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"the **Short-run Effects**
of **Product Placements**
in **Blockbuster Movies**"

a study of

Osman Aktas

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The Short-run Effects of Product Placements in Blockbuster Movies

Osman Aktas[1]

Abstract

Due to the developments of the weakening effectiveness of commercials, firms are more aiming on movie product placements to popularize their products. Previous researchers focused on the effect of product placements on consumers' brand awareness, attitude, and purchase intention. The economic worth of product placements for firms are not studied well. Therefore, this study investigates the short-run product placements effects of 18 blockbuster movies from 2005 until 2013 in Hollywood that have reached an opening-weekend box office revenue of more than $200-million. The study contributes to the empirical evidence concerning product placements and explores movie-advertising strategies. The main difference with existing studies is the focus on short-term market effects of product placement as opposed to a longer horizon effects. The event study methodology of 163 product placements in 18 movies provided insignificant positive movements in firm market values during the movies' opening. Four Twilight, three Iron Man and two Transformers movies were a part of the sample and did not provide any evidence that sequels have a positive effect on firm market values despite the fact that sequels realized higher box office revenues. Furthermore, the findings provide evidence that firms in consumer goods industry generates higher abnormal returns after the release of the movies. Overall, movie product placements have a positive economic effect on firm values but are statistically not significant. In the final part the results and limitations are discussed comprehensively.

Keywords

Product placement, marketing, movies, event study, abnormal returns

1 | Introduction

After ET—*the main character in the motion picture The Extraterrestrial*--was lured from his hiding place with a product of Hershey's-Reese's Pieces (candy), in 1982, the sales increased by 65% in the following months after the release date of the movie *ET* (Nebenzahl & Secunda, 1993). Before the release of the movie *Risky Businesses* in 1983, Ray-Ban questioned the lifespan of the Wayfarer sunglasses because the sales were declining to 18,000 units a year; after the release of the movie, the sales increased with 1,900% to 360,000 units a year (Sengrave, 2004). There are countless successful examples of product placements in movies that have led to an increase in brand performance. Product placements give marketers an opportunity to reveal the product through a media context

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where targeted audiences are more accessible. The use of advertising since the introduction of 'product placements' is not only a way to promote the products or services of companies but also serves as a communication channel to current and potential future investors. Product placements have the main purpose to create a favorable image of the company among other market contributors (Diamond, 1985; Fehle et al., 2005; Cowley & Barron, 2008).

Shareholder returns to marketing actions are a primary concern of researchers. As one of the most observable areas of marketing activities and the largest item of marketing expenses in most firms, advertising has been an area of specific significance to academics and managers. Previous studies that investigated the relation between advertising and performance, have offered strong findings that advertising generates positive wealth for shareholders (Conchar et al., 2005). Nonetheless, there is a growing resistance of consumers against traditional advertising, such as: radio- and television-ads, print-ads etc. Many firms try to find alternatives to reach consumers and investors, and increase the value of their brands (Elliott, 2008). One of the best-used alternatives that have won the attention of these firms is *product placements* in movies. Gupta & Gould (1997, p.37) define product placement as a marketing action that 'involves incorporating brands in movies in return for money or some promotional or other consideration.' According to Balasubramanian (1994), product placement is the inclusion of branded products or identifiers through audio or visual means within mass media.

According to PQ Media (2012), global advertisement spending on product placement deals increased with 32% to a total of more than $8.25 billion. Even in the economic recession this amount was $6.25 billion in 2009. PQ Media's reports find that the product placement is a 'strategic must-have' in the marketing mix. The findings indicate that the U.S. controls the largest product placement market with a 64% share; whereas China realized overall the fastest growth. Worldwide, the report forecasts a sustained and accelerating growth path, anticipated to nearly double by 2016.

An extensive review of the current advertising literature reveals an important knowledge gap; there has been little to no research on the subject of movie product placements. The growing resistance against covert marketing strategy has shifted to conventional marketing (Karniouchina et al., 2011). And besides that, given the fact that marketing managers generally are uncertain about the *economic* worth of product placement and marketing expenditures are increasingly held accountable (Rust et al. 2004; Luo and Donthu 2006), this research area deserves attention. The economic worth of movie product placement is being studied trough an event study methodology. Generally, this methodology is used to investigate the effects of marketing actions, because it is challenging to control for lagged and confounding corporate events that could affect the stock prices (Lane & Jacobson, 1995; MacWilliams & Siegel, 1997).

This study investigates the short-run product placements effects of blockbusters from 2005 until 2013 in Hollywood. The study contributes to the empirical evidence concerning product placements and explores movie-advertising strategies. The main difference with existing studies is the focus on short-term market effects of product placement as opposed to longer horizon effects. Overall, the insignificant findings indicate a reaction for the stock prices of several firms in this study. Furthermore, the findings provide evidence that firms in consumer goods industry generates higher abnormal returns.

The organization of this study starts with providing a literature review that emphases the background of marketing strategies and in particular the effectiveness of product placement. After this, the conceptual framework and the correlated hypotheses will be defined. Third, the analysis of the abnormal returns will be presented. Fourth, the

findings will be summarized. The final part contains the discussion, managerial implications and future research advices.

2 | Literature Review

In this section the theoretical framework for this study will be constructed. First a literature review will be provided that focuses on the previous studies about the product placements phenomenon, particular in movie setup. Then the economic relationship and worth of it will be described. Thirdly and lastly the conceptual framework will be introduced.

Before further diving into the workings of product placements, one needs to understand the underlying basic of an advertisement. The main purpose of an advertisement is to inspire addressees to develop or change a perception towards buying a product (Keller, 2001; Conchar et al., 2005). Product placements originally fall under covert marketing, as viewers often are not aware of the advertisements' persuasion effort (Karniouchina et al., 2011). Previous marketing and research findings, Table 1, have focused on the more subliminal and covert nature of this marketing phenomenon. Because of growing resistance and consumers becoming more marketing-conscious, the covert nature has shifted towards conventional marketing (Karniouchina et al., 2011). In contrast to conventional marketing activities, the previous findings show little evidence of whether product placements pay off (Balasubramanian et al., 2006). Following Mandese (2006), it is usually assumed that when advertisers overwhelm the audience with overt product placements, their investments will not have positive effects. As listed in Table 1, there are a lot of survey-based and experimental studies devoted to product placement. Studies about the efficacy of product placements until today dealt especially with the effects of execution-related factors (Gupta & Lord, 1998; Gould et al., 2000; Russell, 2002; Karrh et al., 2003; Russell & Stern, 2006). Despite large variety of studies on product placement, the economic effect on the firm value of a placement remains a pressing research question. So far, only two studies have attempted to evaluate the effects of product placements in movies on firm value. In their study, Wiles & Danielova (2009) research the stock price reactions for firms that placed their products in the most popular movies in 2002. Wiles & Danielova considered only movies that made $20 million in the United States during their first weekend, according to Boxofficemojo.com. Their findings indicate that product placements resulted in .89% abnormal returns over the movie release event window. However, the fact that there was found positive cumulative abnormal returns (CAR), the results were not significant. The following study of Karniouchina et al. (2011) examines the economic worth of movie product placements over a time span of 40 years. Overall, the authors found a correlation between movie release and movements in stock prices.

Besides these facts from the literature, firms are not helping to measure this topic either (Russell & Belch, 2006). Luo & Donthu (2006) have made clear that there is an increasing pressure upon marketing managers to limit their marketing expenditures. Given this pressure and the uncertainty of managers about the authority and the role of product placements in their marketing strategies, comprehensive assessments that investigate the addition of product placement in movies to firms' expected cash flows and profits. These demands create a need to translate marketing resource allocations and their performance consequences into financial and firm value effects (Rust et al, 2004). Although there is a large body of research on product placement, there remains an important knowledge gap

Table 1. Overview of Previous Related Literature about Product Placement

Study	Dependent Variable	Findings
Karniouchina et al. (2011)	Cumulative Abnormal Returns	Product placements in successful movies show positive cumulative abnormal returns for event window [-16, +10].
Wiles & Danielova (2009)	Cumulative Abnormal Returns	Product placements in successful movies show positive cumulative abnormal returns for event window [-2, 0].
Cowley & Barron (2008)	Brand Recall	Recall is greater when moviegoers like the movie.
De Gregorio et al. (2007)	Placement Attitude	Consumer stands positive to placements, no need for any regulation.
Balasubramanian et al. (2006)	N.A	Conative responses to placements, including purchase intention, brand choice, and behavior.
Cornwell et al. (2005)	Stock Price	Major-league and Olympic sponsorships enhance firms' stock prices; product placement remains unclear.
Gupta & Lord (1998)	Product Placement Recall	Blatant placement leads to greater recall
Gupta & Gould (1997)	Attitude toward Placement	Positive attitude towards placement; tobacco and guns are less acceptable.
Lane & Jacobson (1995)	Stock Price	Stock market participants' responses to brand extension announcements, depend interactively on brand attitude and familiarity.
Ong & Meri (1994)	Recall of Placement and Purchase Intentions	Positive attitude toward placement; no link between recall of placement in movies and increased purchase intentions.

concerning the economic value of product placements (Balasubramanian et al., 2006). Particularly, the short-run effects of product placements. A primary reason to investigate the short run effects of product placements is accountability. That is, the marketer can assess the immediate effects of placements on the company's value and convince investors and company management of the success and the necessity of product placements in the marketing portfolio. A second, and arguably, more pressing reason to consider the short run effects of product placements is the fallacy of measuring the long run effects. Admittedly, the effects of product placements in movies are bound to be stronger in the long-run. Product placements in older movies can still affect the value of a company today. However, one is likely to capture other factors as one widens the event window. The longer

the event window, the more likely it is to capture effects that are not related to product placements.

To address this gap, this study investigates the short run effects of product placements in blockbuster movies in Hollywood. The event study methodology used in this study, considers a small time frame to exclude factors other than product placements affecting the stock prices. However, it is not easy to control for all other factors that can influence the market value of a firm (Brown & Warner, 1985; MacKinlay, 1997). This study eliminates qualitatively the possibility of the effects of other factors by consulting the Dow Jones Factiva database and extracting relevant news articles for those companies that have experienced product placement effects.

The main purpose of an event study is to analyze the impact of a specific event to a firm's future profit performance to be isolated and measured (Brown & Warner, 1985). To understand this we have to start with the cornerstone of investment theory, the efficient market hypothesis. The efficient market hypothesis (EMH) requires that stock prices immediately and fully integrate all information that may affect the future cash flow of a firm (Hillier et al., 2011). When new information becomes available, investors revise their expectations or valuations of the firm's future performance, resulting in movements of the firm's stock price. Rational investors value a security on the basis of the present value of its expected cash flows. If its market price is below (above) their valuation, they see an opportunity to make money and will buy (sell short) the security, bidding up the price until the mispricing is removed and there are no further gains from trading.

To hold on to the EMH, economists needed more precise definitions of information and gains from trading; researchers define 'gains' as *abnormal returns*: returns above (below) the normal returns an investor would demand given the risk assumed by investing in the security (Hillier et al., 2011). Three levels of information strengths have been formed in academic literature about market efficiency:

(i)   *weak:* stock prices reflect fully the information contained in the past patterns
(ii)   *semi-strong:* EMH assumes that stock prices reflect all publicly available information and;
(iii) *strong:* security prices reflect fully all available information, including information not publicly available but known to insiders (those who have privileged access to corporate information) only.

(Malkiel, 2003; Hillier et al., 2011).

The *(ii) semi-strong* form of market efficiency has received general acceptance amongst many academics (Grossmann & Stiglitz, 1980; Malkiel, 1989). Based on this hypothesis, an advertisement in a movie can influence the value of a firm, i.e. its stock price. It is generally known that the production and the release of a movie is a very difficult and lengthy process. Because of this process, producers (studios) go in consultation with the Wall Street analysts to plan the release and financial opportunities (Wiles & Danielova, 2009; Joshi & Hanssens, 2009; Hillier et al., 2011). It is commonly believed that firms' marketing activities have strong influences on the stock prices. It is also believed that advertising increases the firm's capital market visibility, attracts more investors, increases liquidity and decreases the firm's systematic risk and cost of capital (Wiles & Danielova, 2009; Hillier et al., 2011).

Additional findings about firms' aggregate marketing activities that is associated with enhanced cash flows and market values of Conchar et al. (2005), strengthen these findings too.

Most sources agree that product placements gained more attention and are born with the movie E.T. (1982); when a little boy made an alien friend through a product of Reese's Pieces (Nebenzahl & Secunda, 1993; Newell et al., 2006). Due to media disintegration, generation and declining advertising effectiveness, product placement became an effective solution against this upcoming evidence of resistance to persuasion. It is believed that more than 50% of the traditional advertising spot-viewers cut the sound or skip the channels during the commercials, because of the annoyance or irrelevance; product placement (the solution) is more effective because of the fact that it is immune to skipping (Schonfeld & Borzo, 2006; Smit et al., 2009). Another positive effect is to be able to reach the targeted audience. It has a significant effect on message directness.

Furthermore, it is expected that there is a relationship between the product placement and the targeted audience; the more successful the movie, the longer the shelf life of the success of the placed product (Vollmers & Mizerski, 1994; Russell, 2002; Panda, 2004; Cowley & Barron, 2008).

In light of these developments, why has there been so little research to evaluate the effects of product placements in movies?

One possible explanation can be the complexity of the effects of product placement on firms' cash flows. Other activities, such as earnings related releases, new product announcements, management moves, M&A announcements etc., affect the cash flows and revenues in a different way (Wiles & Danielova, 2009). There are several studies that strengthen the fact that product placement's influence on the decisions of investors is positive; (i) the price pressure theory stipulates that consumers' attention or mood and enthusiasm can affect the stock prices and the trading volumes (ii) the efficient market theory (EMT) explains the investor recognition theory and the role of increased firm awareness on the behavior of investors (Fehle et al., 2005; Hillier et al, 2011). The EMT dictates that all market participants receive and act on all of the relevant information as soon as it becomes available (Hillier et al, 2011); increased visibility of a firm can attract attention of investors and motivate these investors to become new shareholders or buy more shares (Grullon et al., 2004; Hillier et al., 2011). As mentioned earlier, it is the future, not the past that drives current stock-return, based on the given theories. Investors update their expectations constantly about short/long-term future cash flows by buying or selling shares once new information becomes available. Accordingly, information following in a positive or negative review will have a respectively positive or negative effect on stock returns. Given these findings, once information about product placement is available to possible investors, there will be a change in the stock prices reflecting investors' behaviors or expectations. Movie product placements can also influence the stock prices by directly changing investor behavior looking at the firm's future financial performance (Gruca & Rego, 2005).

Conceptual Framework

As earlier mentioned, investigating the effect of product placement to the firm market value is a challenging task, because of the lagged effects of product placement on firms' cash flow. Many other (confounding) events can play a role in the valuation of the stocks.

Analyzing the stock market reaction to product placement can be helpful to investigate the effect of product placement more precisely.

The framework that is used, builds on the efficient market theory (EMT), which suggests that consumer behavior affects investors' behavior to product placements (Grullon et al., 2004; Fehle et al., 2011). This finding suggests that investors revise their cash flow expectations and understanding of the economic effects of the product placements. In their study, Grullon et al. (2004) conclude that firms with greater advertising expenditures have a larger number of both individual and institutional investors, and improve market liquidity. Further, they found that it has a stronger effect on individuals than institutions. It attracts individual investors who make decisions based on familiarity as opposed to a rational way of decision-making. Finally, since improved visibility increases the breadth of its ownership and improves the liquidity, it also has a positive influence on the firm's value. Public information that carries product market advertisements appears to be very important in the decisions/valuations/expectations of investors (Grullon et al, 2004).

The appearance of a product in a blockbuster movie[2] is the event. Evaluating the aggregated stock market response (dependent variable/CAR) to the release of the movie in which a firm's brand appears, is the main research area of this study.

Consumer Related

To be able to evaluate the effect of product placement in a movie, customers and investors first have to be exposed to the placement. A target audience is a must (Green, et al., 2004). The number of brands in a movie is included as well; firms are likely to gain more returns if more of its products appear in the same movie (Ravid & Basuroy, 2004; Wiles & Danielova, 2009). In addition to exposure, customers and investors should be accessible to buy the placed products in the movies. As explained earlier, more blatant placements have a positive effect on memory; unlikely, because of the proliferation of this marketing activity, consumers have started to show evidence of resistance to persuasion (Wei et al., 2008). Besides that, this research investigates only blockbuster movies, because it has proven that annoyance for product placement is greater for more 'poor-quality' movies (Karniouchina et al., 2011).

Investor Related

The framework includes in this part the investor-related control factors, which could be of influence. Starting with an important one, the connection of the appeared brand to its parent company. Incorrect linking of these two will affect the flow of investment. Following economists and researchers, there is a significant misunderstanding when looking at the ticker symbol – company connection. Additionally, the effect of product placement without any misleading effect(s) on a company's stock price is likely for a healthy connection between the featured brand and the parent (listed) company (Rashes, 2001; Grullon et al., 2004). According to this proven fact, this framework includes a detailed investigation about the right connection of the featured brand or product and the company.

Furthermore, the framework includes the brand familiarity, which according to Grullon et al. (2004) has an influence on the individual investors in decision-making. Srinivasan et al. (2009) has shown that brands that are not so familiar to investors, suffer undervaluation. The framework also includes another control factor that will be of great

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[2] According to Lavik (2008), a blockbuster movie involves the production of very expensive movies, often featuring biggest stars and spectacular special effects.

importance in this setup, namely the abnormal returns. A product placements' impact on the stock price is difficult to investigate, because there is not only one marketing activity while observing the effect of product placement in a specific movie. Aside this, if there are different or multiple brands present, it will be more difficult to investigate the effect of a particular product placement, because this will create errors in the observations or confounding events (will be outlined in the following part: Methodology) (McWilliams & Siegel, 1997). At last, the framework includes industry classification. Industry membership of firms that invests in product placements could influence a firm's value.

3 | Research Question

Based on theory and evidence presented in the previous chapters, first the research question is formed and several hypotheses are developed related to the effect of movie product placements on stock performance.

The preferences of investors in the financial market to buy, sell, or hold the stock is the reason of the stock price change (Hillier et al., 2011). Investors' preferences are influenced by the information they have to analyze the future stock performance of the company. The more information they have, the better decision should be made. Conversely, lack of information could lead to information asymmetry that can result in inappropriate decision.

Following the given literature and conceptual framework the central question is formed:

Do product placements have positive short-run effects on firm market values in blockbuster movies?

Hypotheses

Based on the information retrieved from existing literature used to construct the research question, this study will investigate the following hypotheses, which will be tested by the outcomes of the data analysis.

Product Placement and Positive Economic Effect in Firm Value

A firm's stock price reflects the discounted value of the expected cash flows. Marketing activities can affect the future cash flows positively, which in turn affect the shareholders' value (Anderson et al., 2004; Gruca & Rego, 2005). In other words, there is strong reason for investors to expect that product placement in movies positively affects the future cash flows. It is widely accepted that product placement increases the consumer awareness and improves brand attitudes (Aaker & Day, 1974; Gupta & Gould, 1997). According to Conchar et al. (2005), Wiles & Danielova (2009) and Aaker & Day (1974), product placement in movies has the chance to improve the brand equity, which in turn increases demand and cash flows. Another reason that shows the positive effect of product placement in movies is the fact that it accelerates the expected timing of sales; increase the purchase behaviour; stimulates new products to gain the attention of potential investors (Russell, 1998; Gould et al., 2000; Wiles & Danielova, 2009). The significant increase in the sales of Reese's Pieces (E.T.) and newly launched Mini Cooper (The Italian Job), are strong resources to invest in product placement in movies to attract new customers/investors to the firm.

Given these findings, product placement in movies can lead investors to develop positive expectations for future economic performance, because placements can lead to improvements in consumer awareness and brand attitudes that increases the cash flows. But because of the fact that there is limited evidence about the economic effect of product placement in movies, there is a need to investigate this topic in an event study. For these reasons, the following hypothesis is formed, which will be evaluated in two-ways, namely movie- and firm specific and the impact of widening the event window from short-run [-1, +1] (Wiles & Danielova, 2009) to [-3, +3]: To understand the effects of product placements on stock prices this study forms a variety of hypotheses. Hypotheses 1a/2a considers the effect on stock prices *per movie*. Hypothesis 1b/2b considers *firm* specific affects.

H1a: Product placements increase the *movie* specific market value in the short-run (three trading days).

H1b: Product placements increase the *firm* specific market value in the short-run (three trading days).

New information requires time for investors to process similar to the fully reflection of announcement/event in the stock prices (Hillier et al., 2011). In hypotheses 2a-b, the analysis considers lagged effects. It could be that not all market participants have reacted within a day following the box office results. Any delayed reactions on stock prices will be picked up by widening the event window including the movements after the release.

H2a: Product placements increase the *movie* specific market value more in a wider horizon.

H2b: Product placements increase the *firm* specific market value more in a wider horizon.

Successful Movie Sequels

Movie sequels build on the original movies' commercial success (Moon et al., 2010). Moviegoers have the potential to watch the sequels of the successful original movie; the original movie is a signal for the quality of a sequel, 'because they tend to associate various products of the same brand with product quality' (Moon et al., 2010, p. 110). After the success of the original movie, and heavy advertising, the sequel mostly achieves even more box office success than the original movie (Basuroy & Chatterjee, 2008). Despite the fact that movie sequels are a box office success, sequels are rated less than the original movies; expectations grow with the success it already achieved in the original movie, and this misleads the moviegoers, which causes less satisfaction for them (Moon et al., 2010). Therefore, the effects of successful original movie will gather higher revenues for sequels, because viewers who already saw and liked the original movie will tend to see its sequel. Furthermore, sequels are more cost-efficient to produce; the moviegoers are already aware of the topic, which makes advertising in sequels more attractive (Eliashberg et al., 2006). Many brands that have placements in the original movies, assume that investing in the sequels is a good investment because they can successfully take advantage of the fans of the original movies (Moon et al, 2010).

The number of sequels in our data set is very large, 9 movies: four Twilight movies, three Iron Man movies and two Transformers movies. In the marketing literature, film sequels are like brand extensions (Basuroy & Chatterjee, 2008). In the movie industry, the parent brand associations influences the experiential characteristics of original movie's like the story line, genre and notable scenes. For these reasons, the following hypothesis is formed:

Industry Classification

Product placement activities in movies can be more negative or positive in generating value according to sector or industry membership of the firms making the placements. Clothing, food and beverages, home furnishings, travel and leisure experience the most product placements; ordinary industrial products might be difficult to remember and create less excitement, while most of the consumer goods can be more effective and create more excitement through product placement (Lamb et al., 2011). Especially consumer goods are the leading ones in the market share of product placement in movies. Thinking from tobacco to automotive industry, from food and beverages to personal and household goods. Brands such as Coca-Cola, Apple, Ford Motors and Audi are using this media strategy (product placement) often. According to PQ Media Global Product Placement Spending Forecast 2012-2016, global spending on movie placements is $1.86 billion in 2013, in which the consumer goods takes the leader role with 20%. In their study, Kourniouchina et al. (2011) have found that two sectors are illustrated by large positive residuals: automotive and personal and household goods (both from Consumer Goods) placements, respectively: .2% and .8% higher returns when compared to other placements of different industries. In summary there is an expectation that there is a difference between members of industries when looking at cumulative abnormal returns in the short run, therefore the following hypothesis is formed:

H4:   In relation with other industries, product placements for consumer goods will generate better positive market reactions in the short run.

In the following chapter, the event study methodology and data collection will be outlined.

4 | Methodology

The following research design was employed to examine the relationship between product placement and investment performance of cumulative abnormal returns (CARs). This section describes the event study methodology, the sample and data collection process, and the research methodology.

Event Study

The expectations of investors regarding the financial consequences of marketing activities, here product placement, are measured through an event study methodology which is commonly used in literature (MacKinlay, 1997; MacWilliams & Siegel, 1997; Wiles & Danielova, 2009). Event study method relies on the assumption of semi-strong form of efficient market hypothesis, which measures the market reaction of the stock prices associated with the release of new information (Fama et al., 1969). It is a conventional way to measure or study different forms of events, such as: earnings-related announcements, dividends, spin-offs, stock splits, changes in regulatory and accounting practices, mergers and acquisitions, and new product development announcements etc. The method has been widely used and well accepted in a variety of disciplines to evaluate the market value of

information contained in various events of interest (reference?). The market return to an event of a firm is the change in the stock price of that firm during that event, besides that to the general market at the time of the event (Lane & Jacobson, 1995). According to efficient market hypothesis, any new financially relevant information/activity (here: marketing) available to investors will be immediately incorporated into stock prices (MacKinlay, 1997; MacWilliams & Siegel, 1997). The abnormal returns of the shares, offers a fair evaluation of the economic value of the relevant event (Brown & Warner, 1985).

An event study is divided into three periods, which are the estimation window, event window and the post-event window, as seen in the following figure:

Figure 2 Timeline for An Event Study (MacKinlay, 1997)
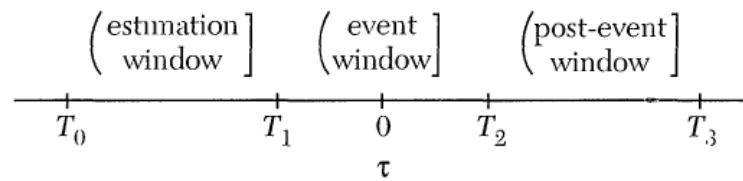
The estimation window is used as a period that provides estimates for the market model to calculate the abnormal returns, difference between the expected return and the real return. From the estimation period/window it is possible to calculate the expected return. To prevent any influences on the statistical model of the event window, the estimation window will not overlap the event window.

The event day, T_0, is defined as the date on which the movie release takes place in theatres. Following to MacKinlay (1997), inclusion of several days before and after the event day is intended to test for information leakages and delayed stock-market responses. For each firm/stock, this thesis used a maximum of 250 trading days prior to the event as the estimation window (McWilliams & Siegel, 1997). Longer estimation windows reduce the impact of unusual market movements; when the returns are estimated over longer periods, an unusual movement tends to be a small part of the entire period (Park, 2004). Dedman & Lin (2002) recommend leaving a 10-day gap between the estimation and event windows, to prevent the event from influencing the estimated parameters. A short-run (three day event window) and wider (seven days) event windows are being used, as primary research windows (T_1 till T_2). Furthermore, various event windows were tested as well (all T_1 till T_2): (-1,+1), (0,+1), (-3,+3), (0,+3) and (0,+5). The following figure illustrates the research timeline of this thesis:

Figure 3 Thesis Research Timeline
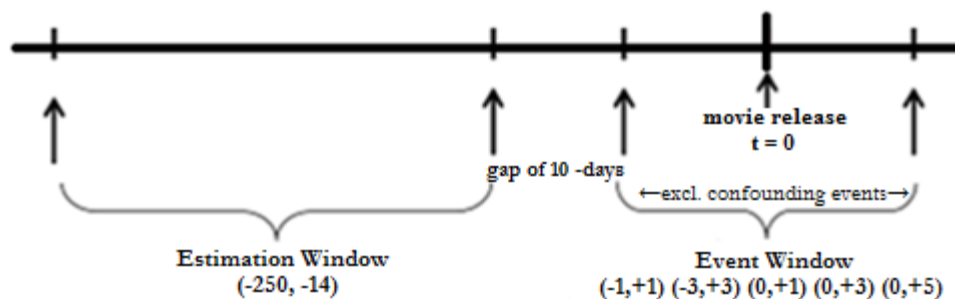
Sample and Data-Collection

The data used in this study is characterized as a primary data; it is constructed for this research; no existing new dataset to test the hypotheses.

As the research question implies, this study will only focus on blockbuster movies that crossed the $200 million worldwide opening weekends in the years from 2005 till 2013. Based on this selection criterion, a total of 36 movies were selected first (according to an online movie publication and box office reporting service BoxOfficeMojo.com). Despite the fact that 36 movies had reached the limit of $200 million, 18 of the selected movies had no possibility for marketing activities such as product placements. As a result the final sample consists of 18 movies.

The event, as mentioned before, is the appearance/placement of a product in the selected 18 movies. Following to Russell (2002) a placement has two forms (i) visual, if product's name or logo is explicitly shown; and (ii) audio, if product's name is mentioned during conversations. To detect and collect the product placements in the movies, a detailed analyze-session is applied per movie. There were a lot of product placements that appeared, but only the publicly listed firms were recorded, because firm market value can be measured through the stock price movements. Multiple appearances of one brand were recorded as a single placement. These selection criteria have helped to detect 231 visual and audio placements of 121 different worldwide listed firms.

To improve the methodology of event study, MacKinlay (1997) recommends in his paper to eliminate confounding events: various forms of other events that could affect the event (-window) concerning the effect of product placement in this research. Following confounding events were taken in the research and carefully searched through Factiva Database to exclude the chance of impact on the share price during an event window: earnings-, dividend-, share buyback-, mergers & acquisitions, joint venture-, management moves-, new product(s)/service(s) (development)-, and bankruptcy related announcements/information's (McWilliams & Siegel, 1997; Kiousis et al., 2007). Any of these could affect the stock prices during the event windows. Because the length of the event window would make it more difficult to control this criterion, this research limits its event windows from three days prior- to five days post window. So, the Factiva database search covers a period from four trading days before and five trading days after the release dates of the movies. These selection criteria eliminated 68 firms with the following confounding events:

Table 2 Confounding Events

Confounding Events	Frequency
Earnings	29
Dividends	3
Share Buyback	2
M&A	14
Joint Venture	1
Management Moves	4
New Products/Services	12
Bankruptcy/Not Listed	3
Total	68

After all these eliminations 163 product placements, the total sample size (N), of 104 firms (17 firms were completely eliminated due to confounding events) remained in the sample as comprehensively listed with all other relevant information in Table 3. According to Green's (1991) theory, the minimum of 58 observations is enough for an univariate OLS regression.

The daily stock returns of the selected firms in this sample are gathered from Thomson Reuters Datastream, an extensive database providing a wide range of data types for all public companies worldwide. With the help of ticker symbols and company ID's, gathered from Datastream Navigator, the needed returns of stocks have been collected. As other financial researchers, MacKinlay (1997) suggests to make use of these returns (dependent variables). The formula for this is:

$$RI_t = RI_{t-1} * \frac{PI_t}{PI_{t-1}} * (1 + \frac{DY_t}{100} * \frac{1}{N})$$

where, RI_t return index on day t (t-1), PI_t price index on day t, DY_t dividend yield of the price index on day t and N number of trading days in a year.

Market Model & Returns

According to MacKinlay (1997) and Campbell et al. (1997), the use of the Market Model for calculating the abnormal returns, is the finest method. He describes the abnormal return as (1997, p.15): "The abnormal return is the actual ex post return of the security over the event window minus the normal return of the firm over the same event window. The normal return is defined as the expected return without conditioning on the event taking place". By removing the portion of the return that is related to variation in the market's return and the set of control variables, the variance of the abnormal return is reduced. The formula is calculated for firm i and event date t with,

$$AR_{i,t} = R_{i,t} - E(R_{i,t})$$

where $AR_{i,t}$ abnormal return, $R_{i,t}$ actual return and $E(R_{i,t})$ is the expected return of market portfolio.

The formula to transform the stock prices into returns, is as follows,

$$r_t = ln\left(\frac{P_t}{P_{t-1}}\right)$$

where continuously compounded daily local currency return for firms on day t's, and the continuously compounded daily US dollar return on Datastream's world market index on day t over the trading days -250 to -14 relative to the movie release date. The Morgan Stanley Capital Index (MSCI) world market index was used in this thesis as the market index for all firms, because it represents 1,636 world stocks across 23 developed markets; the index covers 85% of the world market capitalization. Since all of the selected firms are from these developed markets, the use of MSCI will cause no lack of power (Park, 2004).

Table 3 Comprehensive Information of Movie Product Placements after Elimination

Movie	Release Date (Wednesday)	Worldwide Opening[2] (x $millions)	Firm[3] (Product)[4]	Genre[5]
1. The Avengers	4/5/12	392.5	Walt Disney (ABC), LG, Plantronics, Coca-Cola (Dr.Pepper), Harley-Davidson, Oracle	Action-Adventure
2. Transformers 3	*29/6/11*	382.4	adidas, PepsiCo, Apple, Hermes International, Anheuser-Busch (Budweiser), Canon, FedEx, Procter & Gamble (Gillette), Ford, LVMH (Louis Vuitton), Starbucks, Gannett (USA Today), Waste Management, Fiat SpA (Ferrari), Cisco, Time Warner (CNN)	SciFi-Action
3. Spider-Man 3	4/5/07	381.7	Ford Motor, Hilton Worldwide, Honda, UPS, Nikon, ASICS, Burger King, Sony	Action-Adventure
4. Iron Man 3	3/5/13	372.5	Verizon, Microsoft (Skype/MSNBC), Southwest Airlines, TCL Communication, Oracle, Audi, Ford Motor	Action-Adventure
5. Twilight BD 2	16/11/12	340.0	Apple, VF Corporation (Jansport), Daimler AG (Mercedes), Steinway Musical Instruments, Volvo	Romance
6. Twilight BD 1	18/11/11	291.0	Walt Disney (ESPN), LG	Romance
7. Twilight NM	20/11/09	274.4	Apple, Burger King, Coca-Cola, VF Corporation (Jansport/North Face)	Romance
8. Indiana Jones	22/05/08	272.2	Clorox, Ford Motor, Unilever (Good Humor Ice Cream), Harley-Davidson	Adventure
9. The Dark Knight Rises	20/7/12	248.9	Anheuser-Busch (Budweiser), General Motor, HJ Heinz, Jos A Bank, Audi (Lamborghini), Volvo (Mack), Carter's (Oshkosh), Under Armour	Action-Thriller
10. Avatar	18/12/09	241.6	Hershey (Jujubes), Philip Morris Int. (Marlboro), Nike, Kellogg (Special K)	SciFi-Adventure
11. Da Vinci Code	19/05/06	232.1	Peugeot (Citroën), Ford, P&G (Gillette), HJ Heinz, Daimler AG (Mercedes/Smart), Walt Disney (Mickey Mouse), Renault, Marriot Int. (Ritz), Volkswagen	Thriller
12. 2012	13/11/09	230.5	Campbell Soup, Time Warner (CNN), Coca-Cola, Kering (Gucci), Kimberly-Clark (Huggies), Hyundai Motor, Brown-Forman (Jack Daniel's),	Action-Drama

			Kellogg's, Toyota Motor (Lexus), Marriott International, Tata Motors (Range Rover), Ebro Foods (Ronzoni), Sony, Fuji Heavy Industries (Subaru), Visa	
13. Twilight Eclipse	*30/6/10*	228.9	American Eagle Outfitters, Time Warner (CNN), VF Corporation (Jansport/North Face), Nike, Porsche, Samsung	Romance
14. Iron Man 2	7/5/10	220.8	3M, Apple, Bridgestone, Vivendi SA (Canal+), Crocs, Dick's Sporting Goods, Coca-Cola (Dr. Pepper), Sports Direct (Everlast), Fiat SpA (Ferrari), Google (YouTube), Les Hotels de Paris (Societe des bains de mer de Monaco), Richemont (Jaeger-LeCoultre), Harman Int. (JBL), Diageo (Johnnie Walker), LG, Lincoln Electric, LVMH (Louis Vuitton), General Electric (MSNBC), Oracle, Emerson Electric (Ridgid), Shell, Starbucks, Chevron (Texaco),	Action-Adventure
15. Transformers 2	*24/6/09*	219.9	adidas, Air France-KLM, Apple, Piaggio (Aprilia), Audi AG, Caterpillar, ConocoPhillips (Continental Oil), Ford, Harley-Davidson, HSBC Holdings, Kobelco Eco-Solutions, Volvo (Mack), PepsiCo (Mountain Dew), Nintendo, Paccar (Peterbilt), Southwest Airlines, Anheuser-Busch (Stella Artois/Budweiser), Amerco (U-Haul)	SciFi-Action
16. War of the Worlds	*29/06/05*	203.1	Apple, Coca-Cola, Ford, HJ Heinz, Oshkosh (JLG), Mazda Motor, Mizuno, Motorola, Clorox (STP), Toyota Motor	SciFi-Horror
17. Man of Steel	14/06/13	202.0	Seven & I Holdings (7-Eleven), Time Warner (CNN), Nikon, Nokia, Sears Holdings Corporation (Sears), Amerco (U-Haul), DineEquity (Int. House of Pancakes)	Action-Adventure
18. Iron Man	2/05/08	201.2	Apple, Audi AG, Burger King, Cisco, Goodyear, LG, Graham Holdings (Newsweek), Nintendo, Nissan Motor, Nestle (Perrier), BMW AG (Rolls Royce)	Action-Adventure

[2] For most films, this was the Friday–Sunday gross. For 4 films, this was the Wednesday–Sunday gross, because of a Wednesday-release.

[3] Only companies that are publicly listed. Firms with placements that had confounding events are not listed.

[4] If product differs from name of mother company (as listed in stock markets).

[5] Gathered from Internet Movie Database (IMDb.com).

Figure 4 Movie Specific Additional Info

Opening Gross (USD:Million)

Occurences

Movie	Opening Gross	Occurences
Avengers	392,5	6
Transformers 3	382,4	16
Spider-Man 3	381,7	8
Iron Man 3	372,5	7
Twilight BD 2	340	5
Twilight BD 1	291	2
Twilight NM	274,4	4
Indiana Jones	272,2	4
Dark Knight Rises	248,9	8
Avatar	241,6	4
Da Vinci Code	232,1	9
2012	230,5	15
Twilight Eclipse	228,9	6
Iron Man 2	220,8	23
Transformers 2	219,9	18
War of the Worlds	203,1	10
Man of Steel	202	7
Iron Man	201,2	11

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The formula for the expected returns including the capital asset pricing model (CAPM), an asset pricing theory to calculate stock returns, which is frequently used in finance topics (Fama & French, 2004):

$$E(R_{i,t}) = \hat{a}_i + \hat{\beta}_i * R_{m,t}$$

where $\hat{a}_i$ is the intercept, $\hat{\beta}_i$ the slope, and $R_{m,t}$ return on market portfolio are estimated using ordinary least squares (OLS) regression of the firm returns on the market returns, during estimation window. The OLS is a statistical technique for estimating the unknown parameters in the model in which it attempts to fit a line that approximates the data. It is a method that is being used in financial studies; effective general prediction method that is simple to implement and in comparison with other regression techniques, it has earned a wide acceptance as the primary tool for estimations (Campbell et al., 1997; MacKinlay, 1997; MacWilliams & Siegel, 1997; Wiles & Danielova, 2009; Moya-Martinez et al., 2013). This resulted in the following formula for the calculation of the abnormal returns:

$$AR_{i,t} = R_{i,t} - (\hat{a}_i + \hat{\beta}_i * R_{m,t})$$

The expected value of the abnormal returns is 0. The residuals' variance $\sigma^2_{\varepsilon,i}$,

$$\sigma^2_{\varepsilon,i} = \frac{\sum(t * \hat{\mu}^2_{i,t})}{T-2}$$

where T is the total trading days in the estimation window, and t is (-250,-14). It is typical that there is no overlap between estimation and event window. This method offers estimators for the parameters of the normal return, which helps to not affect the returns around the event day. Counting the days of event window in the normal return model parameters, would affect the abnormal returns that is being calculated in within the event window. According to different researchers, 250 days used in this study prior to the event date, is wide enough to accept that sampling errors are cancelled out, making the variance of the abnormal returns equal to the variance of the residuals (MacKinlay, 1997; Muntermann, 2007).

By averaging the abnormal returns across firms in the similar event date, the average abnormal returns were calculated by the formula:

$$\overline{AR}_t = \frac{1}{N} * \sum_{i=1}^{N} \hat{\mu}^2_{i,t}$$

By aggregating the average abnormal returns through the event window $(T_1 - T_2)$, the cumulative average of the abnormal returns ($\overline{CAR}$) is calculated by the following formula:

$$\overline{CAR}_{(t1,t2)} = \sum_{t1}^{t2} \left(\frac{1}{n} \sum_{i=1}^{N} AR_{i,t} \right)$$

where n denotes the number of events and the expression in the round brackets is the average abnormal returns across i. In practice, the conditional variance is unknown and

an estimator must be used to calculate the variance of abnormal returns, $\sigma^2(\overline{AR_t})$. The usual sample variance measure from the market model regression in the estimation window is an appropriate choice. Using this to calculate the variance of abnormal returns, the null hypothesis can be tested using (Filson & Olfati, 2014),

$$t = \frac{\overline{CAR}_{(t1,t2)}}{\hat{\sigma}(\overline{CAR}_{(t1,t2)})}$$

with standard deviation,

$$\hat{\sigma}(\overline{CAR}_{(t1,t2)}) = \sqrt{\frac{1}{N(N-dF)}\sum_{i=1}^{N} CAR_{i(t1,t2)} - \overline{CAR}_{(t1,t2)})^2}$$

where N is again the number of events, and dF is the degrees of freedom, this refers to a positive whole number that indicates the lack of restrictions in our calculations. The degree of freedom is the number of values in a calculation that can vary.

5 | Analysis of Abnormal Returns

The results of the analysis used by this study will be presented in this section. First part of this section is allocated to the descriptive statistics in which the data is differentiated in three parts, namely time windows that takes (i) pre- and post-event windows, (ii) only post-event windows into account and (iii) an additional time window [-6, +10]. Then the hypotheses will be tested and further analyzed per topic.

Stock Performances in Different Windows

One of the ways that is being used by marketing researchers (Wiles & Danielova, 2009) to examine the impact of marketing actions on firm value, is analyzing the abnormal returns around the event date (or movie release) that takes place at $t = 0$. To estimate the normal or expected return, the use of the estimation window is the appropriate way (Brown & Warner, 1985; MacKinlay, 1997; Park, 2004). The choice of the time window is extended to seven trading days around the event date and is consistent with common practice that is embraced in finance literature (e.g. MacKinlay, 1997). To allow for any uncertainty regarding when the information was available for the investors, common event study practice is to determine the event window empirically (Brown & Warner, 1985; MacKinlay, 1997). The final prints of the movies arrive two days before the release date, so the most appropriate days to investigate investor behavior are -3, -1, 0, 1 and 3 (Thomas, 1998).

Table 4 Descriptive Statistics

Event Window	Obs.	Mean CAR (%)	Std. Dev.	Min	Max
CAR (-1, +1)	163	.0032	.0254	-.0308	.0402
CAR (-3, +3)	163	.0064	.0401	-.0501	.0665
-Post Event-					
CAR (0, +1)	163	.0010	.0245	-.0357	.0360
CAR (0, +3)	163	.0059	.0295	-.0373	.0465
CAR (0, +5)	163	.0073	.0361	-.0447	.0638
-Additional-					
CAR (-6, +10)	163	.0101	.0621	-.0743	.1202

This table presents the descriptive statistics for different event windows. The table is formed through clustering the regression analysis of all product placements in different event windows settings. The CAR windows show the sum of all abnormal returns within the indicated trading days around the movie releases. The statistical significance levels for all event windows vary between 15– 23 percent (=insignificant).

Appendix A presents time series plots of the abnormal returns for a window of 41 trading days around the movies' release. Fourteen of the eighteen movies reveal a gradual buildup starting around 6 days before and remains approximately 10 days after the release. Particularly (e) Twilight Breaking Dawn I and (m) Twilight Breaking Eclipse illustrate no buildup. Furthermore movies like (g) Twilight New Moon, (h) Indiana Jones, (l) 2012 and (q) Man of Steel shows the same move, but builds up directly or slightly after the release of the movies. Due to empirical results, a new window is added to Table 4 to show the major movement that takes place within a [-6, +10] event window. The stocks gain .01% on average in this buildup period (see Table 4). This movement also correspondents to one business week before and two business weeks after the movie release.

The results of the event windows are broadly in line with the studies conducted by Wiles & Danielova (2009) and Karniouchina et al. (2011), which both found positive abnormal returns. Although positive findings, there is a difference in contrast to the event windows this study analysis. Wiles & Danielova (2009) found significant positive market reactions for the event windows that appear before the movie release [-2, -1] and [-2,0], respectively .81% and .89%; and Karniouchina et al. (2011) found significant positive market reactions of .75% for the [-10, +16] event window.

All event windows in this study takes the effects *after* the movie release into account and documents positive market reactions, which are not significant.

When investigating in a more detailed level, movie and firm specific market reactions are also interesting. Table 5 and 6 represents these reactions.

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Table 5 Market Reactions Per Movie (average CARs in %)

	(-1,+1)	(-3,+3)	(0,+1)	(0,+3)	(0,+5)
The Avengers	-.0033	.0130	-.0024	.0193	.0065
Transformers 3	-.0036	.0010	-.0035	-.0023	.0040
Spiderman 3	.0006	.0071	.0018	.0080	.0090
Iron Man 3	.0286	.0424	.0033	.0038	.0209
Twilight BD 2	-.0045	.0001	-.0002	-.0011	-.0090
Twilight BD 1	.0480	.0312	.0326	.0217	.0230
Twilight NM	.0063	.0043	.0038	.0016	-.0004
Indiana Jones 4	-.0439	-.0433	-.0300	-.0164	-.0108
Dark Knight	.0087	.0245	.0048	.0159	.0016
Avatar	-.0029	-.0035	.0002	.0057	.0068
Da Vinci Code	.0070	.0248	.0006	.0212	.0234
2012	-.0013	-.0021	-.0052	-.0070	-.0047
Twilight Eclipse	-.0095	-.0085	-.0078	-.0113	-.0159
Iron Man 2	.0013	.0035	-.0005	.0064	.0069
Transformers 2	.0159	.0010	.0153	.0095	.0101
War of the Worlds	.0111	.0055	.0037	.0092	.0127
Man of Steel	-.0032	-.0082	.0048	.0101	.0310
Iron Man	.0025	.0218	-.0045	.0104	.0149
Average	.0032	.0064	.0010	.0059	.0073

This table presents the average CARs in percent per movie. The table is formed through clustering the regression analysis of all product placements in different event window settings. The statistical significance levels for all movies vary between 10 – 20 percent (=insignificant).

The results in table 5, presents the effect of a movie on the market. In the examined event windows, the overall reaction of the market is positive. The result shows that market does not give significant reaction to the release of the movies. Considering that there is a distinction between event windows that take the aggregated abnormal returns before and after the release into account, and event windows that only take the aggregated abnormal returns after the movie's release into account, event windows after the release illustrates a higher return. Market reactions increase at event windows that examine more than one trading day after the release. The findings are in line with marketing and finance studies, investors' new information processing requires time, this is also called the delayed-stock market response to marketing-related information; it takes time that the information/event is completely reflected in stock prices (Hillier et al., 2011). Looking at the statistics from table 5, it is clearly visible that event window [0, +5] proves this 'delayed-stock market response' by a greater effect when looking at the average returns, namely an increase to .0073%.

As reported in table 5, market reaction in the short run [-1, +1] is .0032% and when widening the event window to [-3, +3], the effect is .0064%. As mentioned before, the results are increasing when widening the event window, specifically when not aggregating the returns before the release. Besides, the CARs for the period after the release is like an inverted U-shape on daily basis. The market effect for event windows [0, +1], [0, +3] and [0, +5] are respectively .0005%, .0015% and .0012% (average divided by number of days). It is evidently that the increase few days after the release, the movement in the stock price decreases (inverted U-shape). Furthermore, the event windows this study examines are different from the literature. For example, Wiles & Danielova (2009) and

Karniouchina et al. (2011) investigates particularly the effects close and after the release of the movies, namely from 5 days before till one day after the release. The aggregated returns in both studies vary from .04% to .89%. They also do not found significant results for the event windows this study investigates.

From table 5, when looking at movie-specific market reactions, it is clear that most of the movies (sample) have a positive effects/returns on the market, which are not significant. There are also movies that have negative market reactions. When linking the unsuccessful movies with its genres, it is clear that drama and romance movies experience more negative reactions than action or adventure movies. One possible reason for the lack of success of placements in those movies is the message-processing phenomenon in emotional occurrences (Petty and Wegener, 1998). Prior psychology research of Petty et al. (1991), Petty & Wegener (1998) and Agrawal et al. (2007) provided evidence of a significant linkage between emotional and cognitive overload and processing secondary information or the placed product.

Therefore, product placements increase movie specific market value in the short-run (H1a) cannot be accepted due to insignificant results. Even though, there is a positive effect in the cumulative abnormal returns of the movies, it is not possible to accept the hypothesis on behalf of this study. Furthermore, event windows that examined wider horizon (H2a) generated higher positive abnormal returns, which are also not significant and thus the hypothesis will be rejected.

Table 6 reports the market reactions of the firms that placed their products in the selected movies.

Table 6 Market Reactions per Firm (CARs in %)

Movies/Firms	(-1, +1)	(-3, +3)	(0, +1)	(0, +3)	(0, +5)
The Avengers					
Coca Cola	.0148	.0276	.0078	.0099	.0174
Harley Davidson	-.0077	.0114	-.0055	-.0072	-.0456
LG Electronics	-.0111	.0822	-.0040	.0589	.0399
Oracle	-.0320	-.0039	-.0278	-.0131	-.0420
Plantronics	-.0166*	-.1369***	-.0057	.0013	-.0065
Walt Disney	.0338*	.0908***	.0215*	.0662***	.0767***
Transformers 3					
Adidas AG	.0199	.0206	-.0113	-.0136	-.0128
Anheuser Busch	-.0105	-.0015	-.0077	.0027	.0006
Apple	-.0227	-.0097	-.0222	-.0112	.0383
Canon	-.0074	-.0077	.0051	.0037	-.0072
Cisco Systems	.0042	-.0112	.0085	.0157	.0277
Fedex	-.0232	-.0213	-.0223	-.0195	-.0174
Fiat	.0019	.0388	.0149	.0129	-.0227
Ford	-.0233	-.0242	.0008	.0011	-.0184
Gannett	-.0082	-.0017	.0001	-.0008	-.0117
Hermes	-.0053	.0010	.0095	.0010	.0388
LVMH	.0163	.0300*	-.0030	-.0070	.0065
PepsiCo	.0024	.0083	-.0006	-.0099	-.0242
Procter & Gamble	-.0032	-.0072	.0029	.0089	.0050

Starbucks	.0067	.0181	-.0165	-.0105	-.0045
Time Warner	.0033	-.0004	-.0082	.0056	-.0057
Waste Management	-.0146	-.0241[*]	-.0087	-.0105	-.0121
Spider-Man 3					
Asics	-.0153	-.0497	-.0124	-.0338	-.0167
Burger King	-.0016	.0318	-.0013	-.0117	.0005
Ford	-.0145	.0208	-.0141	.0107	.0185
Hilton Hotels	-.0068	.0073	-.0069	-.0043	-.0217
Honda	.0084	-.0267	.0110	.0002	-.0019
Nikon	.0294	.0510	.0327	.0751[**]	.0838[*]
Sony	.0117	.0217	.0142	.0306	.0030
UPS	-.0050	.0023	-.0062	-0017	.0088
Iron Man 3					
Audi AG	.0238	.0146	.0148	.0148	.0188
Ford	.0405[*]	.0132	.0408[**]	.0333	.0311
Microsoft	.0225	-.0068	.0106	-.0259	-.0281
Oracle	-.0024	.0076	-.0156	-.0360[*]	-.0122
Southwest Airlines	.0445[*]	.0307	.0266	.0187	.0068
TCL Communication	.0859[*]	.2600[***]	-.0389	.0245	.1353[*]
Verizon	-.0132	-.0210	-.0141	-.0019	-.0057
Twilight BD 2					
Apple	-.0178	.0015	-.0151	-.0100	-.0263
Daimler AG	-.0267	.0010	-.0311[*]	-.0261	-.0366
Steinway Music	.0347[*]	.0195[*]	.0551[**]	.0427[*]	.0438
VF Corporation	-.0011	-.0272	.0011	-.0029	-.0064
Volvo AB	-.0116	.0058	-.0092	-.0072	-.0161
Twilight BD 1					
LG Electronics	.0814[**]	.0471	.0561[*]	.0324	.0269
Walt Disney	.0123	.0114	.0077	.0082	.0168
Twilight NM					
Apple	-.0018	-.0230	.0107	-.0060	-.0063
Burger King	.0001	.0380	-.0001	.0114	.0062
Coca Cola	.0303	.0231	.0167	.0115	.0063
VF Corporation	-.0069	-.0301	-.0171	-.0194	-.0150
Indiana Jones 4					
Clorox	-.0048	-.0234	-.0056	.0034	.0138
Ford	-.1237[***]	-.1376[**]	-.1103[***]	-.1172[**]	-.1372[**]
Harley Davidson	.0079	.0186	-.0089	.0242	.0618
Unilever	-.0047	-.0244	.0067	.0278	.0237
Dark Knight					
Anheuser Busch	-.0013	-.0028	-.0177	-.0166	-.0035
Audi AG	.0035	-.0096	.0096	.0050	-.0222
Carters	-.0022	-.0434	.0020	-.0434	-.0595
General Motors	-.0062	.0028	-.0009	-.0138	-.0202
HJ Heinz	.0016	-.0026	.0049	.0024	-.0020
Jos A Bank	.0154	.0212	.0030	-.0109	-.0127
Under Armour	.0052	.1587[**]	-.0050	.1159[**]	.0806
Volvo AB	.0540[*]	.0718[*]	.0437[*]	.0883[***]	.0529[*]
Avatar					
Hershey	-.0102	.0082	-.0067	.0124	.0143
Kellogg	-.0093	-.0088	-.0041	.0126	.0229

Nike	.0217	.0186	.0163	.0157	.0083
Philip Morris	-.0142	-.0321	-.0050	-.0184	-.0188
Da Vinci Code					
Daimler AG	.0057	.0324	-.0173	.0065	.0081
Ford	.0370	.0516	.0238	.0350*	.0655*
HJ Heinz	.0098	.0520**	.0560	.0482***	.0439***
Marriott International	.0162	.0032	.0158	.0155	.0076
Peugeot	-.0057	.0149	-.0178	.0144	.0156
Procter & Gamble	-.0022	.0212	-.0008	.0112	.0039
Renault	-.0092	.0077	-.0242	.0146	.0189
Volkswagen	-.0131	-.0001	-.0037	.0194	.0181
Walt Disney	.0230	.0358	.0226	.0289	.0291
2012					
Brown-Forman	.0010	.0082	.0023	-.0017	.0097
Campbell's	.0129	.0367	.0068	.0182	.0371
Coca Cola	.0043	.0121	.0035	.0020	.0291
Ebro Foods	.0427	.0273	.0194	.0180	.0160
Fuji Heavy Industries	.0047	-.0283	-.0412	-.0504	-.0446
Hyundai	-.0491	-.0547	-.0165	-.0418	-.0188
Kellogg	.0070	.0081	-.0017	-.0004	.0074
Kering	-.0010	-.0222	-.0106	-.0225	-.0222
Kimberly-Clark	.0079	.0117	.0103	.0169	.0224
Marriott International	-.0013	-.0161	.0017	-.0107	-.0126
Sony	-.0316	-.0483	-.0202	-.0233	-.0630
Tata Motors	-.0031	.0627	.0003	.0104	.0085
Time Warner	-.0024	.0162	.0002	.0167	.0049
Toyota	.0295	.0073	.0012	.0011	-.0241
Visa	-.0284	-.0259	-.0238	-.0120	.0010
Twilight Eclipse					
American Eagle	.0280	.0183	.0382	.0311	.0375
Nike	-.0014	.0056	.0061	.0029	-.0191
Porsche	-.0267	.0413	-.0333	-.0236	-.0071
Samsung	-.0232	-.0548	-.0304	-.0303	-.0451
Time Warner	-.0251	-.0481	-.0281	-.0384	-.0449
VF Corporation	-.0085	-.0163	-.0002	-.0124	-.0235
Iron Man 2					
Apple	.0386	.0240	.0502*	.0333	.0460
Bridgestone	.0003	.0029	.0103	.0086	.0102
Chevron	-.0076	.0067	.0067	.0301	.0220
Coca Cola	.0070	.0171	.0206	.0172	.0168
Crocs	.0338	.0943	.0014	.0430	.0910
Diageo	.0124	-.0110	.0028	-.0001	.0036
Dicks Sporting	.0288	-.0111	.0159	.0305	.0407
Emerson Electric	-.0174	.0374	-.0059	.0294	.0162
Fiat SpA	.0393*	-.0199	.0165	-.0011	.0118
General Electric	.0035	.0119	.0069	.0228	.0225
Google	.0252	-.0201	.0244*	-.0117	.0165
Harman Industries	-.0400	.0256	-.0629	-.0618	-.0924
Les Hotels de Paris	.1394**	-.0917*	-.1521***	-.1406*	-.1725*
LG Electronics	.0112	-.0556	.0168	-.0197	-.0306
Lincoln Electric	.0004	.0148	.0015	.0305	.0419

LVMH	.0480**	.0882**	.0199	.0550**	.0555*
3M	-.0059	-.0092	-.0035	-.0032	.0024
Oracle	-.0206	-.0292	-.0013	.0025	-.0080
Richemont	.0394	.0746*	.0101	.0472	.0597*
Royal Shell	-.0148	-.0329	-.0198	-.0221	-.0122
Sports Direct Int.	.0076	-.0410	-.0184	-.0261	-.0289
Starbucks	.0291	.0478	.0279	.0504	.0264
Vivendi	-.0488**	-.0367	.0301*	.0462*	.0304
Transformers 2					
Adidas AG	.0325	.0123	.0040	-.0121	-.0088
AirFrance-KLM	-.0041	-.0202	.0118	.0190	.0137
Amerco	.0424	-.0562	.0593	-.0157	-.0060
Anheuser Busch	.0553	.0467	.0185	.0169	.0542
Apple	-.0033	.0250	.0213	.0210	.0228
Audi AG	-.0086	-.0291	.0039	-.0036	-.0102
Caterpillar	.0398	.0059	.0185	.0083	-.0382
ConocoPhillips	.0063	-.0278	-.0156	-.0234	-.0293
Ford	.0111	-.0331	-.0132	-.0255	-.0146
Harley Davidson	.0189	.0006	.0327	.0333	.0066
HSBC Holdings	-.0220	-.0147	.0038	-.0137	-.0080
Kobelco E.S.	.0435	.0163	.0096	-.0067	-.0304
Nintendo	.0082	.0248	.0134	.0304	.0462
Paccar	.0318	.0280	.0171	.0117	.0103
PepsiCo	-.0016	-.0016	.0070	.0149	.0439
Piaggio	.0248	.0463	.0397	.0550	.0424
Southwest Airlines	.0261	.0018	.0417	.0385	.0577
Volvo AB	-.0151	-.0058	.0013	.0234	.0288
War of the Worlds					
Apple	-.0189	-.0702	-.0122	-.0248	-.0093
Clorox	.0071	.0037	-.0064	-.0056	-.0210
Coca Cola	-.0124	-.0051	-.0201*	-.0062	-.0128
Ford	.0156	.0192	-.0044	.0082	.0125
HJ Heinz	.0026	.0179	.0036	.0126	.0008
Mazda Motor	.0284	.0323	.0080	.0126	.0240
Mizuno	.0403*	.0328	.0172	.0285	.0174
Motorola	.0009	-.0163	.0035	.0061	.0144
Oshkosh	.0237	.0072	.0246	.0181	.0404
Toyota Motor	.0241*	.0331*	.0236*	.0428**	.0602**
Man of Steel					
Amerco	-.0175	-.0233	-.0300	-.0404	-.0132
DineEquity	-.0194	-.0540	-.0209	-.0240	-.0381
Nikon	-.0441	-.0426	.0131	.0277	.0016
Nokia	.0427	.0524*	.0449	.0658	.1960**
Sears Holding	.0195	.0006	-.0209	-.0249	-.0124
Seven and I Holdings	-.0214	.0165	.0561**	.0781**	.0884*
Time Warner	.0178	-.0069	-.0086	-.0115	-.0054
Iron Man					
Apple	.0376	.0390	.0107	-.0004	.0071
Audi AG	-.0072	.0153	-.0039	.0183	.0643
BMW	.0334*	.0710*	.0372*	.0708**	.0388*
Burger King	.0073	.0004	.0188	.0054	.0034

Cisco Systems	.0115	.0155	-.0239	-.0381	-.0423
Goodyear	-.0128	.0433	-.0358	.0235	.0156
Graham Holdings	-.0053	-.0271	-.0454**	-.0392	-.0467
LG Electronics	-.0350	.0098	-.0287	-.0361	.0608
Nestle	.0022	.0377	.0054	.0277	.0139
Nintendo	-.0164	-.0084	.0068	.0293	.0220
Nissan Motor	.0119	.0580	.0101	.0511	.0275
Number of Significant Results	16	16	16	14	14
Number of Positive CARs (%)	88(54)	97(60)	91(56)	94(58)	97(60)

This table presents the movements in stock prices in percent per firm. The table is formed through regression analysis of all product placements in different event window settings.
Note: ***, **, *, denotes significance at the respectively 1, 5, 10 percent level.

The results of cumulative abnormal returns around and after the release show partially significant positive market reactions. Fifty-four percent of the firms in the short-run [-1, +1] experience positive market reactions. This value increases to 60% when widening the event window to [-3, +3]. The results are in line with the study of Wiles & Danielova (2009) who also found more firms with positive cumulative abnormal returns than negative effects. However in the short run, several firms like Plantronics -.017% (Avengers), Ford Motor -.12% (Indiana Jones 4) experience statistically significant at 10 and 5 percent level negative abnormal returns. To verify that this study correctly specified the events, investor reactions to the press announcements through Factiva were double checked for the brands that placed their products in these movies. There was no press announcement identified for four days before and during the event windows. This suggests that there is no stock price movement associated with any announcements in the press one day before and during the event windows. Negative movie- or product related characteristics could diminish placement worth (McCracken, 1989; Bushman, 2005). Studies of McCracken (1989) and Cowley & Baron (2008), observed that viewers react to negative emotions and associations could be shifted to the placed products. Furthermore, event windows that focus on the firms' market movements after the release have no noteworthy differences.

In sum, the analysis of the cumulative abnormal returns around movie releases for firms specifically (H1b and H2b), shows partially statistically significant effects of product placements. This small effects are visible in different time periods, namely short-run (H1b) [-1, +1], the wider periods (H2b) [-3, +3], [0, +5]; and the post event windows [0, +1] and [0, +3]. There were at least 14 firms in all event windows that were statistically significant and resulted mostly with positive market reactions. Furthermore, it is clear that the number of positive firms in each event window vary from 54% to 60% of the observed 163 placements. The finding contradicts with the studies conducted by Wiles & Danielova (2009) and Karniouchina et al. (2011), which found also higher number of positive firms during the event study.

Although the facts, there were positive significant findings for small number of firms. In general there are very little statistical effects observable. But the facts that there are firms, which have statistical significant market movements after the release, are very interesting

and striking. Overall, hypothesis 1b and hypothesis 2b cannot be accepted due to not *enough* statistical evidence gathered from this study.

Sequels

Detailed information about the released year, box office revenues in the opening weekend and the cumulative abnormal returns at various event windows of movie sequels are reported in Table 7.

In light of the given literature, the data this study examines, the movie sequels generated higher revenues in the opening weekends. A movie sequel can be theorized as a brand extension; a brand extension is when a firm uses well-known brand name to announce a new product (here: new sequel) (Chang & Ki, 2005; Moon et al., 2010). Gaining attention from the world is easier when using the name of the parent brands during the launch of the new product. The financial success of a sequel depends on the success of the original movie (Moon et al., 2010).

Table 7 Movie Sequels (average CARs in %)

	year	revenue	(-1,+1)	(-3,+3)	(0,+1)	(0,+3)	(0,+5)
Iron Man	2008	*201.2*	.0025	.0218	-.0045	.0104	.0149
Iron Man 2	2010	*220.8*	.0013	.0035	-.0005	.0064	.0069
Iron Man 3	2013	*372.5*	.0286	.0424	.0033	.0038	.0209
Transformers 2	2009	*219.9*	.0159	.0010	.0153	.0095	.0101
Transformers 3	2011	*382.4*	-.0040	.0010	-.0035	-.0023	.0040
Twilight New Moon	2009	*274.4*	.0063	.0043	.0038	.0016	-.0004
Twilight Eclipse	2010	*228.9*	-.0095	-.0085	-.0078	-.0113	-.0159
Twilight BD 1	2011	*291.0*	.0480	.0312	.0326	.0217	.0230
Twilight BD 2	2012	*340.0*	-.0045	.0001	-.0002	-.0011	-.0090

This table presents the market reactions of all movie sequels in the sample of this study. The table is formed through clustering the outcome of the regression analysis of all product placements in sequels. The statistical significance levels for all movies vary between 10 – 20 percent (=insignificant).

The column revenue proves the theories about the success rate of the sequels. Almost every sequel, except *Twilight Eclipse*, achieved more box office success than the original movies. Despite the box office success of the sequels, the results shows in great line negative market reaction for sequels. Only two movies shows positive market reaction for all firms in the short run, namely *Iron Man 3* from .0025% (*Iron Man*, *2008*) to .0286%, and *Twilight Breaking Dawn 1* (third sequel in the sample) from .0063% cumulative abnormal returns to .048% which decreases to -.0045% in the following sequel *Twilight Breaking Dawn 2*. Furthermore the fall of the box office revenues of *Twilight Eclipse* and the associated fall in the firms' market reaction is noteworthy, but again not significant.

In sum, the results that are presented in Table 7 shows that there is no relationship between sequels that realized higher revenues and achieving a higher firm market

reaction in different event windows. In *economic* and *statistical* viewpoint there is no clear evidence to accept H3 or reject H0 based on this study.

Industry Classification

Table 8 presents the clustered average market reactions of each industry in the short run. In order to give a more detailed explanation the industry's Consumer Goods and Consumer Services are further divided into sectors. Appendix B presents detailed average market reactions for each *firm* and industry in the short run. Just a few of the firms experience significant results.

Table 8 Clustered Market Reactions (average CARs in %) for Each Industry and Sector

Industry		Sectors	Freq.	CAR (-1,+1)
Consumer Goods	**(51%)**			**(.0160)**
		Automobile	37	.0010
		Personal and Household	24	.0120
		Food and Beverages	22	.0030
Consumer Services	**(22%)**			**(-.0052)**
		Travel and Leisure	13	-.0072
		Retail	12	.0040
		Media	10	-.0030
Technology	**(16%)**		26	**(-.0118)**
Industrials	**(7%)**		12	**(.0034)**
Oil & Gas	**(2%)**		3	**(-.0181)**
Financials	**(1%)**		2	**(-.0203)**
Telecommunication	**(1%)**		2	**(.1200)**

This table presents the clustered market reactions for each industry and sector in the short run [-1, +1]. The table includes all 104 firms that are in the sample of this study. Industries and sectors are distributed/defined with help from Dow Jones Industry Group Tracker.

As mentioned earlier, most placements came from especially Consumer Goods and Consumer Services. Companies obtain valuable product exposure, brand reinforcement and increased sales through this media strategy. Like La Ferle & Edwards (2006), Cowley & Barron (2008) and PQ Media (2012) outlined the contribution of Consumer Goods in product placement (20% of total), most of the product placements came from this industry in which 50 firms made 83 (51%) out of 163 product placements with an average abnormal return of .0160%. The result shows further that the market does not give a significant reaction. However the positive effect, the finding contradicts with the research conducted by Karniouchina et al. (2011), that found statistically *significant* positive abnormal returns for event window [-2, 0]. This represents the time from two trading days before the release date through the release date. In line with marketing literature (Sapolsky & Kinney, 1994; Cowley & Barron, 2008), automobile sector is the leading sector using product placement as a marketing strategy in this industry. There is positive market reaction of .001% in the short run. Furthermore, personal and household sector generates the highest positive market reaction within the Consumer Goods with .012%.

Another industry that gains a lot of attention is the Consumer Services that represents 22% of the total placements in this sample. The market reaction of this industry is negative, -.0052%. Particularly, travel and leisure sector is the main reason of this negative industry reaction. Firms like AirFrance-KLM, Burger King and Hilton Hotels are examples of the travel and leisure sector this study examines. Although the exclusion of any press news/announcements, a new search was implemented to find an answer for this negative reaction. Marketers try to avoid unfavorable publicity that can affect firm market value, but it is not always easily manageable (Lamb et al., 2011). For example, McDonald's was negatively publicized by a documentary film named *Super Size Me (2004)* about the unhealthiness of fast food. This unfavorable publicity in 2004 decreased the sale of McDonald's by $42 million dollar in USA (Lamb et al., 2011). This phenomenon was takin into account and the search (two days before and two days after the release dates) for unfavorable publicity, of companies from travel and leisure in this sample, delivered no useful additional information.

Telecommunications industry with a positive market reaction of .12% has the highest effect. Although, with a total of two product placements, this value cannot be representative for the whole industry.

In sum, it is clear that H4 is statistically not supported; a product placement of consumer goods generates better positive market reactions in the short run. Still, the findings are in line with the *economic* outcomes of Karniouchina et al. (2011), the only comparable study, which also found positive market reactions for consumer goods. Therefore, there is no clear *statistical* evidence to accept H4 or reject H0 based on this study.

6 | Conclusion

The present study examines the effect of product placements on firm market values through blockbuster movie releases. This study intended to answer the following research question:

Do product placements have positive short-run effects on firm market values in blockbuster movies?

Examining the stock price movements to the release of the selected blockbuster movies (see Table 3) in which a firm's brand appears, is the main research area of this study. An event study is conducted to analyze the abnormal returns around the release dates of the movies. Because limited access to historical stock prices and business-critical information of the firms in the sample, the data is from reliable sources like Thomson Reuters Datastream and Factiva news-database. The final sample consists of 18 movies that have reached an opening-weekend box office gross of more than $200-million during 2005 to 2013 and 163 product placements from 104 different firms. Table 9 summarizes the main findings of this study.

In general it can be said that there aren't strong statistical significant effects observable. But the fact that there are firms, which have statistical significant market movements after the release, are very interesting and striking. The results of the present study show mainly positive market effects in the short run. Based on stock performance analysis using event study methodology, it is concluded that movie product placements results in positive but not statistical significant effects on stock prices for firms around the release dates. The results are partially in line with the research presented by Wiles & Danielova (2009), which observes positive abnormal returns for different event windows. Looking

at the short-run effects of product placements on firm market values, the research of Wiles & Danielova (2009) observes insignificant positive abnormal returns.

Table 9 Event Study Results

	Hypotheses	Results	Significance	Acceptance
1a	Product placements increase the *movie* specific market value in the short-run.	Mainly positive market effects observed, 0032%.	Not	Rejected
1b	Product placements increase the *firm* specific market value in the short-run.	54% of 163 product placements resulted in positive market returns.	Partially	Rejected
2a	Product placements increase the *movie* specific market value more in a wider horizon.	Increasing trend in the positive market returns to .0073% in the broadest event window.	Not	Rejected
2b	Product placements increase the *firm* specific market value more in a wider horizon.	60% of 163 product placements resulted in positive market returns.	Partially	Rejected
3	The product placements in sequels generate a higher firm market value than the original movies.	Sequels do not achieve a higher firm market reaction than the original movies.	Not	Rejected
4	Product placements for consumer goods generate better positive market reactions in the short run.	Positive market reactions for consumer goods, .0160%.	Not	Rejected

Therefore, the answer to the main research question is that product placements do have an *economic* positive effect on the firm market values but are *statistically* seen not significant enough, so there is not enough evidence to prove the positive effectiveness of product placements in blockbuster movies.

The insignificancy of this study will be briefly discussed in the following chapter.

7 | Discussion & Implications

While the short-run effects of product placements in movies have not been researched yet, this study possesses a number of limitations that one needs to be aware of. This section will address these limitations and briefly discuss the gathered results, followed by practical implications and suggestions for future research.

The focus of this study was to determine whether movie product placements have effects on firm market value and provide evidence to the users of this successful marketing medium.

Product placements in motion pictures is a practice that has grown significantly in recent years. However, the effectiveness of product placements is hardly studied in the

academic literature compared to other many alternative medium strategies. The most active area of academic research on product placements relates to the effect of placements on audiences as McCarty (2004, p. 55) outlines, "The effects have generally been considered in term of memory (recognition and recall), evaluation of the brands, and purchase intention". Diversified results in these studies (Russell, 1998; Russell, 2002; Brennan & Babin, 2004; Balasubramanian et al., 2006) showed weak or nonexistent effects of product placements.

However, the economic worth of movie product placement is a topic that needs more attention, because of the increasing use of this marketing medium in the whole marketing world like PQ Media (2012) forecasts. The search for previous studies on the subject of product placement has yielded just two studies, which both have different methodologies and investigate different event windows (Wiles & Danielova, 2009; Karniouchina et al. 2011).

The methodology of this study aims to explain the *economic* worth of movie product placements in blockbuster movies. But for a comprehensive understanding of the value of this marketing medium, future research has to reckon with placement-related factors, such as brand-plot connection, star association, violence association, critical acclaim (McCracken, 1989; Wiles & Danielova, 2009). These factors were not controlled and could maybe explain how companies (e.g. Ford, Apple, General Motors, Samsung, Audi etc.) that often use this media strategy succeed in generating more sales despite the life-cycle sensitivity (Karniouchina et al, 2011). Thus, the worth of product placement might be correlated with a match between movie, product/brand and targeted audience. This match will be further outlined in the next section.

While the sample for this study has been carefully constructed, the external validity remains limited. The statistically insignificant results are the main prove of this limitation. The fact that the sample consists of movies that crossed the $200 million worldwide in the opening weekends, limits the generalizability of the results. It has been proven that movies with less revenue in the opening weekend can also have positive market movements (Wiles & Danielova, 2009). Furthermore, the sample of this study contains movies with high audience absorption, which means that all movies were graded with high enjoyment (CinemaScore) (Green et al., 2004). Another limitation is that all of the movies in the sample are rated PG-13. This means that parents are strongly cautioned and the movies are inappropriate for children under 13. Therefore, the generalizability is limited because the sample does not contain movies aimed at the general audience (Thomson & Yokota, 2004). Research on a random and wider sample without restrictions (Shadish et al., 2002; Babbie, 2007) could statistically be more effective in analyzing the effect of placements on firm market value.

From the *economic* point of view, this study finds positive abnormal returns in the short run for blockbuster movies, which contradicts the findings of Wiles & Danielova (2009) and Karniouchina et al. (2011). Their findings suggest that placements are associated with negative abnormal returns for the same event windows.

Despite the fact that the significance level of this study is very low for all hypotheses, some steps to improve this level were carefully implemented.

First, every movie has been inspected briefly; audio and visual placements were separately recorded and analyzed (Russell, 2002). Another critical step was controlling for confounding corporate events in multi-country event studies. This is a critical step in an event study, because the sample consists of more than 100 firms from different countries, which increases the chance at contain confounding events due to more

variance in types and environment (MacKinlay, 1997; McWilliams & Siegel, 1997; Park, 2004; Kiousis et al., 2007). The four-step model of Foster (1980), to control for confounding events was implemented: (i) excluding firms with confounding events, (ii) dividing the sample for firms with the same confounding events (see Table 2), (iii) excluding firms from the sample on the day of the confounding event, additionally this study added four extra days before and through movie release date; and (iv) deducting the impact of the confounding event when estimating the sample's abnormal returns. Factiva Dow Jones Database was used to track these confounding events. Factiva offers access to approximately 25,000 international sources, from 159 countries (Rajiv, 2009). This method eliminated 17 different firms. Thereafter, the historical stock prices are gathered carefully from Datastream database, an extensive database providing a wide range of worldwide publicly traded companies. Furthermore, a long estimation window of 250 trading days before movie release date is used to reduce the impact of unusual market movements (MacKinlay, 1997; Park, 2004). Because the historical stock prices/returns will form the estimation window, an unusual market movement in the past tends to be only a small part of the full estimation window. As last, the lack of synchronism in stock markets is taken into account (MacKinlay, 1997; Park, 2004). Using daily data in a multi-country event study causes non-synchronous trading in stock market trading hours: a time lag between different countries. This occurrence affects instantaneously the behavior of potential investors. So, when a movie had product placement from Asian firms, this study lagged one trading day for those firms (Park, 2004). Similar studies of Wiles & Danielova (2009) and Karniouchina et al. (2011) did not make use of this route and used only U.S. traded firms in their sample.

In sum, the event study methodology to analyze the abnormal returns during movies' release in this study is implemented very carefully. This study finds very little statistical support for the hypotheses that movie product placements have a positive effect on the stock prices of firms. Additionally, this study does not conclude that this is evidence that movie product placements have no positive impact on the stock prices (or performance) of firms. Thus, this study cannot confirm that the stock prices gain value by movie product placements in the investigated event windows. Based on this, movie product placements as a marketing medium might not bring more revenue in the investigated short event windows.

Following MacKinlay (1997) and McWilliams & Siegel (1997), while using the event study methodology, most effective applications have been corporate finance topics (e.g. mergers and acquisitions). Thus, to study the effect of movie product placements on stock return, a more robust methodology is seemingly important.

Another reason behind the findings might be that the study of movie product placement in a blockbuster movie during the opening weekend is not as strong as new information related to earnings, mergers and acquisitions, and major new products announcements to the market. The abnormal returns in this study, depends on the occurrence of the product in the movies. Aforementioned along with theory of efficient market hypothesis (EMH), there is an assumption that investors revise their expectations or valuations of the firm's future performance as a result of movie product placement; and that this occurrence is integrated immediately and fully in firm's stock price (Sorescu et al., 2007; Hillier et al., 2011). Following to this phenomenon Sorescu et al. (2007) made a supplemental footnote, namely a limitation based on the questioning of the accuracy of event study methodology in calculating the abnormal returns. Another limitation of this study is the use of the world market index (MSCI) as the market index for all firms. However it is appropriate to make use of this option, since most of the firms (96%) are from developed markets, some researchers suggest to avoid it because of

unusual market movements in emerging markets (Garcia & Ghysels, 1998; Park, 2004; Claessens & Yurtoglu, 2012). Four firms out of this study are traded in one of those emerging markets, namely Tata Motors (India), LG Electronics and Samsung (South-Korea), and TCL Communication (China). Due to the power of the used world market index and the investigation of short event windows such as few days, the outcomes are very robust in both domestic and international setting (McWilliams & Siegel, 1997; Park, 2004; Claessens & Yurtoglu, 2012). Finally, another limitation related to this approach is that numerous events could affect the stock's return and volatility (event-caused variance) that in turn is related to or affect the test statistics (Harrington & Shrider, 2007).

For firms, this study provides *economic* evidence that investors or marketers should consider to invest in the strategy of movie product placement. There is a positive price fluctuation observable immediately after the release of the tested movies. In a short-term period the movie product placements might not yield a return on stock market, however it might generate more revenue as sophisticated investors wait to react till the news hit on market. It can have broad and striking effects, such as the massive increase in sales following the appearance of Reese's Pieces in the E.T. (Balasubramanian et al., 2006; Redker et al., 2013).

Implications for Practice

The findings in this study are interesting and can contribute to strengthening marketers' favorable attitudes towards movie product placement as an appropriate profitable marketing technique. Despite the fact that consumers are getting more marketing-conscious, the covert marketing nature shifts towards the traditional marketing; it is generally accepted that overwhelming the audience with overt product placements will affect brand awareness (Nebenzahl & Secunda, 1993; Wei et al., 2008; Karniouchina et al., 2011). The increase of effectiveness of product placement in various settings was a marketing strategy that gains more acceptances since the beginning of the '90s (Wiles & Danielova, 2009; Srivastava, 2014). Although this new marketing strategy increased its popularity to reach consumers, the resistance of the consumers kept growing too, such as regulations to limit the number and length of the placements (Srivastava, 2014). Following to Balasubramanian et al. (2006), Petty & Andrews (2008) and Karniouchina et al. (2011), the number and length of placements do have a negative impact on the brand attitude; and placements with lower-intensity resulted in more positive effects. This finding is also consistent with the short run effects in this study. Movies that have more than 15 product placements generated a lower cumulative abnormal return in the short run than movies with less product placements. For example, Iron Man 2 had 23 product placements and generated .0013% returns in the short run while Iron Man 3 with 7 product placements generated .0286% for the same event window (see Table 5).

Similar to general marketing techniques, product placements in movies can also have long term and internationality effects (Srivastava, 2014). The long-term effects are challenging to measure but the return on investment increases over time for the brands with the second viewing on DVD, Blu-Ray or the new trend Netflix. When viewers watch the movies at home, the likelihood of spotting and recalling the placements during the second viewing increases (Srivastava, 2014). This marketing technique also increases the popularity of the brands because it is exposed to the whole world.

Furthermore, this study presented comparable results with previous literature that romance movies in specific are generating lower or negative abnormal returns for the placed brands due to linkage between emotional and cognitive overload and

processing secondary information or the placed product; and that genre and ratings are related with increased box office revenues (Agrawal et al., 2007; Karniouchina, 2011).

Finally, clustering the characteristics of the firms to their industries, as the findings of previous literature confirm, offered that Consumer Goods industry generates higher abnormal returns than any other industry in this study (Lamb et al., 2011; Karniouchina et al., 2011); particularly the 'personal and household' sector.

Implications for Future Research

It is an ongoing challenge for marketers to reach and satisfy their consumers. To recognize or identify all the challenges their environment faces, is a hard task to realize. Therefore, technological developments need to be tracked and investigated well to stay in the competition.

The statistically insignificant results from this study, analyzed only the relation between the firm that placed (audio- or visual placement) the product in the movie and the short run economic worth (market movement) of that placement. This resulted in positive market movements for particularly few trading days around the movies' release.

Aforementioned in the literature review, previous scholars have made clear that there are additional factors that influence this phenomenon. McCarty (2004) made clear that previous literature focused more on the memory (recognition and recall), evaluation of the brand and the consumer behavior. To create brand loyalty, marketers focus on consumer awareness and brand attitudes (D'Astous & Chartier, 2000). According to these and additional studies (Lane & Jacobson, 1995; Wiles & Danielova, 2009), brand awareness and positive firm market movements are associated. Furthermore, it appears to be much healthier to display the product and the main actor simultaneously; connection of consumer with product enhances loyalty (Gupta & Lord, 1998; D'Astous & Chartier, 2000). Future studies should also focus on the correlation between movie genre and abnormal returns of the firms that placed their products. It was a notable subject in this study and the study of Karniouchina et al. (2011) that also found that romance movies generates lower or negative market returns. Another important element to improve brand attitude, is the integration of the modality of product placement and plot connection (Russell, 2002; Russell & Stern, 2006; Cowley & Baron, 2008).

However, the generalizability question can be looked at as an opportunity for future research(ers). The match of all for said factors should be taken into account for future research to gain more insight in the relationship between product placement and economic worth. For a more complete insight to explain the variation in the dependent variable, these factors could be used as independent variables in a multiple regression analysis.

Additionally, Balasubramanian et al. (2006) report that barely 29 percent of product placements are paid. Karniouchina et al. (2011) argue the importance of examining the background and implications of barter, gratis and hybrid form of the placements. This, to advance the return on investment of the marketing strategy. Since it is presumably that non-paid product placements can be more effective for the firms. It would be advisable to distinguish between paid and non-paid forms of product placements in future research.

Final recommendations for a future research would be the extension of the research sample by including more movies with different box office results in the opening weekend; and to the next platforms of viewing in DVDs would be an interesting area

also in order to confirm the relationship between placement recall and the number of viewings. Also, taking into account multiple countries could yield different research results. When talking about multiple or different countries, the main focus was on the methodological issues in multi-country event studies. Consistent with similar studies about the worth of product placement (Wiles & Danielova, 2009; Karniouchina et al., 2011), this study used one kind of market index (MSCI). Despite the challenges that are outlined in 'Discussion', further investigation should investigate country-specific market indexes (McWilliams & Siegel, 1997; Park, 2004; Claessens & Yurtoglu, 2012).

8 | References

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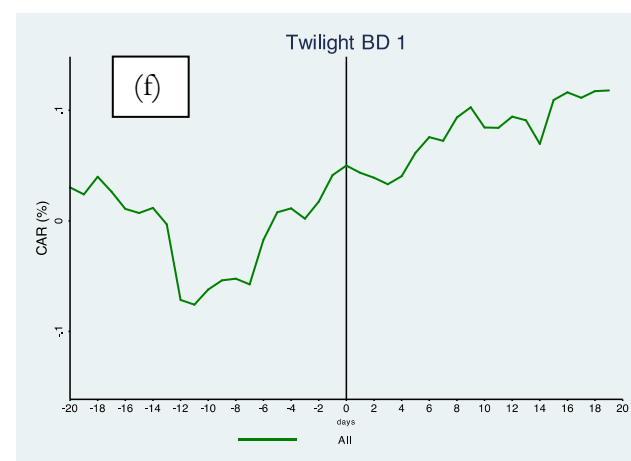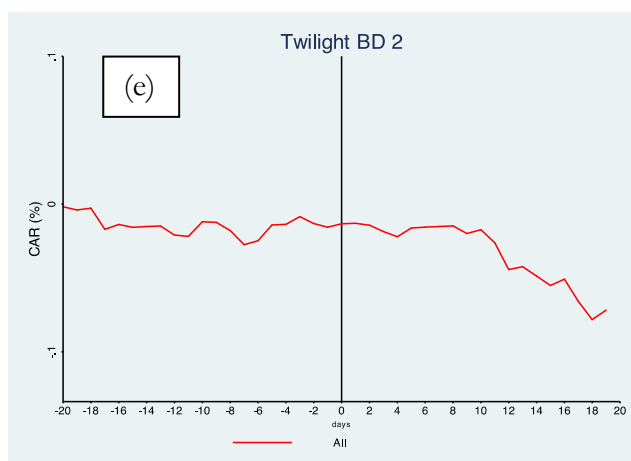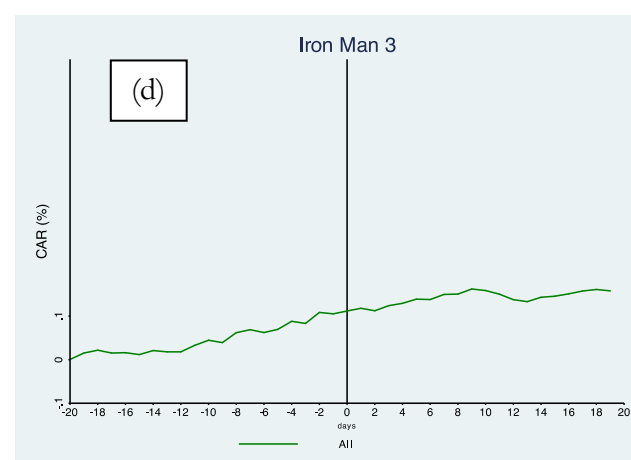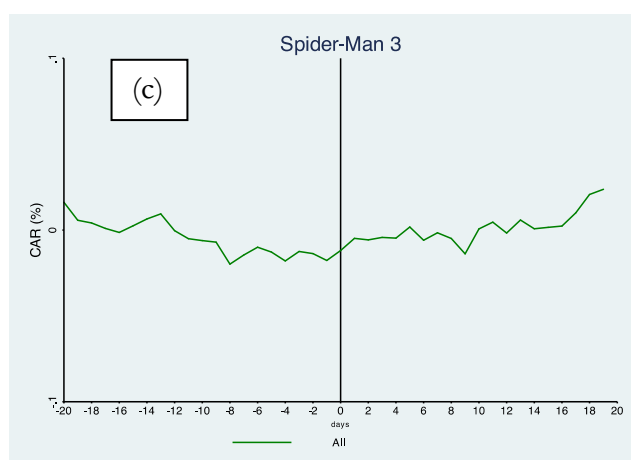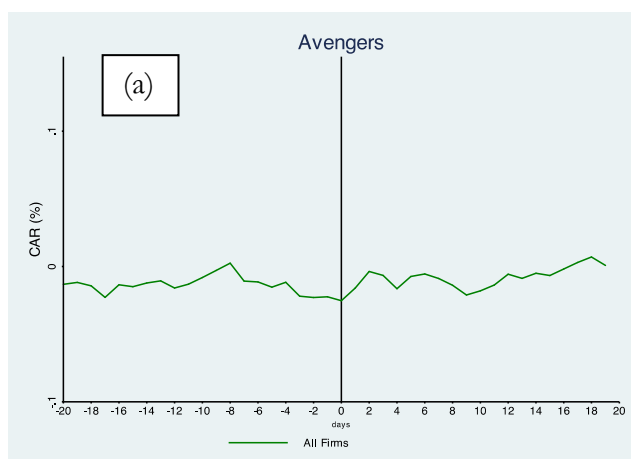
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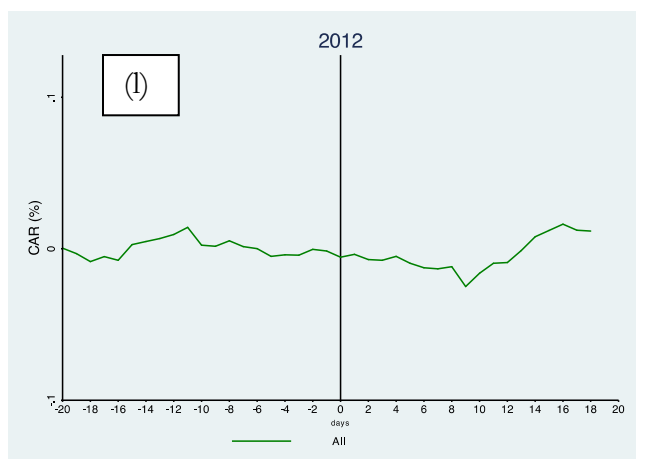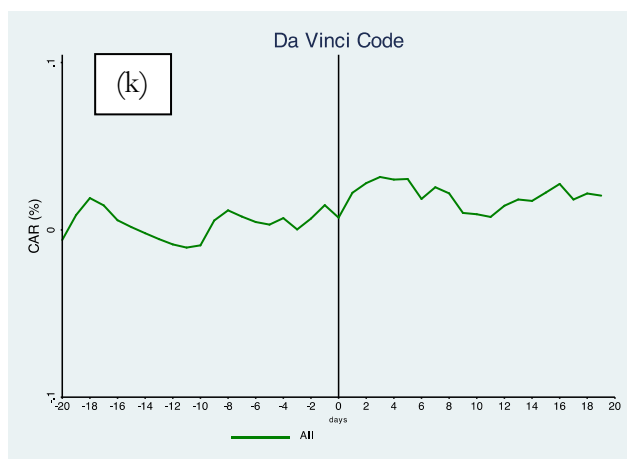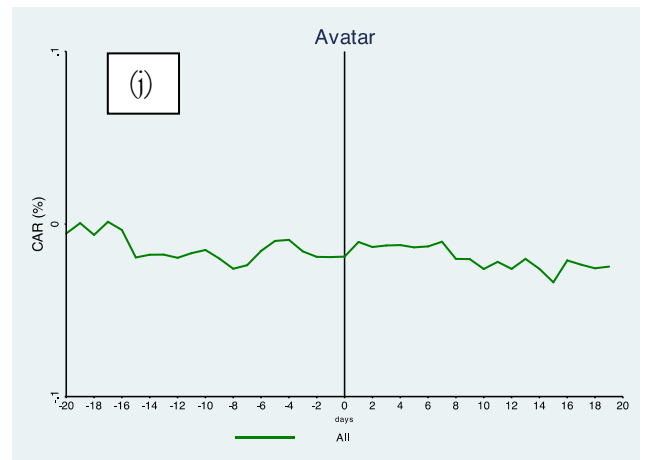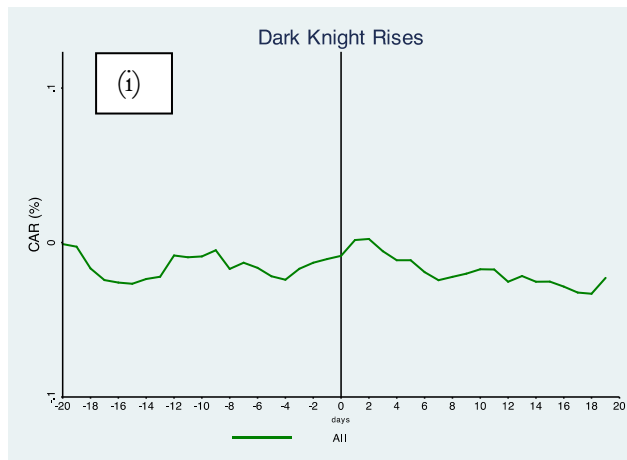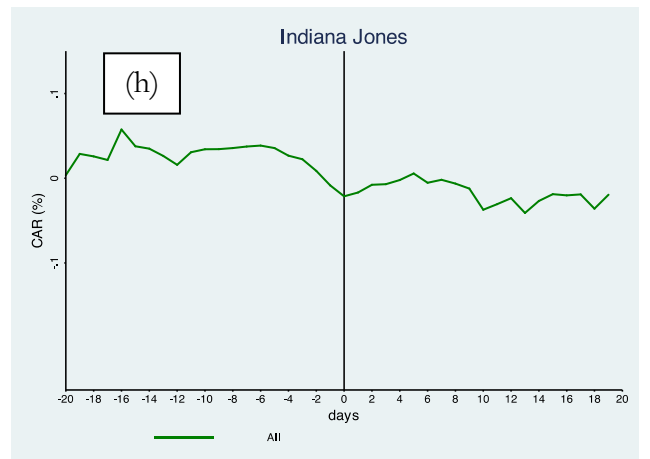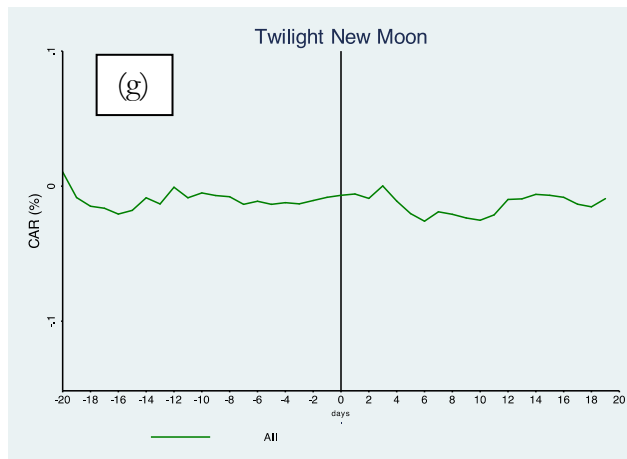**PQ Media** (2012). Global Product Placement Spending Forecast, *Stamford, CT: PQ Media.*

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Appendix A   Charts - CARs to Product Placements per Movie

Avengers (a)

Transformers 3 (b)

Spider-Man 3 (c)

Iron Man 3 (d)

Twilight BD 2 (e)

Twilight BD 1 (f)

Twilight New Moon (g)

Indiana Jones (h)

Dark Knight Rises (i)

Avatar (j)

Da Vinci Code (k)

2012 (l)

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(m) Twilight Eclipse

(n) Iron Man 2

(o) Transformers 2

(p) War of the Worlds

(q) Man of Steel

(r) Iron Man
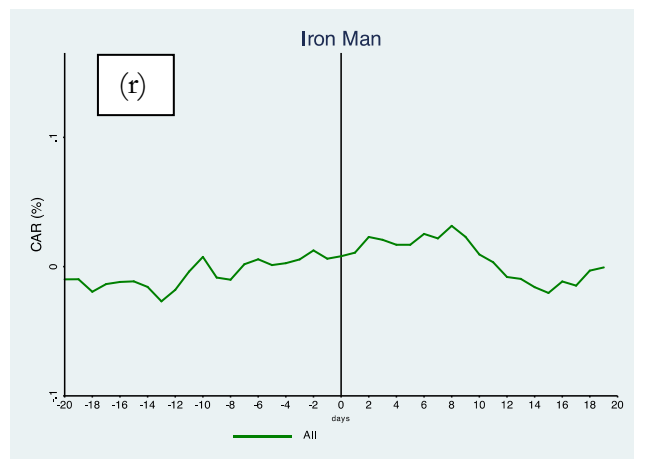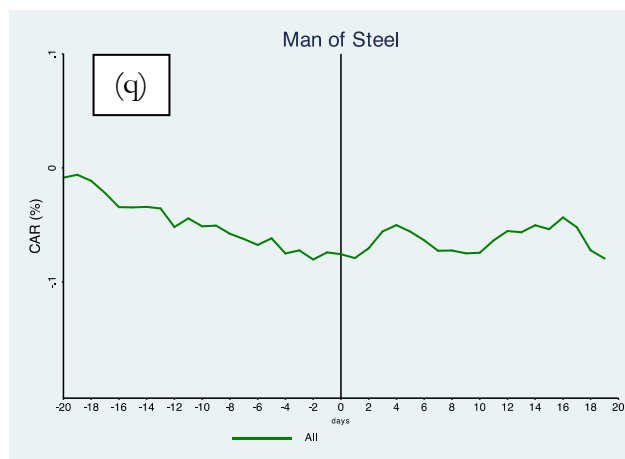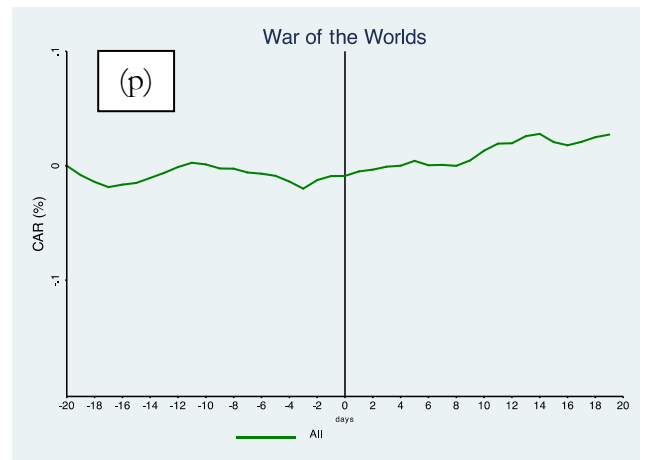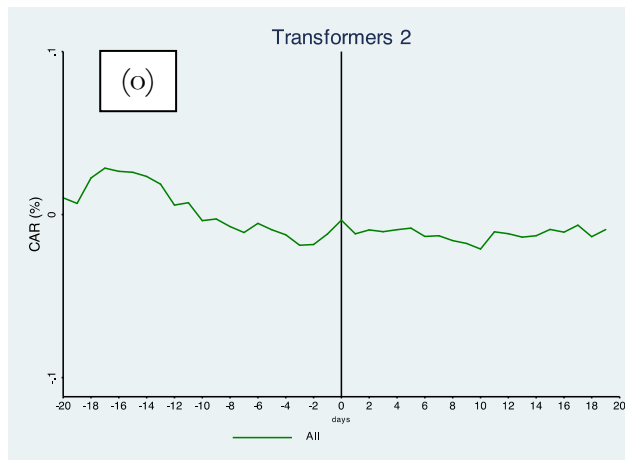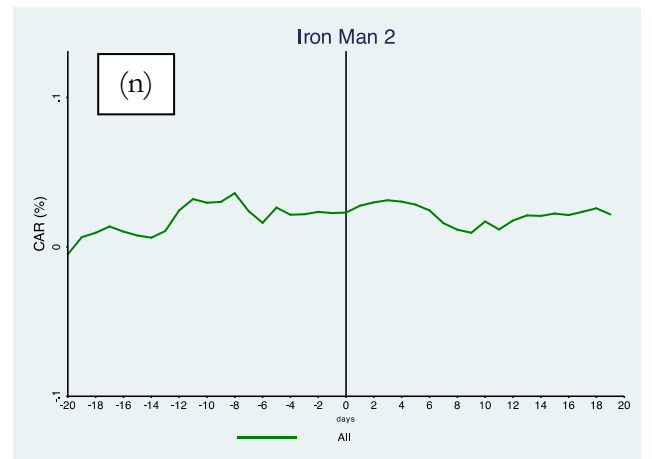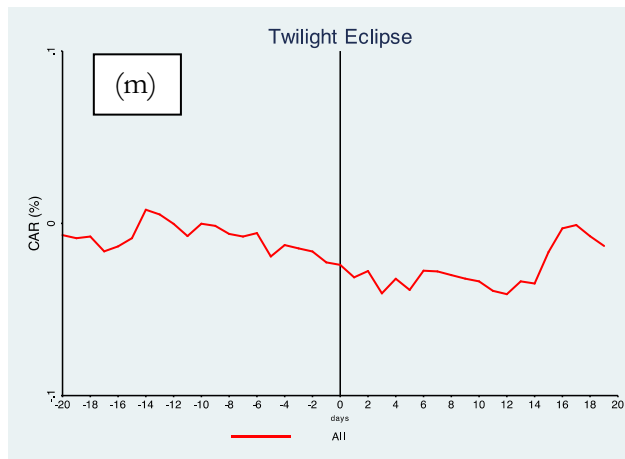
Appendix B — Placement Frequency & Clustered Average Market Reactions (CARs in %) for Each Company and Industry in the Short Run

	Freq	C.G.	C.S.	IND	TECH	O&G	FIN	TELE
Adidas AG	2	.0165						
Anheuser-Busch	3	.0141						
Asics	1	-.0497						
Audi	4	-.0022						
BMW	1	.0710[*]						
Bridgestone	1	.0030						
Brown-Forman	1	.0082						
Campbell Soup	1	.0368						
Canon	1	-.0077						
Carter's	1	-.0434						
Clorox	2	-.0099						
Coca-Cola	5	.0148						
Crocs	1	.0943						
Daimler AG	2	.0167						
Diageo	1	-.0111						
Ebro Foods	1	.0273						
Fiat Spa	2	.0095						
Ford	7	-.0129						
General Motors	1	.0028						
Goodyear	1	.0432						
Harley Davidson	3	.0102						
Harman Int.	1	.0255						
Hershey	1	.0082						
HJ Heinz	3	.0224[*]						
Honda	1	-.0268						
Hyundai Motor	1	-.0547						
Kellogg	2	-.0004						
Kimberly-Clark	1	.0117						
Mazda Motor	1	.0323						
Mizuno	1	.0328						
Nestle	1	.0377						
Nike	2	.0121						
Nikon	2	.0042						
Nissan Motor	1	.0580						
Pepsico	2	.0034						
Peugeot	1	.0150						
Philip Morris	1	-.0321						
Piaggio	1	.0463						
Porsche	1	.0414						
P & G	2	.0143						
Renault	1	.0078						
Richemont	1	.0745[*]						
Steinway MI	1	.0195						
Tata Motors	1	.0628						
Toyota Motor	2	.0202						

Under Armour	1	.1587		
Unilever	1	-.0245		
VF Corporation	3	-.0246		
Volkswagen	1	-.0001		
Volvo	3	.0239*		
Air France-KLM	1		-.0203	
Amerco	2		-.0398	
American EO	1		.0184	
Burger King	3		.0234	
Dick's Sporting	1		-.0112	
Dineequity	1		-.0540	
Gannett	1		-.0017	
Graham Hol.	1		-.0272	
Hermes	1		.0010	
Hilton Hotels	1		.0073	
JOS A Bank	1		.0212	
Kering	1		-.0222	
Les Hotels P.	1		-.0917	
LVMH	2		.0592**	
Marriott Int.	2		-.0065	
Sears Holdings	1		.0006	
Seven & I Hol.	1		.0165	
Southwest Air	2		.0152	
Sports Direct	1		-.0410	
Starbucks	2		.0330	
Time Warner	4		-.0099	
Vivendi	1		-.0367	
Walt Disney	3		.0461	
Caterpillar	1			.0059
Emerson Electr.	1			.0374
Fedex	1			-.0214
Fuji Heavy Ind.	1			-.0283
General Electric	1			.0119
Kobelco	1			.0164
Lincoln Electric	1			.0149
3M	1			-.0093
Oshkosh	1			.0073
Paccar	1			.0281
UPS	1			.0023
Waste Man.	1			-.024*
Apple	7			-.0019
Cisco	2			.0022
Google	1			.0202
LG Electronics	4			.0155
Microsoft	1			-.0076
Motorola	1			-.0164
Nintendo	2			.0082
Nokia	1			.0524
Oracle	3			-.0086
Plantronics	1			-.137***
Samsung	1			-.0549

Sony	2				-.0134			
Chevron	1					.0067		
ConocoPhillips	1					-.0279		
Shell	1					-.0330		
HSBC	1						-.0147	
VISA	1						-.0259	
TCL Com.	1							.2600***
Verizon	1							-.0223
Average		.0160	-.0052	.0034	-.0118	-.0181	-.0203	.1200

This table presents the average CARs of the firms. The table is formed through clustering the regression analysis of all product placements in different event window settings.

Note: ***, **, *, denotes significance at the respectively 1, 5, 10 percent level.