Super Stock Boost? How Super Bowl Advertisements Impact Firm Stock Returns

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The Super Bowl is the most-watched sporting television broadcast in the United States, with over 99 million viewers tuning into the 2022 event.[1] These viewers typically see between 80 and 100 advertisements (ads) during the game, and for companies, there is a huge cost to these ads–in 2022, a 30-second ad cost $6.5 million.[2] Despite the price, the Super Bowl presents a considerable opportunity for advertisers because there is a large audience that spans many target demographics. As modern media increasingly segments viewership to different shows, channels, and commercial-free streaming services, a one-night event with millions of people from all age ranges tuning in is rare and valuable to advertisers. A 2021 poll of a representative sample of the US population by The Marketing Arm found that 43% of viewers watched solely for the commercials,[3] indicating that viewers pay meaningful attention to the ads themselves, generating important publicity for companies. Prominent products have been launched in Super Bowl ads, such as Apple's Macintosh computer in 1984, and shocking creative strategies have been executed, such as Planters' 2020 commercial killing of famous character Mr. Peanuts in a pre-Super Bowl event and his subsequent rebirth during the day-of ad. Because of the known high cost and effort that companies put into Super Bowl ads, investors may view them as a relevant signal of investment potential.

Advertisers' Super Bowl ad goals have traditionally been focused on boosting sales or enhancing brand reputation, but Lehmann (2004) argues that in the 21st century, marketers are increasingly required to justify their strategies with the creation of firm value.[4] Classical economic theory says that consumers, in this case specifically referring to investors, are rational

[1] Julia Stoll, "Number of TV Viewers of Most Watched Sporting Events in the United States in 2022," Statista, January 10, 2023, https://www.statista.com/statistics/619023/number-tv-viewers-sporting-events-usa/.
[2] Rick Suter, "How Much Does a Super Bowl Commercial Cost? Here's the Average Breakdown Since 1967," USA Today, May 13, 2022, https://admeter.usatoday.com/2022/05/13/super-bowl-commercial-costs-since-1967/.
[3] J. G. Navarro, "Share of Viewers Who Watched the Super Bowl for Commercials in the United States as of August 2021, by Gender," Statista, January 5, 2023, https://www.statista.com/statistics/1290552/people-watching-super-bowl-for-ads/.
[4] Donald R. Lehmann, "Metrics for Making Marketing Matter," *Journal of Marketing* 68, no. 4 (2004): 74.

and consider all available information about a company when making decisions. Behavioral economics takes a different approach, suggesting that investors are subject to representative bias, where people rely on stereotypes to make faster, easier decisions.[5] For investors, this means using a firm's reputation, brand image, or quality of advertisements as a proxy for future growth. For example, an ad could aim to establish the company as a knowledgeable, experienced option in the market, leading investors to believe that the company has capable, seasoned leaders who will keep the company going in the right direction. Also, advertising can be seen as a financial investment that acts as a sales trigger; if an investor perceives a particular ad or campaign to be good quality (i.e., may encourage others to buy the product or service), then they will think that more sales will be triggered by that ad, making the company a good investment prospect.

As Kim, Freling, and Grisaffe (2013) point out, "not all Super Bowl commercials are created equal with respect to their influence on advertisers' market performance."[6] And, because of the high cost, if the Super Bowl ads are not used effectively, it is a wasted expenditure. I investigate two research questions: first, how do Super Bowl advertisements impact a company's stock returns in the short and long term? And second, what characteristics of ads are more impactful than others?

Literature Review

The literature investigating the relationship between running a Super Bowl ad and a firm's subsequent stock market returns has mixed conclusions. Raithel, Taylor, and Hock (2016) find no clear effect of Super Bowl ads on stock returns, only that such ads improve perceived

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[5] Charles Chang, Jiang Jing, and Kenneth A. Kim, "A Test of the Representativeness Bias Effect on Stock Prices: A Study of Super Bowl Commercial Likeability," *Economics Letters* 103, no. 1 (2009): 49.

[6] Jin-Woo Kim, Traci H. Freling, and Douglas B. Grisaffe, "The Secret Sauce for Super Bowl Advertising: What Makes Marketing Work in the World's Most Watched Event?," *Journal of Advertising Research* 53, no. 2 (2013): 145.

brand quality, defined as the quality of products or services associated with the brand and measured by YouGov's BrandIndex survey. This could theoretically increase stock returns in the long run, but the researchers saw no overall impact in the ten days after the event.[7] Conversely, Kim and Morris (2003) model the relationship between an advertisement and investors' individual decisions by saying that an investor's attitude toward an ad translates to their attitude toward the brand, which affects their share purchase intention. Looking at the 1998, 1999, and 2000 Super Bowls, they find a short-term, statistically significant, negative relationship between running a Super Bowl ad and stock market performance. Their intuition is that investors may view the Super Bowl ad as a waste of money and, therefore, a proxy for bad management decisions, leading to a negative firm value effect.[8]

Other studies find a positive relationship between Super Bowl ads and stock returns. Eastman, Iyer, and Wiggenhorn (2010) find that in the 2007 Super Bowl, there was a statistically significant, positive impact on stock returns in the two to four days after the event, with stock returns increasing by an average of 1.1-1.6% relative to projected returns during that window.[9] They also find that the ads that ran in the second quarter of the game had the largest impact on stock market returns in the following days.[10] Choong et al. (2003) find that on the first trading day after Super Bowl Sunday, the average firm that advertised experienced a statistically significant gain of 0.16% in excess returns relative to projected returns,[11] which is much less economically significant than the Eastman, Iyer, and Wiggenhorn results. It is important to note

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[7] Sascha Raithel, Charles R. Taylor, and Stefan J. Hock, "Are Super Bowl Ads a Super Waste of Money? Examining the Intermediary Roles of Customer-Based Brand Equity and Customer Equity Effects," *Journal of Business Research* 69, no. 9 (2016): 3793.

[8] Jooyoung Kim and Jon D. Morris, "The Effect of Advertising on the Market Value of Firms: Empirical Evidence from the Super Bowl Ads," *Journal of Targeting, Measurement and Analysis for Marketing* 12 (2003): PAGE.

[9] Jacqueline K. Eastman, Rajesh Iyer, and Joan M. Wiggenhorn, "The Short-Term Impact of Super Bowl Advertising on Stock Prices: An Exploratory Event Study," *Journal of Applied Business Research (JABR)* 26, no. 6 (2010): 76.

[10] Ibid, 79.

[11] Peggy Choong et al., "An Event Study Approach to Evaluating the Economic Returns of Advertising in the Super Bowl," *Academy of Marketing Studies Journal* 7, no. 1 (2003): 96.

that all of the literature discussed so far looked at the short-term impact on stock returns, that is, within 10 or fewer days from the event.

Additionally, some studies investigate particular characteristics of Super Bowl ads that may contribute to more significant and practically important changes in stock market returns. The 'likability' of the ad is one such explored characteristic. Likability is typically measured using the USA Today Ad Meter, an annual, live-response survey of Super Bowl ads by an unknown number of volunteers across the United States. After watching each ad, the respondents must rate how much they liked it on a scale from 1 to 10, and USA Today releases the average ratings for each ad in the days after the Super Bowl. Using this measure of likability, Kim and Morris (2003) and Eastman, Iyer, and Wiggenhorn (2010) find no relationship between ad likability and stock market returns.[12] However, Chang, Jiang, and Kim (2009) find that Ad Meter ranking is positively associated with stock returns in the month after the Super Bowl. Their results show that having a Super Bowl ad ranked in the top ten most-liked commercials is associated with an increase in excess stock returns of about 0.006 ($p < 0.05$) two days after the Super Bowl, but the ten least-liked ads are not associated with statistically significant differences in excess returns. They conclude that while being liked has firm value benefits, it is not detrimental to run a bad ad.[13] Tomkovick, Yelkur, and Christians (2001) investigate which characteristics and product categories increase the probability of having a likable ad. They find that the product categories receiving the highest likability rating were beverages,

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[12] Jooyoung Kim and Jon D. Morris, "The Effect of Advertising on the Market Value of Firms: Empirical Evidence from the Super Bowl Ads," *Journal of Targeting, Measurement and Analysis for Marketing* 12 (2003): 64; Jacqueline K. Eastman, Rajesh Iyer, and Joan M. Wiggenhorn, "The Short-Term Impact of Super Bowl Advertising on Stock Prices: An Exploratory Event Study," *Journal of Applied Business Research (JABR)* 26, no. 6 (2010): 80.
[13] Charles Chang, Jiang Jing, and Kenneth A. Kim, "A Test of the Representativeness Bias Effect on Stock Prices: A Study of Super Bowl Commercial Likeability," *Economics Letters* 103, no. 1 (2009): 50.

food/restaurants, and credit cards, and that ads with humor, longer length, and a celebrity were all positively and statistically significantly associated with ad likability.[14]

The change in perception of a brand by consumers may also determine the impact of a Super Bowl ad on that company's stock returns. While Raithel, Taylor, and Hock (2016) find no overall relationship between airing a Super Bowl ad and stock returns, they do find a statistically significant and economically important increase in stock returns specifically for advertisers whose ads enhanced consumers' perception of their brand.[15] Kim, Freling, and Eastman (2013) argue that good brand value and good reputation provide consumers with more confidence in purchasing decisions and better user satisfaction while also increasing brand loyalty and price insensitivity. Using the Data Envelopment Analysis estimates of advertising efficiency and productivity, they find that both advertising efficiency and brand value are positively associated with abnormal returns for companies running Super Bowl ads from 2005 to 2010.[16]

Several other advertisement characteristics may affect the impact of Super Bowl advertising on stock returns. Fehle, Tsypakov, and Zdorovtsov (2005) find that Super Bowl ads for firms whose names are easily identifiable from their commercials' contents, as opposed to commercials for brands that are under a parent company whose name is not included in the commercial, are associated with a 0.007 increase in stock returns ($p < 0.05$). They also find that the number of ads run by a company in a particular Super Bowl positively and significantly (where $p < 0.05$ and $\beta = 0.009$) impacts stock returns,[17] but Kim and Morris (2003) and

[14] Chuck Tomkovick, Rama Yelkur, and Lori Christians, "The USA's Biggest Marketing Event Keeps Getting Bigger: An In-Depth Look at Super Bowl Advertising in the 1990s," *Journal of Marketing Communications* 7, no. 2 (2001): 100.

[15] Sascha Raithel, Charles R. Taylor, and Stefan J. Hock, "Are Super Bowl Ads a Super Waste of Money? Examining the Intermediary Roles of Customer-Based Brand Equity and Customer Equity Effects," *Journal of Business Research* 69, no. 9 (2016): 3793.

[16] Jin-Woo Kim, Traci H. Freling, and Jacqueline K. Eastman, "Do Advertising Efficiency and Brand Reputation Matter: Evidence From Super Bowl Advertising," *Marketing Management Journal* 23, no. 1 (2013): 97.

[17] Frank Fehle, Sergey Tsyplakov, and Vladimir Zdorovtsov, "Can Companies Influence Investor Behaviour Through Advertising? Super Bowl Commercials and Stock Returns," *European Financial Management* 11, no. 5 (2005): 641.

Eastman, Iyer, and Wiggenhorn (2010) find that the number of ads has no significant impact.[18] Filbeck et al. (2009) find that if it's an advertiser's first time advertising at a major event, the firm's cumulative abnormal returns in the next five days increase by 2.56% ($p < 0.05$).[19] However, Fehle, Tsypakov, and Zdorovtsov (2005) find that first-time advertising has no significant impact.[20]

In the literature, there is not a clear positive or negative relationship between Super Bowl ads and stock market performance, and there are also differing results on if and what characteristics of Super Bowl ads drive this relationship. Most of the existing literature looks at Super Bowls in the 1990s or early 2000s and focuses on the short-term stock market effects. My research will update the literature with more recent data from the last ten years and, if there is an impact on stock market returns, also provide insight into if the impact persists into the month after the Super Bowl.

Methodology

First, I investigated if running a Super Bowl ad impacts a company's stock returns, and second, I investigated if particular Super Bowl ad characteristics affect that stock return impact. Data on Super Bowl ads were self-collected using recordings of each Super Bowl ad found on iSpot.tv from 2015 to 2022. To be included in the sample, the company must have run an ad during the Super Bowl game (pre and post-game commercials were not included), must have been publicly traded during the estimation window, and must be traded on a US stock exchange

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[18] Jooyoung Kim and Jon D. Morris, "The Effect of Advertising on the Market Value of Firms: Empirical Evidence from the Super Bowl Ads," *Journal of Targeting, Measurement and Analysis for Marketing* 12 (2003): 64; Jacqueline K. Eastman, Rajesh Iyer, and Joan M. Wiggenhorn, "The Short-Term Impact of Super Bowl Advertising on Stock Prices: An Exploratory Event Study," *Journal of Applied Business Research (JABR)* 26, no. 6 (2010): 80.
[19] Greg Filbeck et al., "Share Price Reactions to Advertising Announcements and Broadcast of Media Events," *Managerial and Decision Economics* 30, no. 4 (2009): 261.
[20] Frank Fehle, Sergey Tsyplakov, and Vladimir Zdorovtsov, "Can Companies Influence Investor Behaviour Through Advertising? Super Bowl Commercials and Stock Returns," *European Financial Management* 11, no. 5 (2005): 642.

(because of the constraints of the CRSP database). Using these constraints, I have a sample of 273 Super Bowl ads, which, when taking into account the companies that run multiple ads per Super Bowl, condense into 166 observations.

The data recorded for each ad were the length of the ad, the quarter of the football game that the ad aired in (second quarter and halftime were grouped together), the company industry, if the parent company tied to the stock is easily recognizable from the ad (e.g., if a Michelob Ultra beer ad did not mention that the parent company is Anheuser-Busch, then it was coded as 0), and various ad characteristics, such as the presence of a non-football celebrity, a football celebrity, an animated character, or an animal. The celebrity measures were coded as 1 if iSpot.tv listed that the ad was "featuring" someone. The animal and animated character variables were coded as 1 if the animal or character was the main focus of the ad, spoke, or if the main character of the ad directly interacted with them. I divided company industries into the following groups: Technology/Online Gambling/Gaming, Food/Beverage, Cars, Retail, Finance/Healthcare/Insurance, Internet/Entertainment, and the left-out dummy variable is everything else, which spans Hospitality/Transportation/Journalism. Retail was defined as a company that sells a physical good or product which is not covered by the other categories—so, for example, Procter and Gamble falls into this category.

Ad data quality was measured using two sources: the USA Today Ad Meter rankings and the Kellogg School of Management Super Bowl Ad Review Rankings. The USA Today Ad Meter Rankings are based on an unknown number of volunteers who rate each ad on a scale of 1-10 while watching the Super Bowl live. The Kellogg School of Management Super Bowl Ad Review Rankings are based on the faculty and student members of the Kellogg Marketing Club who assign each ad a letter grade based on the average answers to six questions:

1. Does the ad engage the audience?

2. Is the execution unique in delivery?

3. Is the appropriate category represented and a strong benefit featured?

4. Will the brand benefit and be remembered?

5. Are viewers' thoughts favorable?

6. Is the ad consistent with the brand's history and reputation?

By using both metrics, I hope to evaluate the ad's general likability with the USA Today Ad Meter and the ad's appeal to informed critics with the Kellogg rankings.

For parent companies that fielded several ads during a Super Bowl, such as Anheuser-Busch, which ran a whopping nine ads during the 2019 Super Bowl, individual ads were combined into one observation per company per year. The aggregated variables for ad length and discernable parent company name were calculated as the average value for all of a company's ads. For other binary ad characteristics, like the presence of a celebrity, the aggregated variable was coded as 1 if any of the company's ads had that characteristic. The quarter of the game that the ad aired in was taken as the quarter that the company's *first* ad aired in, and for the ad quality measures, I took the highest rank or grade out of all the company's ads, assuming that one highly ranked ad is more impactful than a few average quality ads. I included the number of ads for each company at each Super Bowl as well as the number of ads that those companies have run in the last five Super Bowls, attempting to account for audiences expecting certain companies to run ads based on previous years' experience and, therefore, the ads not being as impactful. To control for entertainment value and if people watched the game all the way through, I included a variable for each Super Bowl's final score point spread, which is calculated as the difference between the winning team's score and the losing team's score. To

control for company size, I included the company's market cap at the end of January, the month

before the Super Bowl, from companiesmarketcap.com. These independent variables and control

variables are all based on the variables included in the existing literature.

I used the Center for Research in Security Prices (CRSP) for daily stock return data, and

this database offers data only on stocks traded on a United States stock exchange. The goal of

this analysis was to compare the actual stock return for a company to what the stock return

would have been without the Super Bowl event occurring. The general dependent variable was

an abnormal return, calculated as the difference between the actual return and what the return

should have been, as described in Mackinlay (1997):

$$AR_{jt} = R_{jt} - NR_{jt},^{21}$$

where AR_{jt} is the abnormal stock return, R_{jt} is the actual stock return, and NR_{jt} is the normal or

projected stock return for company j on day t. I looked at both the abnormal returns on the

Monday following each Super Bowl, which is the first trading day after, and the Cumulative

Abnormal Returns (CAR) in the 30 trading days after the Super Bowl, calculated as the sum of

each individual day's abnormal return.

I calculated the predicted returns for the 30 trading days after the Super Bowl in two

different ways to account for the limitations of each model's projections. The first method is an

event study, specifically the market model, based on the financial CAPM model. This model is

used widely in advertising literature to determine the financial impact of a specific event. For

each company in the sample, I collected the daily stock return starting 276 days before the Super

Bowl and ending 46 days before, which results in an estimation window of 230 days. This is

based on the methodology of Kim, Freling, and Grisaffe (2013) and Kim, Freling, and Eastman

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[21] A. Craig MacKinlay, "Event Studies in Economics and Finance," *Journal of economic literature* 35, no. 1 (1997): 15.

(2015), though it is unclear why these studies chose an estimation window of that particular length and distance from the event. The estimation window was distanced from the Super Bowl to avoid the data being influenced by ads being released online before the Super Bowl. I also collected the S&P 500's daily return, as a proxy for daily market return, during that window. I then regressed the company's daily returns on the market's daily returns, then used the parameters determined by the regression to project what the company's "normal" stock returns should be for each of the 30 trading days after the Super Bowl. Because this method is based on CAPM, I refer to this as the CAPM method in the rest of this paper.

The second method used the three-factor Fama-French model from Fama and French (1992) where stock returns are predicted using this equation:

$$R = \alpha + \beta_1 MKT + \beta_2 SMB + \beta_3 HML + \epsilon,$$

Where R = the return on a firm's stock minus the return on Treasury bills,

MKT = the return of the market minus the return on Treasury bills,

SMB = the average return on the three small-stock portfolios minus the average return on the three large-stock portfolios, and

HML = the average return on the two value portfolios minus the average return on the two growth portfolios.[22] Data for these independent variables were collected from Kenneth French's website.[23] Similarly to the CAPM method, I used time series data to estimate this Fama-French model for each company in the sample for an estimation window of 230 days that ends 46 days before the Super Bowl. Then I used each company's coefficient estimate and post-Super Bowl

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[22] Eugene F. Fama and Kenneth R. French, "The cross‑section of expected stock returns," *The Journal of Finance* 47, no. 2 (1992): 430.
[23] Kenneth R. French, "Current Research Returns," Kenneth R. French - Data Library, Accessed April 3, 2023, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Fama-French factors to calculate the projected Monday abnormal returns and 30-day CARs for each firm.

For both methods, after calculating the projected returns, I calculated the abnormal returns by subtracting the projected returns from the actual returns. To investigate the relationship between specific ad characteristics and abnormal returns, I used these data to estimate the following model:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ ... \ + \beta_n x_x + \epsilon,$$

where Y is either the abnormal stock return for each company on the Monday after the Super Bowl or the Cumulative Abnormal Return in the following 30 trading days. All variables and descriptive statistics can be found in Appendices A, B, and C. Some notable descriptive statistics are that the average ad length was 42.22 seconds, 71% of ads had the parent company name easily identifiable from the ad, the average Kellogg Ranking was 2.69 (between a C and a B grade), and the average Ad Meter rank was 27.05. As shown in Appendix D, none of the independent variables are highly correlated, so there is no issue of multicollinearity.

Results

I ran a one-sample, two-tailed t-test for the Fama-French method Monday Abnormal Returns, Fama-French method CARs, CAPM method Monday Abnormal Returns, and CAPM method CARs where a is the mean of each variable. The H_0 is that the abnormal returns or the Cumulative Abnormal Returns $= 0$, which would indicate that there is no difference between the actual returns and the abnormal returns recorded, and, therefore, suggest that running a Super Bowl ad has no impact on a company's stock returns. The results in Table 1 show that only the test on the Fama-French method CAR calculation was statistically significant. The mean CAR

for this method was about -0.0483, meaning that running a Super Bowl ad statistically

significantly ($p < 0.01$) decreases a firm's stock returns by about 116% relative to the average of

the projected returns in the 30 trading days after the event (projected return averages are shown

in Table 2). This finding is practically important and highly statistically significant. However, it

should be noted that this result is not supported by the CAPM data.

Table 1. One-sample, two-tailed *t*-test results.

Independent Variable	Mean (μ)	Standard Deviation (σ)	P-value
Fama-French Monday AR	-0.0059	0.0476	0.1148
Fama-French 30-day CAR	-0.0483	0.0205	0.0001
CAPM Monday AR	-0.0009	0.0208	0.5627
CAPM 30-day CAR	-0.0076	0.1374	0.4753

Table 2. Average projected Monday and 30-day returns for both calculation methods.

Projection Calculation Method	Monday Projected Return Average	30-Day Cumulative Projected Return Average
Fama-French	0.0014	0.0417
CAPM	-0.0032	0.0004

To investigate if any specific ad characteristics affect a company's stock returns, I ran

four OLS regressions, one for each combination of projection method and dependent variable.

Overall, none of the ad characteristics were significant at the 5% level, but one, NFCeleb, which

represents if a company ran at least one ad with a non-football celebrity, had a negative and significant coefficient at the 10% level ($p = 0.079$) for the CAPM method with $Y = $ CAR. There was also some evidence that the entertainment value of the game and the size of a company measured by its market capitalization can impact the effectiveness of a Super Bowl ad, but it must be noted that three significant variables out of many could be due to chance.

Table 3. OLS Regression Results.

Dependent Var	Fama-French CAR	Fama-French MondayAR	CAPM CAR	CAPM MondayAR
AdLength	0.0002	0.0001	-0.0001	-0.0002
	[0.911]	[0.696]	[0.833]	[0.217]
NumberofAds	-0.0137	-0.0022	0.0011	-0.0018
	[0.494]	[0.636]	[0.933]	[0.387]
NFCeleb	-0.0301	-0.0033	-0.0409*	-0.0004
	[0.395]	[0.685]	[0.079]	[0.917]
FCeleb	-0.0051	0.0025	-0.0126	-0.0006
	[0.924]	[0.839]	[0.723]	[0.915]
Animal	0.0056	0.0003	0.004	0.0002
	[0.815]	[0.958]	[0.801]	[0.928]
AnimatedChara	0.0046	0.0026	0.019	0.0024
	[0.937]	[0.849]	[0.621]	[0.682]
EasyStockName	-0.0276	-0.0063	-0.0451	0.0013
	[0.587]	[0.590]	[0.181]	[0.794]
SecondorHQ	0.002	-0.0029	-0.0128	-0.0006
	[0.962]	[0.765]	[0.639]	[0.887]
ThirdQ	0.0084	0.0049	-0.0177	0.0007
	[0.890]	[0.730]	[0.657]	[0.906]
FourthQ	-0.0567	-0.0182	-0.0109	0.0011
	[0.318]	[0.166]	[0.769]	[0.852]
Kellogg	-0.007	-0.0021	-0.0019	0.0006
	[0.721]	[0.651]	[0.884]	[0.776]
AdMeterRank	0.0001	-0.00002	0.0003	0.00002
	[0.919]	[0.961]	[0.736]	[0.906]
TechGambGaming	-0.0316	-0.038	0.0693	-0.0078
	[0.750]	[0.100]	[0.290]	[0.436]
FoodBev	-0.0006	-0.0145	0.0007	-0.0134
	[0.995]	[0.530]	[0.991]	[0.186]
Cars	-0.0695	-0.0123	0.0107	-0.0074
	[0.494]	[0.601]	[0.874]	[0.472]
Retail	0.0316	-0.0155	0.0511	-0.0118
	[0.760]	[0.518]	[0.454]	[0.262]
FinHealthInsurance	0.0278	-0.0131	0.0243	-0.0128
	[0.787]	[0.582]	[0.719]	[0.217]
InternetEntertainment	0.0571	-0.0102	0.0797	-0.0101
	[0.577]	[0.667]	[0.239]	0.332
MarketCap	0.0001	0.00003**	0.00003	0.00001
	[0.114]	[0.044]	[0.596]	[0.323]
PointSpread	-0.0014	-0.0005	-0.0027	-0.0005*
	[0.631]	[0.422]	[0.155]	[0.068]
PastFiveYrs	0.0012	-0.00007	-0.0008	0.0002
	[0.760]	[0.941]	[0.751]	[0.702]
Constant	0.0125	0.0248	0.0437	0.0193
	[0.935]	[0.482]	[0.663]	[0.211]
R-squared	0.0761	0.079	0.0957	0.0766

P-values are in brackets. * = $p < 0.1$, ** = $p < 0.05$.

Table 4. Coefficient percentage changes from projected averages.

Dependent Var	Fama-French CAR	Fama-French MondayAR	CAPM CAR	CAPM MondayAR
AdLength	0.37%	8.85%	-31.20%	5.29%
	[0.911]	[0.696]	[0.833]	[0.217]
NumberofAds	-32.91%	-154.37%	262.23%	54.35%
	[0.494]	[0.636]	[0.933]	[0.387]
NFCeleb	-72.14%	-233.27%	-9645.07%*	11.38%
	[0.395]	[0.685]	[0.079]	[0.917]
FCeleb	-12.32%	178.16%	-2978.62%	17.99%
	[0.924]	[0.839]	[0.723]	[0.915]
Animal	13.41%	20.57%	935.95%	-6.72%
	[0.815]	[0.958]	[0.801]	[0.928]
AnimatedChara	11.10%	180.39%	4474.70%	-74.54%
	[0.937]	[0.849]	[0.621]	[0.682]
EasyStockName	-66.28%	-455.61%	-10636.52%	-41.55%
	[0.587]	[0.590]	[0.181]	[0.794]
SecondorHQ	4.75%	-204.16%	-3028.94%	18.40%
	[0.962]	[0.765]	[0.639]	[0.887]
ThirdQ	20.26%	342.85%	-4185.87%	-22.28%
	[0.890]	[0.730]	[0.657]	[0.906]
FourthQ	-136.16%	-1280.63%	-2573.61%	-32.81%
	[0.318]	[0.166]	[0.769]	[0.852]
Kellogg	-16.88%	-145.09%	-449.72%	-17.54%
	[0.721]	[0.651]	[0.884]	[0.776]
AdMeterRank	0.35%	-1.13%	73.55%	-0.52%
	[0.919]	[0.961]	[0.736]	[0.906]
TechGambGaming	-75.93%	-2673.72%	16346.32%	241.94%
	[0.750]	[0.100]	[0.290]	[0.436]
FoodBev	-1.35%	-1017.14%	175.87%	413.17%
	[0.995]	[0.530]	[0.991]	[0.186]
Cars	-166.73%	-862.70%	2516.58%	228.56%
	[0.494]	[0.601]	[0.874]	[0.472]
Retail	75.72%	-1088.22%	12062.47%	364.02%
	[0.760]	[0.518]	[0.454]	[0.262]
FinHealthInsurance	66.71%	-924.13%	5735.37%	396.88%
	[0.787]	[0.582]	[0.719]	[0.217]
InternetEntertainment	136.96%	-716.28%	5735.37%	311.22%
	[0.577]	[0.667]	[0.239]	[0.332]
MarketCap	0.28%	2.41%**	6.02%	-0.23%
	[0.114]	[0.044]	[0.596]	[0.323]
PointSpread	-3.30%	-37.47%	-625.68%	16.19%*
	[0.631]	[0.422]	[0.155]	[0.068]
PastFiveYrs	2.86%	-4.72%	-192.91%	-4.68%
	[0.760]	[0.941]	[0.751]	[0.702]
R-squared	0.0761	0.079	0.0957	0.0766

P-values are in brackets. $* = p < 0.1$, $** = p < 0.05$.

The regression results from all four regressions are shown in Table 3, and each estimated coefficient's percentage change from the average projected Monday return or 30-day cumulative return, a representation of practical importance, is shown in Table 4. For the CAPM method, the variable NFCeleb had a statistically significant impact on Cumulative Abnormal Returns at the 10% level, with $p = 0.079$. This result was also practically important, with the coefficient indicating that if a company runs at least one Super Bowl ad with a celebrity cast member, their Cumulative Abnormal Returns in the next 30 trading days will decrease by 0.041, on average. As shown in Table 4, this is about a 9645% decrease in cumulative stock returns compared to the projected average return, which is extremely practically important. This indicates that investors may see spending on a celebrity to be in a Super Bowl ad as a poor financial decision, and that they think the money would have gone to better use elsewhere. Another explanation could be that by including a celebrity figure in an ad and associating that celebrity with their brand, a company is alienating the viewers who dislike that celebrity. The PointSpread variable, which measured the spread of the game's final score, also had a statistically significant impact on the CAPM method MondayAR at the 10% level, indicating that a one-point increase in the point spread of a game, which means the game was slightly less exciting to watch, is associated with an average decrease of 0.0005 in Monday's abnormal stock returns ($p = 0.068$). This is a 16% decrease from the projected average. A one-point increase in the score difference between the winner and the loser resulting in a 16% decrease in stock returns the day after the Super Bowl seems practically important.

For the Fama-French method, the MarketCap control variable was statistically significant at the 5% level, showing that an increase in a company's market capitalization of one billion dollars is associated with an increase in Monday's abnormal returns of 0.00003 ($p = 0.044$). The

average MarketCap value is about $177 billion, so this coefficient indicates that if a firm's

market capitalization increases by 0.85%, then their next-day stock returns after running a Super

Bowl ad will increase by 2.4% relative to average projected returns, which seems practically

important. This result implies that the size of a company may impact how effective Super Bowl

ads are. The Fama-French method binary variable for if a company is in the technology,

gambling, or online gaming industry is just on the cusp of being statistically significant at the

10% level with $p = 0.10$. This variable's coefficient is -0.038, meaning that if a company is in

those industries, their abnormal return on the Monday after the Super Bowl will decrease by

about 2675% relative to companies in the hospitality, transportation, and journalism industries,

which is practically important but AND? just above statistical significance. This variable that is

on the cusp of significance, as well as the three variables that are statistically significant at the

5% or 10% levels, are only a few out of many, leaving open the possibility that their significance

is purely coincidental.

Conclusion

The results of this analysis indicate that there is no statistically significant impact of

running a Super Bowl ad on a company's stock returns the first Monday after the event, but there

is a statistically significant decrease in 30-day cumulative stock returns after the event of about

116%. For both projection calculation methods, there are no characteristics of specific

advertisements that statistically significantly impact a company's stock returns at the 5% level.

While having a non-football celebrity in an ad did decrease CAPM method 30-day cumulative

abnormal returns at the 10% level with practical importance, this result occurred in only one of

the data collection methods. Similarly, there is some evidence that a decrease in the

entertainment value of the game, measured by the final score's point spread, decreases the advertiser's average stock return on the Monday after the Super Bowl and that an increase in the size of a company, measured by its market cap, increases the firm's Monday stock return. However, these results are not confirmed by both data collection methods.

These results imply that if companies are utilizing TV advertising with the goal of increasing firm value, they should not waste their money on running an ad in the Super Bowl because it will either not have an impact or have a negative impact on their stock returns in the following month. If a company does run a Super Bowl ad and is focused on firm value creation, then perhaps they do not need to be concerned about if the public will like their ad, since the USA Today Ad Meter and Kellogg measures of ad likeability and quality had no impact on abnormal returns. Of course, there are other reasons that a company might run a Super Bowl ad that could outweigh the possible negative impact on stock returns, such as a boost in sales or launching a new product.

The biggest limitation of this analysis is a small R-squared value, ranging from 0.076 to 0.1095, indicating that there are other variables affecting CAR and Monday AR that are not included in this analysis. For example, there are probably a lot of additional marketing campaigns on different platforms being utilized to support a Super Bowl ad before, during, and after the event, such as Instagram ads and influencer marketing. Without these unknown variables, it is difficult to comment on the true relationship between Super Bowl ad characteristics and company stock returns.

Another large limitation is the small sample size. Because of data availability constraints, a company had to meet several criteria to be included in the sample, so these results are only pertinent to US-traded companies who were public by May of the year preceding their Super

Bowl ad. A small sample size may be causing a type II error, where the null hypothesis of no difference between the abnormal returns and the predicted returns is incorrectly not rejected. In future research, I would gain access to non-US market return data to expand the sample size, add more years to the data, and also attempt to calculate the abnormal returns based on industry-specific market return data to account for trends in specific industries.

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Appendix A. Descriptive Statistics of Ad Characteristics Independent Variables

Variable Name	Description	Mean	Median	Standard Deviation	Min.	Max.
AdLength	Length of each ad (seconds)	42.22	30.4	16.39	10	85
Numberof-Ads	Number of ads for that company in that Super Bowl	1.63	1	1.29	1	9
NFCeleb	Binary variable = 1 if there is a non-football celebrity featured	0.54	1	0.5	0	1
FCeleb	Binary variable = 1 if there is a football celebrity featured	0.12	0	0.33	0	1
Animal	Binary variable = 1 if there is an animal as the main character, interacting with the main character, or speaking	0.20	0	0.77	0	1
Animated Chara	Binary variable = 1 if there is an animated character as the main character, interacting with the main character, or speaking	0.12	0	0.33	0	1
EasyStock Name	Average of each company's ads, binary variable = 1 if parent company name is easily discernible from ad	0.71	1	0.43	0	1
Secondor HQ	Dummy variable = 1 if the company's first ad aired in the second quarter or during halftime	0.41	0	0.49	0	1
ThirdQ	Dummy variable = 1	0.12	0	0.33	0	1

	if the company's first ad aired in the third quarter					
FourthQ	Dummy variable = 1 if the company's first ad aired in the fourth quarter	0.16	0	0.37	0	1
Kellogg	Best Kellogg School of Management Super Bowl Ad Review Ranking received by an ad for each company (A = 4, B = 3, C = 2, D = 1, F = 0)	2.69	3	0.99	0	4
AdMeter Rank	Best USA Today AdMeter Ranking received by an ad for each company (1 = best)	27.05	24.5	18.01	1	66
TechGamb Gaming	Dummy variable = 1 if company industry is technology, online gambling, or gaming	0.21	0	0.41	0	1
FoodBev	Dummy variable = 1 if company industry is food or beverage	0.25	0	0.43	0	1
Cars	Dummy variable = 1 if company industry is cars	0.13	0	0.34	0	1
Retail	Dummy variable = 1 if company industry is retail goods	0.13	0	0.33	0	1
FinHealth Insurance	Dummy variable = 1 if company industry is finance, healthcare, or insurance	0.12	0	0.33	0	1
Internet	Dummy variable = 1	0.13	0	0.33	0	1

Entertainm-ent	if company industry is internet or entertainment					

Appendix B. Descriptive Statistics of Control Independent Variables

Variable Name	Description	Mean	Median	Standard Deviation	Min.	Max.
MarketCap	Company market cap at the end of January prior to the Super Bowl (billions)	177.22	72.8	301.77	0.0666	1770
PointSpread	Difference in points between the winner and loser of that year's Super Bowl	9.55	8	6.09	3	22
PastFiveYrs	Number of ads that company has run in the Super Bowl in the last five years	5.3	3	6.55	0	28

Appendix C. Descriptive Statistics of Dependent Variables.

Variable Name	Description	Mean	Median	Standard Deviation	Min.	Max.
MondayAR (Fama-French method))	Abnormal return on the Monday after the Super Bowl	-0.006	-0.0027	0.0476	-0.5649	0.0748
CAR (Fama-French method)	Cumulative abnormal return in the 30 days post Super Bowl	-0.048	-0.0272	0.2055	-1.945	0.3049
MondayAR (CAPM method)	Abnormal return on the Monday after the Super Bowl	-0.0009	-0.0009	0.0209	-0.077	0.0845
CAR (CAPM method)	Cumulative abnormal return in the 30 days post Super Bowl	-0.0076	-0.0009	0.1374	-0.4737	0.6749

Appendix D. Correlation between all dependent variables used in the CAPM method.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
(1) AdLength	1																				
(2) NumberofAds	-0.0496	1																			
(3) NFCeleb	0.0696	0.2235	1																		
(4) FCeleb	-0.058	0.0339	0.0103	1																	
(5) Animal	0.0615	0.1126	0.0277	-0.0502	1																
(6) AnimatedChara	-0.0034	0.3228	-0.0268	0.0336	0.2612	1															
(7) EasyStockName	0.1189	-0.3446	-0.0795	0.0093	-0.0216	-0.1011	1														
(8) SecondorHQ	0.0689	-0.0575	-0.0849	-0.0073	0.0646	0.0304	0.0417	1													
(9) ThirdQ	-0.0787	-0.1538	-0.101	0.0336	-0.0502	-0.0233	0.1592	-0.3083	1												
(10) FourthQ	0.015	-0.1793	0.1154	-0.0127	-0.0535	-0.1631	-0.0861	-0.3671	-0.1631	1											
(11) Kellogg	0.2428	0.2098	0.0529	-0.2025	0.0507	0.04	-0.1431	-0.0137	-0.1279	0.0049	1										
(12) AdMeterRank	-0.5068	-0.3546	-0.1643	0.0463	-0.2067	-0.0395	0.1762	-0.0745	0.0933	0.0312	-0.4474	1									
(13) TechGambGaming	0.1737	-0.186	-0.0227	0.0355	-0.0797	-0.1006	0.3077	-0.1603	0.1263	0.1724	-0.0037	0.0183	1								
(14) FoodBev	-0.0929	0.2841	0.0285	-0.0832	0.0109	0.0026	-0.4091	-0.051	-0.0403	-0.0632	0.1492	-0.0793	-0.296	1							
(15) InternetEntertainment	0.0092	0.0101	0.0269	0.1375	-0.0071	0.0262	0.2517	0.0147	0.1375	-0.0695	-0.0831	-0.0291	-0.1967	-0.218	1						
(16) Cars	0.1893	0.015	0.1142	0.0191	-0.0576	-0.0901	-0.1011	0.1079	-0.1447	0.0203	-0.0401	-0.2035	-0.202	-0.2239	-0.1487	1					
(17) Retail	-0.2003	-0.004	-0.0821	0.0818	-0.0071	0.1375	-0.2233	0.0515	-0.0295	-0.0204	0.0083	0.0569	-0.1967	-0.218	-0.1448	-0.1487	1				
(18) FinHealthInsurance	-0.0815	-0.1105	-0.0639	-0.137	0.1894	0.0904	0.202	0.1056	-0.0233	-0.113	-0.0346	0.2189	-0.1913	-0.212	-0.1409	-0.1447	-0.1409	1			
(19) MarketCap	0.4068	0.0009	0.0071	0.0298	-0.0444	-0.0236	0.128	-0.0481	0.0168	0.1862	0.2176	-0.356	0.4561	-0.0948	-0.0671	-0.1081	-0.0568	-0.1524	1		
(20) PointSpread	0.0629	-0.0012	0.0243	0.1099	-0.1306	0.0428	-0.0278	0.0257	0.0702	-0.0694	0.016	0.0035	0.0239	-0.008	-0.0075	0.0028	0.0821	-0.0456	-0.0134	1	
(21) PastFiveYrs	0.1768	0.6436	0.1533	0.0594	0.0965	0.1193	-0.382	0.0163	-0.1516	-0.1683	0.2307	-0.4114	-0.2544	0.4058	-0.0091	0.1057	-0.0873	-0.143	0.0627	0.0282	1