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The effectiveness of movie trailer advertising

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Prior to a movie release in theaters, trailer advertising provides valuable information that can help viewers and investors form expectations about the movie's future success. While previous research has looked at the financial implications of movie advertising budgets, the effects of trailers' creative characteristics on abnormal returns have not yet been investigated. Using a sample of movie trailers, results from our event study and cross-sectional analysis show that the appeal of the movie plot revealed in the trailer, the number of scene cuts and the inclusion of violent, sexual, or humorous scenes influence the movie's abnormal returns. However, the use of special effects in the movie trailer does not impact investors. Results also suggest that investors react more strongly to first than to follow-up trailers released for the movie, and that early release of the first positively impacts the movie's returns.

Keywords: advertising effectiveness; movies; event study; regression; trailer advertising

1. Introduction

Advertising is a crucial element of the marketing mix for movies. The Cinema Advertising Council (CAC 2014) estimated the movie advertising industry to more than \$670 m in 2013. On average, an estimated 65% of the movie's total budget is spent on production while the remaining 35% is allocated to marketing and distribution (Investopedia 2011). As argued by Rennhoff and Wilbur (2011): 'frequent new product introductions and short product life cycles lead to unusually high levels of advertising in the movie industry.'

Most of the movie advertising budget is incurred in the pre-release period, i.e., prior to the movie's theatrical release (Elberse and Anand 2007). During this period, advertising plays a crucial role in informing viewers of the movie's characteristics and in signaling potential studio profitability to investors (Joshi and Hanssens 2009).

Movie previews, or trailers are the most widely used method of movie advertising in the pre-release period (Faber and O'Guinn 1984; Eastman, Bradbury, and Nemes 1985; Kernan 2004). They are typically one to three minutes long, and show scenes from the movie with the purpose of building expectations before its release in theaters (Eastman et al. 1985; Wasko 2004). According to the Motion Picture Association of America, 54% of viewers usually watch the trailer before seeing the movie and the average advertising expenditure for a movie amounts to \$36 m (MPAA 2007), with most of these budgets for trailer advertising (CBC 2012). Therefore, trailers are costly and important influencers of

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movie selection behaviors, and can greatly impact the success of the film at the box office after its release in theaters.

The marketing literature about advertising effectiveness for films has primarily examined the effect of advertising budgets on the financial performance of the studio or movie. Results from this literature indicate that advertising budgets influence stock prices, and that successful movies are likely to be supported by higher budgets than poorly performing movies (Basuroy, Desai, and Talukdar 2006; Elberse and Anand 2007; Joshi and Hanssens 2009, 2010; Rennhoff and Wilbur 2011).

A growing literature is concerned about the financial impact of advertising (Joshi and Hanssens 2009). This is because advertising can positively affect shareholders' valuations of the firm (Conchar, Crask, and Zinkhan 2005). It can increase product demand and indirectly benefit stock prices through higher revenues and profits. It can also directly influence investors' behavior by improving brand awareness and the perceived quality of the advertised product. Behavioral decision theory also argues that advertising can lower investors' perceived uncertainty (Frieder and Subrahmanyam 2005; Heath and Tversky 1991), and signal future competitive viability and earnings potential for the firm (Joshi and Hanssens 2010).

These studies focused on the effect of advertising spending on investors' valuations of movies and studios. However, they overlook the efficiency of movie advertising content and execution, specifically how the design of trailers can influence investors' valuation of the movie. This is especially relevant since the advertising literature showed a significant effect of the movie trailer content on viewers' attitude towards and expectations for the movie (Eastman et al. 1985). For example, the actors and director choice, the trailer's storyline and the movie's genre impact viewers' attitude towards the trailer (Finsterwalder, Kuppelwieser, and de Villiers 2012).

For movie managers, it is very important to understand the financial impact of trailers prior to the release of the film since investors rely on trailers to infer the quality of the movie, and to anticipate its future success or failure at the box office. It is also of most importance to movie marketers and advertisers who need to decide not only how much to spend on advertising but also how to effectively design advertising campaigns (Modig, Dahlén, and Colliander 2014).

This research addresses this knowledge gap in two ways. It identifies the significant effect of trailers on the movie's financial returns, and it studies which elements of trailer content and execution can explain such impact. In our knowledge, this is the first attempt at understanding these two aspects of movie advertising.

First, we study the effects of trailer release prior to the movie's launch on the film's financial returns. The trailer release leads to abnormal returns if the movie's stock price changes due to the trailer release compared the normal expected returns which would have resulted without the trailer being released, given expected fluctuations in stock prices and other variables related to the movie. Abnormal returns provide an unbiased estimate of the economic worth of the event, which is the trailer release (Brown and Warner 1980), and are measured in this study by the movie's Cumulative Average Abnormal Return (CCAR).

We use the event study method, widely used in the finance literature, to determine the abnormal returns (CAAR) generated by the trailer release. Event studies are based on the observation that the effect of an event is immediately reflected in stock price changes due to efficient markets, perfect information and rationality of investors (Fama 1991). The event study method is therefore helpful in measuring the impact of a specific event, e.g., movie trailer release, on stock value. We do so using movie stock pricing data for a

sample of trailers released over a one-year period (from May 2010 to June 2011), totaling 140 trailers for 108 movies.

Second, we identify elements of trailer content and execution that can explain the impact generated by the trailer on the movie's financial returns (CAAR) by drawing on the literature in the advertising, movie and marketing fields. Then, we estimate the effect of each of these elements on CAAR using a cross-sectional analysis.

2. Literature review and research hypotheses

A long stream of literature has looked at the effect of advertising for different product categories on consumers' attitudes towards the ad as antecedent of attitudes towards the product. It showed that the utilitarian and hedonic nature of the product affects the evaluation and effects of the ad (Batra and Ahtola 1991; Berlyne 1970). This is because the consumption of utilitarian products serves the accomplishment of a specific task and is therefore focused on the functionality of the product (e.g., microwaves and light bulbs). Alternatively, hedonic products generate affective and emotional responses such as pleasure, enjoyment, excitement and fun (Hirschman and Holbrook 1982; MacInnis and Price 1987; Dhar and Wertenbroch 2000).

Since movies are experiential hedonic products, the attitude of movie viewers towards the trailer and thereby towards the movie will heavily depend on the effectiveness of the trailer in generating an affective and emotional response for the consumer. Therefore, the effects of trailer advertising can be assessed mainly from the literature that studied affective advertising (e.g., Batra and Ray 1986; Holbrook and O'Shaughnessy 1984; Holbrook and Batra 1987; Olney, Holbrook, and Batra 1991; Teixeira, Wedel, and Pieters 2012). According to the popular Mehrabian–Russell PAD (Pleasure, Arousal, Dominance) model, the emotional responses to advertising mainly consist in pleasure and arousal (Mehrabian and Russell 1974; Russell, Weiss, and Mendelsohn 1989).

In addition to the emotional appeal of the ad, its interestingness can also be an antecedent of the viewers' attitude towards the ad and thereby the product (Olney et al. 1991; Janiszewski 1998). Interestingness of the ad relates to those creative aspects that make it appealing and interesting (not boring). For a movie, this relates to the storyline conveyed in the trailer but also to the creative elements that make it intriguing, visually appealing and captivating.

The content and design of the trailer can therefore provide investors with critical information about the quality of the movie. Given that movies are hedonic products, the trailer needs to convey the hedonic aspects of the movie and generate positive consumers' responses for emotional appeals and interestingness of the trailer. The literature in advertising, marketing, and film-making suggests a number of factors that can influence viewers' responses to trailer advertising. We focus on the following main elements that are shown to influence the interestingness of the trailer and thereby of the movie: the appeal of the plot conveyed in the trailer and its ability to intrigue viewers by hiding some aspects of the plot (knowledge gaps). We also study the effects of trailer contents that are highly linked to either pleasure (humor), or arousal responses (sex and violence). Further, we consider the timing of the trailer release and the number of movie scenes featured in the trailer as influential factors for investors. We include a summary of these factors in our conceptual model (Figure 1).

We use the findings in this literature to develop our research hypotheses. In particular, the first hypothesis focuses on the effects of trailer release on the movie's financial

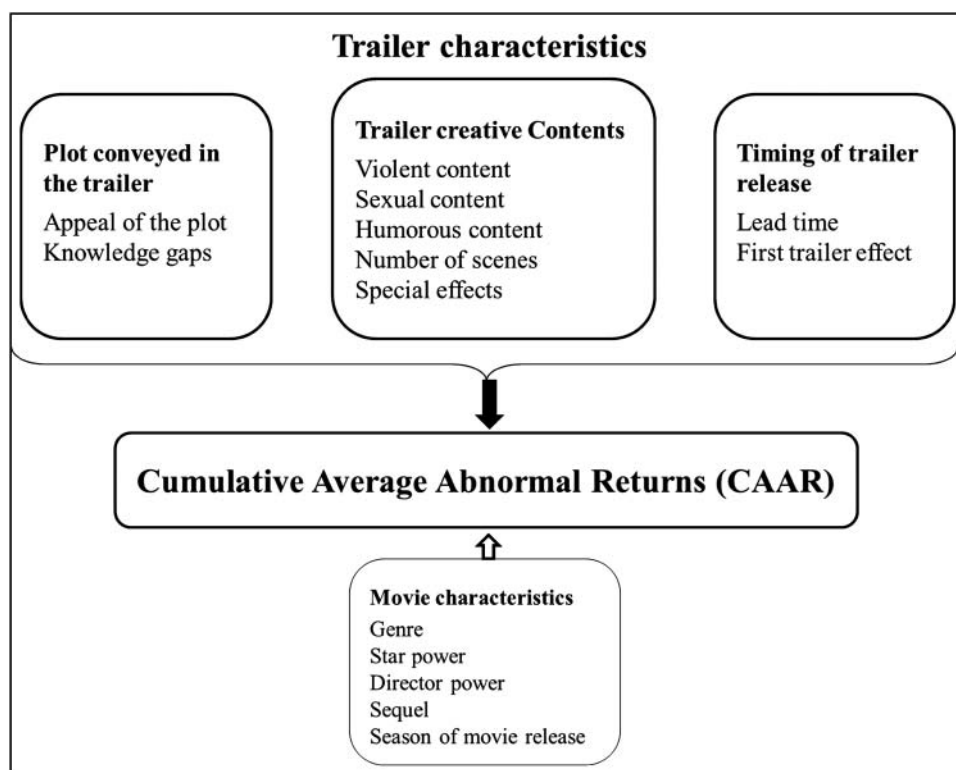


Figure 1. Effect of movie trailers on abnormal returns.

returns. The remaining hypotheses relate to the effects of trailer contents and execution on the effect its release has on the movie's financial returns.

2.1. Effect of movie trailers' release on financial returns

Research has shown that forecasts of movie demand can be reasonably accurate in a very early pre-release stage, and that new information can influence traders' beliefs about the movie's future performance, resulting in stock price adjustments (Foutz and Jank 2010). Information that affects the movie's stock price includes announcements about the star cast (Elberse 2007) and product placements (Wiles and Danielova 2009; Lee, Sung, and Choi 2011).

Investors also rely on advertising when forming expectations about potential movie returns and the studio's future financial performance (Basuroy et al. 2006; Elberse and Anand 2007; Joshi and Hanssens 2009). In particular, prior to the movie's release, advertising can help create brand awareness and reinforce perceived quality (Joshi and Hanssens 2010; Frieder and Subrahmanyam 2005). Advertising also provides critical information to investors at a time when the perceived risk is at its highest (Heath and Tversky 1991), and helps in the assessment of future competitive viability as well as earnings potential.

These findings show that advertising conveys incremental information to investors, which can affect the movie's stock price. While important, these results are limited

because they focus on measuring the effect of advertising spending on investors' valuations of movies and studios prior to the movie release. Since accurate information about advertising budgets is usually not available to investors prior to the movie release, investors are not influenced by the amount spent on advertising for the movie but rather by the design of the advertising campaign, to predict the movie's potential success.

This is especially important since trailers can be considered as 'samples' of the movie to be released. In fact, movies are highly experiential products for which hedonic aspects play a major role in consumption (Eliashberg and Sawhney 1994). Since experiential products are difficult to evaluate before their actual consumption (Nelson 1970), providing a direct product experience can reduce uncertainty about their quality (Wright and Lynch 1995). Also, the hedonic experience is evaluated on the basis of the affective response the product provides (e.g., fun, pleasure and excitement) rather than on the product's performance (Dhar and Wertenbroch 2000). Product sampling can therefore create an expectation of what the experience would be and could considerably influence purchase decisions (Moe and Fader 2001). Theatrical trailers represent samples of the advertised movies. They help potential viewers form beliefs about the movie's content and assess whether it will fulfill their expected entertainment desire. Research findings indicate that among the promotional efforts for a movie, trailers have the strongest influence on viewers' movie choice (Wasko 2004; Faber and O'Guinn 1984) and that audiences' expectations of a movie's performance increase after exposure to a trailer advertising (Eastman et al. 1985). Therefore, trailer advertising can impact moviegoers' purchasing behavior, thereby box office revenues. This, in turn, influences investors' valuation of the movie's financial value.

Furthermore, while investors expect studios to release a trailer for almost every movie produced, they rely on the information that the trailer is released to form expectations about the progress of the movie production process and the ability of the studio to meet the movie's production timetable. This is especially relevant since studios communicate movie release dates relatively early and with sufficient accuracy, mainly because they have time-bound contracts with industry members, e.g., participating actors and directors, filming spot providers and theaters (Marich 2005, 1247–1272).

The trailer release in itself reveals to investors that the movie production is progressing well and that many scenes of the movie are being shot, enough to produce a trailer. This is important since it is reported that many movie productions can be delayed due to different unpredicted factors (disputes, budgeting, locations, ratings approval, etc.), creating disappointments among audiences and resulting in marketing and legal fees. For example, delays in the production of the Paramount movies 'World War Z' and '47 Ronin' resulted in speculations in the press about the quality of these movies (Hollywood Reporter 2012). Also, over budgeting for the Disney's movie 'The Lone Ranger' resulted in many delays for its release and concerns about its profitability at the box office (Variety 2013). Therefore, the release of the trailer in itself can reveal to investors that the movie production is running smoothly and that the movie can be released on time. Thus;

H₁: The release of a new theatrical trailer leads to abnormal stock returns for the movie.

2.2. Effects of the trailer's plot appeal on the movie's abnormal returns created by the trailer release

The viewers' and investors' evaluation of the interestingness of the trailer, and thereby of the movie, are related to the appeal of the plot conveyed in the trailer and its ability to

Table 1. Criteria for a successful movie plot.

Criterion	Description	References
Clear premise	The storyline reflects the premise of the movie.	Eliashberg et al. (2007) Sokoloff (2009)
Actuality	The storyline is of high actuality.	Sokoloff (2009)
Important conflict	The story has a very clear conflict, which involves high emotional stakes and confronts the hero with obstacles and challenges.	Eliashberg et al. (2007) Field (2005)
Clear motivation	The hero has a clear motivation of what he/she wants to achieve by the end of the movie.	Eliashberg et al. (2007) Field (2005)
Nemesis	There is a strong nemesis in the story. The trailer shows that the main character undergoes a strong change.	Sokoloff (2009)
Main characters	More than two main characters are introduced.	Sokoloff (2009)
Novel setting	The setting in which the conflict is presented is new in terms of time and/or place.	Sokoloff (2009)
Interconnected scenes	Each scene advances the plot and is closely connected to the central conflict.	Eliashberg et al. (2007)
Surprise	The story contains elements of surprise, but is logical within context and within its own rules.	Eliashberg et al. (2007)
Logic	The story follows a logical, causal relationship. Confusion of the viewer is avoided.	Eliashberg et al. (2007)

intrigue viewers. This has been confirmed by empirical research showing that the movie’s plot is a major driver of moviegoers’ decisions (Cooper-Martin 1991; Eliashberg et al. 2000).

The literature about screenwriting has shown that different criteria can determine the appeal of a movie plot (see Table 1 for a summary). These include the presence of an important conflict, the ‘design’ and motivation of the main characters (Eliashberg, Hui, and Zhang 2007; Field 2005), and the characters’ evolution throughout the story (Sokoloff 2009). Furthermore, in a successful screenplay, each scene moves the plot forward, is closely connected to the story’s central conflict, and advances a logical and causal relationship between the main events in the story (Eliashberg et al. 2007). Finally, since movies are visual experiences, a screenplay that shows a novel time or place setting could also be more appealing to viewers (Sokoloff 2009).

In most cases, trailers offer insights into the movie’s plot (Rasheed and Shah 2002). Therefore, trailers that reveal an engaging plot can stimulate theater visits when the movie is released. For investors, higher returns are expected from movies that can capture the viewers’ attention and generate higher box office revenues. Therefore, the more appealing the plot conveyed in the trailer, the higher the expected returns for the associated movie.

H_{2a}: The appeal of the movie plot conveyed in the trailer is positively related to the abnormal returns generated by the trailer release.

While the trailer delivers an overview of the main events in the plot, industry experts suggest that a good trailer should not reflect the plot in its entirety or give away too much about the actions awaiting the characters (Gilbey 2006). This idea is aligned with the results in the advertising literature pointing to the importance of curiosity generating content. Advertising messages that breed curiosity have been found to increase consumer motivation and interest, and result in greater product elaboration and perceived novelty of the message (Menon and Soman 2002; Loewenstein 1994; Fazio, Herr, and Powell 1992).

Movie trailers can similarly generate viewers' curiosity by leaving out important information from the plot; for example by concealing whether a character is good or evil or by hiding potential threats. Such omissions are knowledge gaps that can make audiences eager to see the movie, and create positive word of mouth after the trailer release that can generate more attention towards the movie. Therefore;

H_{2b}: Knowledge gaps in the storyline revealed in the trailer have a positive impact on abnormal returns generated by the trailer release.

2.3. Effects of trailers' emotional appeal through the use of violence, sex and humor on the movie's abnormal returns created by the trailer release

Given the hedonic nature of movies, the use of emotional appeals (pleasure and arousal) in the trailer can accentuate the viewers' entertainment experience, thereby influencing theater visits and investors' valuation of movie returns. While there is a wide range of emotional appeals, for a movie trailer, the emotional appeals for pleasure (fun and enjoyment) consist mainly in the use of humor (Scott, Klein, and Bryant 1990; Wells, Leavitt, and McConville 1971), and those for arousal in sexual and violent contents.

Violent and sexual contents are commonly used in movie trailers.¹ It is estimated that 76% of trailers contain at least one violent scene, and that 56% feature one or more sexual incidents (Oliver and Kalyanaraman 2002). Such content can intensify the viewing experience by increasing viewers' overall enjoyment (Oliver et al. 2007), especially for those with high arousal-seeking tendencies (Xie and Lee 2008). Research by Ravid and Basuroy (2004) shows that movies featuring very violent or highly sexual scenes do not provide higher financial returns (i.e., increase in stock prices). However, films with such contents are associated with significantly higher box office sales. These findings suggest that trailers containing violent and sexual content could stimulate theater visits, and therefore positively impact the abnormal returns created by the trailer release.

Furthermore, the use of humor in films conveys the essential elements of fun and pleasure of the entertainment experience moviegoers seek. Since trailers represent previews of the movie, humor can build the expectation of an enjoyable experience and increase viewers' motivation to see the film. The advertising literature provides extensive evidence for the merits of humor as a creative element, and many studies have shown the ability of humor not only to enhance its liking but also to attract consumers' attention and to increase the message comprehension (Cline, Altsech, and Kellaris 2003; Weinberger and Gulas 1992; Duncan 1979). Specifically, a recent experimental study showed that humorous content in on-line trailers influences not only the audiences' attitudes towards the trailer but also their intentions to see the movie (Devlin, Chambers, and Callison 2011).

H₃: Content that is (a) violent, (b) sexual, or (c) humorous increases the abnormal returns generated by the trailer release.

2.4. Effects of trailers' executional appeal through the use of special effects on the movie's abnormal returns created by the trailer release

Industry experts emphasize the importance of special effects to enhance the movie's entertainment value (Cooper-Martin 1991). Special effects can be visual such as explosions, fires, computer-generated imaging, and make-up, as well as sound effects (Miller 2006; Horn 2007). The use of visual and sound effects in films can enhance viewers' sensory stimulation and accentuate arousal levels; which are important for a successful hedonic consumption experience. The use of sound effects can help set a specific mood, evoke feelings, startle or soothe the audience, and exaggerate or mediate actions, as well as structure time or simulate motion (Scott 1990; Thom 1999). Visual effects can also be effective for constructing a fantasy world and enhancing viewers' emotional experience (Miller 2006).

Therefore, featuring special effects in trailers can signal a high entertainment value for the associated movie, which in turn can stimulate theater visits. For investors, this means that higher expected revenues can be predicted for such movies. The use of special effects in trailers can then generate positive abnormal returns.

H₄: Special effects featured in the trailer increase the abnormal returns generated by the trailer release.

2.5. Effects of the number of scenes shown in the trailers on the movie's abnormal returns created by the trailer release

Movie scenes are shifts from one visual scene to another with different background setting (Lang, Potter, and Bolls 1999; Zhai, Rasheed, and Shah 2005). They add new information by exposing the viewer to a new visual environment.

The effects of the number of scenes from the movie included in the trailer are twofold. On one hand, a large number of scenes in the trailer reveals to investors that the movie production is progressing well and offers a reassurance about the movie's ability to meet production and distribution deadlines. On the other hand, the number of scenes included in the trailer can also affect the hedonic evaluation of the trailer (Lang et al. 2000; Lang 1990; Yoon, Bolls, and Lang 1998; Thorson and Lang 1992). In fact, the advertising literature indicates that introducing various structural features in television messages, such as scene cuts, results in higher attention levels and increased levels of the ad perceived complexity, but lower message recall. Further, the number of scenes can also influence the viewers' perceived pace of the ad (Wang and Cheong 2006; Rasheed et al. 2005). Previous research suggests that fast-paced messages elicit higher arousal levels, which in turn can influence the recall and liking of the message (Lang et al. 1999; Hitchon, Duckler, and Thorson 1994).

These findings suggest that a larger number of scenes in the movie trailer can reassure investors about the progress of the movie. It can also sharpen the viewer's attention and raise arousal levels, thereby enhancing their hedonic experience. This can increase theater visits, and enhance investors' expected returns for the movie. Thus:

H₅: There is a positive relationship between the number of scenes in the trailer and the movie's abnormal returns generated by the trailer release.

2.6. *Effects of trailers release time on the movie's abnormal returns created by the trailer release*

Because motion picture studios have time-bound contracts with industry members such as participating actors and directors, as well as filming spot providers and theaters, they communicate movie release dates relatively early and as accurately as possible. Although investors are informed about the movie at its earliest stages of development, they may have to wait some time before they can see any actual footage. Furthermore, moviegoers might not hear about the movie until the first trailer is released. Therefore, like a new product preannouncement, a trailer that is released long before the movie can help build awareness and positive word of mouth, which can result in increased box office sales (Kohli 1999; Su and Rao 2010).

The timing of the trailer release also conveys significant information to investors about the potential success of the movie. Trailers released early on can help investors evaluate whether the forthcoming movie will be appealing to audiences, thereby updating their beliefs about its future box office success. Also, investors can perceive an early trailer release as a signal of confidence that the movie release will occur on the scheduled date. Therefore, the timing of the trailer release compared to the movie can positively influence investors' reactions and thereby abnormal returns for the movie. Also, given that more than one trailer is usually released for the same movie, the first trailer would alleviate uncertainty to a larger degree than subsequent trailers, since it will reveal for the first time important details about the movie and its potential for success. Thus;

H_{6a}: The time between the release of the first trailer and the theatrical release of the movie is positively related to the movie's abnormal returns generated by the trailer release.

H_{6b}: The first trailer released for the movie has a larger impact on the movie's abnormal returns generated by the trailer release than subsequent trailers.

3. Research method

Data about movie trailers and movie stock pricing were collected from the Hollywood Stock Exchange (HSX), which is one of the most popular virtual movie stock markets. It has approximately two million participants, with the most active traders tending to be heavy consumers and early adopters of movies (Elberse and Anand 2007). Using virtual currency, the traders can increase their net value by trading movie stocks, star bonds, and other financial products related to the movie industry (HSX 2011). On the basis of available information, HSX traders forecast the demand for a movie and strategically buy or sell their stocks. Research has shown that the forecasts by HSX traders represent reasonably accurate predictions of the actual box office returns (Gruca 2000; Spann and Skiera 2003; Elberse 2007; Elberse and Anand 2007). For example, Elberse (2007) found that the correlation between HSX stock prices before the movie release and normalized first weekend box office sales is very strong (Pearson coefficient of 0.89). Also, investors commonly use virtual stock markets to forecast movie demand in pre-release stages (Foutz and Jank 2010).

3.1. *The event study*

We use an event study to test H₁. Event studies are based on the observation that the effect of an event is immediately reflected in stock price changes due to efficient markets,

perfect information, and rationality of investors (Fama 1991). The efficient market hypothesis eliminates dependency on accounting information and allows for a cause-and-effect inference in a quasi-experimental setting (Srinivasan and Hanssens 2009). Event studies are therefore helpful in measuring the impact of a specific event, such as a movie trailer release, on stock value.

The event of interest in this study is the release of a new trailer. In order to conduct an event study, it is crucial to define the appropriate time frame in which the effect of the event is observed on stock prices; i.e., the *event window*. The latter should be long enough in order to appropriately measure the effect of an event on the stock price. However, the event window must not be too long in order to reduce the probability that other events confound the effect caused by the trailer release and to properly assess the investors' reaction (MacKinlay 1997).

We chose a two-day event window comprising the day of the trailer announcement (the day of the event) and the following day. This event window is within the conventionally accepted length (MacKinlay 1997), especially in the context of the motion picture industry (Wiles and Danielova 2009). A short period (2 days) was considered appropriate given that we could pinpoint the exact day of the trailer release on the HSX website, and because of the high frequency of confounding announcements that occur in the movie industry (e.g., release of follow-up trailers or of additional marketing material). Therefore, a short event window allows us to increase the likelihood that the stock price reaction was related to the trailer release rather than to other confounding announcements about the movie or its competitors.

In order to assess the effect of a particular event, it is necessary to determine the *normal return* of the stock; which is its performance when no event is taking place. Two common approaches for modeling the normal returns of a stock are the market model and the constant mean return model. The latter assumes that the return of a movie stock is constant over time as long as no event is taking place while the market model assumes a linear relationship between the return of any given stock and the return of the general market portfolio (MacKinlay 1997).

The constant mean return model was chosen in this study for its simplicity and for the fact that it often leads to similar results and variance of abnormal returns compared to more sophisticated models (Brown and Warner 1980; 1985; MacKinlay 1997). For each trailer i and time t , the normal return is given by R_{it} and estimated by the mean return (μ_i) of the trailer i and a fluctuation term (δ_{it}) such that

$$R_{it} = \mu_i + \delta_{it}, \text{ with } E(\delta_{it}) = 0, \text{ Var}(\delta_{it}) = \sigma_{AR_{it}}^2. \quad (1)$$

In order to estimate the mean value and the variance of the normal return, the stock return values on a certain number of days prior to the event are used, the so-called *estimation window*. Generally, the actual event day is not included in the estimation window in order to prevent price changes that take place on the event day from distorting the normal return estimate (MacKinlay 1997). We used an estimation window of four days for the normal return. One day served as a separation between the estimation and event windows to prevent the occurrence of an increased Type I error arising from possible information leakage on the day prior to the event (Brown and Warner 1985). This short window decreased the number of confounding events given the very high frequency of announcements in the movie industry that can affect movie returns.

The estimated normal return for trailer i ($E(R_i)$) is obtained by calculating the mean of the returns for trailer i within the four-day time period preceding the trailer release (at time $t = 0$) and ranging from $t = -5$ to $t = -2$.

The stock's abnormal return (AR_{it}) is then obtained by subtracting its expected return $E(R_i)$ from the real return occurring over the event window (Srinivasan and Bharadwaj 2004). AR_{it} (in (2)) represents the stock price change that takes place after the event has occurred and is calculated for each day in the event window:

$$AR_{it} = R_{it} - E(R_i). \quad (2)$$

Overall inferences about the impact of a particular event require that the abnormal returns measured on each of the days in the event window be aggregated through time, producing the cumulative abnormal return (CAR) (Srinivasan and Bharadwaj 2004) (Figure 2). Finally, the cumulative average abnormal return (CAAR) is calculated by dividing the CAR by the number of days in the event window, which is equal to two. The obtained CAARs represent our measure of the movie's abnormal return due to the release of the movie trailer and are used to perform the event study.

3.2. The cross-sectional analysis

To understand how the trailer's content and execution could influence the movie's abnormal returns, we perform a cross-sectional analysis. The regression equation has CAAR as the dependent variable and the trailer and control variables as predictors (in (3)). B and C denote the vectors of regression coefficients for the trailer and control variables respectively, and ε is the regression error term:

$$CAAR = \alpha + B(\text{trailer variables}) + C(\text{control variables}) + \varepsilon. \quad (3)$$

The trailer variables consist of nine independent variables that reflect our research hypotheses (Table 2). These are given by the number of storyline success criteria revealed

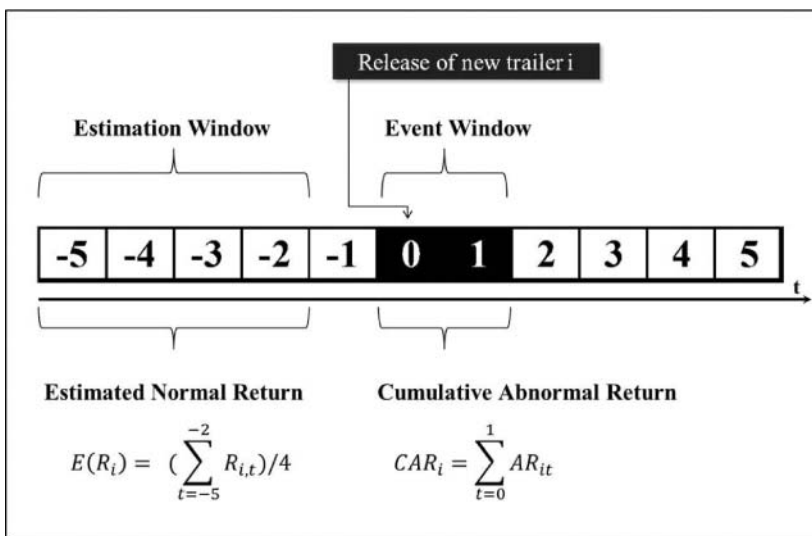


Figure 2. Estimation and event windows for the event study.

Table 2. Variable operationalization and descriptive statistics.

Variable(s)	Description	Source	Mean	SD	Min.	Max.
H ₁ : CAAR	Cumulative average abnormal return $CAAR = \frac{\sum_{t=0}^1 \left[R_{it} - \left(\sum_{i=-5}^{-2} R_{it} \right) / 4 \right]}{2} \quad i = \text{trailer};$ $t = \text{time}$	Hollywood Stock Exchange (HSX)	2.178	1.787	-1.88	7.88
<i>Trailer variables</i>						
H _{2a} : STORYLINE	Number of storyline success criteria revealed in the trailer (from Table 1)	Trailer	4.857	1.956	.00	10.00
H _{2b} : KNOWGAP	Dummy reflecting whether the trailer's storyline conveyed a knowledge gap	Trailer			.00	1.00
H _{3a} : VIOLENCE	Number of scenes with violent content in the trailer	Trailer	7.91	10.03	.00	51.00
H _{3b} : SEX	Number of scenes with sexual content in the trailer	Trailer	2.37	3.84	.00	24.00
H _{3c} : HUMOR	Number of scenes with humor in the trailer	Trailer	7.13	7.03	.00	28.00
H ₄ : SPECIAL	Number of scenes with special effects in the trailer	Trailer	19.9	15.05	.00	74.00
H ₅ : SCENES	Number of total scenes in the trailer	Trailer	45.62	23.07	1.00	105.00
H _{6a} : LEAD_TIME x FIRST_ TRAILER	Time in days between the release of the first trailer and of the movie	HSX	81.2	82.04	.00	352.00
H _{6b} : FIRST_ TRAILER	Dummy reflecting whether the trailer is the first one released for the movie	HSX			.00	1.00
LENGTH	Length of the trailer in seconds	Trailer	128.80	36.11	21.00	233.00
LEAD_TIME	Time in days between the release of the trailer and of the movie	HSX	113.33	61.99	10	352

(continued)

Table 2. (Continued)

Variable(s)	Description	Source	Mean	SD	Min.	Max.
<i>Movie (control) variables</i>						
STAR	Star power measured by the aggregated value of all active HSX star bonds of the actors involved in the movie at the time of trailer release.*	HSX	281.30	176.39	.00	913.17
DIRECTOR	Director power measured by the value of the active HSX director bond at the time of trailer release.*	HSX	24.72	41.32	.00	177.53
SEQUEL	Dummy reflecting whether the movie is a sequel	HSX			.00	1.00
	Five dummies that represent the main genre categories in the HSX website	HSX				
	Genre ₁ : Action/adventure	IMDb				
	Genre ₂ : Romance/comedy (reference)					
	Genre ₃ : Animated/family					
SEASON	Genre ₄ : Thriller/horror					
	Genre ₅ : Science-fiction/fantasy					
	Five dummies that represent the announced season of the movie release	HSX				
	Season ₁ : January–March					
	Season ₂ : April–May					
	Season ₃ : Memorial Day–July					
	Season ₄ : August–November (reference)					
	Season ₅ : Thanksgiving–December					

* Actors and directors listed on the HSX with a bond are considered as having star and director power.

in the trailer listed in Table 1 (Storyline), a dummy representing the presence of a knowledge gap in the trailer (KnowGap), the number of scenes in the trailer with violence (Violence), with sexual content (Sex), with humorous content (Humor), and with special effects (Special), as well as the total number of scenes in the trailer (Scenes), the time between the release of the first trailer and the announced date of the movie release at the time when the trailer is released (Lead_Time), and a dummy for trailers released first for the movie (First_Trailer). We also control for the trailer’s length measured in seconds.

Descriptive statistics for categorical variables

Variables	Categories	Number of trailers	Mean CAAR	Mean $E(R_i)$
Trailer release #	First	81	2.54	61.51
	Second	50	1.59	88.98
	Third	9	2.17	95.41
Knowledge gaps	0	78	2.68	81.74
	1	62	1.54	63.12
Genre	Action/adventure	31	2.10	80.02
	Romance/comedy	43	1.83	57.43
	Animated/family	25	2.04	85.59
	Thriller/horror	22	2.02	46.50
	Science-fiction/fantasy	19	3.47	114.55
Season	Season 1	37	2.55	52.30
	Season 2	34	2.09	83.30
	Season 3	17	2.00	137.83
	Season 4	48	2.13	53.83
	Season 5	14	2.05	79.87
Sequel	0	113	2.03	57.92
	1	27	1.65	138.71
Total		140	2.18	73.50

While a trailer is the most influential promotional tool used by the motion picture firms (Hixson, 2006), other movie characteristics also affect investors’ expectations of the movie’s success. These are related to characteristics of the movie that are known to investors at the time of the trailer release (Table 2) and include the movie’s genre, the director power and star power for the main actors casted for the movie at the time of the trailer release, and whether the movie is a sequel (Elberse 2007; Elberse and Anand 2007; Joshi and Hanssens 2009). Also, we control for the season when the movie is expected to be released. This is because heavily supported movies are often released in the most profit-yielding seasons, e.g., around important holidays like Thanksgiving and Christmas and Easter (Joshi and Hanssens 2009).

4. Data and variable operationalization

Data about trailers and movie stock prices were calculated from the HSX website from May 2010 to June 2011. To allow adequate estimation and event windows, a trailer was excluded from the sample if the associated movie stock prices were unavailable during the five days prior to the trailer announcement and one day afterwards. Next, to ensure

that the effect of the trailer on stock prices could be isolated, we controlled for confounding effects during the event and estimation windows.

In our dataset, confounding effects consisted of new star casting announcements, publication of additional marketing material for the movie (e.g., posters), important press releases, sneak peeks of the trailer before the date of its release, pre-announcements of the date of trailer or other important communications about the movie (title, plot details, MPAA rating, box office forecasts, etc.), or about competing films within the same genre and released within the same week. The existence of confounding effects was checked in the HSX Forum and on variety.com (Variety Film News 2011), which is a major source of information in the motion picture industry.

Furthermore, only trailers for movies expected to be widely released (i.e., in 650 theaters or more) were kept in the data sample. This restriction is to focus on mainstream releases in the motion picture industry. The sample after these adjustments totaled 140 trailers for 108 movies.

Data for the dependent variable, CAAR, as well as for the variables star power, director power, sequel, genre, season, date of trailer release, and number of trailers were collected from the HSX. The HSX star and director bond values at time of trailer release served as reflections of star and director power. The bond values are HSX stocks traded by investors concurrently with movie stocks, and are valued on the basis of the star's or director's total box office performance averaged over their most recently released films.

Data for the remaining independent variables were coded independently by two coders (Inter-coder reliability ranges from 82% to 99%) who watched all trailers and recorded the following variables: the total number of scenes, the number of fulfilled storyline criteria in the trailer (Table 1), the number of scenes with violent content, with sexual content, with special effects, and with humor. The presence of a knowledge gap was noted in a trailer if one of the following was found; (1) the trailer implies a threat but does not show what causes the threat (e.g., what does the monster look like), (2) the viewer is not informed about why an event shown in the trailer is happening (e.g., reason for a fight unknown), (3) it is left unclear whether an important character to the plot is good or evil, and (4) a narrator's voice that explains the plot is missing.

The control variables are related to other characteristics of the movie that are known to investors at the time of the trailer release (Table 2). These include five dummies for the movie's genre, two variables representing director power and star power for the main actors casted for the movie at the time of the trailer release, and a dummy to represent whether the movie is a sequel (Elberse 2007; Elberse and Anand 2007; Joshi and Hanssens 2009). Finally, the season when a movie is released has been controlled using five dummies to account for important seasons (summer) and holidays such as Thanksgiving and Christmas (Joshi and Hanssens 2009). Estimation of the regression equation was done using the ordinary least square method.

5. Results and discussion

5.1. Results of the event study

To determine whether a new trailer release results in abnormal stock returns, the event study tests the significance of the obtained CAARs. We used the Shapiro–Wilk W test to verify that CAAR follows a normal distribution ($W = .985$, $V = 1.67$, $z = 1.158$, $p = .123$).² A one-sample t -test was then performed and the result shows that the obtained CAARs are significant ($t = 14.47$, $p = .00$). Therefore, in support of H_1 , a trailer release

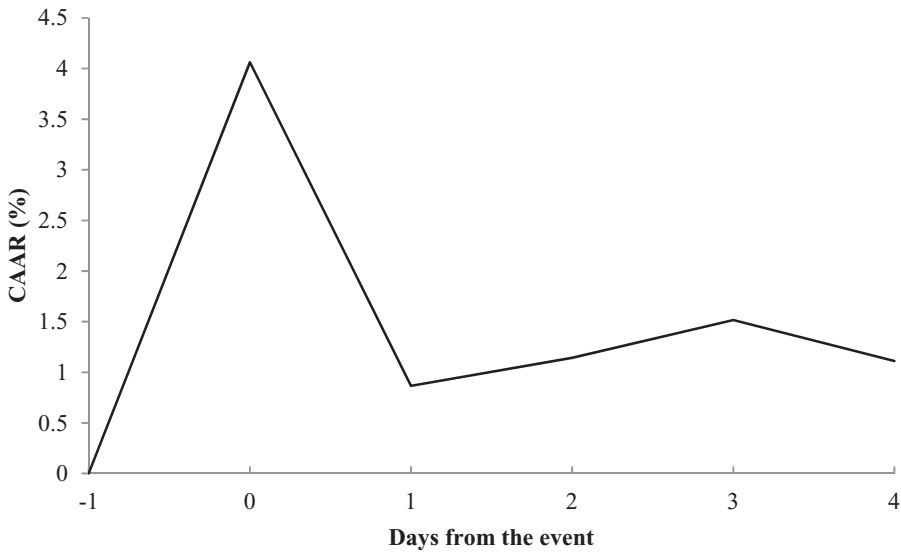


Figure 3. Cumulative average abnormal returns (CAAR) over time.

significantly affects the movie’s stock return, and results in an average increase of \$2.18 for each stock price. This result is not due to outliers, as indicated by the results of a Wilcoxon rank test ($z = 9.53, p = .00$) (McWilliams and Siegel 1997).

As shown in Figure 3, positive average abnormal returns are observed after the event, indicating that the effect of the trailer release on investors’ valuations for the movies persisted after the event. The most significant impact on abnormal return is on the day of the event (day 0), which suggests that investors react quickly to the trailer release.

Although the average effect on abnormal returns is positive, a closer look at the obtained CAAR values shows that 15 trailers (10.71%) generated negative abnormal returns, while the largest number of trailers (125, or 87%) resulted in positive CAAR values (Table 3). The highest CAAR values are mostly associated with the genres of action/adventure and science-fiction/fantasy. These values are also generated by the first trailers for the movie, that meet a high number of storyline criteria for success and that have knowledge gaps.

Conversely, the lowest CAARs were mainly for second trailers and pertain to different genre categories. This finding suggests that the execution of these trailers provided investors with important information that led to devaluating the stock prices for these movies. The lowest CAAR values were also mostly associated with trailers that satisfied a low number of storyline criteria for success and that had no knowledge gaps.

Results from the event study were found robust to alternate estimation models. For the same event window ([0,1]), t -tests performed on the standardized cumulative average abnormal returns (SCAAR) also showed a significant effect of trailer release on abnormal returns ($t = 16.55, p = .00$).³ This result was not due to outliers, as suggested by the Wilcoxon signed rank test ($z = 9.40, p = .00$). Further, the event study was also conducted using a narrower event window by considering only the day of the event ([0,0]). The results of the t -tests and the Wilcoxon rank tests were also significant for both the CAAR ($t = 12.45, z = 9.97, p = .00$) and the SCAAR ($t = 15.28, z = 9.05, p = .00$), in support of H_1 .

Table 3. Trailers with the highest and lowest CAARs.

Movie name	CAAR
<i>10 worst performing trailers</i>	-1.06*
Yogi Bear	-1.88
Conan the Barbarian	-1.76
The Dilemma (second trailer)	-1.75
Arthur	-1.18
Zookeeper	-1.08
The Dilemma (first trailer)	-.88
Machete	-.67
Monte Carlo	-.54
Kung Fu Panda 2: The Kaboom of Doom	-.52
Scream 4	-.38
<i>10 best performing trailers</i>	5.99*
Winnie the Pooh	4.81
Fast Five	5.02
Real Steel	5.16
The Green Hornet	5.25
Bad Teacher	5.40
Big Mommas: Like Father like Son	5.46
Red	6.55
Skyline	7.19
Gulliver's Travels	7.22
Rio	7.88
<i>Total sample (n = 140)</i>	2.18*

*Mean values.

5.2. Results of the cross-sectional study

We now explore why certain trailers have larger effects than others on movie returns. We test our remaining hypotheses by performing a linear regression with the CAAR as the dependent variable and the trailer and control variables listed in Table 2 as predictors.

We use the CAAR calculated on the event window [0,1] as shown in Figure 2 because the average abnormal returns (2.18) were higher than for the event window [0,0], which was 1.59. Also, results of regressions performed with abnormal returns on the [0,0] event window show a lower explanatory power, but similar qualitative results. Therefore, we focus on the results of regressions with the CAAR on the [0,1] event window.

The regression model includes both trailer and control variables as predictors (Table 4). The trailer variables represent the effects discussed in our research hypotheses H₂ to H_{6b}: the appeal of the storyline and knowledge gaps, the use of humor, sexual and violent content, the use of special effects, the number of scenes in the trailer, the first trailer dummy as well as the first trailer interaction with the time between the trailer and movie release dates (Lead time) and whether the trailer is the first to be released for the movie. We also account for the length of the trailer in seconds to control for variations in scene lengths across trailers.

Table 4. Regression analysis results – dependent variable = CAAR (140 observations).

Predictors	Estimate	SE	Stand. estimate
Intercept	−1.448**	.662	
<i>Trailer variables</i>			
H _{2a} : Storyline success criteria	.597***	.063	.657
H _{2b} : Knowledge gaps	.439*	.236	.122
H _{3a} : Violent content	.035**	.016	.196
H _{3b} : Sexual content	.058*	.032	.126
H _{3c} : Humorous content	.033**	.019	.134
H ₄ : Special effects	−.000	.007	−.000
H ₅ : Number of scenes	−.020***	.007	−.282
H _{6a} : Lead time in days between the release of the trailer and movie * First trailer	.010**	.004	.495
H _{6b} : First trailer released for the movie	.269	.488	.075
Trailer length (in seconds)	−.003	.004	−.071
Lead time (in days)	−.006	.004	−.211
<i>Movie (control) variables</i>			
Movie genre			
Action/adventure	.337	.400	.078
Animation/family	.497	.342	.107
Thriller/horror	−.262	.408	−.053
Science Fiction/fantasy	1.840***	.399	.353
Movie release season			
January–March	.544	.402	.120
April–May	.728*	.388	.175
Memorial Day–July	.020	.443	.004
August–November	.731**	.376	.195
R ²	.638		
Adjusted R ²	.580		
F _(19, 120)	11.13		
F-probability	.000		

* $p < .1$, ** $p < .05$, *** $p < .01$.

The results show that the model is significant ($F(19, 120) = 11.13, p < .01$). With an R^2 of .64, the model predicts a large part of the variance in CAAR. We verify homogeneity of standard errors using White’s ($p = .460$) and Breusch–Pagan/Cook–Weisberg tests ($p = .109$) and that collinearity among the estimates is negligible with variance inflation factors (VIF) lower than 4 (e.g., Mason and Perreault 1991).⁴ The control variables star power; director power and sequel dummy were dropped from the regression because they were not significant.

Regarding the trailer variables’ effects, the regression results show that the appeal of the plot conveyed in the trailer and the existence of knowledge gaps positively affect CAAR values. The storyline appeal has a significant positive effect on abnormal returns (.657, $p < .01$)⁵, followed by the knowledge gap dummy (.122, $p < .1$). This result provides support for both H_{2a} and H_{2b}.

Therefore, the movie's plot as revealed in the trailer largely influences abnormal returns to trailer release. This is because the trailer constitutes a sample of the movie and investors can use it to assess the movie quality. Investors react positively to a movie trailer that reflects appealing storyline aspects. Investors would also react positively to trailers that conceal curiosity-generating elements of the story, which could create pre-release word of mouth for the movie.

We found that most of the remaining trailer variables also influence investors' valuations for the movie stock price. In particular, the number of scenes in the trailer with violent (.196, $p < .05$), sexual (.126, $p < .1$) and humorous content (.134, $p < .05$) are positively related to CAAR values, in support of H_{3a} , H_{3b} and H_{3c} .

Therefore, trailers with a high number of sexual, violent, or humorous scenes generate higher abnormal returns than those with a lower number of such scenes. The rationale for this result is that investors value elements of the trailer that promise audiences a satisfying viewing experience, given that movies are hedonic products and are mainly evaluated on the basis of the emotional reactions they create in terms of enjoyment, pleasure, excitement, and fun (Dhar and Wertenbroch 2000). This finding is in line with the literature suggesting that sexual and violent content in movies can be particularly enjoyed by audiences (Xie and Lee 2008; Oliver et al. 2007) and is also associated with significantly higher revenue levels (Ravid and Basuroy 2004).

Conversely, in contrast to H_4 , we do not find a significant effect of the number of scenes with special effects on abnormal returns. This result means that investors do not believe that such effects motivate viewers to visit theaters and are not significant in generating box office revenues after the release of the movie.

The number of scenes in the trailer also has a significant effect on CAAR ($-.282$, $p < .01$). However, in contradiction to our hypothesized relationship in H_5 , this effect is negative.⁶ A possible explanation for this result is that adding scenes to the trailer could increase its perceived complexity, resulting in lower recall levels, thereby negatively affecting expected profits and hence returns from the movie. Note however that this negative impact can be countered if the added scene comprises violent, sexual, or humorous content or a combination of these elements.

Finally, we find a significant relationship between the timing of the first trailer release and the movie abnormal returns (.495, $p < .05$), which provides support for H_{6a} . This means that investors value early releases of the first trailer, mainly because an early release offers a reassurance as to the good progress of the movie production.

Furthermore, the regression results indicate that the main effect of the first trailer dummy variable on CAAR is not significant. This means that the marginal effect of the first trailer on CAAR compared to subsequent trailers is not significant only when the trailer is released on the same day than the movie (lead time = 0). This situation is not likely to happen in practice; indeed our data indicates that the minimum lead time between the movie and trailer releases is equal to ten days. Therefore, the effect of the first-trailer on CAAR can still be observed through the interaction term although the coefficient of the main effect is not significant.

This result is in support of H_{6b} : the first trailer has a significantly larger impact on CAAR than subsequent ones for the same movie and this effect is larger for larger lead times. This is because first trailers are likely to alleviate more uncertainty for investors than later trailers, and are consequently rewarded by the largest adjustments in stock prices.

6. Conclusions and implications

Which creative elements of a new trailer affect the movie's financial value? This research addresses this question and shows that the release of a new trailer results in positive abnormal stock returns, which depend heavily on the creative elements of the trailer.

This study contributes to research about advertising effectiveness and provides important recommendations for marketers in the motion picture industry. Previous research has demonstrated the importance investors place on advertising expenditures (e.g., Joshi and Hanssens 2009). While similar budgets might support the creation of trailer advertising for different movies, we show for the first time that the trailer's creative content and execution significantly influence investors' valuation of the movie's future box office revenues.

In particular, investors assess the attractiveness of the movie plot conveyed in the trailer and reward the most appealing plots with higher returns (Eliashberg et al. 2007). However, since the trailer is a preview of the movie, our findings indicate that the trailer should conceal aspects of the plot to pique viewers' curiosity and stimulate box office sales.

We also find that investors prefer movie trailers that feature violent, sexual, or humorous scenes, possibly because such contents can capture viewers' attention and generate affective responses that can encourage theaters visits. Further, the number of scenes in the trailer affects negatively the abnormal returns for the movie. This is because a larger number of scenes can increase the trailer's complexity and therefore hinder the viewers' recall for the movie.

Interestingly, while industry experts recommend the use of special effects to enhance viewers' entertainment experience, our findings suggest that investors do not expect such effects to influence box office sales. These results have important implications for studio managers in planning effective shooting schedules and selecting scenes for trailers. The film can also benefit from cost savings, particularly for action or science-fiction movies that often contain special effects scenes prepared solely for inclusion in trailers.

Finally, we find that investors value the first trailer for the movie more than subsequent ones. This is mainly because of the incremental information that first trailers convey about the movie and the reassurance they offer investors about the good progress of the movie's production. Finally, our results indicate that early release of first trailers is recommended. This may be because an early release can raise viewers' awareness and may build positive word of mouth for the movie.

This research has a few limitations. While we incorporated several elements of the trailer's content and execution that can influence viewers' affective responses to the trailer, we did not account for other aesthetic aspects such as lighting, colors and costumes (Rasheed et al. 2005). Future studies can also measure the investors' evaluations of the quality of the trailer's content and execution (e.g., through experimentation), and differentiate between different advertising strategies in the execution of the message content. For instance, different kinds of humor – e.g., psychoanalytic humor or humor based on incongruity or superiority – can be used in trailers and evoke contradictory viewers' reactions (Scharer et al. 2006). Finally the third-person perception effects on investors' prediction for the movie can also be investigated (Davison 1983).

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Notes

1. As defined by the World Health Organization, violence is “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development or deprivation” (Kug et al. 2002). Sexual content in a trailer refers to scenes in which persons engage in sexual behavior, appear in attire designed to evoke sex appeal or are portrayed as sex objects (Oliver and Kalyanaraman 2002).
2. The results from a one-sample Kolmogorov-Smirnov test ($p = .771$) also supports normality for CAAR.
3. The t-tests were performed on the box cox transformed SCAAR in order to reach normality at 95% interval for L where the transformed SCAAR is $(SCAAR^L - 1)/L$, and $L = .049$ and $-.42$ for the event windows $[0,1]$ and $[0,0]$ respectively.
4. A regression including only control variables as predictors shows that it is significant ($F(11, 128) = 1.95$, $R^2 = .143$, $p < .05$) after verifying for homogeneity of standard errors using White's ($p = .347$) and Breusch-Pagan/Cook-Weisberg tests ($p = .818$). However, a model specification link test for single-equation models (Pregibon 1980; Tukey 1949) indicates that such control model is not properly specified ($p > .1$), and, therefore, that additional significant predictors can be added to the model. This is further confirmed by an adjusted R^2 of the full model that is over 50% higher than for the control model.
5. All reported values are estimated standardized coefficients (see Table 4).
6. We also considered that the effect of the number of scenes on CAAR could be curvilinear and performed a regression where we add the mean-centred squared value to the model. The result shows that the coefficient for the added variable is not significant ($b_{SCENES^2} = -.042$, $p = .589$). All remaining variables have similar effects to those discussed in the paper.

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Appendix 1. Correlations

CAAR	1.00									
STORYLINE	0.55	1.00								
VIOLENCE	0.01	0.04	1.00							
SEX	0.03	0.07	0.08	1.00						
HUMOR	0.13	0.15	−0.29	0.33	1.00					
SCENES	−0.07	0.20	0.62	0.28	−0.05	1.00				
SPECIAL	−0.03	0.16	0.15	−0.01	−0.11	0.26	1.00			
LEAD TIME	0.22	−0.14	−0.05	−0.15	−0.09	−0.08	0.02	1.00		
LEAD TIME × FIRST TRAILER	0.26	−0.18	−0.16	−0.13	−0.05	−0.14	−0.03	0.85	1.00	
TRAILER LENGTH	0.07	0.40	0.08	0.30	0.35	0.39	0.08	−0.26	−0.29	1

Correlations are presented as pairwise Pearson correlation coefficients. Correlations with an absolute value $\geq .14$ are significant at .1 level, those $\geq .16$ are significant at .05 level and those $\geq .21$ are significant at .01 level.