

"To infinity and beyond!"
A genre-specific film analysis of movie success mechanisms

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Abstract The objective of this study is the analysis of movie success mechanisms in a genre-specific context. Instead of the examination of all time box office champions, we focus on the two film genres of computer animated and comic book based films. By introducing the concept of the motion-picture marketing mix, which represents a set of tactical marketing tools in order to strengthen a company's strategic customer orientation, we are able to systematically identify key movie success factors. We conduct a cross-sectional empirical analysis across regional distinctions based on dataset that covers a time horizon of more than 30 years. We find empirical evidence that actors with *ex ante* popularity, award nominations and the production budget represent key movie success mechanisms and significantly influence a movie's commercial appeal. Additionally, word-of-mouth creates reputation effects that also significantly affects box office gross.

Key words Motion-Picture economics, Marketing mix, Key success factors, Film genre, Seemingly unrelated regressions

JEL classification C31 · L10 · L82

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1 Introduction

The entertainment industry and especially the movie business is characterized by a limitation of information about the quality of its products. As movies represent experience goods, moviegoers have latent information about the characteristics of movies before consumption. Additional search costs can lead to rudimentary information search endeavors by market participants. An alternative to additional market search is using direct experience. Pre-release market success is one opportunity for consumers to reduce uncertainties in their purchase decisions. Not only may the pre-release popularity of products help customers to eliminate their information asymmetries, but also reputation effects from genre categories represent a measure that helps customers to assess the quality of a product or a movie. Film genres help consumers to bring their preference and perceptions in line with market offerings. Consequently, consumers' genre preferences may influence consumers' movie choices (Austin and Gordon 1987, De Silva 1998). We present an explorative genre-specific film analysis of the two genres of computer animated and comic book based films and their movie success mechanisms. As opposed to other film genres in the movie business, computer animated and comic book based films experienced a rise in production and promotion in the last decade. We adopt the traditional marketing mix model and match it with the different industry specifications of the movie business. The result is a motion-picture marketing mix that represents a set of management tools summarized in the four categories *Product*, *Place*, *Promotion* and *Price*. With the help of the motion-picture marketing mix we identify all relevant factors and movie success mechanisms that should be considered to affect customers' perceptions.

The movie business literature mainly analyses and quantifies the economic success of American feature films (Smith and Smith 1986, Wallace, Steigermann and Holbrook 1993, Eliashberg and Shugan 1997, Krider and Weinberg 1998, Albert 1998, Ravid 1999, Nelson *et al.* 2001, Hand 2002, De Vany 2004). A genre-specific differentiation of computer animated and comic book adaptation movies has not yet been conducted. In 1983, Litman empirically investigated the influence of movie success mechanisms on

market success for 125 movies that had a cinema release between 1972 and 1978. Among other variables he also included five different genre categories: science fiction, drama, action-adventure, comedy, and musical. Litman showed that a film release in one of the categories “science fiction” or “horror” will increase distributors’ revenues by approximately \$5.9 million. Litman and Kohl included fifteen genre categories in their 1989 movie study. Their dataset consisted of 697 films that had been released between 1981 and 1986. The genre categories included adventure, comedy, comedy/drama, crime drama, documentary, drama, fantasy, musical, mystery, satire, science fiction, thriller, western, cartoon, and horror. The analyses showed a significant influence of the two categories science fiction-fantasy and drama on total box office. In contrast to the previous study by Litman, the horror genre did not show a significant influence on revenues. Prag and Casavant studied the market appeal of the movie genres romance/family, comedy, action, and drama in their 1994 movie business study of 652 films released between 1975 and 1984. Only the drama genre showed a significant but negative impact on total box office but the comedy and action genre show significantly higher marketing budgets. Sawhney and Eliashberg (1996) used the action, comedy, drama, horror, science fiction, and children/animation genre dummies in their movie success analysis of 111 films. Their findings show a better acceptance of the action genre, whereas movies belonging to the drama genre seem to take more time until they receive the attention of moviegoers. Walls (2005) analyzed the influence of genres on film returns using a dataset of 1989 movies in total. The genres consisted of the action, adventure, animation, black comedy, comedy, and documentary category. Walls found no significant influence of any of the six genre classifications.

Our dataset consists of 211 computer animated and comic book adaptation movies that had a US cinema premiere between 1978 and 2012. In addition to the examination of the two dependent variables, box office gross and return on investment, we also differentiate between regional and cultural distinctions and include domestic and foreign economic information in our dataset and analysis. We show that actors with *ex ante* popularity, award nominations and the scale of production budget serve consumers as a quality signal and consequently influence revenues. Additionally, reviews by consumers and moviegoers in this class of films are positively and significantly related to a movie’s rate of return. Thus, we confirm the findings of studies by Litman and Kohl (1989), Wallace, Steigermann and Holbrook (1993), Ravid (1999), Nelson *et al.* (2001),

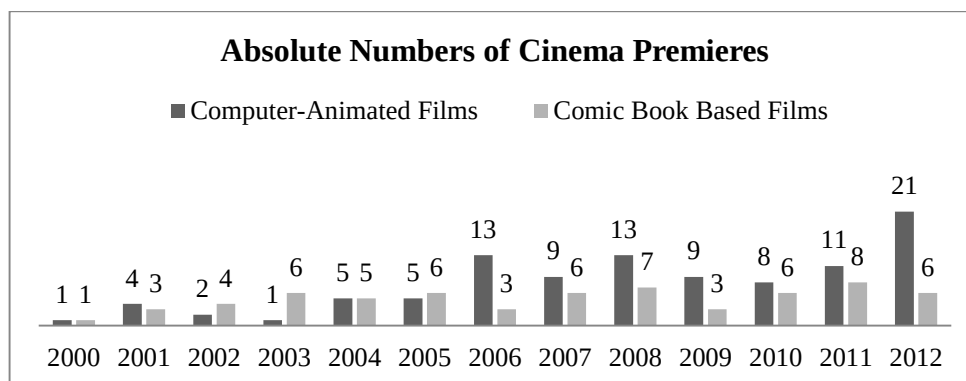
Litman (1983), Dellarocas (2003) and Liu (2006) that verify the influence and correlation between these success mechanisms and product sales in their analyses.

The next section discusses genre-specific economic indicators followed by the introduction of the motion-picture marketing mix and its four different constituents: *Product*, *Place*, *Promotion* and *Price*. Section 4 describes the movie success mechanisms based on this motion-picture marketing model. Section 5 presents our empirical analysis, and the concluding section discusses the findings and offers implications for both academics and practitioners.

2 Genre-Specific Economic Indicators

In 2009, the number of films released in US domestic theaters decreased by 12 percent. That is the first decline of cinema premieres since 2003. This drop, mainly from MPAA member studio subsidiaries and independent distributors, is primarily a consequence of the aftermath of labor issues in 2007 and 2008 and the economic downturn. Two film genres represent a countermovement to the fall in film production: the genre of computer animated and comic book based films. As illustrated in Figure 1, computer-animated film production increased consistently since 2000. Comic book based films were not directly impacted by the labor issue and economic crisis in 2007. Alone in 2008, thirteen computer animated and seven comic book based films were released in cinema.

Figure 1: Absolute Numbers of Cinema Premieres (2000-2012)



Thanks primarily to sequels such as *Toy Story 3* and *Shrek Forever After* from the *Toy Story* and *Shrek* franchises, computer animation accounted for nearly \$1.5 billion of 2010's business, a rise of 16 percent in comparison to 2009. In 2008 the two comic book

adaptions *The Dark Knight* and *Iron Man* led the comic book film genre to a record of \$1.22 billion in sales¹. In 2011, the two big players in the comic book industry, Marvel Comics and DC Comics, released four major film titles from their comic book repertoire². Additionally, computer animated and comic book based films represented 12.5 percent of the total US-Canadian box office in 2009³. The average revenue of computer animated films accounts for approximately \$113 million (1995-2012) and almost \$106 million (1978-2012) for comic book based films at the American box office. Computer animated and comic book based films generate approximately 29 percent of their total revenue in the U.S. market on the first weekend and also achieve 98 percent of their full screen capacity in the first days of their performance. Additionally, distributors of computer animated films prefer the fourth quarter for a film's premiere, whereas distributors of comic book based films have a preference for the second quarter.

In 2007, 26 percent of all moviegoers in the United States were parents or singles with children of 12 to 17 years and 22 percent were households with children of the age of 17 and younger (see Figure 2). The finding that especially families and youths regularly⁴ have a higher film cinema attendance can be a first explanation for the economic success of computer animated films with their specific ambition for this consumer group. Because of their narrative plots and child-oriented presentation, computer animated films aim directly at families as their primary target group. Consequently, they try to appeal to children, adolescents and their parents at the same time. For children, computer-animated films are easily understandable and entertaining. For teenagers, they keep a rebellious potential ready and for adults they offer the delight from recognizing sexual innuendo or subtle meanings (Eder 2007). Accordingly, computer animated movies are not only tailored to children and young people, but also attract adults with their charm and wit.

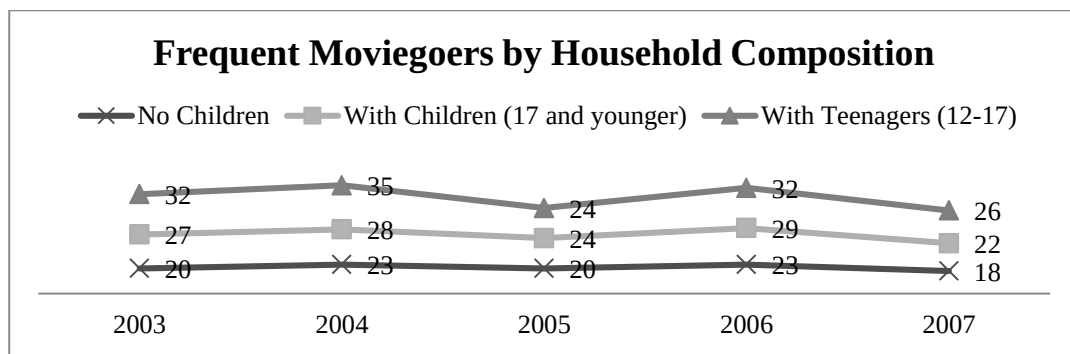
¹ That is about 13 percent of overall box office in 2008.

² Marvel continued its Avengers series with *Thor* and *Captain America: The First Avenger*. *Thor* gained \$449 million and *Captain America: The First Avenger* earned \$368 million at the box office worldwide. These two major titles from Marvel build on the box office success of *Iron Man*, which earned \$585 million worldwide. The X-Men series accounted for a worldwide box office of about \$1.9 billion in total so far. DC Comics and Warner Bros. finally unleashed *Green Lantern* in 2011. The film adaption of the *Green Lantern* earned \$219 million at the box office worldwide.

³ The American market is responsible for approximately 40 percent of a film's total revenue. Consequently, cinema revenues constitute the main source of income for the production studios.

⁴ Regularly means at least once a month (12 times / year).

Figure 2: Frequent Moviegoers by Household Composition (2003-2007)



Source: MPAA Movie Attendance Study 2007

3 Motion-Picture Marketing Mix

The contemporary business literature suggests that a company's main objective is to deliver value to customers. Kotler (2008) proposes several concepts that represent the company's strategic customer orientation and its aim to establish a strong position in target markets. With the help of a set of tools, the marketing mix addresses customer needs and builds customer relationships. A set of controllable and tactical marketing tools delivers the intended value to customers and creates a demand in the target market. The basic concept of the marketing mix was first introduced by McCarthy in 1960. The marketing mix is based on all factors and mechanisms that a business can manipulate to influence the demand for its products or services. "The concept of the mix lays out the areas in which facts should be assembled, these to serve as a guide to management judgment [...]" (Borden 1964: 12). With the help of the marketing mix concept we are able to understand human behavior in response to the stimuli to which they are subjected (Borden 1964). The model differentiates among different constituents and classifies its set of variables into four groups known as the "*four Ps*" – *Product*, *Place*, *Promotion* and *Price*, as summarized in Kotler (2008).

Product summarizes all properties and combinations of the goods and services a business offers to its target market. Choices about the product lines, the qualities and design of a product, the production quantities and the research and development program must be made. The long-term objective of the company is the allocation of a need-satisfying market offering.

Place reflects all company activities to distribute and merchandize its product to target consumers. Businesses must decide about the degree of selectivity among the

distribution line. The firms' decision on the distribution and how the firm will make its products available to target customers has highest priority.

Promotion includes business activities to communicate and market the benefits of the product or service. Decisions about advertising and communication strategies must be taken. The emphasis is on the communication with target consumers and the consumer perception of the product's merits.

Price is the amount of money the business demands for its products or services, i.e. what customers have to pay to acquire the product. Predominant pricing policies are represented by a skimming and penetration strategy or cost-plus prices.

If we apply the marketing mix concept to the motion-picture industry, we are able to identify and categorize the main mechanisms that drive the market success of a movie. The production budget represents all costs without marketing expenditures. Consequently, the budget directly influences the appearance of a movie. The influence of actors is even bigger if they have star quality and appeal. In combination with a sequel, prequel or book adaption movie, these three conditions serve as a signal of quality. Shapiro (1983) states that when product characteristics are difficult to observe, customers may use the quality of products produced in previous periods as an indicator of present product quality.

Distribution decisions are all about the timing of a movie. Strategic decisions about the release strategy and release date become essential factors for competitive advantage. Releases during holidays and before federal holidays play an important strategic role in order to attract target customers' attention.

Apart from conventional marketing tools, reviews from professional critics and moviegoers are not only important in the communication mix of companies but also in the perceptions of customers. Due to the higher credibility and reliability of independent film reviewers and word-of-mouth opinions, review marketing effects have become more significant in film marketing than classical marketing methods, such as commercials and sales promotion. Consequently, word-of-mouth has the capability to affect product sales notably (Dellarocas 2003, Liu 2006). Similar considerations apply to awards such as the Oscars or Golden Globes. Due to their reputation, awards can serve customers as a signal of quality and, accordingly, can be also more reliable than conventional marketing efforts (Nelson 2001).

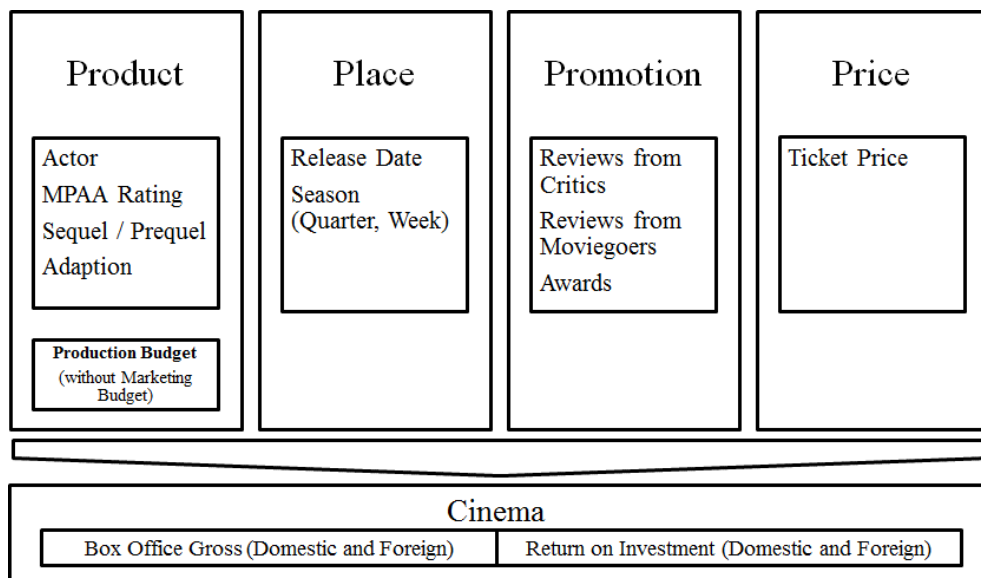
Ticket prices represent a subordinate category in the marketing of entertainment goods and especially movies. As prices are almost homogenous across cinemas, cities

and states throughout North America, movie ticket prices leave little room for differentiation. Consequently, marketing strategies in the motion-pictures industry focus on the other three marketing mix categories.

The motion-picture marketing mix captures the circumstances that have to be considered when marketing an entertainment product. Houston asserts that "the marketing concept states that an entity achieves its own exchange determined goals most efficiently through a thorough understanding of potential exchange partners and their needs and wants, through a thorough understanding of the costs associated with satisfying those needs and wants, and then designing, producing, and offering products in light of this understanding" (Houston 1986: 85). All conditions combined ensure a successful customer experience and consequently profitable box office gross and return on investment.

Figure 3 summarizes and illustrates the marketing mix and its different specifications for the motion-pictures industry. The individual conditions are described in more detail, and applied to a genre-specific consideration in the next section.

Figure 3: Marketing Mix for the Motion-Picture Industry



4 Movie Success Mechanisms

Based on the motion-picture marketing mix and the general identification of movie success mechanisms related to the strategic marketing categories – *Product*, *Place* and *Promotion* – we now discuss the associated conditions in detail. We describe the characteristics of the factors – production costs (without marketing expenditures), star popularity effects of actors, MPAA ratings, reputation effects from sequels (or prequels) and adaptations, seasonality, movie reviews from professionals and consumers as well as award nominations and wins and their influence on the outcomes of box office gross and return on investment, respectively. Among the outcome conditions we also consider a domestic and foreign differentiation in order to observe regional and cultural effects.

4.1 Product

The production budget represents all costs of a movie without marketing expenditures. To date, the most expensive computer animated movie is *WALL-E* (2008) from Pixar/Disney, with overall production costs of \$180 million (not inflation adjusted). So far, the most expensive comic book adaption movie is *The Dark Knight* (2008), which cost \$185 million (not inflation adjusted). Thus, computer animated and comic book adaption movies are following all time box office champions like *Avatar* (2009, production costs of \$237 million), *Titanic* (1997, production costs of \$200 million) and *Marvel's The Avengers* (2012, production costs of \$220 million). Litman (1983) describes the level of production budget as a “proxy variable” for the overall technical and artistic quality of a movie. Consequently, the hypothesis can be proposed that an increase of production costs also enhances the overall quality of a movie and accordingly its commercial success. Based on the assumption that the production function is characterized by decreasing economies of scale, we apply the natural logarithm before conducting the regression analysis. We hypothesize that the level of production budget has a strong positive and significant influence on box office gross.

Apart from the size of the production budget, an actor's reputation can be a relevant indicator for the artistic and aesthetic quality of a film. Star actors may have the ability to attract a bigger audience and form a good signal for the overall box office appeal of a movie (Rosen 1981). Consequently, studies that consider the influence of actors with ex ante popularity are dominant in motion-picture economic analyses (Litman and Kohl

1989, Wallace, Steigermann and Holbrook 1993, Ravid 1999, De Vany and Walls 1999, Elliot and Simmons 2008). De Vany also shows that movies with stars are shown on 20 percent more screens than films without actors with star potential (De Vany 2004). Both in computer animated and comic book adaption movies, actors have the ability to transfer their associated star image to the characters by generating an interface between the figure and real person actor (Eder 2007). We classified an actor as a movie star with the help of Quigley's Annual List of Box-Office Champions⁵ from 1978 to 2012. We expect that actors who are represented in the Quigley Poll list have a positive and statistically significant impact on the economic and financial movie success.

Three comic book based films are among the ten most successful films with a MPAA rating PG-13⁶. Among the ten most successful films with a MPAA rating G and PG are four computer animated movies⁷. All have a total gross of over \$300 million. Parental Control guidance intends to protect certain age groups from violent, brutal and sexual content in films. While excluding some consumer groups from consumption, ratings also serve as a content index through their age classification. De Vany and Walls (2002) and Ravid (1999) demonstrate a positive correlation between movies revenues and movies with a MPAA restriction G (general audiences), PG (parental guidance suggested) or PG-13 (parents strongly cautioned). The existence of a restrictive age classification like R (restricted) or NC-17 (no one 17 and under admitted) by the MPAA has a negative influence on box office results. Based on the studies from De Vany and Walls and Ravid, we include the MPAA ratings G, PG and PG-13 as dummy variables in our analysis⁸ and assume that a restrictive age categorization has a significantly negative impact on ticket sales.

As movies represent experience goods, the technical and artistic product quality characteristics are problematic to observe for customers before consumption. Consequently, pre-release market success can induce reputation effects that eliminate uncertainties in the decision process of consumers. Prag and Cassavant (1994) test that the pre-release popularity of movies impact box office returns. We analyze the

⁵ Quigley's Annual "Top Ten MoneyMakers Poll" is an annual survey that asks exhibitors for the ten actors that generated the best box office gross for their motion picture theater. The Quigley poll has the reputation of being a reliable indicator of an actors' box office appeal. It is published in the yearly International Motion Picture Almanac (New York: Quigley Publishing Company).

⁶ *The Dark Knight* (\$533.345.358) 2008, *Spider-Man* (\$403.706.375) 2002, *Spider-Man 2* (\$373.585.825) 2004.

⁷ *Shrek 2* (\$441.226.247) 2004, *Toy Story 3* (\$415.004.880) 2010, *Finding Nemo* (\$339.714.978) 2003 and *Shrek the Third* (\$322.719.944) 2007.

⁸ R rated movies represent the reference variable.

reputation effects from sequels (or prequels) and book adaptations and test if both factors positively impact movie consumption.

4.2 Place

The seasonality of cinema box office returns reflects both the demand for movies as well as the supply of movies in number and quality. Studies by Litman (1983), Nelson *et al.* (2001), Sochay (1994) and Einav (2007) analyze and confirm the correlation between seasonality and the demand for movies. Movies that are released in the fourth quarter, e.g. before Thanksgiving and Christmas, show a positive impact on ticket sales and consequently box office gross. In order to capture the "seasonality" effect, dummies for the four quarters⁹ have been collected and entered into the analysis. Based on the assumption of the "seasonality" effect, we expect a positive significant influence on market success, especially in the fourth quarter.

4.3 Promotion

Existing studies support that critic reviews can reduce information asymmetries of consumers and identify a positive correlation between film reviews and box office appeal (Litman 1983, Litman and Kohl 1989, Wallace *et al.* 1993, Sochay 1994, Eliashberg and Shugan 1997, Basuroy *et al.* 2003, Boatwright *et al.* 2007, Moon *et al.* 2010). However, certain motion picture studies fail to find a statistically significant correlation between movie ratings and box office success (Prag and Casavant 1994, Holbrook 1999, Eliashberg and Shugan 1997, Ravid and Basuroy 2004, Chang and Ki 2005, Gemser *et al.* 2007). In order to test the influence of film critics on box office gross, the rating scores from professional reviewers and audience critics have been collected. The relevant data was taken from the Internet sources Metacritic.com, RottenTomatoes.com and MRQE.com (Movie Review Query Engine) for professional reviews and from Metacritic.com, RottenTomatoes.com and IMDb (Internet Movie Database) for moviegoers' reviews. These Internet portals particularly review movies on the basis of a weighted average scale. Every score consists of different critics who are weighted in their importance and coverage. Due to multicollinearity issues, two weighted average factors were created for our analysis on a basis of a principal-

⁹ Quarter 1 (January to March), Quarter 2 (April to June), Quarter 3 (July to September) and Quarter 4 (October to December). Quarter 1 reflects the reference variable.

components method¹⁰, one for the professional reviews and one for the evaluations of the audience. The results are two scales that capture the opinions and validations of critics writing online and in print. We presume that film reviews become important as a preliminary evaluation for the audience as they rate a movie according to its artistic, aesthetic, technical, economic and political aspects and consequently significantly influence ticket sales at least initially.

Just like star popularity, sequels, book adaptations and critics, awards also represent a reputation effect that serves as a signal that helps consumers resolve their uncertainties and affects their purchase decisions. An award is a recognition of excellence given to a person or a group of people. It is an acknowledgment of artistic and technical quality and achievement. In order to analyze the correlation between award nominations and wins and box office appeal, we collected data from the Academy Awards, the Golden Globes, the Kid's Choice Awards, the MTV Movie Awards, the Teen Choice Awards and the People's Choice Awards. Nelson *et al.* (2001) identify financial benefits from Oscar nominations and awards, especially in the categories best picture and best actor or actress. Due to multicollinearity, two summed scales were created, one for overall nominations and one for total wins. Consequently, we propose that award nominations and wins serve as a quality signal and consequently influence box office gross.

The descriptive and summary statistics of all movie success mechanisms are presented in Table 1.

¹⁰ The principal-components method reduces the dimensionality of a set of variables by decomposing its total variance. In doing so, the method does not differentiate between common variance and unique variance as factor analysis does (Lewis-Beck 1994).

Table 1: Descriptive Statistics of Movie Success Mechanisms

Movie Success Mechanisms	Obs	Mean	Std. Dev.	Min	Max
<i>Product</i>					
Production Budget (US\$)	191	8.87e+07	6.09e+07	2000000	2.70e+08
Star Actors	210	.0952381	.3100798	0	2
MPAA G	211	.1374408	.3451309	0	1
MPAA PG	211	.436019	.4970688	0	1
MPAA PG-13	211	.2654028	.4425975	0	1
MPAA R	211	.1232227	.3294744	0	1
Sequels (Prequels)	211	.2369668	.426233	0	1
Book Adaptions	211	.5734597	.4957504	0	1
<i>Place</i>					
Quarter 1	211	.1658768	.3728546	0	1
Quarter 2	211	.3412322	.4752507	0	1
Quarter 3	211	.2559242	.4374172	0	1
Quarter 4	211	.2369668	.426233	0	1
<i>Promotion</i>					
Professional Reviews					
Metacritic (0-100)	182	57.80769	16.87888	20	99
RottenTomatoes (0-100)	206	57.39806	27.40601	4	100
MRQE (0-100)	189	62.10582	13.9192	27	90
Moviegoers Reviews					
Metacritic (0-10)	177	67	15.39702	3	100
RottenTomatoes (0-100)	208	63.99519	14.99613	19	92
IMDb (0-10)	211	63.7109	12.56893	25	89
Award Nominations	211	5.469194	6.550372	0	29
Academy Awards	211	.5734597	1.297638	0	8
Golden Globes	211	.2796209	.6035702	0	4
Kid's Choice Awards	211	.5545024	1.037679	0	6
MTV Movie Awards	211	.450237	1.134371	0	6
Teen Choice Awards	211	.8009479	1.858878	0	11
People's Choice Awards	211	.3696682	.9738629	0	6
Award Wins	211	1.127962	2.609091	0	14
Academy Awards	211	.1232227	.407058	0	3
Golden Globes	211	.0521327	.2432571	0	2
Kid's Choice Awards	211	.1042654	.3215007	0	2
MTV Movie Awards	211	.0758294	.3294059	0	3
Teen Choice Awards	211	.0758294	.3571496	0	3
People's Choice Awards	211	.0995261	.5385605	0	5

4.4 Outcome Conditions

As studies by Litman (1983), Smith and Smith (1986), Prag and Casavant (1994), Sawhney and Eliashberg (1996), Ravid (1999), De Vany (2004) or Walls (2005) we also take total box office gross into consideration for our analysis. First, the Hollywood movie industry is predominantly interested in the total number of ticket sales and consequently box office gross. Second, the financial success of former film releases has direct influence on the production and funding of future projects. In order to adjust box office gross for inflation, we apply the Consumer Price Index¹¹ – All Urban Consumers (CPI-U) – from 1978 to 2012 to box office takings and determine the appropriate total revenues based on the year 2012.

In addition to the adjusted box office results, we also consider the economic rent of each movie. The economic rent is represented by the return of investment (ROI). The

¹¹ The Consumer Price Indexes (CPI) is a monthly measure of changes in prices paid by consumers for a market basket of consumer goods and services. The CPI is published by the US Bureau of Labor Statistics.

return on investment is a business performance metric that measures the efficiency of an investment, or in our case of a movie production, that is defined as

$$ROI = (Box\ Office\ Gross - Production\ Costs) / Production\ Costs \quad (1)$$

Consequently, the return of investment provides a reflection of the profitability of the investment and can be used to improve the performance of future investments.

Apart from analyzing the success mechanisms for the North American market, we also include the information on box office receipts from foreign countries. By getting the regional distinction information for both domestic and foreign countries we are able to control for cultural differences. However, the US box office gross can also be considered as a meta-factor of the overall film appearance for the foreign audience. The domestic-foreign box office gross correlation coefficient (.7695) confirms a marketing appeal relationship. Consequently, the American film success is frequently used by foreign press and foreign distributors for their media coverage and marketing activities. Elliot and Simmons (2008) analyzed the relationship between both critical reviews and advertising expenditures on film success for the British film market. They show that advertising budgets for UK released movies are greater for films with bigger production budgets, actors with star appeal, higher US opening revenues and numerous award nominations. A simultaneous film release in the US and the UK also has a significant positive effect on marketing activities. Additionally, higher average film reviews are correlated with both high advertising budgets and high box office gross. Bagella and Becchitti (1999) show an influence of genre effects on a films' success in the Italian market. The comic film genre especially meets the taste of the Italian customers. McKenzie (2009) confirms the meta-factor effect of US box office at the Australian box office. Among the meta-factor effect of US box office, McKenzie also found relevance of the advertising condition and critical reviews and their significant influence on box office takings.

Table 2 illustrates the correlation coefficients of computer animated and comic book based films released between 1978 and 2012 and demonstrates a positive relationship between a film's box office gross and the success mechanisms production budget, reputation effects from star actors and sequels (or prequels) in the domestic market as well as signaling effects from professional and moviegoers' reviews and award nominations and wins. A strong correlation between all other movie success

mechanisms and outcome conditions could not be determined. The coefficients already point out some first relations between the success mechanisms and the outcome conditions, but they do not either indicate the direction of the correlation or even the causal relationship. In order to test additional relationships between all factors we conduct further regression models. The results of the regression analyses are presented in the next section.

Table 2: Correlation Coefficients of Movie Success Mechanisms and Outcome Conditions

Movie Success Mechanisms	BOG (Domestic)	BOG (Foreign)	ROI (Domestic)	ROI (Foreign)
<i>Product</i>				
Production Budget	0.6938	0.6060	-0.0800	0.1873
Star Actors	0.4195	0.3444	0.3010	0.3582
MPAA G	0.0548	-0.0010	0.0482	0.0504
MPAA PG	-0.0436	0.1378	0.0355	0.0918
MPAA PG-13	0.2165	0.0408	-0.0795	-0.0569
MPAA R	-0.1985	-0.2022	-0.0319	-0.1134
Sequels (Prequels)	0.3708	0.4343	0.0720	0.1531
Book Adaptions	-0.0498	-0.1663	-0.0418	-0.2850
<i>Place</i>				
Quarter 1	-0.0968	-0.0583	0.0738	0.0296
Quarter 2	0.2911	0.2448	0.0644	0.0590
Quarter 3	-0.1357	-0.1237	-0.0498	0.0024
Quarter 4	-0.1011	-0.0946	-0.0829	-0.0930
<i>Promotion</i>				
Professional Reviews	0.5148	0.4107	0.4026	0.3011
Metacritic	0.4891	0.3986	0.3864	0.2998
RottenTomatoes	0.4975	0.4042	0.3232	0.3211
MRQE	0.5496	0.4132	0.4300	0.3332
Moviegoers Reviews	0.5252	0.4385	0.4021	0.3718
Metacritic	0.3732	0.2980	0.3593	0.3281
RottenTomatoes	0.5124	0.4580	0.3043	0.3621
IMDb	0.5686	0.4599	0.3441	0.4040
Award Nominations	0.8196	0.5826	0.3619	0.4097
Academy Awards	0.4588	0.2683	0.2835	0.2488
Golden Globes	0.2598	0.1956	0.2387	0.2232
Kid's Choice Awards	0.6854	0.5991	0.2941	0.4538
MTV Movie Awards	0.3749	0.1585	0.3336	0.2774
Teen Choice Awards	0.4614	0.3163	0.0613	0.1039
People's Choice Awards	0.7344	0.5780	0.2068	0.2825
Award Wins	0.6271	0.4733	0.3501	0.3969
Academy Awards	0.3845	0.2946	0.3064	0.3073
Golden Globes	0.3210	0.2398	0.0700	0.1051
Kid's Choice Awards	0.3136	0.3983	0.2321	0.4738
MTV Movie Awards	0.2567	0.1072	0.2294	0.1769
Teen Choice Awards	0.4458	0.3353	0.1618	0.1821
People's Choice Awards	0.4668	0.2999	0.2076	0.1801

5 Empirical Analysis

According to the film factor classification developed by Hennig-Thurau and Wruck (2000), two major sets of factors can be identified – product-inherent movie success factors and product-induced movies success factors. Product-inherent film factors are characterized by all factors that describe the appearance and the look and feel of a movie. Product-induced film factors describe all factors that are the result of subjective discussions about film specific elements. Consequently, product-induced influence factors subjectively review all product-inherent film factors. We base our empirical analysis of movies' success mechanisms on the classification of product-inherent and product-induced movies success factors. The result is two regression models that represent a basic regression with all product related factors and an extended model that expands the basic model by promotional and distributional aspects.

The basic regression model represents only the product-inherent film factors, i.e. all factors that have a direct influence on the production of a film. Based on the motion-picture marketing mix and consequently the identification of movie success mechanisms related to the four strategic marketing categories, the basic regression model is closely related to the *Product* category and its factors – production costs, reputation effects from star actors, sequels (or prequels) and adaptations and discrimination effects from MPAA ratings.

Basic Regression Model:

$$Y_i = \beta_0 + \beta_1 Product_i + \beta_2 Control\ Variables_i + \varepsilon_i \quad (2)$$

where Y_i is $\ln Box\ Office\ Gross\ (Domestic)_i$, $\ln Box\ Office\ Gross\ (Foreign)_i$,
 $Return\ On\ Investment\ (USA)_i$ or $Return\ On\ Investment\ (ROW)_i$

The extended regression model extends the product-inherent factors with product-induced factors and consequently the two strategic motion-picture marketing categories *Place* and *Promotion*. In addition to the films' product factors, signaling effects from professional movie reviews and moviegoers' reviews as well as signaling effects from award nominations and wins and seasonality effects are considered.

Extended Regression Model:

$$Y_i = \beta_0 + \beta_1 Product_i \tag{3}$$

$$+ \beta_2 Place_i + \beta_3 Promotion_i + \beta_4 Control Variables_i + \varepsilon_i$$

where Y_i is $\ln Box Office Gross (Domestic)_i$, $\ln Box Office Gross (Foreign)_i$,

$Return On Investment (USA)_i$ or $Return On Investment (ROW)_i$

By focusing our empirical analysis exclusively on the two genres computer animation and comic book adaptation, we include all computer animated and comic book adaptation movies that had a US cinema premiere, resulting in a total of 211 observations from 1978 to 2012. The economic and financial information for the 211 movies was mainly collected from the Internet databases Box Office Mojo, IMDb, TheNumbers.com and the Motion Picture Association of America (MPAA).

By estimating the regression models under the condition of regional distinctions, we expect that the error terms in different equations to be correlated. Consequently, the application of single-equation least squares estimators to equation-by-equation models would yield to inefficient coefficient estimators. As a result, another method of estimating consistent mechanism coefficients is necessary. Zellner's (1962) seemingly unrelated regression (SUR) considers the correlation of the error terms in equation-by-equation models. The seemingly unrelated regression estimates all regression coefficients in all equations by applying general least square estimators. Additionally, empirical studies in the motion-picture industry from De Vany and Walls (1999) and Walls (2005) have shown that especially word-of-mouth conditions lead to kurtotic revenue distributions and consequently to inefficient ordinary least square estimates. Accordingly, the seemingly unrelated regression model allows us to control for both the possible correlation of the equation disturbance terms and the kurtotic revenue distributions. In order to check for robustness, we also test the ordinary least square estimations for the regional differentiated box office gross and return on investment. The regression estimates of box office success and financial returns are presented in Table 3 and Table 4 respectively.

Table 3: Ordinary Least Square Regression Estimates of Box Office Success and Financial Returns

Movie Success Mechanisms	In Box Office Gross (Domestic)		In Box Office Gross (Foreign)		Return on Investment (Domestic)		Return on Investment (Foreign)	
	Basic Model	Extended Model	Basic Model	Extended Model	Basic Model	Extended Model	Basic Model	Extended Model
<i>Product</i>								
In Production	.625055*** (.1064266)	.4440995*** (.0914205)	.7259892*** (.1195406)	.6721087*** (.1271386)	-.476003*** (.1201725)	-.628518*** (.0955085)	-.2283782 (.1603356)	-.4360145 (.1761858)
Budget	.759467*** (.2098199)	.2570236 (.1686766)	.8285369*** (.2204073)	.4790872** (.2311814)	1.143958*** (.2369199)	.5001229*** (.1762191)	1.740889*** (.3161014)	1.072694** (.3250737)
Star Actors	.7029913** (.3522918)	1.114582*** (.3393642)	-.0695054 (.4098466)	-.1533244 (.4733594)	.3507053 (.3977931)	.1772112 (.3545391)	-.2875099 (.5307405)	-.142958*** (.6540231)
MPAA	.3838038 (.2832542)	.7236977** (.2897656)	-.253315 (.3454588)	-.25383 (.4157061)	.0773909 (.3198389)	-.0013394 (.3027227)	-.171945 (.4267329)	.0202783 (.5584366)
PG	.1121775 (.2384095)	.1435611 (.2136708)	-.2993177 (.2559472)	-.110413 (.2958838)	.114673 (.2692021)	.1143488 (.2232253)	-.048639 (.3591727)	.170725 (.4117867)
MPAA	.2231678 (.1617365)	.0956898 (.1368872)	.5871319*** (.1837837)	.4593925** (.1913473)	.2319934 (.1826261)	.1741834 (.1430083)	.4835723** (.2436619)	.6429365** (.2638093)
PG-13	.2231678 (.1617365)	.0956898 (.1368872)	.5871319*** (.1837837)	.4593925** (.1913473)	.2319934 (.1826261)	.1741834 (.1430083)	.4835723** (.2436619)	.6429365** (.2638093)
Sequels (Prequels)	.2231678 (.1617365)	.0956898 (.1368872)	.5871319*** (.1837837)	.4593925** (.1913473)	.2319934 (.1826261)	.1741834 (.1430083)	.4835723** (.2436619)	.6429365** (.2638093)
Book	-.3919622 (.2272123)	-.4029115** (.1764345)	-.6059923** (.2397489)	-.4994511** (.2420378)	-.3397286 (.2565586)	-.3077893 (.1843239)	-.988638*** (.3423037)	-.8717207** (.3400248)
Adaptations								
<i>Place</i>								
Quarter 2		.0569178 (.1764134)		-.2687191 (.2417849)		-.1525399 (.1843019)		-.4510036 (.3399841)
Quarter 3		.2395928 (.1777655)		-.0509119 (.2436121)		-.1463707 (.1857144)		-.2137544 (.3425899)
Quarter 4		.1591164 (.1823426)		-.3086521 (.2527677)		-.212894 (.1904962)		-.6408435* (.3514108)
<i>Promotion</i>								
Professional		-.1785577 (.1283426)		-.0318043 (.1789515)		-.2854737** (.1340815)		-.4243764* (.2473419)
Reviews		.3355124*** (.1246925)		.1787064 (.175768)		.4660599*** (.1302682)		.623682*** (.2403075)
Moviegoers		.0662368*** (.0209003)		.0576059* (.0294244)		.078112*** (.0218348)		.0618263 (.040279)
Reviews		.022205 (.0501739)		.0129112 (.0686306)		.0790345 (.0524175)		.1407547 (.0966953)
Award Nominations								
Award Wins								
N	190	162	170	159	190	162	190	162
F	34.60	26.25	29.23	17.75	8.77	13.60	7.81	6.44
R ²	0.7011	0.7784	0.6908	0.7082	0.3730	0.6453	0.3461	0.4629
Adjusted R ²	0.6808	0.7487	0.6672	0.6683	0.3305	0.5978	0.3018	0.3911

Significance: 0.01 *** 0.05 ** 0.1 *

Note: Standard errors in parentheses. The following additional variables represent control variables: Studio size/Market share (Mini, Major, Independent Studio), Opening Weekend Performance (Top 5 Chart Position), Linear Time Trend (from 1978 to 2009), Genre and Group Effects (Comic Book Based Films and Computer Animated Films). Due to missing values the individual regression datasets diminish in size.

Table 4: Seeming Unrelated Regression Estimates of Box Office Success and Financial Returns

	In Box Office Gross (Domestic)		In Box Office Gross (Foreign)		Return on Investment (Domestic)		Return on Investment (Foreign)	
Movie Success Mechanisms	Basic Model	Extended Model	Basic Model	Extended Model	Basic Model	Extended Model	Basic Model	Extended Model
<i>Product</i>								
In Production	.5726465*** (.1073623)	.4776877*** (.0857175)	.7259892*** (.114879)	.6721087*** (.1188739)	-.476003*** (.1159885)	-.628518*** (.0894187)	-.2283782 (.1547532)	-.436014*** (.1649519)
Budget	.7121263*** (.1979531)	.2687515* (.1558636)	.8285369*** (.2118124)	.4790872** (.2161532)	1.143958*** (.2286711)	.5001229*** (.1649831)	1.740889*** (.3050958)	1.072694*** (.3043466)
Star Actors	1.022519*** (.3680932)	1.199341*** (.3191413)	-.0695054 (.3938644)	-.1533244 (.4425882)	.3507053 (.3839433)	.1772112 (.3319333)	-.2875099 (.5122619)	-.1429583 (.6123218)
MPAA	.7646891** (.310265)	.8799399*** (.2802711)	-.253315 (.3319874)	-.25383 (.3886827)	.0773909 (.3087031)	-.0013394 (.2834207)	-.171945 (.4118755)	.0202783 (.52283)
G	.1485711 (.2298724)	.1127862*** (.1994864)	-.2993177 (.2459663)	-.110413 (.2766496)	.114673 (.2598293)	.1143488 (.2089922)	-.048639 (.3466675)	.170725 (.3855307)
MPAA	.3118644* (.1650606)	.1231594 (.1290073)	.5871319*** (.1766169)	.4593925*** (.1789086)	.2319934 (.1762676)	.1741834 (.1338899)	.4835723** (.2351784)	.6429365*** (.2469885)
PG	-.3536259* (.2153243)	-.3968302** (.1631831)	-.605992*** (.2303997)	-.4994511** (.2263039)	-.3397286 (.2476261)	-.3077893* (.1725712)	-.988638*** (.3303858)	-.871720*** (.3183445)
Adaptions								
<i>Place</i>								
Quarter 2		.0769448 (.1630126)		-.2687191 (.2260674)		-.1525399 (.1725506)		-.4510036 (.3183064)
Quarter 3		.2387845 (.1642445)		-.0509119 (.2277758)		-.1463707 (.1738731)		-.2137544 (.320746)
Quarter 4		.1822987 (.1704172)		-.3086521 (.2363363)		-.212894 (.1783499)		-.6408435* (.3290045)
<i>Promotion</i>								
Professional		-.1254813 (.12065)		-.0318043 (.1673185)		-.2854737** (.1255323)		-.4243764* (.2315711)
Reviews		.262617** (.1185036)		.1787064 (.164342)		.4660599*** (.1219622)		.623682*** (.2249852)
Moviegoers		.0632767*** (.0198381)		.0576059** (.0275116)		.078112*** (.0204426)		.0618263* (.0377108)
Reviews		.0225474 (.0462711)		.0129112 (.0641692)		.0790345 (.0490753)		.1407547 (.0905299)
Award								
Nominations								
Award								
Wins								
N	170	159	170	159	190	162	190	162
R ²	0.7102	0.7733	0.6908	0.7082	0.3730	0.6453	0.3461	0.4629
Chi ²	416.53	542.23	70213.61	385.81	145.38	294.70	100.58	203.88

Significance: 0.01 *** 0.05 ** 0.1 *

Note: Standard errors in parentheses. The following additional variables represent control variables: Studio size/Market share (Mini, Major, Independent Studio), Opening Weekend Performance (Top 5 Chart Position), Linear Time Trend (from 1978 to 2009), Genre and Group Effects (Comic Book Based Films and Computer Animated Films). Due to missing values the individual regression datasets diminish in size.

The consolidated results (displayed in Table 5) of the empirical analysis point out a strong positive significant influence of the movie success mechanisms production budget and award nominations and a strong negative significant effect of book adaptations on box office gross. The findings are confirmed for both the ordinary least square and seemingly unrelated regression estimates and the domestic and foreign market. Positive star popularity reputation effects of actors can only be shown by the seemingly unrelated equation. Additionally, negative reputation effects of professional reviews and positive signaling effects of award wins have been estimated by the regression models. The estimates of MPAA ratings, reputation effects of sequels (or prequels), seasonality effects and reviews from moviegoers either change signs or present a varying significance and consequently lead to no clear conclusion of their

influence on box office gross throughout the regionally differentiated regression analyses.

Table 5: Summary of Box Office Gross Regression Findings

Box Office Gross	Movie Success Mechanisms		
	Significant Positive (Negative) Effect	No Significant Positive (Negative) Effect	No Clear Conclusion
Ordinary Least Square			
Domestic	Production Budget, MPAA G, (Book Adaptions), Moviegoers Reviews, Award Nominations	MPAA PG-13, Sequels, Quarter 2, Quarter 3, Quarter 4, (Professional Reviews), Award Wins	Star Actors, MPAA PG
Foreign	Production Budget, Star Actors, Sequels, (Book Adaptions), Award Nominations	(MPAA G), (MPAA PG), (MPAA PG-13), (Quarter 2), (Quarter 3), (Quarter 4), (Professional Reviews), Moviegoers Reviews, Award Wins	
Seeming Unrelated Regression			
Domestic	Production Budget, Star Actors, MPAA G, MPAA PG, (Book Adaptions), Moviegoers Reviews, Award Nominations	Quarter 2, Quarter 3, Quarter 4, (Professional Reviews), Award Wins	MPAA PG-13, Sequels
Foreign	Production Budget, Star Actors, Sequels, (Book Adaptions), Award Nominations	(MPAA G), (MPAA PG), (MPAA PG-13), (Quarter 2), (Quarter 3), (Quarter 4), (Professional Reviews), Moviegoers Reviews, Award Wins	

By examining the return on investment regression findings, we find strong empirical evidence of positive signaling effects of star actors and critics from moviegoers and negative signaling effects of critics from professional reviewers. The second and third quarters reveal a negative and awards wins a positive but insignificant influence on return on investment. These findings are verified by the ordinary least square and seemingly unrelated regression and also for the domestic and foreign market. As expected, the contribution of the production budget to the performance of the investment is always negative. Unfortunately, the estimates of the production costs change between significant and insignificant coefficients and consequently leave no final decision about the effect of a films' production budget on its return on investment. Positive significant signaling effects of award nominations can only be shown by the seemingly unrelated regression but the results are consistent for both the domestic and foreign market. Again, the coefficients of MPAA ratings, reputation effects of sequels

(or prequels) and seasonality effect of the fourth quarter either change signs or present a varying significance and thus lead to unclear conclusions according to their impact on return on investment throughout the regionally differentiated regression findings. The aggregated results of the return on investment analyses are displayed in Table 6.

Table 6: Summary of Return on Investment Regression Findings

Return on Investment	Movie Success Mechanisms		
	Significant Positive (Negative) Effect	No Significant Positive (Negative) Effect	No Clear Conclusion
Ordinary Least Square			
Domestic	(Production Budget), Star Actors , (Professional Reviews) , Moviegoers Reviews , Award Nominations	MPAA G, MPAA PG-13, Sequels, (Quarter 2) , (Quarter 3) , (Quarter 4), Award Wins	MPAA PG, Book Adaptions
Foreign	Star Actors , Sequels, (Book Adaptions), (Quarter 4), (Professional Reviews) , Moviegoers Reviews	(Production Budget), (Quarter 2) , (Quarter 3) , Award Nominations, Award Wins	MPAA G, MPAA PG, MPAA PG-13,
Seeming Unrelated Regression			
Domestic	(Production Budget), Star Actors , (Professional Reviews) , Moviegoers Reviews , Award Nominations	MPAA G, MPAA PG-13, Sequels, (Quarter 2) , (Quarter 3) , (Quarter 4), Award Wins	MPAA PG, Book Adaptions
Foreign	Star Actors , Sequels, (Book Adaptions), (Quarter 4), (Professional Reviews) , Moviegoers Reviews , Award Nominations	(MPAA G), (Quarter 2) , (Quarter 3) , Award Wins	(Production Budget), MPAA PG, MPAA PG-13

Taken as a whole, the statistically significant influence of star popularity effects of actors and signaling effects of award nominations on both box office gross and on return on investment can be shown. Consequently, we can confirm the findings by Litman and Kohl (1989), Wallace, Steigermann and Holbrook (1993) and Ravid (1999) that demonstrate the positive influence of actors with *ex ante* popularity on box office gross. Accordingly, it can be summarized that the attractiveness of an actor can be transferred to the attractiveness of a computer animated or comic book based film. Award nominations not only have a high media marketing impact but also have sales promotion effects towards ticket sales. Consequently, we approve the findings by Nelson *et al.* (2001) and state that a nomination for a film award leads to significant economic effects on both box office gross and return on investment.

Additionally, we show a strong significantly positive influence of production budget and a strong significantly negative influence of book adaptions on box office gross

across regional distinctions. Consequently, we confirm Litman's results from 1983 and affirm the production budget's attribute as a "proxy variable" for the overall appeal of a movie. However, the level of production costs affects the critical quality of a film but it also reduces the economic rent and *certeris paribus* the return on investment. Although, the reputation effects of book adaptations can be statistically verified, it seems that former novel and comic book readers are not willing to pay for the cinematic implementation of their reading.

Testing for the economic effect of movie reviews from professional critics and moviegoers, we can confirm a significantly negative effect of professional reviews on return on investment and a significantly positive effect of reviews from consumers on return on investment. Consistent with Eliashberg and Shugan (1997) critics' categorization, we find strong evidence that moviegoers adopt the position of influencers. Influencers have the reputation and the credibility of having reliable expertise and consequently the capability to directly influence consumers' choices. In particular, critical statements from consumers and moviegoers about the quality of a movie have a significant impact on sales figures. Today, customers are able to voice their opinion and share their experience about entertainment products in diverse discussion forums, assessment portals or online blogs. In summary, results of former studies can be validated and the condition that film reviews represent a preliminary evaluation source for the audience can be affirmed for this two genres.

We do not show a significantly negative impact of a restrictive age classification from the Motion Picture Association of America on both total gross and return on investment. The coefficient estimators differ across equations and regions in significance and leading signs. Consequently, a confirmation that the exclusion of consumer groups from consumption through a restrictive age classification has a negative effect on economic profits cannot be affirmed. We also cannot confirm the findings by Prag and Cassavant (1994) who found that sequels can induce reputation effects that positively affect box office revenues. For sequel films, we do not identify a consistent significant influence. Accordingly, sequels are not a reliable quality signal to overcome consumers' uncertainty. Additionally, we do not affirm former studies of seasonality and its direct impact on the demand for movies. The seasonality coefficient estimators differ across equations and regions in significance and leading signs in almost the same manner as the coefficient estimators of MPAA Ratings. In order to analyze the seasonality of cinema box office returns more precisely, individual holidays

like Thanksgiving or Christmas Day should be taken into consideration. As a result, the explanatory value of seasonality and its influence on economic revenues would be improved.

6 Discussion and Implications

6.1 Conclusion

The emphasis of the present study is the analysis of movie success mechanisms. In distinction from past studies, we did not analyze all time box office champions but focused on two film genres, computer animated and comic book based films, instead. Despite the examination of these particular genres, the results possess a universal validity. For one thing, we introduce the concept of the motion-picture marketing mix which represents all factors and mechanisms that set ups a customer orientation and strong market position. For another thing, we conducted a cross-sectional empirical analysis across regional distinctions based on the motion-picture marketing mix *Product, Place* and *Promotion*. We find that actors with *ex ante* popularity and award nominations serve as a signal for moviegoers and consequently increase sales figures. Additionally, the production budget can serve customers as a “proxy” or “meta-variable” and consequently also significantly influences box office appeal. Nevertheless, reviews from non-professionals, the so-called word-of-mouth, also have significant effects on revenues.

6.2 Managerial Implications

Our findings have several managerial and strategic implications. First, the introduction of the motion-picture marketing mix provides both academics and practitioners with a framework to structure and analyze the complex causal structures of the entertainment market. With the help of the "*four Ps*", studios and companies can install a set of tactical marketing tools that directly address customers' needs and supports the development of the target market.

Second, due to the greater credibility, social online word-of-mouth does not only have the capability to affect product sales, but also to influence the business sales strategies (Liu 2006, Chen and Xie 2008). From a business perspective, it is of vital importance to forecast product sales efficiently, in particular those of new products that stand at the beginning of their product life cycle. Thus, it is critical to control and

analyze how the information contained in the online word-of-mouth can be measured and evaluated in order to optimize managerial decisions and to strengthen competitive advantages. To date, present studies mainly examine sales portals, such as eBay or Amazon. They show a correlation between customer reviews and product sales (Dellarocas 2003, Liu 2006, Chen and Xie 2008). However, these studies consider mostly either the average ratings of the sellers or the products. Future studies in motion-picture economics should work on the transcription and integration of word-of-mouth. As a result, the explanatory value of prospective analyses would be increased and the uncertainty in this highly volatile market would be comprehended more efficiently.

Third, customers have their preferences for certain well-known characters and actors. Consequently, these characters and actors have the ability to attract an audience and generate a large impact at the box office (Rosen 1981). Elberse (2007) shows that actors with star popularity and a historical average box office record of \$100 million can achieve \$4 million in additional box office gross. Actors with star popularity also play an important part in contributing to the exclusiveness and quality of total box office appeal. Superstars involve a combination of talent and charisma but more important and additionally, possess the ability to transmit their reputation to the product. Consequently, star actors transfer their star image to the characters and increase not only one's personal market share but also the market scale of the product (Rosen 1981). The image of a star actor is an effective, and most notably, a credible signal to reduce the information asymmetries between moviegoers and movie studios. As the development of a star image is conjoint with perceptible costs, image and consequently star popularity form a signal that is interpreted by customers as reliable. Thus, star image takes an important strategic part in the motion-picture marketing mix and should be intensively promoted by film distributors.

6.3 Future Research

Our study represents a genre-specific film analysis of computer animated and comic book based films. Our analysis does not address additional genres like comedy, action or horror. Future studies should extend the model for ancillary genres. That may imply a new level of complexity, but it will also enhance the explanatory value of the model. Additionally, the sample size will be increased which prevents multicollinearity and the concerns of a sample selection bias. Apart from this, we note that previous empirical studies have used similar or the same variables and standards that we included in our

model. Finally, our approach introduces a motion-picture marketing mix model and tests it by using propriety data from the motion-picture industry. We show that especially the *Product* relevant item star actor and the *Promotion* related item reviews from moviegoers affect box office gross and return on investment.

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