

DO ADVERTISING EFFICIENCY AND BRAND REPUTATION MATTER: EVIDENCE FROM SUPER BOWL ADVERTISING

JIN-WOO KIM, Georgia Southern University

TRACI H. FRELING, The University of Texas at Arlington

JACQUELINE K. EASTMAN, Georgia Southern University

This study investigates the relationship between firm capabilities and the market valuation of Super Bowl advertisers. First, we track the stock market reactions to Super Bowl advertising. Event study results show that Super Bowl advertising from 2005 to 2010 is positively related to abnormal stock returns for advertisers. Then, we examine the impact of advertising efficiency and brand value on the financial rewards of this media-placement strategy using multivariate regression. Cross-sectional regression analyses indicate that advertising efficiency is positively associated with cumulative abnormal stock returns of Super Bowl advertisers. These findings suggest that efficient conversion of advertising inputs generates positive abnormal stock returns. Further, brand value has a positive impact on Super Bowl advertisers' financial performance, indicating that investors, as predicted, appear to be sensitive to brand value when they make investment decisions immediately following Super Bowl events.

INTRODUCTION

Over the past decade, the Super Bowl has garnered an average television rating of 41.66, and has been the top network primetime telecast each year (Nielsen, 2009). With live viewership dwindling and dispersed across an increasing number of available media options, and diminishing network television ratings, the Super Bowl stands out as a premier sports event that consistently delivers large audiences.

Super Bowl advertising yields many favorable outcomes. The Super Bowl is widely regarded as an effective vehicle for launching new products (Yelkur, Tomkovick & Traczyk, 2004), and for allowing lesser known companies to create brand awareness and break into national markets. The premise is that advertising during the Super Bowl places the brand in front of a huge audience and might enable a company to rapidly impact a market before competitors can combat the effect (Dotterweich & Collins, 2005). In 2013, advertisements appearing in the Super Bowl were seen in over 200 countries,

and watched by 108.4 million U.S. viewers (Jannarone & Smith, 2013).

Advertisings during the Super Bowl generate higher interest (Yelkur et al., 2004), recall (Bloom, 1998; Freeman, 1999), intent to purchase (Russell, Fortunato, Valencia & Burns, 2003), sales (Meenaghan, 1991), revenues (McCarthy, 2001), and market share (Bloom, 1998). Additionally, most researchers and practitioners agree that the Super Bowl is the most visible advertising event of the year (Jin, 2003), and by association, companies that advertise during the game might experience increased market prestige and enhance their perceived importance and status among consumers (Beasley, Shank, & Ball, 1998).

Motivated by the benefits of Super Bowl advertising, researchers have examined consumer responses to Super Bowl advertising at the individual level, and several event studies have also examined the impact of Super Bowl advertising on stock market activity in recent years. Kim and Morris (2003) report significant differences in the stock price performance of companies advertising during the Super Bowl relative to the prior evaluation periods. Similarly, Fehle, Tsyplakov and Zdorovtsov (2005) observe sig-

nificantly positive abnormal returns for firms that advertised during the Super Bowl and were readily identifiable in the ads they aired. Chang, Jiang and Kim (2009) maintain that firms airing well-liked Super Bowl ads commanded higher stock market prices in the days following the game. Each of these three studies uses *USA Today's* Ad Meter ratings as a proxy for consumer attitudes toward Super Bowl ads in an effort to determine if ad likeability influences investor trading activity. Eastman, Iyer and Wiggenhorn (2010) report that Super Bowl advertisers enjoy financial reward after Super Bowl event and recommend advertisers place advertising in the second quarter. Kim, Freling and Grisaffe (2013) explore the financial impact of specific product benefits, ad appeals, and ad characters featured in Super Bowl ads on subsequent trading activity.

Despite advances in knowledge about Super Bowl effectiveness, little attention has been paid to examine how Super Bowl advertising expense and efficiency relate to financial performance. The purpose of this study is to investigate the relationship between Super Bowl advertising efficiency and financial outcomes using event study. Prior research on Super Bowl advertising's financial performance has focused on firm capacity (Fehle et al. 2005), customers' evaluation ratings, and the impact of specific advertising characteristics' on stock market reactions (Kim et al., 2013), but the current study seeks to explain how Super Bowl advertising translates into financial rewards for the company sponsoring that advertising.

Toward that end, this study first discusses how investors view Super Bowl advertising and then develops two hypotheses relating advertising efficiency and brand value to advertisers' financial performance. An empirical investigation then uncovers the relationship between advertising efficiency and financial performance for Super Bowl advertisers. Following the presentation of key results, the manuscript concludes with a discussion of research findings and implications for advertisers considering Super Bowl advertising.

CONCEPTUAL FRAMEWORK

Following a call for more financial accountability in marketing (Rust, Ambler, Carpenter, Kumar & Srivastava, 2004), research studies explore the financial impact of marketing activities including advertising, customer satisfaction, new product development, corporate social responsibility, and brand equity (Srinivasan & Hanssens, 2009; Srivastava, Shervani & Fahey, 1998). Prior research suggests that advertising is positively related to firms' financial performance (e.g., sales, firm value, systematic risk, and liquidity).

Mounting evidence shows that advertising influences investor decision-making (Karrh, 2004), and impacts the financial performance of firms (Luo & Donthu, 2001; Luo & Donthu, 2005; McAlister, Srinivasan & Kim, 2007; Grullon, Kanatas & Weston, 2004). Luo & Donthu (2004, 2006) empirically demonstrate that efficiency in marketing can improve a firm's financial rewards. Based on these research findings, authors systematically study two major factors that have been shown to impact how investors interpret and evaluate Super Bowl ads: *advertising efficiency*, and *brand value*.

Advertising Efficiency

Just as companies have realized that investors like consumers are a target audience of such high-profile advertising (Kim & Morris, 2003; Kim et al., 2013), researchers also affirm that advertising can enhance a firm's sales, stock trading volume, and stock market valuation (Luo & Donthu, 2005; McAlister et al., 2007; Bobinski & Ramirez 1994). Luo & Donthu (2001) adopt advertising efficiency as a key variable in verifying advertising accountability. General definition of efficiency is the conversion ratio of organizational resource inputs to favorable outcomes (Luo & Donthu, 2006).

Luo and Donthu (2001) define advertising efficiency as the ratio of outputs (e.g. sales) to inputs (e.g. advertising budget) based on engineering productivity. They evaluate advertising

efficiency and propose ways to boost advertising efficiency by applying the DEA (Data Envelopment Analysis) method. They compute the relative efficiency of 100 leading national advertisers in Advertising Age by considering advertising expenses of print, broadcast, and outdoor advertising as advertising inputs and sales and operating income as advertising outputs.

Luo and Donthu (2005) compare DEA and Stochastic Frontier (SF) methods in assessing advertising media spending inefficiencies. Their results provide valuable information in assessing the adequacy of media spending, and show that 20% of advertising spending is inefficient in generating sales revenue. Luo and Donthu (2006) also empirically examine whether marketing expenditure has a positive impact on shareholder value. This study suggests that “more is better” adage cannot be applied to marketing expenditure practices.

H₁: Advertising efficiency is positively associated with Super Bowl advertisers’ financial performance.

Brand Value

Hoeffler and Keller (2003) list how strong brand influences consumer evaluations and behavior. Brand strength positively affects not only consumer behavior (e.g. attention and learning, interpretation and evaluation, and choice), but also specific marketing activities such as product extension and brand extension. Researchers agree that brand equity and reputation provides value to customers by enhancing information interpretation and processing, confidence in the purchase decision, and user satisfaction (Aaker, 1996; Mizik & Jacobson, 2008). Brand equity may also benefit the firms in terms of marketing efficiency and effectiveness, brand loyalty, price insensitivity, brand extendibility, and competitive advantage. Prior research shows that the valuation of consumer goods companies and high-technology firms is largely based on brand equity (Simon & Sullivan, 1993). Madden, Fehle and Fournier (2006) demonstrate that strong brands not only deliver greater stock returns compared to the bench-

mark portfolio, but do so with lower risks using well-known commercial brand equity metric, Interbrand. Lane and Jacobson (1995) show that brand attitude and brand name familiarity positively influence the stock market returns associated with brand extension announcements.

Sports marketing literature provides more detailed justification on how brand value may lead positive response in the stock market. Johar and Pham (1999) maintain that consumers adopt two major heuristics, brand-event relatedness and market prominence, when identifying sports related event sponsor. Brand-event relatedness heuristics approach facilitates consumers to identify the sponsor of an event based on association between the event and potential sponsors. Consumer’s identification of sponsor is reliant on larger similarity between an event and a sponsor.

Market prominence also influences consumer’s constructive identification of event sponsors. Pham and Johar (2001) suggest that the more prominent in the market place, the more likely to be identified. According to this heuristics, consumers tend to identified prominent companies and brands (e.g. Nike) as event sponsors rather than less prominent companies and brands. Indicators of perceived market prominence may include brand awareness, market share, and visibility. In this sense, brand value increases brand awareness and visibility, eventually, promoting consumers and investors to adopt this market prominence during their constructive identification process.

Based on these research findings, the authors expect that the brand value, accruing to Super Bowl advertisers, is associated with positive financial performance such as return and risks. Prominent brand names with greater brand equity should create high performance standards and unique images through Super Bowl advertising that cannot be imitated by competitors. In contrast, less prominent companies with lesser brand equity, especially like Internet ventures, have not experienced great success in parlaying Super Bowl advertising into greater brand

awareness (Hastings, 2000). Brand value, a market-based asset should influence consumers' reactions to Super Bowl advertising, eventually improving financial performance. The benefits should have a positive impact on a firm's financial performance, since the brand is one of a firm's intangible assets. A cornucopia of research has explored the impact of a strong favorable brand on firm performance.

H_2 : Brand value is positively related to the Super Bowl advertiser's financial performance.

METHODOLOGY AND DATA

Event Study

The study assesses the financial reward of Super Bowl advertising using an event study methodology. While event study has been used in finance and accounting for many years to determine the efficiency of information incorporation in the market and to examine the impact of specific events on the wealth of a firm's securing holders (Binder, 1998), marketing researchers have only recently adopted this method. In marketing, researchers have employed event study to assess the financial consequences of relationship structures (Houston & Johnson, 2000), celebrity endorsement contracts (Agrawal & Kamakura, 1995), brand extension announcements (Lane & Jacobson, 1995), product quality (Tellis & Johnson, 2007), appearance of stars in movies (Elberse, 2007), product placement (Wiles & Danielova 2009), marketing alliances (Swaminathan & Moorman, 2009), and deceptive marketing (Tipton, Bharadwaj, & Robertson, 2009).

The current event study follows widely accepted theory and guidelines used by the authors cited above as well as other event methodologists (e.g., Brown & Warner, 1985). This method is predicated upon the assumption that stock market changes reflect any new information made available to investors. That is, consistent with the efficient market hypothesis, as stock prices reflect all public information about the firm, stock prices should only change in response to unanticipated information (Fama,

Fisher, Jensen & Roll, 1969). If a Super Bowl ad is favorably received by consumers and investors, the advertiser's stock price should rise in response to this new information. The corresponding advertiser's abnormal stock returns (i.e., the difference between the expected returns based on general market movement and the actual returns) are measured to derive an unbiased estimate of the economic worth of such events (Brown & Warner, 1985).

This study uses the CRSP Equally Weighted Return as the return on market index in place of R_{mt} because it reflects the performance of a weighted average portfolio of all stocks. The unexpected shareholder return, abnormal returns (AR), in event study can be calculated as follows (MacKinlay 1997; Srinivasan & Hanssens 2009):

$$AR_{jt} = R_{jt} - (a_j + b_j R_{mt})$$

where $(a_j + b_j R_{mt})$ is the predicted stock return on day t based on the company j 's regression equation and R_{jt} is the actual stock return of company j day t . Using this equation, the cumulative abnormal returns for the event period can be calculated by adding all the abnormal returns in the event period as follows:

$$CAR(T_1, T_i) = \sum_{t=T_1}^{T_i} AR_t$$

The analysis in this application consists of three steps. First, DEA estimates advertising productivity for all Super Bowl advertising sponsoring companies based on each advertiser's combination of inputs and outputs compared to those of others in the sample. To get the overall advertising efficiency of each company, six years of data are combined as one dataset. Thus, the same advertiser from 2005 to 2010 forms one Decision Making Unit (DMU). Next, an event study assesses Super Bowl advertisers' financial performance in terms of stock market return. Finally, regression tests the main effects of advertising efficiency and brand value on each firm's financial performance.

TABLE 1:
Variable Operationalization

Variable	Operationalization
Standardized Cumulative Abnormal Returns (SCARs)	Cumulative abnormal returns (CARs) divided by the standard deviation of the cumulative abnormal returns adjusted for forecast error (from Event study)
Advertising Efficiency	A single composite score under consideration of multiple advertising inputs and multiple outputs (from DEA)
Brand value	Binary variable (1 = Global 1000 brand, 0 = Non) http://www.interbrand.com/en/best-global-brands-2010.aspx
Firm Controls	
DotCom	Binary variable (1 = Yes, 0 = No); e.g., Cars.com
Service	Binary variable (1 = Yes, 0 = No); e.g., FedEx
US based	Binary variable (1 = Yes, 0 = No); e.g., BudWeiser
Ad Control	
Ad Meter	USToday Ad meter

Data and Operationalization

Table 1 displays variable operationalization and data source. The *advertising efficiency score* for each Super Bowl advertiser in the dataset serves as a primary predictor variable. DEA (Data Envelopment Analysis) estimates advertising productivity for all Super Bowl advertising sponsoring companies based on each advertiser's combination of inputs and outputs compared to those of others in the sample. Ad Meter ratings and Nielsen viewership scores are the two advertising outputs. Ad Meter scores are collected from *USA Today's* website and Nielsen viewership data is gathered from Nielsenmedia.com. Advertising cost, frequency, total ad length and number of brands promoted in a single year of Super Bowl advertising are the four advertising inputs under consideration for each firm.

Brand value is also a predictor variable in the form of two categorical values. Interbrand Global 100 Brand List is the data source for this variable. Ad Meter of Super Bowl commercials is a control variable in the current study. The nature of the goods marketed by firms advertis-

ing in the Super Bowl is either a service (e.g., CareerBuilder) or a product (e.g., Gatorade). In the same manner, each sponsoring firm is categorized as a dotcom or brick-and-mortar organization.

In this manner, each sponsoring firm is categorized as a dotcom or brick-and-mortar organization. "The consumer-based equity of a brand is significantly associated with the images of the country of origin of the brand (Pappu, Quester and Cooksey, 2007). Based on this finding, 'US-based' is considered as a control variable.

The current study investigates abnormal stock returns of Super Bowl advertisers by predicting expected shareholder returns using a market model. After obtaining the cumulative stock returns from the event study, multivariate regression estimates the CAARs (Cumulative Average Abnormal Returns) using independent and control variables. The daily stock price and market indices are obtained from the Wharton Research Data Service (WRDS) at the University of Pennsylvania. The data source is the Center for Research in Security Price (CRSP) at the University of Chicago. In particular, Stand-

ardized Cumulative Abnormal Returns (SCARs) is dependent variable, which is Cumulative Abnormal Returns (CARs) divided by the standard deviation of the cumulative abnormal returns adjusted for forecast error.

EMPIRICAL RESULTS

Event Study Result

This event study examines Super Bowl advertising from 2005 to 2010, calculating expected shareholder returns over an estimation window of 230 trading days that ends 46 days prior to the event. The advertisements aired during the Super Bowl can be viewed on Internet web sites such as YouTube one month before the event. Several Super Bowl advertisers intentionally reveal their ads prior to the event (Nail, 2007) (e.g., see Play-Action advertisers, Pregame

Warmup Brands, and The Kickoff Squad) in an effort to generate media buzz, facilitate audience discourse, and encourage positive word-of-mouth (McAllister, 1999). According to the official schedule of the National Football League (NFL), the regular football season begins in the first week of September and ends in the first week of January. After the regular season, post-game and division championships follow for four weeks, leading up to the Super Bowl on the first Sunday of February. Given that media coverage of Super Bowl advertising winners and losers lasts for several weeks after the game, each advertiser’s market valuation is observed 30 days prior to the Super Bowl and 30 days after the game.

Table 2 displays the cumulative average abnormal returns (CAARs) and test statistics in various event windows. Based on portfolio test sta-

**TABLE 2:
CAARs for Super Bowl Advertisers**

Benchmark Model Days	Mean Cumulative Abnormal Return	Precision Weighted CAAR	Positive: Negative	Patell Z	Portfolio Time-Series (CDA) t	Generalized Sign Z
Market Model						
1, 1	0.30%	0.40%	56%:44%	3.414***	1.226	1.788*
0, 1	0.08%	0.22%	54%:46%	1.354	0.221	1.444
1, 5	0.56%	0.63%	54%:46%	2.420*	1.005	1.273
Market Adjusted Return Model						
1, 1	0.33%	0.51%	55%:45%	3.222**	1.251	1.785*
0, 1	0.07%	0.26%	55%:45%	1.161	0.174	1.785*
1, 5	0.64%	0.88%	54%:46%	2.464*	1.079	1.442
1, 3	0.03%	0.28%	52%:48%	1.031	0.062	1.098
Comparison-Period Mean						
1, 5	1.52%	1.13%	63%:37%	2.693**	1.134	3.298***
1, 3	0.52%	0.48%	57%:43%	1.476	0.503	1.745*
Unadjusted Raw Returns						
1, 5	1.71%	1.41%	68%:32%	3.378***	1.28	4.209***
1, 3	0.64%	0.65%	64%:36%	2.006*	0.616	3.351***

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

TABLE 3:
Cross Sectional Regression Results

	Model 1			Model 2		
	Beta	t-value	sig.	Beta	t-value	sig.
(Constant)	0.404	2.577	0.011**	-1.469	-1.676	0.096*
Firm Controls						
Service	-0.083	-0.536	0.593	0.017	0.109	0.913
DotCom	0.053	0.272	0.786	0.042	0.217	0.829
US based	-0.352	-1.976	0.051*	-0.319	-1.809	0.073
Ad Controls						
Ad meter	0.012	2.134	0.035**	0.003	0.592	0.555
Advertising Efficiency (H ₁)				1.917	1.959	0.053*
Brand value (H ₂)				0.426	2.738	0.007***
N		116			116	
R ²		0.081			0.170	
Adjusted R ²		0.048			0.125	
F-Value		2.455			3.758	
F-Probability		0.050			0.002	

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

tistics, CAARs are presented for windows of [0,1], [0,0], [1,3], and [1,5], paying special attention to the [1,1] window. During this single day period, Super Bowl advertising results in an average 0.3% increase in advertisers' stock prices for one day right after the Super Bowl based on 'Market Model'. Other benchmark methods' results show that Super Bowl advertisers witnessed an increase of 0.33% returns from the stock market. The portfolio test statistics using Patell Z ($Z = 3.414$, $p < 0.001$) and generalized statistics ($Z = 1.788$, $p < 0.10$) further support the robustness of Super Bowl advertisers' positive returns. In the discussion of results, all tests are based on two-tailed statistics.

Hypotheses Testing

Regression modeling tests the impact of the advertising efficiency score predictors and other control variables on abnormal returns of Super Bowl advertisers for the [0,1] (summarized in Table 3). In the regression models, standard-

ized abnormal returns are used as the dependent variable in order to mitigate heteroscedascity (Wiles & Danielova, 2009).

Model 1, not considering the two independent variables, is significant ($F_{(3,115)} = 2.455$; $R^2 = 0.081$, $Adjusted R^2 = 0.048$). Among three firm control variables, only 'US based' is found to be significant. Ad control variables included to test the impacts of ad meter are positively related to advertisers' valuation. Result shows that Super Bowl advertisers' financial performance is positively associated with ad meter ($b = 0.012$, $p = 0.035$) and negatively related to US based ($b = -0.352$, $p = 0.051$).

The introduction of the advertising efficiency score and brand value results in a significant Model 2 ($F_{(5,116)} = 3.758$, $p = 0.002$; $R^2 = 0.170$, $Adjusted R^2 = 0.125$). Model 2 shows that advertising efficiency score and brand value have a significant positive impact on Super Bowl advertisers' financial performance ($b = 1.917$, $p = 0.053$). Hypothesis 1 predicts that

high Super Bowl advertising efficiency level is associated with higher financial performance. The result supports Hypothesis 1, suggesting that a Super Bowl advertiser should experience higher financial rewards in the stock market if he is able to efficiently transfer the firm's advertising inputs to favorable advertising outputs.

Consistent with Hypothesis 2, the main effect of brand value is positively associated with Super Bowl advertisers' abnormal return ($b = .426, p < 0.007$). Investors, as predicted, appear to be sensitive to brand value when they make investment decisions immediately following Super Bowl events. As a mass communication tool, Super Bowl advertising is more effective and appropriate for advertisers who have a strong brand value and have accrued substantial customer-based brand equity.

CONCLUSION

Findings

The Super Bowl's audience reach and audience demographics, cultural visibility, social viewing context, viewer attentiveness, and potential impact on brand performance motivates many advertisers to consider it as an advertising vehicle. However, exposure frequency, and image risks are a deterrent to this ad placement strategy.

Prior research on Super Bowl advertising suggests that advertising contextual variables such as ad frequency and *USA Today's* Ad Meter ratings influence investor responses (Fehle et al., 2005). However, several recent studies advocate using an efficiency-based approach (Luo and Donthu, 2001; Luo & Donthu 2006), and warn against expending large amounts into Super Bowl advertising indiscriminately (Kim et al., 2013). Results coalesce with this study, and suggest focusing "doing things in the right manner" rather than "doing the right things."

The current study examines how the stock market reacts to advertising efficiency in the context of Super Bowl advertising. The study estimates the abnormal stock returns of Super

Bowl advertisers using an event study method. Results demonstrate that Super Bowl advertising from 2005 to 2010 is positively related to sponsoring firms' abnormal stock returns, suggesting that advertising in the world's most expensive vehicle is worth the expense. Next, DEA application helps to determine the capability of Super Bowl advertisers to convert advertising inputs into desirable outputs.

Cross-sectional regression analysis tests the impact of advertising efficiency and brand value on Super Bowl advertisers' abnormal returns. Results show that advertising efficiency is positively associated with abnormal return, indicating that efficient conversion of advertising inputs to outputs positively influences investors. Along with advertising efficiency, brand value also has a positive impact on stock return for Super Bowl advertisers.

Contributions and Implications

Theoretically, this study extends the advertising-finance interface by explaining the relationship between Super Bowl advertisers' performance and advertising efficiency. While prior research has explored annual sales, profits, Tobin's Q, and analyst recommendation as indicators of firms' financial performance of advertising (Luo & Donthu, 2006; Wang 2010), the current study is the first to link advertising efficiency to short term abnormal stock returns. Specifically, this study shows that the stock market reacts positively to high advertising efficiency of Super Bowl advertisers.

From a practitioner's perspective, advertisers should also think twice about allocating so much money for a single advertising exposure. Research suggests that a minimum of three ad exposures are required to exert a significant impact on purchase intentions (Tellis, 1997). In support of this assertion, recent survey results suggest that only 7.1% of consumers believe that a Super Bowl ad has influenced them to buy products from the advertisers (National Retail Federation, 2010). Simply making a large advertising expenditure cannot guarantee

a big financial reward. Therefore, advertisers must consider how to efficiently convert advertising effort and resources to desirable advertising outcome. Inefficiency in generating positive advertising outcomes may discourage most advertisers from being rewarded by the stock market

From an investor's perspective, an individual's attempt to obtain accurate and appropriate information when making investment decisions, eventually results in a sound investment. However, stock market movement does not always explain the dynamics of shareholder valuations. Hence, considering marketing and financial information simultaneously, investors can assort when they make investment decisions. Investors' decision making should be based not only on prior stock market performance but also on a company's advertising efficiency and brand equity. In this sense, information about the marketing-finance interface offers new investment criteria, leading to more deliberate investment.

Future Research

Today, people communicate with each other through social media website such as Facebook and Twitter. Mobile devices are main communication tools to share their opinion with others. Ironically, power outage during the Super Bowl 2013 facilitated social conversation about commercial and the event (Shaughnessy, 2013). Therefore, an additional variable to consider in future studies is the extent of social media tie-in and type. Social media response can be used to build more dynamic model about Super Bowl advertising and its impacts. For example, if social media is used to have the public select a Super Bowl commercial to air does it have a different effect than not using such a tactic? Also, the number of days prior to the Super Bowl in which social media integration begins could be measured. The point is that Super Bowl advertising is moving further away from being a stand-alone media buy and is part of a more expansive marketing platform than ever.

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