18, 28, 31, 32 (Table 1).

[f] The 4 studies that used *t* statistic values: 2, 4, 28, 32 (Table 1).

† No studies using a *z* statistic value with a sample size of 100 or more.

Post-announcement window

[g] The full sample of 15 studies: 1, 9–14, 17, 20, 22, 24, 25, 27, 29, 30 (Table 1).

[h] The 6 studies that used *t* statistic values or *z* statistic values but had a sample size of 100 or more: 1, 9, 10, 20, 22, 25 (Table 1).

[i] The 4 studies that used *t* statistic values: 1, 9, 10, 20 (Table 1).

[j] The 9 studies that used AARs: 1, 9, 10, 14, 17, 22, 25, 29, 30 (Table 1).

[k] The 6 studies that used CAARs: 11-13, 20, 24, 27 (Table 1).

Pre- to post-announcement window

[l] The full sample of 5 studies: 7, 8, 19, 33, 34 (Table 1).

[m] The 2 studies that used *t* statistic values: 8 and 33 (Table 1).

† No studies using a *z* statistic value with a sample size of 100 or more.

Table 4. Results of meta-regression analysis with moderators

Analysis of variance	Q-value	df	p-value
Model	6.6527	6	0.3542
Residual	11.4466	20	0.9338
Total	18.0993	26	0.8721

Regression coefficients Moderator	Coefficient	Standard error	95% Lower	95% Upper	Z-value	2-sided p-value
Intercept	0.6342	0.9360	-1.2004	2.4688	0.68	0.4981
Event window						
Pre-announcement window (ref.)						
Announcement day	-0.6544	0.6475	-1.9235	0.6148	-1.01	0.3122
Post-announcement window	-1.0881	0.5124	-2.0923	-0.0838	-2.21	0.0337
Pre- to post-announcement window	-0.8715	0.7900	-2.4198	0.6769	-1.10	0.2700
Event character						
Mega sports events	0.4245	0.9079	-1.3548	2.2039	0.47	0.6401
Others (ref.)						
Host country						
US	0.3590	0.8562	-1.3192	2.0372	0.42	0.6750
Others (ref.)						
Event character x Host country						
US & Mega sports events	-1.1848	1.0923	-3.3256	0.9560	-1.08	0.2781
Others (ref.)						