Intangible Resource Values and Tobin's Q: Evidence from the Super Bowl

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This paper investigates the issue of intangible resource valuation, specifically quantifying brand equity, through the use of Tobin's "q ratio". We performed a pair-wise comparison of the q ratios for Super Bowl advertisers versus non-advertisers from 1989 to 2016 (total of 178 firms), controlling for the Standard Industrial Classification code and relative size of the firm. The findings suggest lower q ratios, i.e. lower brand equity, for those firms who chose to participate. A more detailed analysis by SIC code, along with the explanatory power of marketing theory, however, may reveal a more nuanced story to this paradox.

Keywords:Brand Equity, Super Bowl, Tobin's Q, Q ratio, Intangible Resource, Intangible Value, Comparative Analysis

INTRODUCTION

"Our most important and lasting asset is our marque. In the long-run, machinery will depreciate and be scraped, manufacturing plants will be shuttered and torn down, and employees will retire and die. Even the cars themselves will rust and eventually find their way to the salvage yard. But the marque will live on forever!"[1]

Marketing costs in general, and brand management costs in particular, represent an ever increasing proportion of the overall cost structure and economic value calculus in many industries. Developing accounting measures that can be used to effectively evaluate the efficiency and efficacy of marketing expenses is of top importance. When compared to heaps of articles in manufacturing cost management, marketing cost management has received relatively little attention in the broader accounting literature. A great deal of potential value is left on the table with regards to what existing accounting systems offer marketing decision makers.

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The gulf between management accounting and marketing management is certainly not new (e.g. see Foster & Gupta 1994), and there are several plausible explanations for why this has proven a difficult chasm to bridge:

1. Marketing management and management accounting have significant differences in focus: marketing emphasizing sales revenue and management accounting emphasizing cost of goods sold.
2. Marketing has only recently started to focus more on profitability, thus bringing cost into the equation.
3. Marketing costs differ fundamentally from manufacturing costs, where management accounting has its roots. Manufacturing costs are committed in infrastructure and in product design. In contrast, marketing costs are typically much more flexible and discretionary.
4. For marketing costs, there is often a significant time lag between the incurrence of the expense and the receipt of benefits. This is particularly true with regards to advertising expenses and brand equity.
5. Most marketing assets such as brand equity are intangible and developing useful management accounting models that reflect changes to brand value is important. And that would be a major departure from the influence of financial accounting.

Generally Accepted Accounting Principles (GAAP) severely limit the ability of management to record intangible assets. Under U.S. GAAP, most internally generated intangible assets are treated as period expenses, hence ignoring the long-term revenue generation of such resources. While these limits have a firm foundation in the accounting principle of conservatism, motivated by the economic uncertainty associated with the future revenue streams associated with such resources as well as the information asymmetry surrounding managerial incentive to over-estimate such assets, they ignore the increasing risk of not reporting such resources. An article in *Fortune* magazine (Stewart 2001), colorfully described the situation of existing accounting systems ignoring self-generated intangible assets to the octogenarian family butler, who "although faithful… has lost track of some valuable jewels, paid no attention to the furnace and the water heater, and put the place at risk."

Despite these known uncertainties, the accounting community has become much more aware of the value of intangible assets and the need to report these values. As an example, many European firms have already started voluntary disclosure of intangibles such as intellectual capital statements. The International Accounting Standards Board has attempted to address this shortcoming with IAS No. 38, Intangible Assets (International Accounting Standards Board, 1998).

In 2002 the FASB added the project for *Disclosure of Information about Intangible Assets not Recognized in Financial Statements* to its technical agenda with a stated goal of taking a step towards the eventual recognition of intangible assets (FASB, 2001a & FASB 2001b). This standard has continued to be modified and improved several times since then, but it remains in effect to today requiring the separation between finite and infinite-life assets and their impairment.

Other efforts to better quantify intangible asset values might include the Economic Value Added (EVA) analysis trademarked by Stern Stewart and Company (2003), which continues to be examined since its introduction to the literature (Stern et al, 1994; Mouritsen 1998). According to Lev & Zambon (2003), "intangibles will continue to be vital to companies, and the challenge of how to manage, measure, and visualize them has to be addressed in theoretical and practical terms." Giving management the discretion to record intangible assets under GAAP could actually improve the quality of balance sheet and investors' information (Wyatt, 2005).

Mizik & Nissim (2011) argue that the marketing activities are not well recognized in the accounting even though they create future value to the firms. By considering the investment in the firm through marketing as the expenses to the firm undermines the value, future revenues and economic rents that are created by the marketing activities like advertising. The role of accounting measures in evaluating the business performance has been long debated by the scholars. Accounting measures consider the book values when evaluating the performance. Marketing activities like advertising and its effect on the firm cannot be completely evaluated based on the book values of the firm. Though advertising is regarded as

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an expense, it creates future economic value and resources like brand equity. As many scholars suggested in many different situations, market values of the firm can reflect the economic added value of advertising to the firm (Mizik & Nissim, 2011; Hirschey & Weygandt 1985). Tobin's q ratio is one such measure to consider to understand the intangible value created by the advertising in terms of brand equity. Q ratio is the ratio of the ratio of market value to the replacement cost of a firm-is a predictor of future investment. Q ratio can be used as a method in management accounting to understand the value of advertising and its intangible assets like brand equity.

This paper empirically examines the development of brand equity through a unique data set compiled by the authors using USA Today Super Bowl advertisement ratings list from 1989 through 2015. A resource-based approach (Wernerfelt, 1984) is taken to examine any change in brand equity. Brand assets have been shown to be value relevant, i.e. associated with market value (Barth et al, 1998) and therefore, should be reflected in the q ratio of the firm.

Previous studies suggest that the advertising and marketing communications can have varied effects on the firms in different industries (Andras & Srinivasan, 2003; Balasubramanian and Kumar, 1990; Bass, 1974). According to Bass (1974), the heterogeneity of pooled (industries) datasets can lead to incorrect inferences. Hence, this study uses a pair-wise comparison by industry between firms that are advertised in the Super Bowl to the firms that did not advertise in Super bowl. Data includes 89 Super Bowl firms across 13 industries and they are matched to similar sized firms within the same industry code to see if there is a significant difference in brand equity value between the two groups. From a practical perspective, this study contributes to the literature by providing a model for reporting brand equity and addresses the research question: does the q ratio differ significantly for the firms that advertised in the Super Bowl to the firms that did not advertise in Super Bowl?

The rest of the paper is organized as follows. Next section provides the literature review starting with the accounting treatment of advertising, following with advertising effects on brand equity and role of industry, Super Bowl advertising literature and a short review on Tobin's q. The section after literature provides theory related to market based value approach in evaluating the advertising and resource based view followed by the hypothesis development with arguments related to the Super Bowl advertising and brand equity. Next section provides the data and methodology and results related to the statistical analysis. The final section provides the discussion, conclusion and limitations.

LITERATURE REVIEW

Accounting Treatment of Advertising

Advertising is the most expensive expenditure of a firm's marketing activities (Wang et al, 2009). There has been much debate over the treatment of advertising as an expenditure in the accounting literature. Accounting theory and standards in the case of advertising have been questioned by many scholars over decades. According to accounting standards SOP93-7, "with the limited exception of qualifying "direct response advertising", all advertising costs must be either expensed as incurred or deferred until the first use of the advertising". In the case of "direct response advertising", however, firms are allowed to capitalize the costs when the future net revenues from advertising will exceed the capitalized costs (Alishah & Akbar 2008).

Joel Dean (1966) argues that most ad spending in economic reality is at least, partly an investment and belongs in the capital budget. Dean's article (Dean, 1966) compares the attributes of advertising with those of an asset and concludes that advertising has asset like characteristics. Similarly, Oldroyd (1994) remarks that accounting withholds the power of regulation regarding ads as expenditure and accepts the marketing view of it adding value to a firm's intangibles as long as it can be proven. This study (Oldroyd, 1994) explores the accounting and marketing rationales in the view of including the brand as an intangible asset in the balance sheet. Traditionally, the balance sheet inclusion of brand R & D, and advertising expenditures or any intangible asset as being "intrinsically misleading" (in the eyes of accounting standards) is challenged in this paper. Similarly, Hirschey & Weygant (1985) provided

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tentative estimates of the economic amortization rates for advertising and R&D expenditures by suggesting that advertising and R&D should be capitalized.

Advertising Effects: Brand Equity and Industry

Advertising is considered as a mechanism of persuasion to create awareness, product/brand attachment and preference among consumers. Marketers believe that effective messages to consumers in the form of advertising and other forms of promotion create strong preferences towards their products/services and in turn create brand equity, improve sales and profitability. Simon & Sullivan (1993) defined brand equity as "incremental cash flows that accrue to branded products over unbranded products.

Marketing literature has many studies that focused on the effects of advertising on the brand value/equity. Keller (1993) suggested that short term marketing activities in a firm create knowledge about the brand in the memory of consumers that in turn impact the long term success of a business. Srivastava et al (1998) argued that advertising can create market based assets such as brand equity and market based assets that in turn influence shareholder value by enhancing and accelerating cash flows, lowering the vulnerability of cash flows and increasing the residual value of the cash flows. In the same sense, Peterson and Jeong (2010) proposed a framework relating advertising expenditures to brand value and that brand value in turn influences the financial performance of the firm.

In addition, the longevity of advertising effects on brand value is also discussed in the literature. According to Bass & Clark (1972), advertising effects may exhaust with in few months while Simon & Sullivan (1993) asserts that the effects las more than one period by using q ratio as a forward looking measure for future cash flows through advertising. Similarly, Wang et al (2009) provided empirical evidence that the advertising effects on a firm's intangible assets are sustainable, accumulative and support the asset/investment like characteristics of advertising expenditures. This study emphasized the fact that there is indeed persistence effect of advertising on the intangible value of the firm i.e., brand equity. Theoretical implications from a Wang et al's (2009) research study also suggest that the consumer awareness and attitude created by advertising are important and long lasting.

Marketing research also considered the influence of factors like industry when evaluating the effectiveness of the advertisement. Alishah & Akbar (2008) remarked that heavy advertising expenditures by firms within an industry lead to considerably higher profits and higher profits lead to more advertising that eventually creates barriers to enter in an industry. Netter (1982) argues that the competitive firms engaging in advertising battles can cancel out any benefits that may incur to the firms and consumers as well. In addition, the study also argues that the industry advertising can have a negative effect on the firm's profitability and to some extent productivity of advertising. Similarly, some studies argued the role of industry differences, when evaluating the effect of advertising intensity and firm profitability, market share and market growth (Andras & Srinivasan, 2003; Balasubramanian & Kumar, 1990; Farris and Buzzell, 1979). In different industries, the spending intensity on advertising and marketing communications differ and influence the growth and market share of the firm.

The Super Bowl

Although there have been many proven studies regarding the effectiveness of advertising on different factors of the firm such as sales, profits, brands and market values, there has not been enough attention paid specifically to the phenomenon known as Super Bowl advertising. From Super Bowl 2012 to Super Bowl 2014 advertisers have spent and will have spent from $3.5 million to $4 million for a thirty second TV spot which is at least 7 times the ad price for TV's #1 rated prime time fall program, Sunday Night Football at almost $600,000 (Johnson, 2016). So, the ongoing debate is whether Super Bowl advertising creates real value for the firm or not.

Previous studies on the Super Bowl can be divided into two categories. One is based on the content of its ads and the audience reaction to them and the other is based on the advertiser's share prices. Some researchers (Blackford et al, 2011) provide insight into the likeability, influence of the content on the audience, brand memory and recognition. Other and Tomkovick et al (2011), have concluded that Super

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Bowl ads impact the share prices of the firm. Kim et al (2013) specifically found that Super Bowl advertising indeed, has positive effects on abnormal share prices and that the market value of Super Bowl advertisers is positively related to the likeability of advertising characters, emotional appeals and the unique messaging of Super Bowl ads. Similarly, a study done by Tomkovick et al (2011) concluded that Super Bowl stocks outperformed the S&P 500 by over 1.0 percent in the test period with no significant performance differences being detected in the control period. This study (Tomkovick et al, 2011) also indicated that Super Bowl advertising may be a tradable event (for equities) independent of actual ad content, ad popularity or industry category.

Pavelchak et al (1988) suggested that the program (TV) context contributes to the advertisement recall by the consumers and Super Bowl ads displayed superior recall than other programs than the TV. The huge number of viewership, the anticipation and excitement of the game also contribute to the enhanced interest in advertisements during the Super Bowl. The brand equity is developed through the thoughts, feelings, perceptions, images, and experiences related to the brand (Keller, 1993). The nature of grandeur, anticipation and publicity regarding the Super Bowl advertising also contributes to the attentive viewing of commercials during the game which in turn effects the consumer brand equity. We build on the premise that Super Bowl advertising due to its intensity, publicity and massive audience creates more consumer interest in brands. Though previous studies (Kim et al, 2013) intended that the likeability and characteristics of the commercial plays a role in increasing the brand equity, it is also indicated in previous research that the program context in itself creates an awareness of brands among the consumers.

Tobin's Q and Intangible Value

Tobin Q ratio, which is introduced by Tobin (1969), is defined as the ratio of market value to replacement costs of the firm assets. The q ratio was first introduced as a predictor of investment. He argued that if the q ratio is greater than 1, firms would have an incentive to invest as the value of their new capital investment would exceed its cost. The excess of market value from the book value of the assets suggest that the firm possess unmeasured source of value, which is also known as intangible value. It is based on the market efficiency theory (Fama, 1970) that in the long run equilibrium market value of a firm must equate to the replacement cost of firm assets, giving a q value close to 1. If the q value exceeds 1 then there exists an intangible value. This intangible value is generally observed and reflected in the stock prices and market value of firm. Hence, q ratio, which is market based measure is used extensively in measuring the intangible value of the firm when estimating the effects of advertising and R&D (Hirschey, 1982; Hall, 1993; Simon & Sullivan, 1993).

In addition, q ratio also explains the future performance of the firm. It is a forward looking measure, providing marked based view of investor expectations of the firm's future value. Market value of the firm that includes the stock prices reflect all the information on the future cash flows to the stockholders (Fama, 1970). When a major event happens, for example major advertising campaign, the stock prices eventually reflects the value of future cash flows from such an event and increase or decrease of market value occurs. This phenomenon is widely discussed in the literature related to advertising and R&D effect on the brand value or intangible value of the firm (Hirschey, 1982; Simon & Sullivan 1993).

In particular, measuring the brand equity in terms of Tobin's q is used in the marketing literature from long time. Simon & Sullivan (1993) emphasize that brand equity must be measured in a forward looking perspective as it represents the incremental cash flows that accrue from branded products and any measure of brand equity must incorporate the expected value of future returns. Tobin'q is one such measure as it reflects an unbiased estimates of future cash flows. Similarly, Megna & Clock (1993) in their study, they seek to find whether measures of intangible capital related to R&D has an impact on the q values especially in semi-conductor industry. They found that the intangible capital is related to variations in the q values to some extent.

Previous literature used q ratio as a measure of intangible resource when evaluating the monopoly rents (Linderberg & Ross 1981) and information technology (Bharadwaj et al, 1999) and also used as a financial performance measure of firm value in relation to the effects of advertising and R&D (Hirschey

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1982 and Hall 1993), brand portfolio strategy (Morgan & Rego 2009), industrial characteristics like concentration & diversification (Chen et al, 1989).

THEORY DEVELOPMENT AND HYPOTHESIS

Theory Development

Market Value Based

Traditional methods of measuring advertising effects on the sales and profitability has been interest of marketing community from long time. Recent developments in the literature, emphasize the importance of market based measures as they provide potential for future incremental cash flows. But considering the market based approach in evaluating the advertising impact on the firm's intangible value such as brand equity scant in the management accounting literature. Alishah & Akbar (2008) remark that a potentially better alternative to accounting profits is the use of economic profits based on the market values of firms. A market based valuation approach in theory represents market value as the expected value of future cash flows, discounted to present value by investors as they consider a number of fundamental factors that help determine the earning prospects of the firm (Chauvin & Hirschey, 1993). The market based value approach is an attractive means in determining the asset characteristics of advertising since a firm's market values reflect both tangible and intangible properties; a systematic influence on a firm's future profitability (Hirschey & Weygandt, 1985). There is empirical evidence that certain intangible resources, such as R&D and patents, are valued by the market (Lev & Sougiannis 1996; Lev 2001). Market valuation has also been proposed for other intangible resources such as strategic human capital (Bryant-Kutcher et al, 2009).

Conchar et al (2005) performed a meta-analysis of the econometric models in the literature and found a positive relationship between levels of advertising and promotional spending and the market value of the firm. Conchar et al (2005) indicated that advertising and promotional spending are expected to generate future cash flows and in turn increase shareholder wealth. Similar evidence is also presented by Chauvin and Hirschey (1993) that advertising and R&D have a large positive and consistent influence on the market value of the firm and the spending on advertising can be viewed as a form of investment in intangible assets with expected future cash flows. Hirschey & Weyngandt (1985) proposed an amortization policy for advertising providing that there is evidence that advertising has long lived benefits and should be capitalized.

Wernerfelt's Resource-based View and Tobin's q

The emergent view of competitive strategy – the resource-based view – is that companies survive in the long-run not by building and defending competitive fortresses, or by equipping themselves with the latest technologies or facilities, but primarily by building unique capabilities that are firm-specific (Barney, 1991; Hayes et al, 2005; Lev 2001). A firm must build a resource barrier, which is self-reproducing and difficult to copy. Thus it develops a virtuous cycle analogous to the tallest tree in the forest always getting more sun (Wernerfelt, 1984).

Wernerfelt (1984) points out that economics has a long tradition of focusing on the resource endowments of a firm or industry; however, analyses of returns to scale are not often applicable to intangible resources. The accounting industry (FASB 2001, pg. 22) has recognized that "the important assets of enterprises are increasingly intangible".

The q ratio was first introduced as a predictor of a firms future investments (Tobin, 1969). Since then it has been posited as a surrogate for a wide variety of phenomena in the finance, accounting and economics fields. Among its various applications has been (a) as an alternative measure for general business performance, (b) as a predictor of profitable business opportunities and (c) as a measure of the capitalized value of monopoly rents. It has also found a great deal of value as a measure of intangible asset value (Wernerfelt & Montgomery, 1988; Hall, 1993). Lehmann (2004), in an editorial stressed the importance of market based measures in estimating the value of long term intangible assets such as brand equity. In an attempt to identify the financial measures for the marketing efforts, Lehmann (2004)

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highlighted the articles that used Tobin's q as a market based measure that captures the intangible assets like brand equity.

The Tobin's *q* ratio presents many very attractive attributes for the researcher over more traditional accounting measures. As a market measure, it rests firmly on the strong economic theory of marketplace efficiency. Market measures are presumed to have the following advantages: (a) they represent the only direct measure of shareholder value, (b) they fully reflect all known aspects of performance, (c) they are both objective and readily available for all publicly-traded firms, (d) in the long run they 'see through' attempts by management to manipulate accounting metrics, (e) they are easily adjusted for general market movements, inflation, and a firm's market risk and (f) they provide a basis for the investors' assessment of the impact of managerial decisions (Lubatkin & Shrieves, 1986).

The underlying economic justification for q as a measurement of intangible value is that the long-run equilibrium market value of a firm, ceteris paribus, must be equal to the replacement value of its assets, giving q a value close to unity. In terms of a resource-based view of the firm, any deviation from this relationship is interpreted as signifying an 'unmeasured' source of value and generally attributed to some intangible resource leveraged by the firm (Wernerfelt, 1984; Wernerfelt & Montgomery, 1988). Based on the resource based view, Angolo-Ruiz et al (2014) also used market based measures to understand the role of marketing capabilities in building the intangible capital and thereby increasing the abnormal stockholders returns and firm performance.

Hypothesis Development

The Super Bowl is America's largest sports-entertainment event by far. Over a hundred million viewers watch the Super Bowl on television each year (Nielsen Media Group, 2014). In addition to the celebration of football, many corporations are major players by advertising their products and services during the Super Bowl. The Super Bowl is the most expensive platform of advertising in the United States, with a 30 second spot costing roughly $4 Million during Super Bowl XLVIII in 2014 (Davis, 2014). The cost of a 30 second commercial has increased remarkably since 1967, when Super Bowl I was played in 1967. At that time, the cost of Super Bowl commercial was $42,500 on the Columbia Broadcasting System and $37,500 on the National Broadcasting Company.[2] The price of today's Super Bowl ads is driven by the incredible size of the Super Bowl's audience because of America's football fanaticism and the fact that advertisers compete to present memorable, unique and surprising ads.

There has been an ongoing debate in corporate boardrooms about the return-on-investment for Super Bowl commercials. The question of Super Bowl effectiveness arises from the aforementioned simple fact that the Super Bowl is the single most viewed television event each year and it presents the most expensive platform for advertising.[3] Marketing researchers have long studied the effectiveness of Super Bowl's ad content using psychometric measures in terms of its remembrance and persuasion (Blackford et al, 2011). The difficulty in measuring market responses to advertising has been summarized quite wittily as: "about half the money spent on advertising is wasted, but the trouble is that advertisers don't know which half" (Evans, 2009).

Marketing researchers point out the importance of judging Super Bowl advertising's impact along several dimensions, including: brand awareness, likeability, and sales (Jooyoung Kim & Jon D. Morris, 2003). Accounting and corporate finance practitioners however, continue to question the real economic value justification. For example, General Motors Corporation made huge headlines when it publically announced its withdrawal from Super Bowl 2012 stating that, while "Super Bowl commercials are effective, it has become too expensive to justify the cost" (Wall Street Journal, 2012). The most pertinent question remains: does the most reached and most expensive platform of advertising create any real value for its advertisers?

Regarding advertising effectiveness, the marketing literature is clear in suggesting that advertising has a positive impact on a firm's sales, profitability, market value and brand value (, , Abdel-Khalik, 1975; Conchar et al, 2005; Graham & Frankenberger, 2000, Hirschey & Chauvin, 1993, Hirschey & Wayngadt, 1985; Keller, 1993; Lambin, 1969; Palda, 1965; Srivatsava et al, 1998; Wang et al, 2009). Furthermore, the marketing literature has long argued the importance of considering advertisements as a capital

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investment (Abdel-Khalik, 1975; Dean, 1966; Hirschey & Wayngadt, 1985). We argue that due to its enormous cost, Super Bowl advertising must be viewed as a long-term economic investment and the evaluation of the value of this investment might be better quantified utilizing market measures.

In the age of data analytics, corporate boards are demanding that executives justify their ad budgets by using metrics that go way beyond mere "audience ratings". But nonetheless, a few may still continue to be addicted to audience ratings (AC Nielsen) despite not being sure of their "real" value for lack of alternative measurements. It is unlikely that any single metric can capture the "real" performance of a marketing activity (Ambiler & Roberts, 2008). Thus, measuring the productivity of any advertising campaign remains complex and difficult due to the multidimensionality of the construct involved. The major factors that determine the effectiveness of advertising include both its quality and quantity, which in turn are impacted by how well it is planned and executed. The "quality" of any ad may very much depend on the extent to which it gets the audience (consumers) involved in the "story" being told.

Further, Keller (1993) suggested that short term marketing activities in a firm create knowledge about the brand in the memory of consumers that in turn impact the long term success of a business. Srivastava et al (1998) argued that advertising can create market based assets such as brand equity and market based assets that in turn influence shareholder value by enhancing and accelerating cash flows, lowering the vulnerability of cash flows and increasing the residual value of the cash flows.

Similarly, Wang et al (2009) provided empirical evidence that the advertising effects on a firm's intangible assets are sustainable, accumulative and support the asset/investment like characteristics of advertising expenditures. Theoretical implications from a Wang et al's (2009) research study also suggest that the consumer awareness and attitude created by advertising are important and long lasting. In the same sense, Peterson and Jeong (2010) proposed a framework relating advertising expenditures to brand value and that brand value in turn influences the financial performance of the firm.

It is widely believed that "well directed" advertising expenditures should not only help stimulate near term sales but also increase the total value of a firm's intangible assets such as goodwill, thus enabling the firm to leverage its brand equity (Taylor, 2010). From the view of resource based theory, advertisement creates a valuable intangible resource in terms of brand value and equity. Instead of considering advertising as a mere expense in an organization accounts, it can be considered as a valuable resource and important tool in improving the brand equity.

Based on the above arguments, we argue that the Super Bowl advertising creates intangible value to the firm and enhance the brand equity with the increase in the firm's q-ratio.

Null Hypothesis (H_0)

Tobin's q value will not differ from the Super Bowl advertised firms to the firms that did not advertise in Super Bowl.

DATA AND METHODOLOGY

The purpose of this study is to empirically test the relationship between Super Bowl advertising and a firm's intangible value as measured by Tobin's q ratio. COMPUSTAT database is used to obtain the data of the firms that advertised in the Super Bowl from 1989 to 2016. There are 250± firms that have advertised in the Super Bowl between 1989 and 2016. USA Today's Ad Meter database is used to gather the list of advertising firms since 1989. Of the 250 firms, many firms are excluded from the study because some of them are either private firms or bankrupt/out of business or listed on foreign exchanges with remaining firms not having sufficient data (that is downloaded using Compustat database) to calculate the Tobin's q ratio. In order to calculate the Tobin's q ratio, the closing stock price, number of common shares outstanding, liquidating value of the firm's outstanding preferred stock, current liabilities, current assets, book value of inventories, long-term debt, and book value of total assets are needed. If any of the values are missing from the database, the calculation of Tobin's q is not possible. Out of 250 firms identified, only 89 public firms have the sufficient data to calculate the ratio. The final sample included in this study is 89 public firms.

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This study tries to identify that Super Bowl advertised firms have increased brand equity/ intangible value vs the firms that are not advertised in the Super Bowl. The first criteria in selecting the control group firms is that SIC code. Once the SIC code matched, we short listed the firms, based on the availability of the data to calculate the q ratio. Once we have all the firms that have the data, we selected the firms that are close competitor to the experiment firm. Most of the control group firms have the similar products in the market as the experiment group and also of the similar size. When the data is not available for any similar control group firms, we selected any firm from same SIC code. The Tobin's q values are calculated for both the experiment and control firms in those 25 years of study for five months from January to May after the Super Bowl. The average of these monthly values are taken and are compared to see whether there is a significant difference among the means of the q values of these two groups. The control firms are from the same SIC code group and have very similar characteristics like the experimental firm including firm size and market share.

In addition, investment in advertising and marketing activities of the firms varies greatly among the industries. Similarly, there exists different amortization rates for the promotional costs of firms in different industries (Hirschey & Weygandt, 1985). Hence, we divided the data into 13 different industries and tested whether there is any significant difference in each of these industries

Measure

Tobin's q is calculated using financial data available through Compustat. Although multiple methods have been proposed for calculating the Tobin's q ratio, different approaches have tended to yield similar results. For example, Chung & Pruitt (1994) used a simplified method of recognized Lindenberg & Ross model (1981) and found through a series of regressions utilizing 10 years of data that their method explained at least 96.6 % of the variability obtained through the more traditional method. The method is as follows:

$$Tobin's\ q = (MVE + PS + DEBT)/TA$$

Tobin's q = (MVE + PS + DEBT) / TA (1)

where: MVE - (closing price at the end of the fiscal year) * (number of common shares outstanding)
PS - liquidating value of the firm's outstanding preferred stock
DEBT - (current liabilities – current assets) + (book value of inventories) + (long-term debt)
TA - book value of total assets

Statistical Analysis

In this study, independent two sample t- test is conducted in SPSS to test whether there is any significant difference among the means of the two groups: experiment – the firms that advertised in Super Bowl and control – the firms that did not advertise in Super Bowl. Independent two sample test is appropriate in this situation because of the fact that two independent groups are tested while one group is subjected to condition of advertising in Super Bowl and the other group is not. In this test, there is on DV (Tobin's q) and two IVs (Super Bowl Advertising group and non-Super Bowl advertising group). The test has been conducted for 89 firms in 13 different industries to observe the effect of Super Bowl advertising on the brand equity/ Tobin's q value and compare the same with the firms that did not advertise in Super bowl in the same time period. The results and analysis for independent two sample t-test for all the industries together and each industry are presented below:

All Industries Combined

The above table provides the results for the overall data comparison among all industries and industry wise comparison of firms that advertised in the Super Bowl and firms that did not. The test results indicate that the mean difference of q ratio is significant between the Super Bowl advertised firms and those that did not. On average, the firms that did not advertise in Super Bowl have higher Tobin's q than

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the firms that did advertise. The results implied that the firms that did not advertise in Super Bowl have higher brand equity than the firms that advertised in the Super Bowl.

Industry Analysis

Data is divided into 13 different industries and analysis is performed at industry level. Results indicate that the Pharmaceutical, Retail & electronics, Entertainment and Finance & Insurance services industries have a significant difference among the means of the two groups at 0.05 level rejecting the null hypothesis. But the pharmaceutical, entertainment, finance & insurance industries provide the evidence that the firms that did not advertise in the Super Bowl have higher means than the firms that advertised in the Super Bowl. This implies that Super Bowl advertised firms in these industries have lower q values on average than the firms that did not advertise in the Super Bowl. The firms that are advertised in the Super Bowl have a low intangible value/Brand Equity vs the firms that did advertise in Super Bowl.

Further, computer, internet & software, Food and Travel industries results indicate that these industries have a significant difference among the means of the two groups at 0.1 level. Among these industries, only l group (firms that advertised in Super Bowl) has the higher means of Tobin q than the control group. Finally, Apparel & Footwear, Communication, Restaurant, Personal Products, Lodging, Auto do not have any significant differences in the means among the two groups.

TABLE 1
RESULTS OF PAIR WISE COMPARISON – INDEPENDENT TWO SAMPLE T-TEST

Industry	SB participants Mean	NonSB participants Mean	Mean Difference	T-value	Significance (2-tailed)
Pharma	2.509709	3.339682	-0.883144	-4.063	0.000
Apparel & Footwear	1.388237	1.618252	-0.230015	-1.594	0.113
Comm	1.269179	1.225772	0.043406	0.639	0.524
Computer, internet & Software	2.822916	3.407037	-0.584121	-1.871	0.062
Food	1.962206	1.755762	0.206444	1.669	0.097
Restaurant	1.994202	1.824842	0.169360	1.132	0.260
Personal Products	2.798418	3.078062	-0.279644	-1.283	0.201
Retail& Electronics	1.426125	0.776269	0.649856	5.215	0.000
Lodging	1.624391	1.428007	0.196384	1.057	0.297
Entertainment	0.984019	1.706026	-0.722007	-2.502	0.013
Auto & Auto+	1.120963	0.962684	0.158279	1.263	0.208
Finance & Insurance Services	0.383047	0.637506	-0.254459	-3.390	0.002
Travel	0.815348	0.962934	-0.147586	-1.778	0.086
All Industries	1.911199	2.159912	-0.248973	-2.853	0.000

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DISCUSSION AND CONCLUSION

Treatment of marketing activities like advertising in the accounting is long debated. Advertising though treated as an expense, creates intangible value to the firm in terms of brand equity. Though brand equity is considered as an intangible asset and is valued in the financial accounting, evaluation of such assets in management accounting practices is minimal (Guiding & Pike, 1990). Using book based values to assess the intangible values have not proved to be efficient as the intangible value in general is created by the market valuation. Measuring the brand equity in terms of Tobin's q is used in the marketing literature from long time. Simon & Sullivan (1993) emphasize that brand equity must be measured in a forward looking perspective as it represents the incremental cash flows that accrue from branded products and any measure of brand equity must incorporate the expected value of future returns. Tobin'q is one such measure as it reflects an unbiased estimates of future cash flows. In this study, we try to establish one such market based measure as an important way to evaluate the marketing activities like advertising which will be useful to the management accounting practitioners for cost vs return evaluations of advertising.

In this internet era, competition among the firms have increased extensively which in turn lead firms to increase their advertising budget and reach more of an audience. Sports marketing especially Super Bowl advertising still remains a popular method, as it can reach millions in a single audience. But, at the same time the cost of Super Bowl advertising raises the question of return on investment. This study addresses the issue of return of investment in terms of intangible value and brand equity of the firm. Overall results of all the combined data from 13 industries indicated that firms which advertised in the Super Bowl did not have increased brand equity compared to the firms that did not advertise.

The results in the paper suggest that the firms need to be cautious when investing in Super Bowl advertising as there is no noticeable returns on the investment in terms of brand equity. Though the study has limitations in terms of the sample of firms, the measure used in this study provides a basis in understanding the effects of advertising on the intangible value of the firm. Accounting professional can use the measure for evaluating and reporting the value of advertising investment to the firm's future cash flows. They can estimate the brand equity developed from the marketing activities such as Super Bowl advertising.

Industry wide analysis also provided some useful insights to the accounting and marketing professionals. The results at the industry level are not consistent and positive as expected. Of the13 industries studied, Apparel & Footwear, Auto and Auto Plus, Communications, Lodging, Personal Products and Restaurants industries do not have any significant difference in the means of the Tobin's q ratios between Super Bowl advertised firms and control firms. While, Computer, internet & Software, Food and Travel showed significant difference in means at 0.1 level. Among these three, Food industry is the only one that has positive effect. On the other hand the remaining 4 industries, Pharmaceutical, Retail and Electronics, Finance & Insurance and Entertainment, showed a significant difference in the means of the Tobin's q ratios. But only Retail & Electronics has a positive effect. On the other hand for Pharmaceutical, Finance & Insurance and Entertainment, the mean of Tobin's q of the firms that advertised in Super Bowl is lower than that of the firms that did not advertise in the Super Bowl.

This implies that the effects of advertising on the brand equity of the firm are not generalizable and are specific to industry. Managers need to be cautious and not get carried away by the popularity of the sport, but need to careful understand the industry influence on the effects of advertising. This phenomenon is mentioned in the literature by Netter (1982) as the industry advertising can have a negative effect on the firm's profitability and to some extent productivity of advertising.

In conclusion, when investing large amounts of money in advertising hoping to create some value to the firms, firms need to be cautious and evaluate whether it creates value to the firm. This study provides such evaluation method for firm's internal accounting purposes and to understand the effect of investment in marketing activities like Super Bowl advertising. This research also provides further direction to studies with the intersection of management accounting and marketing as the research in this area is minimal.

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LIMITATIONS

One of the limitations for this research is that the Tobin's q value is a proxy for measuring the intangible assets or brand equity. It does not provide a direct measure of the brand equity. In addition, using a simple t-test may not take into account other factors that may contribute to the increase in the value of the Tobin's q given Super Bowl advertising. While there may be other factors, this study attributes some of the increase in the q value to the added increase in the brand equity due to the significance of the event and impact it has on the market. Future research can look into multivariate analysis to include more covariates into the analysis.

Furthermore, the measurement of brand equity is studied in the short term in this article (considering only 5 months from the time of Super Bowl), whereas the long term and sustainable effect of Super Bowl advertising is not studied and needs further research to address the issue. And finally, due to the lack of public data on many firms and the fact that many firms advertised in the Super Bowl are private, the samples considered in each of the industries may not be ideal. Further, there may be a cumulative effect on the firms that have advertised in the Super Bowl for many number of years. In order to keep the analysis simple, we could not consider such effects in the analysis. Future studies may further explore the possibility of cumulative effects of Super Bowl advertising on the firm value.

ENDNOTES

1. A quote by the Brand Manager of Cadillac in her presentation at "The 29th Annual Super Bowl Ad Nauseum" held at The University of Detroit in February 2014.
2. Super Bowl I was the first and last time it was broadcast on two networks.
3. Only the Summer Olympics and the World Cup beat the Super Bowl for viewership, but both occur only once every four years and are covered over the course of many days.

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