Master Thesis

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Green Marketing Initiatives and Firm Value

An event study in the Automotive Industry

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1   INTRODUCTION

Climate change has been recognized as one of the most eminent challenges of the 21st century. A number of recent surveys[1] indicate that people around the world are increasingly concerned about the wellbeing of our planet. The movie "An inconvenient truth" released in 2006 by environmental activist Al Gore, had a catalytic impact on the growing concerns among people. The movie made the mass aware what environmentalists had been voicing for decades; if we don't start to change our life-style soon, we will do irreversible damage to our planet, destroying our home. Although the debate about the contribution of humans on climate change is still heated, Intergovernmental Panel on Climate Change (IPCC), an scientific intergovernmental body, released a report in 2007 stating that human actions are "very likely" (90% or higher probability) the cause of global warming.

As awareness of the environmental impact of our life-style increases, more people are willing to change their behaviors and purchasing habits in order to help improve the environment. Researched in the late 1980s already recognized this attitude change and predicted an era of green products, consumers and marketing. The forecasts for the early 1990s indicated the emergence of a "green tide" of consumers and new products. This forecast propelled many companies to pursue "green" strategies(Crane, 2005). Although numerous new green products were introduced, the "green tide" was disappointing to both the consumer as well as the firms pursuing such strategy (Wong, Turner, & Stoneman, 1996).

This thesis seeks to extend the literature on green marketing. Past research on green marketing has sought to extend the conceptual and ethical dimensions of environmental marketing, has identified corporate strategies of environmental marketing, has analyzed environmental advertising claims, and has tried to identify consumer responses to corporate green marketing. While much of this research casts green marketing in a positive light, some researchers have adopted a more cautionary approach. For instance, Casey (1992) points out that consumers are unwilling to pay more for green products (seek for other references stating this). Similarly, Eastering, Miller and Weinberger (!995) point out that, regarding green marketing, there is a gap between consumer intent and consumer action (Wong et al., 1996).

There is no clear evidence regarding the effectiveness of corporate green marketing strategies. This thesis seeks to fill this void in the literature by examining stock price reactions to corporate

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[1] Sei-katsu-sha Environmental Awareness Survey 2007 indicated that 92.9% of the respondents are concerned about global warming, compared to 81.3% in their survey of 2006. Their 2010 survey conducted in emerging markets revealed that 85% of the respondent are concerned about the environment.

announcements related to green marketing, a topic that has only been empirically researched before by Marthur and Marthur (2000). While they did not find significant effects, the past decade witnessed a dramatic attitude change as more evidence reveal the impact of human actions on the environment. Taken together with the lessons learned from the backlash in the 1990s, the new millennium might represent the green tide that so many predicted.

1.1 PROBLEM DEFINITION

Marketing is under increasing pressure to demonstrate their contribution to firm performance. The call for marketing to become more accountable and to demonstrate their contribution to firm performance is a development that started as early as 1960s (Stewart, 2009). These early calls however were from outside the marketing field. Global competition, recession and stock market pressure set the stage for CEO's and CFO's to deliver "the numbers". Increasingly marketing was being questioned, and marketing budgets cut (Lehmann & Reibstein, 2006). A survey conducted by CMO council showed a trend that marketing is in danger of becoming marginalized to a set of tactics for which cost must be controlled.

The past decade more researchers have embarked upon Marketing Science Institute's call for research exploring marketing's effect on financial performance. Marketing is expected to contribute to the demand creation-function of a firm, and consequently focused on traditional on marketing metrics such as . Marketing is under pressure to demonstrate contribution to firm performance, and Marketing Science Institutes Priority lists underscores the urgency.

The recent upswing in green marketing initiatives indicates that companies rediscovered the environmental concern among people as an opportunity to market new products, differentiate from their competitors, and implement a new green strategy. Implementing new marketing strategies and tools entail allocation of scare resources to the marketing department. Even though companies employ different strategies and tactics, ultimately, the raison d'etre is to make profit and maximize shareholder value.

Against this background, this study will examine how green marketing expenditures are perceived by the financial market. The following problem definition has been formulated:

How do corporate announcement of green marketing activities affect firm value?

The problem definition will be addressed by answering the sub-questions below:

1. What is green marketing?
2. How can green marketing contribute to firm performance?
3. How do financial markets react to such announcements?

1.2   RESEARCH SCOPE

The automotive industry is characterized as a highly competitive industry. Although every car manufacturing company has their own brands and different models, consumers are not merely buying a vehicle to transport them from point A to point B. Automobiles also represents what the owner values and it becomes an extension of the owner. Marketing plays a vital function in the automotive industry as differentiation on product function or specification appears futile. Advertising in the automotive industry increasingly relies on emotional appeal seeking to connect with the norms and values of their customers.

Given these conditions of a highly competitive market in which marketing plays a vital role, and consumers seeking cars that are in alignment with their norms and values, the automotive industry seems an excellent context to test the impact of green marketing initiatives on firm value.

1.3   RESERACH DESIGN

The thesis will consists of a theoretical part and an empirical part. First the literature on green marketing will be reviewd. After the literature review the empirical research will build further on the knowledge by conducting an event study. An event study is a research method which focuses on the stock market reaction of events. This is a useful tool in determining how the financial market values the contribution of green marketing expenditures.

1.4   THESIS STRUCTURE

The first chapter of this thesis serves as an introduction to the field of interest and formalization of what knowledge the research aims to contribute, comprising the problem definition and research questions. Chapter 2 presents a review of literature on green marketing and how it contributes to firm performance. In chapter 3 the research methodology used for this thesis is

explained and a description of the data collection process is provided. Chapter 4 gives an overview of the results of the empircal analysis. Chapter 5 presents a discussion, limitations of the research and recommended areas for future research. The conclusion of the research is presented in chapter 6 as well as the managerial implications.

2   LITERATURE

Environmental issues have become increasingly important in business as well as public policy since the 1960s (Prakash, 2002). The literature and interest from practitioners in green marketing has gone several stages since the 1980s (Lee, 2008). This chapter will begin with an overview of the green marketing concept. Subsequently the opportunities and challenges of green marketing will be highlighted. The chapter closes with the theoretical framework and hypotheses.

In the 1990s environmentalism in the United States has grown   into a mainstream concern(Ottman, 1993) and has been considered as a important social movement(Banerjee, Gulas, & Iyer, 1995). Although the green movement had received significant attention by the public, as well as the business sector, the anticipated market growth for green products was underwhelming (Wong et al., 1996).

2.1   GREEN MARKETING

What is marketing? First define marketing, then green, then conclude with green marketing definition

In the literature the green marketing concept has been defined in many ways. Green marketing has been described as; a complex, holistic, integrated approach to meet consumer needs while minimizing the negative impact on the natural environment (Polonsky & Rosenberger, 2001). Others have described green marketing as: "marketing activities which attempt to reduce the negative social and environmental impact of existing products and production systems, and which promote less damaging products and services" (Peattie, 2001). Green marketing is often mentioned together with sustainability. Sustainability has three main dimensions, also known as the "triple bottom line"; social (people), environmental (planet) and economic (profit) (UNEP, 2007). It recognizes the interdependence of these three dimensions and offered common ground for companies, governments and environmental groups to form partnerships and collaborations (Peattie, 2001). Peattie and Crane (2005) suggested that definitions and concepts which describe a form of marketing which represents progress towards sustainability to be considered green marketing.

Already from the early 1970s the environment was a topic of discussion among marketing academics and practitioners but it was not until the late 1980s green marketing received more attention from a broader audience (Crane, 2000). Increasing awareness of the environment new trend emerged; environmental consumerism. Consumers changed their buying behavior and

purchased products they considered green and avoided products that were not (Ottman, 1992). According to Ottman (1992) consumers not only considered price and performance in their purchasing behavior, social responsibility of manufacturers were also considered.

2.2   GREEN MARKETING OPPORTUNITIES AND CHALLENGES

According to the literature the increasing environmental consciousness among consumers creates opportunities for firms that are willing to act upon it (Ambec & Lanoie, 2007; Ottman, 1992). The opportunities presents itself on both sides of the equation; reducing cost and generating revenue (Ambec & Lanoie, 2007).

It has been argued that by focusing on greening the firm and products new segments can be targeted; segments that are characterized by green buying preferences. It also offers the opportunity to differentiate from the market (Ambec & Lanoie, 2008; Ottman, 1992). Moreover, access can be gained to certain markets not accessible before. Purchasing policies from public and private organizations increasingly use environmental criteria to choose their suppliers (Ambec & Lanoie, 2007). Other mechanisms presented by the literature are; enhancing corporate and brand image, increasing loyalty among customers, willingness to pay a premium on green products (Ottman, 1992)

Using Cost reductions can also be realized by greening the firm.

Kotler (2001) predicted that an increasing number of companies would switch their focus from a "marketing concept" to a "societal marketing concept". This last concept is defined as the commitment of an organization to not only meet the needs of its target more effectively and efficiently than its competitors, but also maintain or improve the well-being of both its customers and society. Furthermore, the demand from consumers for environmentally-friendly products increases and the environmental legislation in various countries forces companies to reassess their costing models (Shrivastava, 1995)

Research indicated that consumers choose or avoid buying products, dependent on their impact on the environment (McDougall, 1993; Davis, 1993). There are also studies that indicate that consumers are willing to pay more for less environmentally harmful products, which is an interesting fact for companies planning to „green" their processes (Coddington, 1993; Ottman, 1992).

Studies have however been performed on the effect of green benefit claims on brand attitude (Hartmann et al., 2005). The study supports significant attitude effects of both functional and emotional green positioning strategies. Also, some studies have been performed on linking green brand identities (of which green benefit claims could be a part) to brand awareness and firm performance (First, 2007, Hart and Ahuja, 1994).

According to Marcus and Fremeth (2009), whether sustainable development "pays" is not that relevant from a moral or normative perspective, however, if green management coincides with their economic interest progression toward sustainability is more rapidly made. Merely normative obligation is not enough to motivate businesses to incorporate green initiatives.

Today it is more widely accepted that green management can be profitable (Porter & van der Linde, 1995; Sharma, 2000; Sharma & Vredenburg, 1998). As observed in numerous accounts (Porter & van der Linde, 1995; Vogel, 2005), many firms no longer resist green management. Rather they try to incorporate and profit from it. Indeed, there is little doubt that for some companies, green management has created opportunities for competitive advantage. These companies not only have been able to lower costs and achieve cost leadership by pursuing environmental efficiency, but they also have pursued a differentiation or a focus strategy based on developing "green products" for niche markets (Shrivastava, 1995).

2.3   THEORETICAL FRAMEWORK

Although consumers have voiced their intend to buy environmental friendly alternatives, purchasing behavior did not reflect that intent (Prakash, 2002; Wong et al., 1996). Because environmental costs are internalized, green marketing offerings have an economical disadvantage over products that are not green(Crane, 2005). Unless all companies are internalizing the environmental costs of producing and marketing their products, the playing field will always be sloped. Hence, firms with higher operating costs because of the green marketing strategy chosen will be less attractive to investors.

Based on this discussion, the null hypothesis can be stated as:

H1: Announcements of green marketing activities will not result in stock price reactions. The alternative hypothesis is that announcements of green marketing strategies will not be viewed favorably by investors.

H2: Announcements of green marketing activities, which result in lowering the cost of ownership for the consumer, will be viewed favorably by investors.

3 RESEARCH DESIGN

The objective of this research is to determine what the wealth effect is of green marketing initiative announcements on firm value. In order to do so, the event study methodology will be employed. This chapter describes the research methodology used for the empirical research part of this thesis. The first section of this chapter explains the event study methodology, its underlying assumptions and why this methodology has been chosen. The second part describe methodological issues. In section three the event selection and data collection will be discussed. The fifth section will describe the eight-step event study methodology by Seiler (2004) that is used. Finally a short summary is given to conclude this chapter.

3.1 EVENT STUDY DESIGN

Event study methodology measures the effect of a specific economic or corporate event on the value of a firm using financial market data (MacKinlay, 1997). Stock prices reflect the present value of all future cash flows that are expected to accrue to the holder of that stock, discounted for the time and risk exposure (Seiler, 2004; Srinivasan & Bharadwaj, 2004). Based on the semi-strong version of the efficient market hypothesis (EMH)(VOETNOOT PLAATSEN), stock prices change fully when new information is released to the market. Hence, when new relevant information reaches the market, stock prices will adjust accordingly. As such, event study method is a powerful tool that can provide useful insights in what the financial impact is of (marketing) strategy initiatives on firm value (Johnston, 2007; Kothari & Warner, 2004; McWilliams & Siegel, 1997; Srinivasan & Bharadwaj, 2004; Verbrugge, 1997). According to MacKinlay (1997), " the usefulness of such a study comes from the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices."

The basic approach of event studies is first to identify events that are hypothesized to change the expected future cash flow of a firm. Next, the time frame is determined in which the reaction of the market is expected to unfold. Abnormal returns in this period are then calculated and tested for statistical significance (Verbrugge, 1997). If there are indeed abnormal returns, they are assumed to reflect the stock market's reaction to the new information available due to the event(McWilliams & Siegel, 1997).

The literature using event studies are voluminous and continue to grow as usefulness extends to other disciplines than finance and accounting(Johnston, 2007; Kothari & Warner, 2004; MacKinlay, 1997). Parallel to literature utilizing the event study method, there is also a stream concentrating on the methodology of event studies(Kothari & Warner, 2004). From these

papers much is now known about how to conduct an event study in order to get statistical robust and compelling evidence(Kothari & Warner, 2004; McWilliams & Siegel, 1997).

In accounting and finance research it is common to use the event study methodology (MacKinlay, 1997; McWilliams & Siegel, 1997; Zinkhan & Verbrugge, 2000). Although the first published event study was conducted by Dolley in 1933 (MacKinlay, 1997), it was only after Fama, Fisher, Jensen and Roll's influential article about stock price adjustment to new information in 1969, that other academicians used the method more extensively. Event studies became the standard methodology in strategy and financial economic research for measuring the effect of events on security prices after the publication of Fama et al. (Binder, 1998; Gerbaud & York, 2007). Event studies now have found its way into marketing research (Verbrugge, 1997), and "despite the considerable potential of the event study method to relate marketing strategy initiatives to changes in shareholder wealth, event studies have been underutilized in marketing" (Srinivasan & Bharadwaj, 2004).

3.1.1 EVENT STUDY AND MARKETING

Event studies are popular because they do not rely on accounting-based measures of profit, which have been criticized as unreliable indicators of the economic performance of the firm (McWilliams & Siegel, 1997; Mizik & Jacobson, 2004; Srinivasan & Bharadwaj, 2004). One of the most notable accounting scandal, the Enron case in 2001, underscores this critique. In addition, accounting measures are backward looking measures (Anderson & McAdam, 2004; Dutta & Reichelstein, 2005), while in defense of marketing expenditures the effects of those expenditures are difficult to capture in a one period model. It has been argued to consider these expenditures as investments, which will yield extra cash flows in the future (Srinivasan & Hanssens, 2009). Hence, using stock prices, which incorporate expectations of future cash flow, is more in line with the argument of having an investment perspective on marketing expenditures.

Traditionally marketing research was focused marketing metrics such as brand-awareness, consumer attitude and customer mindset, but under increasing pressure to demonstrate marketing's contribution to firm's performance marketing research has been conducted in a finance language.

 Whereas previously, most marketing studies focused on the effects of various marketing decisions and policy changes on sales volume, sales growth, and perhaps product profitability, more recent studies have adopted the event study methodology with marketing accountability

in mind. The body of literature is now developing regarding the impact of various marketing actions in publicly-traded companies on the stock prices of firms undertaking these decisions. Some recent examples include Chaney, Devinney and Winer (1991) on new product introductions, Lane and Jacobson (1995) on market reactions to brand extensions, Agarwal and Kamakura (1995) on celebrity endorsements and Mathur and Mathur (1995) on advertising and firm value (Verbrugge, 1997) Accompanying in the review of these three streams of research, opportunities for applying event study to current and a wider set of marketing issues are identified (Johnston, 2007).

3.1.2 UNDERLYING ASSUMPTIONS

One of the fundamental underlying assumption, when conducting and event study, is the efficient market hypothesis(Bromiley, Govekar, & Marcus, 1988; Johnston, 2007; McWilliams & Siegel, 1997). EMH implies that stock prices reflect all information available related to the profitability of the firm and that the financial markets efficiently disseminate new information affecting the profitability of the firm (Fama, 1970). Put differently, the stock price is the discounted value of the firm's future cash flow and any changes or expected changed to the future cash flow results in a change of the stock price (Mizik & Jacobson, 2004). There are three forms of the EMH; weak, semi-strong and strong(Fama, 1970). In the weak-form the stock prices reflect all information contained in the record of past prices. In the semi-strong form, all the publicly available information is reflected in the current prices. In the strong form, all existing information is reflected in the prices. Most of the research done using finance-based methods imply at least the semi-strong form of market efficiency(Bromiley et al., 1988).

The second assumption is that the events are unanticipated and contain new information for the market. If events are anticipated, for example a new government policy that has been discussed openly in the political arena, the wealth effect of such regulatory changes will gradually be incorporated in the stock price. Another example of anticipated events is when information is leaked to the market in advance of a formal announcement (MacKinlay, 1997).

The third assumption is that there are no confounding effects. The event identified is clear from any effects of other events, and the abnormal returns can be fully attributed to the identified event(McWilliams & Siegel, 1997).

3.1.3 METHODOLOGICAL ISSUES

According to Kothari and Warner (2006), the main issues concerning the event study methodology are the way in which the risk adjustment takes place, cross-correlation in returns and changes in security volatility in the event time frame. These issues are especially problematic for long horizon event studies. The consensus is that short horizon event study methods are much less problematic and the results they yield are relatively straightforward. The more clearly the event moment is specified (which means that there is less uncertainty as to when the information was disseminated to the market and there is little information leakage) and the shorter the period around the event over which the abnormal returns are examined, the more reliable the results will be in general.

3.2 EVENT STUDY METHODOLOGY

To structure the research, the eight-steps methodology of Seiler (2004) is used as a guideline. The steps are:

1. Identify the event date
2. Define the event window
3. Define the estimation period
4. Select the sample of firms
5. Calculate "normal" returns
6. Calculate abnormal returns (ARs)
7. Calculate cumulative abnormal returns (CARs)
8. Determine the statistical significance of the ARs and the CARs

3.2.1 EVENT DATE

The first step is to identify the event date, which is defined as the time when the market first learns of the new information (the event). The more accurate the event can be identified, the more powerful the test, and therefore the more accurate the measure will be of the impact of the event on the firm value. In some cases it is difficult to verify when exactly the information was first released, especially when third parties are involved. This research focuses on the announcement of green marketing initiatives, therefore the date used will be the day on which the firm itself officially announce such effort. Factiva-database is searched on announcement and press released fitting the criteria. Although in theory, intraday data should allow for better understanding of the market's reaction to an event, intraday data is difficult to acquire.

3.2.2   EVENT WINDOW

The event window is the number of trading days over which the effect of the event is measured. In determining the event window, two aspects need to be considered; the number of days to include and potential "leakage" of information. The event window should be large enough to capture the full reaction of the market. However, there is a trade-off in adding more days to the event day. The more unnecessary days are included, the more noise will be introduced in the sample and, the less powerful the measurement of significance of the event will be. Information leakage potentially has the same effect as the announcement itself. When information is leaked to the market before the announcement, the market will disseminate and act upon this information. Unless the dates are extremely certain to determine, including a few days prior the event into the event window should capture possible leakages of information.

In the literature, there is no prevailing consensus about the optimal number of trading dates to include in the event window. According to Seiler (2004), events of which the date can be determined with high level of certainty and with little to no chance of information leakage as little as minus 10 and plus 10 trading days can be used. For less certain event dates, a window can be as wide as minus 30 through plus 30 days.

The announcement dates used in this research can be identified with a high degree of certainty. To capture potential leakage and to capture the full effect of the announcement, the event window will span from 10 days before, to 10 days after the announcement day.

3.2.3   ESTIMATION PERIOD

The estimation period is a period where no event has occurred. The purpose of this period is to determine how the stock price would behave without an event. There are three options in setting the estimation period; before, during and after the event window. According to Seiler (2004) the most common method is to use a period before the event window, however no consensus has been reached on the length of this period. The period should be long enough in order to determine how the stock behaves relative to the market, but using an excessively long estimation period will result in a relationship between the stock price and the market that is not up to date anymore.

3.2.4 SAMPLE OF FIRMS

The announcement of interest are announcement of car manufacturing companies related to green marketing initiatives, in the time-frame of 2002 to 2007. As mentioned in the literature review (PAGE, PARAGRAPH) green marketing has gone through several stages. In order to determine the effect of green marketing announcement on firm value in the current environmental and social climate, only events from the last decade are of interest. In the last decade two global financial crises occurred; the burst of the IT-bubble and the recent collapse of the financial system. With the purpose of reducing noise in the sample, these periods are omitted in the search for events.

Firms that meet these screening criteria as well as the methodological criteria will be selected for the sample.

3.2.5 NORMAL RETURNS

In this step the normal returns are calculate. Normal returns are the returns that would have occurred in absence of the event. Seiler (2004) describes four different methods to calculate the normal returns; mean return, market return, proxy (or control) portfolio return, and risk-adjusted return. The first two are somewhat straightforward, the last two are more advanced.

The mean return model assumes that the mean of the stock performance is the same during the estimation period and the event window. The major drawback of this method is it will induce a bias when the market is trending up or down (bull or bear markets). The market return approach assumes that the mean of the stock performance is expected to be the same as that of the mean of the market performance, making an estimation period unnecessary. The proxy portfolio return uses a relevant benchmark to calculate the normal return. Instead of using the market performance, industry performance is used. The theoretical justification is that using the relevant industry allows for better control of the risk of the sample firm. This method controls for performance effects caused by the industry or firm size. Although this method delivers useful insights, the data required to compile industry performance is difficult to obtain.

This research make use of the risk-adjusted return approach (or the single-index

market model), which is the most commonly used method in the literature. With the risk-adjusted return approach, expected returns over the event window are calculated by using ordinary least squares regression. In the regression analysis, expected returns (the dependent variable or left hand side of the regression equation) can be predicted by various independent variables (right hand side of the regression equation). In the literature, different independent variables are used, but several studies have found that a regression model with one specific

independent variable – the single-index market model (the independent variable is thus a market index, which is used as a proxy for the stock market) – works equally well as models that include multiple independent variables (e.g., Brown and Weinstein, 1985). Even though the model might suffer from misspecification bias because of potentially omitted variables, this could also happen because of inclusion of irrelevant variables in the model (Binder, 1998). The S&P 500 will serve as the market-index as the single independent variable in the regression analysis.

3.2.6 ABNORMAL RETURNS

When the normal returns are calculated, the abnormal returns can be determined by subtracting the normal returns from the actual return. These abnormal returns are hypothesized to be the effect of the event.

3.2.7 CUMULATIVE ABNORMAL RETURNS

The Cumulative abnormal return is the sum of the abnormal returns over the event window; the sum of ARs -15 through +15.

3.2.8 STATISTICAL SIGNIFICANCE OF ARS AND CARS

The last step of conducting an event study is determining the statistical significance of the findings.

In order to determine the statistical significance of the abnormal and cumulative abnormal returns, firstly the standardized abnormal returns must be calculated, by using the following formula: $SAR_{jt} = AR_{jt} / sAR_{jt}$, where SAR_{jt} denotes standardized abnormal return for firm j at time t, AR_{jt} denotes abnormal return for firm j at time t and sAR_{jt} denotes the standard deviation of the abnormal return for firm j at time t. Of these SARs, whether it is for the whole sample, or for all events together of one company or one category, the Z-statistic is calculated. With this Z-statistic, the p-value can be calculated for all events and for all the events of a company or category taken in one.

4   EMPIRICAL RESULTS

This chapter presents the results of the empirical research and the statistical significance.

Total Standardized Abnormal Return			
Time (relative to event)	(Total Sar) TSAR	TSAR Z-statistics	TSAR p-value
-10	0.276058	0.049884	0.960215
-9	0.01866	0.003372	0.99731
-8	-0.27318	-0.04936	0.960629
-7	-0.03888	-0.00703	0.994395
-6	-0.76221	-0.13773	0.890451
-5	-0.23957	-0.04329	0.965469
-4	0.568198	0.102674	0.918222
-3	-1.36548	-0.24674	0.805107
-2	-0.6283	-0.11353	0.909607
-1	0.052637	0.009512	0.992411
0	0.07784	0.014066	0.988777
1	0.363286	0.065646	0.947659
2	-0.27613	-0.0499	0.960204
3	-0.0638	-0.01153	0.990802
4	-0.52423	-0.09473	0.92453
5	-0.03518	-0.00636	0.994928
6	-1.79267	-0.32394	0.745985
7	0.34028	0.061489	0.95097
8	0.64076	0.115786	0.907822
9	0.209825	0.037916	0.969755
10	0.158975	0.028727	0.977082

Cumulative TSAR			
Time (relative to event)	Cumulative Tsar	Cumulative Tsar Z-statistic	Cumulative Tsar p-value
-10	0.276058	0.049884	0.960215
-9	0.294718	0.037658	0.969961
-8	0.021537	0.002247	0.998207
-7	-0.01734	-0.00157	0.99875
-6	-0.77956	-0.063	0.949768
-5	-1.01913	-0.07518	0.94007
-4	-0.45093	-0.0308	0.975431
-3	-1.81641	-0.11605	0.907616
-2	-2.4447	-0.14725	0.882932
-1	-2.39206	-0.13669	0.891276
0	-2.31422	-0.12609	0.899663
1	-1.95094	-0.10177	0.91894
2	-2.22707	-0.11162	0.911128
3	-2.29087	-0.11064	0.911905
4	-2.8151	-0.13134	0.895503
5	-2.85027	-0.12876	0.897546
6	-4.64294	-0.20348	0.838757
7	-4.30266	-0.18326	0.854596
8	-3.6619	-0.15181	0.879339
9	-3.45207	-0.13948	0.889067
10	-3.2931	-0.12985	0.896681

Both analysis show no significant effect. Green marketing announcements do not lead to significant changes in firm value.

5   DISCUSSION

An analysis of results showing the contribution to knowledge and pointing out any weaknesses/limitations

5.1   LIMITATIONS AND FURTHER RESEARCH

6 CONCLUSION AND MANAGERIAL IMPLICATIONS

A description of the main lessons to be learnt from you study and what future research should be conducted

Managerial implication, green marketing focus on reduce cost of owner ship, other green marketing expenditures add cost, have no economical benefit to consumer. Focus on compliance, there is no evidence green marketing will lead to higher firm performance.

Environmental issues difficult to solve without strong governmental involvement. If the government do not change the rules of the game by implementing rules and legislation protecting the environment, voluntarily greening the business will add to the operating costs, reducing profitability. Therefore it is not likely that with corporate initiatives alone, sustainability cannot be achieved.

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