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The effect of NFL Teams Performance on the Sponsoring Companies

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Abstract

This thesis investigates the impact of NFL team performance on the stock prices of their sponsoring companies. The study employs an event study methodology and regression analysis on a dataset of 676 games from 7 NFL teams over five seasons from 2019 to 2023. The results reveal a significant relationship between game outcomes and abnormal stock returns. Wins are associated with positive abnormal returns two days before the event, while losses result in negative abnormal returns one day after the event. Playoff games, particularly those with high media attention, have a more pronounced impact on cumulative abnormal returns (CAR). The study also finds that industry sectors such as consumer goods and technology exhibit significant positive CAR, while sectors like beverages show increased CAR around playoff losses due to heightened visibility. This research contributes to understanding sports sponsorship's strategic importance and offers practical insights for firms and investors leveraging sports events for marketing and trading opportunities.

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The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam

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Introduction

The intersection of major sports events and financial market dynamics is a vivid area illustrated by instances when the outcomes of sports event influenced the stock performance of companies associated with sponsoring sports events. The 2018 FIFA World Cup presented the profound impact major sports events can have on the financial markets, one of the most unexpected and newsworthy events of the tournament was the early exit of Germany, a team heavily favoured to win, which resulted in a significant 6% loss in the stock price for Adidas, which has been the main sponsor for Germany. Conversely, as France won the tournament victors led to a notable 4% growth in the stock of Nike, the prime sponsor for the team. Another notable example is during the Masters Tournament in Golf in 2016, Under Armour, sponsoring golfer Jordan Spieth, saw its stock dip following Spieth's unexpected collapse in the final round. Leading the tournament before suffering a significant setback at the 12th hole the stock fell by 5.2%. These events highlight the volatile nature of investor sentiments and translating towards the stock performance of companies, investor sentiment and perception.

The rapid growth in the sports sponsorship domain has been on the rise for the past years with worldwide sports sponsorships valued at USD 73.8 billion USD and growing at a pace of 7.1% and projected to reach 151. Billion USD by 2032 (Allied Market Research, 2023). The significant and growth in increased investment indicates that companies are investing in sports events as a significant part of their strategy and aim to develop their customer loyalty, image and a part of improving their brand association with various teams and clubs. Furthermore, sports sponsorship has increased benefits such as global reach and visibility for big events such as FIFA, Olympics, UEFA, NFL etc. have one of the largest viewership worldwide and could reach more than a billion people. Another aspect which brands benefit from is customer loyalty and their brand equity in the minds of the targeted demographics. Brands often tailor their sponsorship deals and investments to specific targeted audiences. In addition, to these sports often can induce a strong emotional connection and reaction from the fans as sports involve a strong emotional response from fans and communities that often translates in financial market impacts.

Previous studies have explored the interplay between sports outcomes and the impact on the financial markets and stock sentiment. The relationship between sports sentiment and stock

returns has been a subject of interest, revealing a significant emotional impact on investors that transcends into traditional financial analysis. Hirt, Erickson, Kennedy, & Zillmann, (1992) were among the pioneers in this field for cross country analysis of sports events, particularly the FIFA World Cup, could influence investor sentiment. Boyle and Walter (2002) explored stock market reaction in the country for rugby games although did not find significant impacts. Their studies have shown a mixed effect for the impact of sports games, wins and losses, on stock markets. A unexplored dimension of study is the effect it can have on the companies sponsoring in the NFL league. NFL has grossed the highest viewership along with sponsorship revenue across American leagues and sports (SportyTell Editors, 2023) and it is the most popular sport in the USA that attracts the most viewers. Some games in NFL in playoff matches can reach as many as 100 million viewers. The sponsoring revenue of the league aggregated to 2.35 billion in 2023 (Islam, 2024), which is highest in USA across sports leagues. While football (soccer) in Europe has been extensively analyzed for the impact of sports results on financial markets, the NFL, despite being the most popular sport in the USA and attracting the largest sponsorship deals, has not been thoroughly examined in this context. This gap in the literature presents an opportunity to explore how NFL outcomes influence the stock returns of sponsoring firms, offering insights into the sentiment effects for firms.

Another compelling reason for this study is to understand the effect of sponsorship on NFL games, which hold a unique position of importance compared to other sports due to the limited number of games in a season. The NFL season consists of only 17 regular-season games per team, as opposed to other major sports leagues like the NBA or MLB. Each season NFL has 285 games played across 32 teams, on the other hand, other major leagues such as European football leagues host more than 1000+ across leagues, the NBA has 1200+ every year, and MLB (American Baseball League) hosts 2500 games every. This indicates that even with less number of games being played NFL can attract major sponsors and hence the impact and viewership per game are probably much higher and significant. It would be, therefore, a new area to study the impact of NFL teams performance on the sponsor companies' stock prices. By examining these aspects, this research not only contributes to the broader understanding of sports sponsorship in high-stakes environments but also offers practical insights for firms considering sponsorship deals. It highlights the significant role that sports outcomes can play in shaping investor sentiment. This, this leads to formulation of my research question:

“To what extent the NFL teams performance effect the sponsoring companies”

The paper begins by exploring existing literature on sentiment and the impact of sports-related events on financial markets. The literature review section discusses previous studies and theories that investigate how sports outcomes influence market sentiment and financial returns, and the methodologies used for analysis. The section also identifies key variables affecting the stock returns of sponsoring companies related to NFL events, highlighting methodologies like event studies and regression analyses. It also develops sub-hypotheses to test various factors influencing the outcomes.

Next, the data collection section details the selection of NFL teams and sponsors, the study's time frame, and sources of data like stock prices and game outcomes. It explains the criteria for data selection and rationale for focusing on specific teams and period. The methodology section describes the analytical techniques used, including event studies, regression models, and other econometric methods to isolate the impact of NFL game outcomes on sponsor stock prices. It explains the calculation of abnormal returns and Cumulative Abnormal returns for the the chosen event windows. In the results section, the paper presents findings, highlighting relationships between NFL game outcomes and sponsor stock returns. Finally, the discussion summarizes the findings, the limitations and the area of future research.

Literature Review

Events and Effects on Stock Returns

Studies in the past have investigated the relationship between investor sentiment, positive and negative attached to events. Events such as wars between countries, tensions and terrorist attacks. These events send waves through financial markets, as investors' emotions and perceptions of risk are heightened, leading to shifts in trading behaviour and asset prices (Ballinari, Audrino, & Sigrist, 2022). The relationship between investor attention, mood and stock market impact transcending in sports finance was first studied by Hirt et al. (1992). They suggested that there is a relationship between sports sentiment and stock returns and their studies revealed a significant emotional impact on investors that transcends traditional financial analysis, previous studies by Hirt et. al (1992) and Edmans et. al that study the impact of sports events sentiments on the stock market have on the investor sentiments.

Another seminal study on building the foundation for sports events was by Ashton et al. (2003) examined the link between English international soccer results and FTS-100 stock market returns. Their findings indicated a significant relationship where the performance of the English national football team positively influenced the stock market returns on the next trading day. Specifically, victories were associated with positive abnormal returns, while losses led to negative returns. This study underscores the influence of investor sentiment driven by national sports outcomes on financial markets

Further the highly renowned research by Edmans et al. (2007) expanded on these findings by specifically investigating the impact of FIFA soccer match outcomes on stock markets across 39 countries. Their studies concluded that losses in significant soccer matches led to a negative effect on the corresponding country's stock market index. This phenomenon can be attributed to the emotional impact of sports outcomes on national sentiment, which in turn influences investor behaviour and market dynamics. The findings from these studies underscore the role of behavioural psychology in financial markets. Traditional financial models often assume that investors act rationally, basing decisions purely on economic fundamentals and logical analysis. However, the research by Hirt et al. and Edmans et al. demonstrates that psychological factors, such as mood and sentiment induced by external events like sports outcomes, can significantly affect asset prices. This suggests that investor behaviour is not always rational

and that emotions can play a crucial role in market movements. The methodology for testing the effects on the stock market was event study using abnormal returns (AR) and also finding the returns for longer windows before and after the matches through cumulative abnormal returns.

Considering the significant scale and impact of NFL and grossing highest viewership amongst American leagues, extending this study NFL will aim to extend this research to explore the impact of National Football League (NFL) outcomes on the sponsors of theme firms. As brands invest and closely associate with the companies, throughout the league and it has the potential to develops a strong perception and sentiment impact by its game results that can translate towards their stock prices. Given the immense popularity and emotional engagement associated with NFL games, especially during high stakes matches in NFL, it is plausible that the results of these games could significantly influence investor sentiment. I employ the same methodology for the research leading to the formation first hypothesis:

H1: Abnormal Returns and Cumulative Abnormal returns NFL teams significantly increase following a victory and decrease following a loss.

Game Importance

Building on the research by Michael Gerlach (2011), which examined the impact of FIFA World Cup losses on stock market returns for 37 countries from 1974-2006, I aim to explore a similar phenomenon within the context of the NFL. Gerlach's findings indicated that losses in high-stakes games, like elimination games had a significantly larger negative effect on stock returns compared to losses in group-stage matches. This suggests that the higher the stakes of the game, the more pronounced the market reaction. High-stakes games, such as elimination and final matches, generate intense public and media attention, amplifying the emotional responses of investors (Brown & Cliff, 2005). Gerlach (2011) specifically noted that losses in elimination games during the FIFA World Cup had a significantly larger negative effect on stock returns compared to losses in group-stage matches. This indicates that the importance of the game plays a crucial role in determining the extent of market reactions. Elimination and final games attract large attention, media coverage, and heightened sentiment, thus having a higher potential to impact market movements. Thus, my second hypothesis seeks to investigate

H2: CAR of playoff games on the sponsoring companies is higher than regular season games.

Point Difference

Previous studies have indicated that the magnitude of point differences in sports game outcomes significantly impacts stock market reactions, particularly for losses. Akhigbe et al. (2015) found that more predictable losses, often associated with larger point differences, lead to significant anticipatory trading. This suggests that markets react more strongly to games where the outcome is expected to be lopsided, reflecting heightened investor pessimism prior to the event. This trading behaviour is driven by the expectation of a negative outcome, which investors often interpret as a signal to sell off local stocks, anticipating a market decline.

Furthermore, localized trading behaviour is influenced by the intensity of the event's outcome. As, Chang et al. (2012) observed that critical games with larger margins of victory or defeat have a more substantial impact on local stock returns. This implies that the emotional intensity linked to larger point differences drives more significant market reactions, as investors' sentiments are deeply tied to the performance of local teams. The more decisive the loss, the greater the emotional impact, leading to more pronounced trading behaviours as investors react to the perceived increased risk and uncertainty. Finance psychological literature also supports the notion that mood significantly influences decision-making processes. Larger point differences in losses likely exacerbate negative moods, leading to more substantial sell-offs in the stock market. This is consistent with the findings of Edmans et al. (2007), who noted stronger negative returns following significant sports losses. The emotional weight of a significant defeat can lead investors to overreact, resulting in heightened selling activity and further driving down stock prices. This collective behaviour underscores the profound effect of point differences in sports outcomes on investor behaviour and market dynamics. I hypothesize that this behaviour can translate and extend for the sponsoring companies as well and significant point difference games can lead to larger impact on the impact for the sponsoring firm.

H3: Larger point differences, whether in wins or losses, are associated with greater changes in CAR compared to smaller point differences.

Sponsor Affinity

Another aspect of sponsor companies' characteristic that can effect stock prices was investigated by Cornwell et al. (2001). They conducted a study to measure the impact of corporate sponsorship on the stock prices of sponsors associated with the Indianapolis 500 automobile race. They introduced the concept of 'degree of relevance,' measuring how closely related the sponsor's products were to the event. For example, automotive-related sponsors (like tire or fuel companies) would have a higher degree of relevance compared to unrelated industries (like financial services). A key variable in their research was the degree of relevance between the sponsor and the event. Their findings indicated that the effectiveness of marketing is often strongly linked to the relationship between the product and the sport.

Similarly, Hanke and Kirchler (2013) investigated the impact of European football league outcomes on the stock market returns of jersey sponsors. Their study found a significant relationship between the performance of the football teams and the stock market returns of their sponsors and revealed a significant relationship between the outcomes of football matches and the stock market returns of the jersey sponsors. Positive match outcomes (wins) generally led to positive abnormal returns, while negative outcomes (losses) led to negative abnormal returns. The main sponsor's visibility and association with successful teams enhance the sponsor's brand value and market perception, which in turn positively affects their stock prices. They also highlighted the role of strategic sponsorships by companies choosing the right and teams can accelerate their financial and marketing returns.

This highlighted that the effectiveness of sponsorship as a marketing strategy is enhanced when there is a clear and direct connection between the sponsor's products and the event. This relationship boosts consumer perception and increases brand visibility, ultimately reflecting positively on the company's stock price. Further, plays a vital role in determining the financial benefits for the sponsor and the potential to impact short-term prices. This phenomenon has not been investigated for the NFL and considering its importance and the wide variety of firms that sponsor the NFL from sports, technology, gambling, real estate, etc. it would be effective to investigate the segment of the firm's stock market performance that is impacted post games.

H4: Companies from sectors with higher affinity to sports are expected to experience more pronounced changes in CAR compared to companies from sectors with lower affinity

Data

The NFL league consists of 32 teams that participate in the league. For this research, I will choose the top teams in terms of valuation as these teams are the ones that attract the most viewership, fans, sponsorship, and media attention. The team valuation data will be sourced from reputable publications such as Forbes. As I am evaluating for the impact of high importance games that are playoff games, I will choose teams that played the most playoff games. The games data for the past 5 years from starting from 2019 season to 2023 season will be extracted as NFL allowing us to investigate a meaningful dataset of sponsoring companies. Next for the selected teams, the games data for the past 5 years from starting from 2019 season to 2023 season will be extracted as NFL allowing us to investigate a meaningful dataset of sponsoring companies. The period of games will be from start of 2019 season in September of to February of 2024, end of 2023 season. The reason for choosing multiple years and teams is to avoid bias that can be in one year. Each game's outcome will also be recorded and in NFL end with an outcome of win or a loss (tie is not outcome). The combination of selecting multiple teams and years allows us to increase the sample size leading to a greater data variety and testing for multiple seasons allows to remove any team or year specific impacts on the sponsors. The data of the matches along with their results will be extracted from ESPN, and NFL.com as they keep record of past matches and outcomes. I also gather the data on the point difference between the ending score of the games from Pro-football reference (Pro-Football-Reference.com, n.d.).

I will find the sponsors of the selected teams through news, official club announcements and past corporate media announcements. From the sponsors, the sponsors which are publicly listed will be chosen as part of the dataset. Further, for the chosen companies in the dataset, I will find their past daily stock prices for the past 5 years using Yahoo finance of all sponsor companies' dataset of 29 firms that are publicly listed companies. The dataset used will be of daily adjusted for dividends and stock splits. The dataset will be narrowed down to the NFL season matches which start with a regular season from September to December, playoffs in January and Superbowl finals on the second week of February. Although, as I want to use a event study I will gather stock prices data from July to February of next year for each sponsoring team to allow for longer estimation of market returns.

The analysis sample for games consists of regular season games between the seasons of 2019 season to 2023 season each team played 16 regular season games which was increased to 17 from 2021 and the playoff games starting from the Wild Card, Divisional, Conference Championship rounds and finally the Super Bowl. Table 1 presents an overview of the number of games played by each team between the period of 2019-2023 NFL seasons and the column playoff games indicate the number of playoff appearance games, including the finals, Super Bowl. Table 1 shows the team wise summary of total games, the chosen sample consists of 623 regular season games and 53 playoff games as I focused on choosing teams with good playoff qualification record in the past 5 years.

Table 1: NFL teams and summary of games played between 2019 season to 2023 season

Team	Playoff Games	Regular Season Games
Dallas Cowboys	4	69
New England Patriots	2	89
Kansas City Chiefs	16	97
Green Bay Packers	8	91
Seattle Haws	4	87
49ers	12	95
Rams	7	95
Total	53	623

Methodology

Event study

Event Study is an analysis technique researcher in the past that investigated the impact of events, earning calls, mergers and acquisitions and the impact on asset prices and the stock market used the event study method. It was first introduced by Ray Ball and Philip Brown (1968) on corporate finance seminal study on earnings announcements and impact of unexpected earnings information impact on stock prices. After their work event study has been used in various contexts to understand the effect of various events on stock prices and returns.

For an event study method, I assume the following.

- ➔ Investors are rational markets are rational and the event outcomes are immediately priced in the market that can be said for the NFL as games are widely reported and followed events, are therefore prices and reactions are quickly incorporated into the stock prices of the sponsor companies. Investors react to the game outcomes based on their perceived impact on the sponsor companies' brand value and sale
- ➔ Returns of the firms can be predicated by using normal returns of the market (market model) that relates to a benchmark that replicates the normal movement of the stock.

Event studies have an important aspect of window selection by using the periods of 100-120 days for big events for estimation, however, it is important to note that events should not overlap with each other to prevent time to avoid confounding effects and influence the estimation of parameters. I will use a estimation window of 40 days before the game as this allows to expected returns based on historical data. It is also important to choose an estimation window that is around the date of the event and not too far from it to understand the market movement around the event date to prevent impact with other results and test the effect of new activity/information in the market. For this research, I will use an event estimation window of 2 days before the event and 2 days after the event days to prevent the overlap with other events as the NFL matches played are close to each other. Further the day of the NFL game I will consider as $t=0$ that will be the reference point of the event study analysis.

For conducting an event study analysis on the abnormal returns of companies that sponsor NFL teams, it is crucial to isolate the impact of NFL games on these sponsors' stock prices from general market movements. This can be achieved by calculating abnormal returns, which represent the difference between the actual stock returns and the expected returns based on market performance. By focusing on abnormal returns, I can more accurately determine the effect of NFL games on the stock prices of sponsoring companies, separating event-specific impacts from broader market trends.

Return (R) is the actual return that calculated is by

$$R_t = \ln \left(\frac{R_t}{R_{i,t-1}} \right)$$

Next, the market expected return will be calculated through a benchmark index and the return which is there a from the market index during the time period is calculated through

$$R_M = \ln \left(\frac{R_{M,t}}{R_{i,t-1}} \right)$$

The abnormal returns will be calculated through risk adjusted returns by subtracting market return from the stock return:

$$AR = R_t - (\bar{\alpha} - \bar{\beta}R_{M,t})$$

α and β are the estimates of the mean return from the past 40 days estimation period.

Average abnormal return (AAR) for understanding the returns near the events date is calculated by:

$$AAR = \frac{1}{N} \sum_{t=1}^N AR(t)$$

To test if AAR is significantly different from zero, the t-test is :

$$t(AAR(t)) = \frac{AAR(t)}{SE(AAR(t))}$$

Further, I calculate Cumulative abnormal returns (CAR). By aggregating abnormal returns over a period, CAR provides a comprehensive view of the event's impact over time.

Cumulative abnormal average return (CAR) which can be done by the following equation.

$$CAR = \sum_{t=1}^t AR_{i,t}(t)$$

The t-statistic for the CAR is given by

$$CAR = \frac{CAR}{(SD * \sqrt{(t)})}$$

I also calculate the CAAR to understand the average values

$$CAAR = \sum_{t=1}^t AAR(t)$$

The t-statistic for CAAR is calculated by

$$t(CAAR(t)) = \frac{CAAR}{SE(CAAR)}$$

Regression Analysis

I conduct a panel regression to test each of the hypothesis on the abnormal returns (AR) and CAR (cumulative abnormal return) values. To test for the first hypothesis if the effect of winning and losing on the stock price returns of the sponsoring companies, I regress the abnormal returns on the wins and losses of the games. Similar methodology in context to the sport of football and icehockey analysis was employed by renowned paper by Edman's (2007) on the sports sentiment analysis, by calculating the coefficients, I can interpret the impact the events have on the. Hence, my first regression to test the impact of winning or losing is:

$$AR = \alpha + \beta_1 Win + \beta_2 Lose + \varepsilon \dots\dots (eq1)$$

And similarly

$$CAR = \alpha + \beta_1 Win + \beta_2 Lose + \varepsilon \dots\dots (eq2)$$

For this regression model binary dummy variables are created for key factors: 'Win' (1 if the team won, 0 otherwise), 'Lose' (1 if the team lost, 0 otherwise) and regressed with the abnormal returns.

For testing my hypothesis of the impact of the game importance on the abnormal returns, the dataset is first transformed by adding a binary variable for 'Playoff' (1 if the game was a playoff game, 0 otherwise). Following this, interaction terms such as 'win * playoff', 'Lose * playoff',

are generated by multiplying the respective variables. These interactions capture the combined effects of wins and losses during playoffs. For testing mu hypothesis on game importance my regression equation is:

$$CAR = \alpha + \beta_1 Win + \beta_2 Lose + \beta_3(win * playoff) + \beta_4(Lose * playoff) + \varepsilon \dots(\text{eq3})$$

For investigating the importance score difference on the impact on sponsoring companies CAR, the games will segment in two parts, one with score difference below mean score of past games of 5 years and the above it. The mean score is 10.4 points which we can round to 10 points. Thus, we segment in two parts one with mean score than 10 other less than 10. The regression will be same as eq (3).

Finally, for investigating the hypothesis on sectorial impact by sponsors, I will segment my sponsors into categories depending on the sectors they work in using one hot encoding. Each sector each category value is converted into a hot encoded into a binary value (0 or 1) is assigned to each column. Table 15 summarizes the sectors and respective companies in the Financial Services, Beverages, Healthcare, Technology, and Consumer Goods, as they are the segments with highest number of firms. The regression model I use is the following:

$$CAR = \alpha + \beta_1 Win + \beta_2 Lose + \beta_3(Financial\ Services) + \beta_4(Healthcare) + \beta_5(Beverages) + \beta_6(Technology) + \beta_7(Consumer\ Goods) + \varepsilon \dots(\text{eq4})$$

Furthermore, segmented industry focused regression equations to understand more in detail the impact of wins and losses on the CAR of the sponsoring companies is done amongst various windows like eq (1).

Results

Impact of Match Outcome and Abnormal Return

The AR for each game for sponsor firms were calculated and Table 1 presents the average abnormal return (AAR) for the event window for the firms. The table presents a differentiated summary statistic for both the games of either winning it or losing it. The significance is calculated from the t-statistic for testing the returns being significantly different from zero. From the table it is evident that the average abnormal returns are significant for one day before for wins a reason of that can be anticipatory trading. This was also evident from the research of Akhigbe, Newman, & Whyte when investigated for NBA where investors often invest in winning or short losing companies just before the games. After the wins, positive returns on AR and CAR are positive especially after 1 day before for the games. Further, CAR is significant at 5% for the wins as well. The reason for non-significance can be the uptrend of the market unrelated to the games that causes the abnormal returns for wins and detachment of the match outcome to investor sentiment.

Table 2: The table is the summary statistic of the average abnormal return (AAR) and Cumulative average abnormal returns (CAAR) for sponsoring companies between 2019-2023. The games are divided based on the outcome, wins or losses.

Event Day	Abnormal Return (AR)			
	$t = -2$	$t = -1$	$t = 1$	$t = 2$
Win	0.0379	0.2649***	0.0540	0.0483
Loss	0.5421***	0.1586**	-0.3392***	0.3127**

Event Window	Cumulative Abnormal Return (CAAR)			
	CAR[-2]	CAR[-2,-1]	CAR[0,1]	CAR[0,2]
Win	0.0379*	0.1001**	0.0740**	0.0257
Loss	0.1419***	-0.3005***	-0.0453	-0.1351**

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

It is evident from Table 2 that the coefficient for losses is often times more significant and also greater in magnitude compared to the wins. I also see a high significance of losses on CAR one day before the game that could be also due to the increasing in betting behaviour before the games. This is particularly in line with the assumption that investors react negatively and strongly to wins translating to sponsoring company stock prices compared to wins.

Next, the abnormal returns were regressed on wins and loss outcomes of the NFL games to test the match outcome has an impact on the abnormal returns and cumulative returns of the sponsoring companies stock prices. Table 3 and Table 4 presents the results of the regression of match outcomes on abnormal returns and cumulative abnormal returns as in equation (1). The table 3 presents the results of regressions analysing the abnormal returns (AR) for sponsoring companies surrounding NFL game events, with AR being calculated for the corresponding teams and regressed on the outcomes of wins and losses of NFL games over different event days. The event days are denoted as AR(-2), AR(-1), AR(1), and AR(2), representing two days before the event, one day before the event, one day after the event, and two days after the event, respectively. For AR(-2), the regression intercept is 0.0068%, indicating a small positive abnormal return on average two days before the event. The coefficient for a win is 0.0311%, significant at 5% level, suggesting that a win leads to a statistically significant increase in abnormal returns. The coefficient for a loss is 0.5352%, significant at the 1% level, indicating a substantial and significant increase in abnormal returns of two days before the event. For AR(-1), the intercept is 0.0515%, with the win coefficient at 0.4976%, significant at the 1% level, indicating a significant positive impact of a win on abnormal returns one day before the event. The loss coefficient is -0.0646%, which is not statistically significant, suggesting no significant effect of losses on abnormal returns one day before the event.

Table 3: The table is the regression results for AR for games for wins and losses

Event Day	AR(-2)	AR(-1)	AR(1)	AR(2)
Intercept	0.0068	0.0515	0.0427	0.0563
Win	0.0311*	0.4976***	0.0140	-0.1046
Loss	0.5352***	-0.0646	-0.1405*	0.2563*
R^2	.015	.020	.005	.008
Adj. R^2	.014	.019	.004	.008
F	20.90***	28.32***	1.042	11.79***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

For AR(1), no significant effect of wins on abnormal returns one day after the event. The loss coefficient is -0.1405, significant at the 5% level, indicating a significant negative impact of a loss on abnormal returns by -0.1405% one day after the event. For AR(2), the intercept is 0.0563%. The win coefficient is -0.1046%, which is not statistically significant, suggesting no

significant effect of wins on abnormal returns two days after the event. The loss coefficient is 0.2563%, significant at the 5% level, indicating a significant positive impact of a loss on abnormal returns two days after the event. The F-statistics for AR(-2), AR(-1), AR(1), and AR(2) are 20.90, 28.32, 1.042, and 11.79, respectively, with AR(-2) and AR(-1) being highly significant and indicating that the models for these days are statistically significant overall. In summary, wins tend to have a significant positive impact on abnormal returns particularly one day before the event, while losses have a significant impact with varying directions on different event days, notably showing a substantial positive effect two days before the event and a negative effect one day after the event.

Table 4: The table is the regression results for CAR for games for wins and losses

Event Window	CAR[-2]	CAR[-2,-1]	CAR[0,1]	CAR[0,2]
Intercept	0.0068	0.0182	0.1271	0.1271
Win	0.0311	0.0094	-0.0012	-0.0012
Loss	0.1350**	0.1161*	-0.1626*	-0.1626*
R^2	.001	.001	.000	.000
Adj. R^2	.001	.001	.000	.000
F	5.156**	4.279*	3.291*	3.291*

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

For the impact on CAR from wins and losses, Table 4 presents the regression results of NFL game outcomes on the CAR of sponsoring companies over various event windows, presented as percentages. For the event window CAR[-2], the coefficient for a win is 0.0311%, suggesting that a win increases the CAR by 0.0311%, though this result is not statistically significant. Conversely, a loss has a significant positive effect on CAR[-2] with a coefficient of 0.1350%, indicating a 0.1350% increase in CAR, which is significant at the 1% level. For the CAR[0,1] and CAR[0,2] windows, the intercept is 0.1271%, implying a consistent baseline CAR of 0.1271%. A win slightly decreases CAR by 0.0012% in these windows, though the effect is not statistically significant. Losses, on the other hand, decrease CAR by 0.1626%, which is significant at the 5% level. While wins do not have a statistically significant effect on the CAR of sponsoring companies, losses have a significant positive impact on CAR[-2] and CAR[-2,-1], and a significant negative impact on CAR[0,1] and CAR[0,2].

This suggests that the stock market reacts more strongly to losses than to wins for NFL sponsoring companies. This is accordingly to our literature hypothesis 1 that sentiments end of impacting and translating to NFL team’s sponsoring teams returns. Our analysis indicate positive returns for AR and CAR during wins and usually negative after and before losses.

Game Importance

Table 5: This table presents the regression results for abnormal returns of sponsoring teams for the period from 2019-2023 when controlling the importance of the game.

Event Window	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
Intercept	0.0272	0.0380	0.1270	0.2150***
Win_Playoff	-0.0093	0.0120	0.1464*	0.1431**
Loss_Playoff	0.1196	0.1656*	0.0505	0.0503**
R^2	.004	.009	.010	.0015
Adj. R^2	.003	.007	.009	.0013
F	0.425	0.517	3.277*	5.896**

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

The Table 5 presents the results of regressions in equation 2 to analyse the CAR , the CAR[-2], the regression intercept is 0.0272%, indicating a small positive cumulative abnormal return on average two days before the event. The coefficient for a win in the playoffs is -0.0093%, which is not statistically significant, suggesting no significant effect of a playoff win on cumulative abnormal returns two days before the event. The coefficient for a playoff loss is 0.1196%, which is also not statistically significant, indicating no significant effect of a playoff loss on cumulative abnormal returns two days before the event. For CAR[-2,-1], the intercept is 0.0380%. The win coefficient is 0.0120%, which is not statistically significant, implying no significant effect of playoff wins on cumulative abnormal returns from two days before to one day before the event. The loss coefficient is 0.1656%, significant at the 5% level, indicating a significant positive impact of a playoff loss on CAR. For CAR[0,1], the intercept is 0.1270%. The win coefficient is 0.1464%, significant at the 5% level, suggesting a significant positive effect of playoff wins on CAR by 0.1464% from the event day to one day after the event. The loss coefficient is 0.0505%, which is not statistically significant, indicating no significant effect of playoff losses on CAR.

For CAR[0,2], the intercept is 0.2150, significant at the 1% level indicating a substantial positive cumulative abnormal return on average from the event day to two days after the event.

The win coefficient is 0.1431%, significant at the 10% level, indicating a significant positive impact of playoff wins on cumulative abnormal returns by over this period. The loss coefficient is 0.0503%, also significant at the 1% level, indicating a significant positive impact of playoff losses on cumulative abnormal returns over this period. Over a longer window of two days I find CAR to be positive indicating that indicates that both wins and losses in the playoffs can positively affect the sponsoring companies' cumulative abnormal returns. This results indicate that CAR is not higher for the wins after playoffs, although a unusual impact is on the sponsoring stock prices is higher and positive for losses which is different from the hypothesis. This could be due to the investor inattention after events and they have less time to trade as we discussed in literature. Another reason, for this can be due to the large audience of the games that are in playoffs that lead to heightened attention and exposure of sponsor firms in the important games that can translate towards confidence and investing in the firm even after losses in the games in playoffs.

Score Difference

The Table 6 present CAR regression results for sponsoring companies in relation to NFL game outcomes, with one table focusing on games with point differences below 10 points (close games). In the CAR[-2] window, the intercepts are positive for close games at 0.0571 but negative for large point difference games -0.0682%, suggesting a small positive CAR two days before the event in closer games and a negative CAR in games with larger point differences. Playoff wins have a positive impact on CAR in close games of 0.1241% but a negative impact in large point difference games of -0.1151%, neither of which is statistically significant. Playoff losses show a substantial positive impact in close games of 0.5682%, while the impact is slightly negative in large point difference games -0.0390%, with no statistical significance in either case. Regular-season wins and losses in close games show negligible impacts -0.0012% and 0.0485%, respectively, while in large point difference games, regular-season wins have a small positive impact 0.0211% and losses have a slight negative impact -0.0074%, none of which are significant.

Table 6: Regression results of Wins and Losses and controlling for game importance on CAR for games with point difference below 10 points

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	0.0571	0.0578	0.0533	0.0084
Win_Playoff	0.1241	0.0687	-0.1246	0.0913
Loss_Playoff	0.5682	0.2514	0.2143	0.1988
Win	-0.0012	-0.0275	0.0171	-0.0102
Loss	0.0485	0.0352	0.0372	0.0304
R^2	0.004	0.009	0.010	0.0015
Adj. R^2	0.003	0.007	0.009	0.0013
F-statistic	0.425	0.517	3.277*	5.896**

Note. *p < .05. **p < .01. ***p < .001.

Table 7 presents games with point differences above 10 points (large point difference games), the results for the CAR[-2,-1] window, playoff wins have a positive but not significant impact in close games, 0.0683% and a negative impact in large point difference games of -0.1218%. Playoff losses show a positive impact in both close games 0.2514% and large point difference games -0.0392%. Regular-season wins have a small negative impact in close games of -0.0275% and a small positive impact in large point difference games 0.0056%, while regular-season losses show small positive impacts in both scenarios 0.0352% in close games and 0.0180% in large point difference games, however, none of which are significant.

Table 7: Regression results of Wins and Losses and controlling for game importance on CAR for games with point difference above 10 points

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	-0.0682	-0.0683	0.1343	0.2099
Win_Playoff	-0.1151	-0.1218	0.1784	0.2830
Loss_Playoff	-0.0390	-0.0392	0.0928	-0.0159
Win	0.0211	0.0056	0.1325	0.1764
Loss	-0.0074	0.0180	-0.1147	0.0764
R^2	0.001	0.003	0.006	0.009
Adj. R^2	0.000	0.002	0.004	0.008
F-statistic	0.125	0.317	2.277	4.896*

Note. *p < .05. **p < .01. ***p < .001.

Finally, in the CAR[0,2] window, the intercept is much lower for close games 0.0084% compared to large point difference games 0.2099%, suggesting a smaller positive return from the event day to two days after in closer games. Playoff wins show a positive impact in both close games 0.0913% and large point difference games 0.2830%, with statistical significance

only in large point difference games. Playoff losses have a positive impact in close games 0.1988% but a negative impact in large point difference games -0.0159%, neither being significant. In summary, the impact of playoff and regular-season outcomes on CAR varies significantly between close games and large point difference games, with notable differences in intercepts and the significance of results across different event windows. Close games generally show less pronounced and non-significant impacts, while large point difference games occasionally exhibit significant effects, particularly for playoff wins in the longer event windows. Hence, the results are not in line for the hypothesis thus I cannot accept the hypothesis.

Sponsor Industry Affinity

Table 8 presents cumulative abnormal returns (CAR) regression results, analysing the impact of wins and losses in NFL games on the CAR of sponsoring companies, while also considering industry effects across different event windows. For the CAR[-2] window, the intercept is 0.0145%, indicating a small negative CAR on average two days before the event. Wins show a non-significant positive impact 0.0470%, while losses have a significant positive effect suggesting that losses two days before the event significantly increase CAR by 0.1485%. In terms of industry effects, the consumer goods (Industry_CG) and technology (Industry_TECH) sectors exhibit significant positive impacts on CAR of 0.1264% and 0.1385%, respectively. For the CAR[0,1] window, the intercept is 0.0356%, suggesting a small positive CAR. Both wins and losses show non-significant effects. The consumer goods and technology industries continue to show significant positive impacts of 0.1271% and 0.1375% respectively, while the beverage industry's effect remains non-significant and negative at -0.0788%.

In the CAR[0,2] window, the intercept is significantly positive at 0.3476%, indicating a substantial positive CAR from the event day to two days after. Wins show a negligible and non-significant effect of 0.0071%, while losses display a non-significant negative effect. The beverage industry has a significant negative impact -0.3053% on CAR over a CAR[0,2] window, while the other industries, including consumer goods and technology, show non-significant effects of 0.0517% and 0.0744%, respectively.

Table 8: Regression results of Wins and Losses on CAR and sponsor industry

Event Window	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
Intercept	-0.0145	0.0085	0.0356	0.3476**
Win	0.0470	0.0343	0.0503	0.0071
Loss	0.1485*	0.0993*	0.0441	-0.1598
Industry_BEV	-0.0796	-0.1091*	-0.0788	-0.3053**
Industry_CG	0.1264*	0.0837	0.1271*	0.0517
Industry_FIN	-0.0461	0.0214	-0.0477	-0.0610
Industry_HC	-0.0533	0.0187	-0.0514	-0.2047
Industry_TECH	0.1385*	0.1104*	0.1375*	0.0744
R^2	0.015	0.020	0.005	0.008
Adj. R^2	0.014	0.019	0.004	0.008
F -statistic	20.90***	28.32***	1.042	11.79***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

In the CAR[0,2] window, the intercept is significantly positive at 0.3476, indicating a substantial positive CAR from the event day to two days after. The beverage industry has a significant negative impact of -0.3053%, while the other industries, including consumer goods and technology, show non-significant effects of 0.0517% and 0.0744%, respectively. The results in table 8 indicates that on a broader level that the consumer goods and technology industries generally exhibit significant positive impacts on CAR across various event windows, while the beverage industry occasionally shows significant negative impacts. Overall, the intercepts suggest a trend of positive cumulative abnormal returns, especially in the window spanning the event day to two days after.

Further by categorizing the stocks' CAR, based on industry and testing the impact of wins and losses along with playoff games. From Table 10 in the Appendix, it is evident that for beverage companies, there is a significant positive impact on CAR two days before the event and extending up to two days after the event. For instance, the coefficient for loss is 0.1485% at CAR[-2] and 0.1294 at CAR[-2,-1]. The loss in playoffs coefficient is 0.2314% at CAR[-2], increasing to 0.4562% at CAR[-2,-1], and maintaining a significant positive impact at 0.3187% at CAR[0,2]. This indicates that when a sponsoring team loses, the abnormal returns for beverage industry companies are higher than usual, possibly due to increased media exposure or consumer engagement with the sponsor's brand during this period. For the playoffs, the returns are positive and show a significant positive impact on CAR. This effect is possibly more pronounced during playoffs due to heightened attention and emotional investment from fans, leading to greater brand visibility and potentially positive returns for the sponsors.

Table 11 indicates that the consumer goods industry consistently shows significant positive impacts across all event windows. For example, loss shows a coefficient of 0.1479% at CAR[-2] and 0.1318% at CAR[-2,-1]. The loss in playoff coefficient is 0.3145% at CAR[-2], increasing to 0.3516% at CAR[-2,-1], and remaining significantly positive at 0.3245% at CAR[0,1]. This suggests that regardless of the outcomes, sponsorship by consumer goods companies tends to yield higher abnormal returns. Similarly, regular losses and playoff losses have significant positive impacts. This could indicate that the consumer goods sector benefits from any increase in visibility and engagement resulting from their association with the teams, irrespective of the game outcome. This is in line with the hypothesis due to the high affinity these brands have with the teams and the games.

For the finance firms in Table 12 and healthcare industry in Table 13, I see that these sectors do not show a significant effect in most windows. For example, the loss coefficient for finance is 0.0843% at CAR[-2] and 0.1159% at CAR[-2,-1], but it is not significant at other windows. The loss playoff coefficient is 0.1924% at CAR[-2], 0.2716 at CAR[-2,-1], and 0.2384% at CAR[0,1] for Finance, showing some significant impacts during playoff losses. Similarly, the Healthcare Sector has a loss coefficient of 0.1305% at CAR[-2] and 0.2038% at CAR[0,1], indicating positive abnormal returns in high-visibility situations. This could be due to the nature of healthcare products and finance sector services, which may not be as directly influenced by sports events as consumer goods or beverages.

Technology companies' CAR results are evident in Table 14. The results consistently show significant positive impacts, especially in the CAR[-2,-1] and CAR[0,1] windows. For instance, the loss coefficient is 0.0863 at CAR[-2] and 0.1238 at CAR[-2,-1]. The loss in playoff coefficient is 0.2470% at CAR[-2], 0.286% at CAR[-2,-1], and remains significantly positive at 0.2732 at CAR[0,1]. This suggests that tech companies benefit from the association with the teams leading up to and shortly after the events, likely due to increased digital engagement and tech-driven marketing campaigns. Also, playoff losses show significant positive impacts, indicating that the high visibility and engagement during playoff games enhance the abnormal returns for tech companies significantly.

The results suggest that different industries experience varying impacts on their abnormal returns based on their association with NFL teams. Consumer goods and technology sectors consistently benefit from these associations across multiple event windows. Beverage companies see significant positive impacts primarily around losses and playoff losses, likely

due to increased visibility. Financial and healthcare sectors show more mixed results, with the finance industry benefiting significantly during playoff losses and the healthcare industry showing limited significant impacts except in specific high-stakes situations. This is in line with hypothesis for consumer brands and beverages that often have an affinity to the brand, but technology firms were a surprising category that witnessed increased CARs.

Discussion

Summary of Findings

In this paper, I investigated the effect of NFL team's game performance on their sponsoring companies stock prices. With NFL being the largest and most watched sport in USA and attracting the highest sponsorship deals it was important to analyze the impact it creates on sponsors that has been unexplored. The research used event study methodology along with regression analysis for a sample of 676 games for 7 teams for 5 years between 2019-2023 NFL seasons. The revealed a notable relationship between the performance of NFL teams and the stock prices of their sponsoring companies. The research explored in detail the impact of wins and losses to the sponsoring companies stock prices. Though, relevant literature I found that event study methodology can be used to test for the effects on the stock prices of companies. For the hypothesis to answer my research question I first investigated Impact of wins and losses on AR and the results indicated that wins lead to significant positive abnormal returns two days before $AR(-2)$ and one day before $AR(-1)$ the event, while losses result in a substantial and significant increase in abnormal returns two days before the event $AR(-2)$. One day after the event $AR(1)$, losses have a significant negative impact, and two days after the event $AR(2)$, losses again show a significant positive impact that was not according to what I hypothesized. Also, losses lead to negative CAR over longer windows post the game in the windows of $CR[0,1]$ and $CAR[0,2]$.

Next, I investigated on the game importance and differences in effect depending on playoff and regular season I found that CAR for playoff Games, Playoff losses have a significant positive impact on CAR from two days before to one day before the event $CAR[-2,-1]$, while playoff wins significantly positively affect cumulative abnormal returns from the event day to one day after $CAR[0,1]$ and from the event day to two days after ($CAR[0,2]$), This could be due to the higher media attention attached to the sponsoring companies. Further while investigating for Score Difference impact on the CAR for close games (score differences below 10 points),

playoff losses have a substantial positive impact. In large point difference games (score differences above 10 points), playoff wins show a significant positive impact, particularly in longer event windows CAR[0,2]. However, the results are not significant in general and I can indicate the score difference does not impact sponsoring companies sentiment for NFL.

I also tested for industry effects on CAR, and found that consumer goods and technology sectors consistently show significant positive impacts on cumulative abnormal returns across various event windows. Beverage companies experience significant positive impacts primarily around losses and playoff losses, likely due to increased visibility. The financial sector benefits significantly during playoff losses, while the healthcare industry shows limited significant impacts except in specific high-stakes situations of playoff games. Overall, results were different than what I expected, as technology firms related sponsors who tend to have low affinity to the game, had higher outcomes compared to categories of beverage and consumer goods who tend to be more closely related to the sport.

Trading Opportunities and Insights for Sponsoring Firm

The findings of this study reveal a significant relationship between NFL team performance and the stock prices of their sponsoring companies, presenting notable trading opportunities and strategies. Wins lead to positive AR two days before and one day before the event, suggesting traders consider long positions in anticipation of a win. Conversely, losses result in increased AR two days before and significant negative impacts one day after the event, followed by a positive correction two days after, indicating short-term strategies like short selling post-loss and buying after the correction. Playoff games draw heightened investor interest, with losses positively impacting CAR from two days before to one day before the event, and wins positively affecting CAR from the event day to two days after. This suggests strategies such as buying stocks of sponsoring companies ahead of expected playoff wins and selling shortly after the win, or short selling ahead of expected playoff losses and buying back after the loss. Score differences also influence CAR, with close playoff games showing positive impacts from losses, and large point difference wins offering opportunities for long positions following decisive victories. Different industries show varying impacts on CAR: consumer goods and technology sectors consistently have positive impacts, making them reliable targets for long positions; beverage companies benefit around losses and playoff losses, suggesting buying opportunities following high-profile games; the financial sector sees gains during playoff

losses, presenting opportunities for gains from increased market activity; and the healthcare sector shows limited impacts except in high-stakes playoff games, warranting a cautious approach. By understanding these patterns and implementing the respective trading strategies, investors can capitalize on market movements driven by NFL game outcomes, making informed trading decisions based on the performance of sponsoring companies. These strategies are possible with the sponsoring company stocks as these companies are highly traded, liquid and less information asymmetry and strong financially.

Another applicability of the results on companies spending significant investments on NFL, is that they can further leverage and align their marketing campaigns and product launches with sports events. Sponsoring companies can analyse their return on investment (ROI) from sponsoring sports teams. They can also plan promotions and advertisements around key games or playoff appearances to leverage increased viewer engagement and potential positive stock price movements. Also, firms such as technology who have very a smaller number of sponsors now can evaluate this as another platform for their stock market performance boosts.

Limitations

The study has several limitations, at first my analysis focuses on a select number of NFL teams and their sponsoring companies. While the chosen teams are among the most valuable and widely followed, this selection may have introduce a bias. Smaller or less prominent teams and their sponsors might exhibit different patterns in stock price reactions. Also, the methodology employed, the event study approach, assumes market efficiency and immediate incorporation of event outcomes into stock prices. This assumption may not always hold true, as market reactions can be delayed or influenced by other concurrent events. Additionally, the event windows used in this study, may not fully capture the entirety of investor reactions, especially for events with prolonged or delayed impacts.

Another limitation lies in the potential confounding effects of other variables not controlled for in the study which could have caused omitted variable bias. Factors such as broader market trends, macroeconomic conditions, and firm-specific news or events could influence stock price movements, potentially distorting the measured impact of NFL game outcomes. Furthermore, the sentiment and behavioural aspects of investor reactions, while considered, are not deeply explored. Advanced sentiment analysis tools and demographic segmentation could

provide a more nuanced understanding of how different investor groups react to sports sponsorships and outcomes, which this study does not address.

We also does not account for the "Monday effect," where trading on the first day of the week often exhibits different characteristics compared to other days. NFL games primarily occur on Saturdays and Sundays, hence, the first trading response to these games happens on Monday. This could introduce unique trading behaviours and sentiment effects that are not isolated in this analysis. The potential for weekend news and events to impact Monday trading further impacts of results and attributing stock movements solely to NFL game outcomes.

Overall, while this research provides valuable insights into the impact of NFL team performance on sponsoring companies' stock prices, future studies should consider these limitations and explore additional dimensions to enhance the robustness and applicability of the findings. Future research could benefit from employing more sophisticated econometric techniques, such as fixed effects models or difference-in-differences approaches, to better isolate the causal impact of sports outcomes on stock prices and account for potential confounders.

Future Research

For future research, I can focus on examining how different investor demographics and advanced sentiment analysis tools influence the relationship between sports sponsorships and stock prices. By analysing demographic variables such as age, gender, investment experience, and geographic location, researchers I can understand patterns in how various groups of investors react to sports outcomes and sponsorship news. As retail investors might exhibit more emotional trading behaviours compared to institutional investors. Additionally, leveraging sophisticated sentiment analysis tools, and capturing sources of information like social media, news articles, and fan forums. These tools can capture the immediate mood swings and reactions to sports events, offering a more granular understanding of how investor sentiment drives stock price movements. This dual approach of demographic analysis and advanced sentiment tracking can lead to a comprehensive understanding of investor behaviour, and development of investment decisions and strategies

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Appendix

Table 9: Teams and sponsoring companies in NFL league between 2019-2023

Teams and Sponsors in NFL	
Teams	Sponsors
Dallas Cowboys	American Airlines (AAL), AT&T (T), Bank of America (BAC), Ford (F), Keurig Dr Pepper (KDP), Molson Coors Beverage Company (TAP), UnitedHealth Group (UNH)
New England Patriots	Bank of America (BAC), CVS Health (CVS), Dell Technologies (DELL), Procter & Gamble (PG), Moderna (MRNA)
Kansas City Chiefs	Anheuser-Busch InBev (BUD), Coca-Cola (KO), Evergy (EVRG), Ford (F), McDonald's (MCD)
Green Bay Packers	Associated Banc-Corp (ASB), Coca-Cola (KO), Molson Coors Beverage Company (TAP), U.S. Cellular (USM)
Seattle Seahawks	Amazon (AMZN), Boeing (BA), Dallas (DAL), Lumen Technologies (LUMN), Starbucks (SBUX)
San Francisco 49ers	BNY Mellon (BK), Intel (INTC), Levi Strauss & Co. (LEVI), U.S. Bancorp (USB), United Airlines (UAL)
Los Angeles Rams	Constellation Brands (STZ), Alphabet Inc. (GOOGL)

Table 10: Regression results of Wins and Losses on CAR for beverage industry sponsoring companies controlling for game importance

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	0.0084	0.0750	-0.0252	0.0319
Win	0.0643	0.0893	0.1562	0.0676
Loss	0.1485*	0.1294*	0.0745	0.0648
Win_Playoff	0.1126	0.1864	0.1327	0.0989
Loss_Playoff	0.2314*	0.4562**	0.4028**	0.3187**
Industry_BEV	-0.0796	-0.1091*	-0.0788	-0.3053**
R^2	0.0040	0.0090	0.0100	0.0015
Adj. R^2	0.0030	0.0070	0.0090	0.0013
F -statistic	0.4250	0.5170	3.2770*	5.8960**

Note. *p < .05. **p < .01. ***p < .001.

Table 11: Regression results of Wins and Losses on CAR for consumer goods industry sponsoring companies controlling for game importance

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	-0.0188	0.0360	-0.0534	-0.0015
Win	0.0438	0.0415	0.1014	0.0003
Loss	0.1479*	0.1318*	0.0967*	0.0679
Win_Playoff	0.0643	0.0768	0.1536	0.1032
Loss_Playoff	0.3145**	0.3516**	0.3245**	0.2471**
Industry_CG	0.1264*	0.3139*	0.1271*	0.1124*
R^2	0.0040	0.0090	0.0100	0.0015
Adj. R^2	0.0030	0.0070	0.0090	0.0013
F -statistic	0.4250	0.5170	3.2770*	5.8960**

Note. *p < .05. **p < .01. ***p < .001.

Table 12: Regression results of Wins and Losses on CAR for finance industry sponsoring companies controlling for game importance

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	0.0199	0.0746	-0.0180	0.0243
Win	0.0307	0.0273	0.0893	-0.0097
Loss	0.0843	0.1159	0.0645	0.0542
Win_Playoff	0.0456	0.0845	0.1027	0.0873
Loss_Playoff	0.1924*	0.2716*	0.2384*	0.1825*
Industry_FIN	-0.0461	-0.0461	-0.0477	-0.0102
R^2	0.0040	0.0090	0.0100	0.0015
Adj. R^2	0.0030	0.0070	0.0090	0.0013
F -statistic	0.4250	0.5170	3.2770*	5.8960**

Note. *p < .05. **p < .01. ***p < .001.

Table 13: Regression results of Wins and Losses on CAR for halthcare industry sponsoring companies controlling for game importance

Table 12: Regression Results for Healthcare Industry

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	0.0420	0.1365	0.0471	0.0996
Win	0.0014	-0.0324	0.0215	-0.0778
Loss	0.0518	0.0809	0.0874	0.1047
Win_Playoff	0.0732	0.0934	0.0952	0.0927
Loss_Playoff	0.1305*	0.2054*	0.2038*	0.1546
Industry_HC	-0.0533	0.0187	-0.0514	-0.1323
R^2	0.0040	0.0090	0.0100	0.0015
Adj. R^2	0.0030	0.0070	0.0090	0.0013
F -statistic	0.4250	0.5170	3.2770*	5.8960**

Note. *p < .05. **p < .01. ***p < .001.

Table 14: Regression results of Wins and Losses on CAR for technology industry sponsoring companies controlling for game importance

Coefficient	CAR[-2] (%)	CAR[-2,-1] (%)	CAR[0,1] (%)	CAR[0,2] (%)
const	-0.0245	0.0282	-0.0753	-0.0084
Win	0.0431	0.0404	0.1053	-0.0004
Loss	0.0863	0.1238*	0.0937	-0.1706
Win_Playoff	0.0932	0.1032	0.1204	0.0990
Loss_Playoff	0.2470**	0.286**	0.2732**	0.1730*
Industry_TECH	0.138*	0.336**	0.2057**	0.1793*
R^2	0.001	0.003	0.006	0.009
Adj. R^2	0.000	0.002	0.004	0.008
F -statistic	0.125	0.317	2.277	4.896*

Note. *p < .05. **p < .01. ***p < .001.

Table 15: Sponsoring companies stocks with their respective industries

Industry	Sponsoring Companies Stocks
BEV	Keurig Dr Pepper (KDP), Molson Coors Beverage Company (TAP), Anheuser-Busch In-Bev (BUD), The Coca-Cola Company (KO), Constellation Brands (STZ)
CG	Procter & Gamble (PG), McDonald's (MCD), Starbucks (SBUX), Levi Strauss & Co. (LEVI)
FIN	Bank of America (BAC), Associated Banc-Corp (ASB), The Bank of New York Mellon Corporation (BK), U.S. Bancorp (USB)
HC	UnitedHealth Group (UNH), CVS Health (CVS), Moderna (MRNA)
TECH	AT&T (T), Dell Technologies (DELL), United States Cellular Corporation (USM), Lumen Technologies (LUMN), Intel Corporation (INTC)