EE489 Seminar in Industrial Economics

FACTORS DRIVING THE SUCCESS OF ADVENTURE FILM; BASED ON THE BOX OFFICE REVENUE

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Abstract

Motion Picture industry does not serve only artistic value, it is a big contributor to the global economy. However, the film business is considered as one of the riskiest, mainly due to the unpredictable-audience preferences. To forecast the film box-office revenue before its cinematic released can be beneficial. This paper uses a number of variables that believed to have an impact on the success of adventure films. The total three-hundred adventure films is included in the analysis, using the multiple OLS linear regression. The film's production cost, number of theatres, average gross of main actors, Buenavista, PG-13, winter season, Award nomination, critic rating, profit, are all positive and statistically significant determinants towards the adventure film box-office revenue.

I. INTRODUCTION

"… No one can tell you how a movie is going to do in the marketplace… not until the film opens in darkened theatre and sparks fly up between the screen and the audience" (Valenti, 1978).

Many variables are involved in one film to be successful, film is a complex product and there is no substitute for each other. Several researchers and film' s experts said that you cannot tell exactly how to be success in this industry. According to Vogel (2010), around six out of ten major theatrical films produced may be unprofitable, while the other one might be just break even. Thus, several researchers attempted to forecast the success of motion picture industry. Just for one customer to buy a ticket, many factors are involved in her decision which dissimilar to others. Customer preference is unpredictable, thus, demand is highly uncertain as well. To study how to be successful in a film business might be something very challenging, still a number of researches are conducted to find what determinants could make one film perform better to gain higher revenue.

Motion picture industry is an essential sector for some countries' economy as it contributes highly to the country's GDP. A good example of a success film industry must be The United State where Hollywood is located. The film industry as part of Art and Culture sector contributed 4 percent of GDP in 2015 (The Motion Picture Association of America, Inc., 2015) which increased from 2.8 percent in 2011 (the Associated Press, the Hollywood Reporter, 2013), more than even the contribution of US Travel and Tourism sector. In 2016, the industry made approximately $49 billion payouts that were sent to more than 400,000 local businesses, which supported around 2.1 million workers and the total wages paid to the workers was more that $139 billion in 2016 (Anita Busch, Deadline Hollywood, 2018). The

MPAA stated the reason how film industry can be an economic booster is the huge development in digital and creative content (David Ng, msn news, 2018).

In addition, the motion picture industry can generate a huge amount of money because it involves with several work fields such as marketing team, production team, costume and makeup artists, stuntmen, technicians, people work in cinemas. According to CEO of MPAA, the movie Marvel's Black Panther hired more than 3,100 local workers in Georgia, the total amount of wages the Georgia get is over twenty-five million dollar (Project Casting, 2018). Apart from that, the released films can help to promote the country's tourism, and the industry helps to boost export department as well since Hollywood films are popular internationally. The US exported arts and cultural commodities were counted around $10.4 billion by 2011 which was one of its largest export sector (the Associated Press, the Hollywood Reporter, 2013)

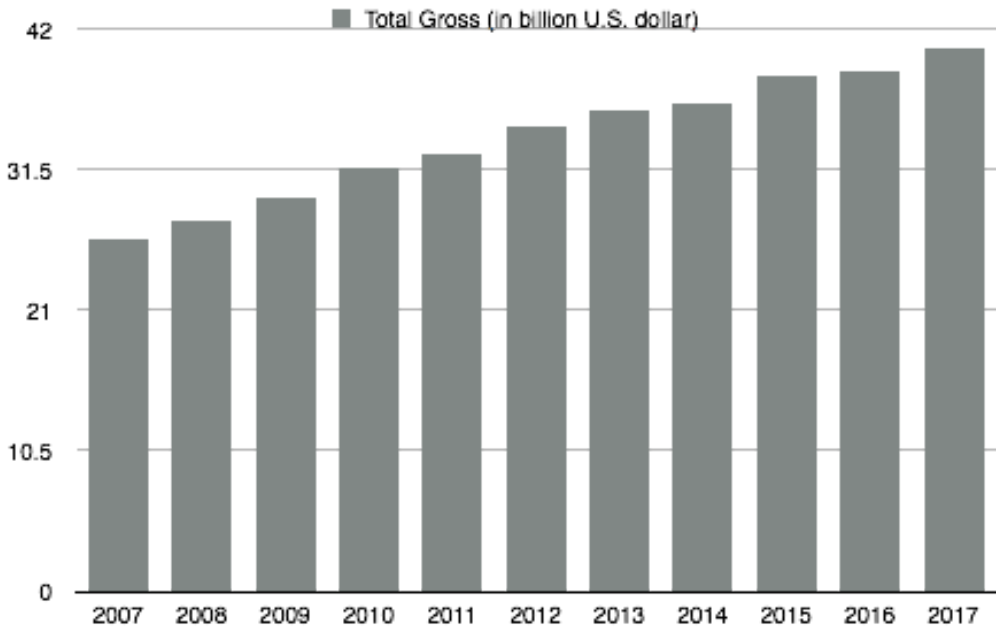
The rise up of motion picture industry makes researchers and filmmakers desire to know the answer to achieve the success. A number of studies were conducted, but still in various criteria. This paper aims to examine the factors that could drive adventure film to a better performance in terms of the box office revenue. As, adventure movies are enjoyed by the global audiences, and it is the film genre that gains the highest gross of all times. Therefore, it might be interesting to know what are the significant factors that contribute to the success of adventure films. This paper composed of six sections; industry background, literature review, methodology, result, conclusion, and research limitation, respectively.

II. INDUSTRY BACKGROUND

The emergence of film entertainment is somewhat ambiguous, yet the 1900s is said to be when the first motion picture was filmed. Hollywood is the birthplace of film distributor

and where the motion picture start to prosper and spread throughout the world. The success of Hollywood films makes the name for it, thus, in these days, when people say "Hollywood", they typically refer to the entire motion picture industry.

Figure 1: Global box office revenue, 2007-2017



Source: the author owns the figure using the data from

https://www.statista.com/statistics/271856/global-box-office-revenue/

Over the past 10 years, the global box office revenue has significantly increased almost double, according to figure 1, and is predicted to reach $49.3 billion in 2020 (Statista, 2018). These numbers indicated how well the film industry is performing as it continuously grew in the market. The largest film market, the United States, was counted as almost 30 percent of the worldwide box office revenue and was the dominance of film distributors. China who came after the States ranks in the second place, generated the revenue of $8.42 billion in 2017 (Statista, 2018). China's market grew drastically as its revenue was around $230 million in

2005 (Facts and Details, Chinese Film Industry and Movie Business, 2012), and it could overtake the US in the near future. While Bollywood or India which was on the third rank, even though it had the highest number of films produced and tickets sold.

Table 1: First raking movie, 2007-2017

Year	Movie Name	Total Gross (in million U.S. dollar)
2017	Star Wars: The Last Jedi	1,332.417
2016	Rogue One: A Star Wars Story	1,056.057
2015	Star Wars: The Force Awakens	2,068.224
2014	American Sniper	547.426
2013	The Hunger Games: Catching Fire	865.012
2012	The Avengers	1,518.813
2011	Harry Potter and the Deathly Hallows II	1,341.511
2010	Toy Story III	1,066.970
2009	Avatar	2,787.965
2008	The Dark Knight	1,004.558
2007	Spider-Man III	890.872

Source: the author owns the table using data from http://www.boxofficemojo.com/yearly/

More than seven-hundred movies were released in 2016, the number increased every year. Despite of that, only 136 released films were screened over a thousand theatre (The Numbers, Domestic Movie Theatrical Market Summary 1995 to 2018, 2018), and most of them are from the major six distributors[1]. Walt Disney was the biggest one in the market share even it produced fewer movies than the following two. Eight out of twenty highest earned films are from Walt Disney[2].

[1] The major six distributors are Warner Brothers, Walt Disney, 20th Century Fox, Paramount Pictures, Sony Pictures, Universal

[2] Famous adventure films produced under Walt Disney studio are
Star wars, the Avengers, Black panther, Iron man, Pirate of the Caribbean, the Jungle Book, Guardians of the Galaxy, note that these films are produced by Buena Vista which is a studio under Walt Disney.

According to the box office record, most of the first raking movies in terms of total gross were adventure genre as it was illustrated in table 2. Moreover, the adventure film attributed 27.02 percent of market share.[3] The total gross is $57 billion from 1995 to 2018.

Table 2: Top- Grossing Genres, 1995-2018

	Film Genre	Number of Movies	Total Gross (in billion $)	Market Share
1	Adventure	972	57.666	27.02
2	Action	915	41.767	19.57
3	Drama	4,783	34.809	16.31
4	Comedy	2,180	32.508	15.23
5	Thriller/Suspense	979	17.910	8.39

Source: the author owns the table using the data from https://www.the-numbers.com/market/

While the top-grossing MPAA rating of all times was PG-13 which counted as almost fifty percent of the market share, following by R and PG, respectively. [4]

III. LITERATURE REVIEW

"There are no formulas for success in Hollywood" (De Vani and Walls, 1999)

In the late 1900s, several analysts started researching on the factors can that determine the success of the motion picture industry by using box office revenue as measurement. Due to the prosperity of the industry and how it can contribute to the world economy. If a film can be success in the market, the filmmaker will gain huge amount. However, filmmakers have to

[3] Total 972 of adventure films included
[4] The number of PG-13 rated films are 2919 films, 4922 films are R rated, and 1347 films are PG rated.

bare for very high risk since the production cost is massive, and you could never know whether it would be successful or not until people watched it.

Litman (1983) is the first who use multiple linear regression in attempting to predict to success of movies in box office revenue. All of the theatrical films from 1972 to 1978 are included in his dataset. The independent variables in his analysis are movie type (sci-fi, horror, drama, action-adventure, comedy, musical), MPAA rating (G, PG, R, X), superstar in the film, production cost, release date (Christmas, Memorial Day, summer), release distributor (major, independent), and Academy Awards (Nominations and winning in a major category). He finds that production cost, critic rating, science fiction genre, major company, Christmas release, Academy Award nomination, and winning Academy Award are the significant variables impact the box office. His result is more precise compared to other previous findings which results are unstable and still ambiguous.

Litman's finding inspires several studies, Jehoshua Eliashberg and Steven M. Shugan (1997) support Litman's evidence. They study deeply into the role of critics toward film box office revenue by separate critics into two kinds. First, "influencer", the one who influence the audience. Second, the critics as a "predictor" who predicts the success of the films. They find that only the influencer reviews that have an impact toward the box office receipt. Positive reviews will lead to an increase in film revenue, whereas negative reviews will lead to a decrease in the revenue. And they suggest that a film company should use critics as part of the marketing strategy if they are influencers.

However, a number of studies indicate that there are some constraints of critic review effect towards film box office earnings, King (2007) claims that only films released exceed one-thousand theatres, critic review would have a positive effect to the revenue. While Reinstein and Snyder (2005) summarise their regression analysis that the influence effect is

dissimilar to film genres, it has a strong effect toward dramas and barely impact widely released movies and also popular genres like action and comedy.

In addition, Ashenafi, Chea, Chen, Hanson and Jones (2016) focus their study on how critic reviews and production budget affect film's box office earning by using multiple linear regression. Their data set consists of top ten trending movies from 2013 to 2015, and the source of critic reviews are from IMDb, Metacritic, Rotten Tomatoes, and Roger Ebert). The analysis shows that the critic reviews from Rotten Tomatoes and film's budget are significant determinants to the box office success, yet these variables can explain only 47 percent amount of the variability in box office revenue. This result is consistent with the study by Ravid (1990). His regression shows that budget variable is the most significant. Another factor that influences box office is the number of reviews film received.

Many researchers refer to the Academy Award and box office earning. Apart from Litman's result that both the nomination and the award are significant, Smith and Smith (1986) study films released from 1950s to 1970s. They find that the more awards it gets, the more revenue it received. However, they state that the effect of Academy Award might change over time, it might have a positive or negative impact toward the receipt. Dodds and Holbrook (1988) specify the result of Academy Award nomination more in detail, they estimate that the best actor nomination would add $6.5 million, the best actress nomination would increase $7 million, while the best picture nomination is $7.9 million. For the post-award, they find that the value of award will be increase such as a best actor award value is $8.3 million. Nelson, Donahue, Waldman and Wheaton (2001) specify the result of Academy Award nomination more in detail, they find that an award nomination could increase the box office earning by $4.8 million.

Austin (1984) examines how MPAA ratings affect the number of audiences, somehow he finds no correlation between the two variables. Similar to Prag and Casavant (1994), they get the result that PG-13 and R rated films would not get better box office earnings.

The seasonality impact is a popular variable for a number of studies as well, Einav (2001) partly agrees with Litman's evidence, she states that both Christmas, and summer are statistically significant determinants. Thus, films that release in Christmas and summer period could perform better in the box office. While Terry, Butler and De'Armond (2005) disagree with others as they find that a holiday release is insignificant determinant.

For recent works on forecasting the success of film revenue, the analysis results are quite consistent with the aforementioned literatures. Kim, Hong and Kang (2017) forecast box office revenue of Korean film market by using learning-based NLR algorithms, and find that the number of screens and periods are significant factors, while word-of-mouth has strongest effect to the film revenue. Pangarker and Smit (2013) use multiple linear regression and get the result that production budget has the most effect to the global box office revenue, followed by major distributor, award nomination, and sequel. They dig into the detail that films release by major studio would receive $11.3 million more than films release by independents and the award nomination contribute $39 million to the revenue. But the action and drama variables have negative relationship with the earning, and there is no significant relationship between holiday release and critic reviews towards the revenue. Another finding from Terry, W. Cooley and Zachary (2008) who examine the factors of foreign box office revenue for English language movies prove that winning an Academy Award could add more revenue by approximately $10 million. The production budget and movie sequel also impact the revenue positively. The most significant determinant is US domestic box office revenue, it can be used to predict the global revenue.

This paper aims to solely focus on Adventure films to accurately predict the box office revenue by using aforementioned literatures as a guidance. The result must be important and useful for business sector, especially for film producers to know the significant determinant influencing box office revenue, hence, could prevent an unnecessary massive loss beforehand.

IV. METHODOLOGY

To answer the question of this paper, the author uses some variables from aforementioned literature reviews and adds some new variables that believe to have an impact toward the adventure film revenue. The independent variables for this paper are production cost, theatres, main actor, Academy award, nomination, Oscar, studio distributor, season of film's release, MPAA rating, IMDb rating, critic rating, and profit. While, the dependent variable is the box office revenue.

These factors are accumulated from the impact of both consumer side and producer side. The number of theatres, star power, nominations, Academy award, season of film's release and rating imply the preference and demand of consumers toward that movie. For example, movies that have high number of theatre released or high rating can show popularity, and those movies tend to have higher box office revenue. For the producer side, production cost and studio distributor may affect quality of the movie. And MPAA rating, for instance, R rate would limit the amount of audience which affect the movie's revenue.

However, there would be other factors that also impact film's box office revenue such as audience preference towards the adventure film genre (horror, action, comedy, sci-fi etc.) which is hard to gather the data since each website and consumer may define the adventure movie genre differently. By way of illustration, those who like action-adventure films may

not enjoy watching horror-adventure films.[5] Moreover, most of the movies are categorized in many genres. Therefore, producing an adventure movie in a genre that likable for most people, the movie might be easier to approach and would get higher revenue.

The data set of this analysis is 300 observations which is the cross-sectional data based on the criteria that it must be screened internationally and the number of theatres' released must exceed one thousand theatres throughout its lifetime. The observations include adventure films released from 1977 to 2018, they are all Hollywood films. All of the data are collected during March - April, 2018 through the reliable sources, 'Boxofficemojo.com', 'IMDb.com', and 'Metacritic.com' only. These three websites are well-known for movie fans and generally used among movie industry and researchers to collect the data.

To achieve the purpose that this paper, the multiple linear regression is adopted based on the mentioned data set and variables. It is one of the most used methodology according to the aforementioned literature reviews, the multiple regression gives a trustable empirical result, and due to the time and information limitations resulting in the data set to be small. Therefore, the multiple OLS regression model would be the best choice to give the effective scientific answer for this paper.

The empirical regression equation used to examine the factors impact success of adventure films in this paper is:

$$\boldsymbol{Yi} = \beta 0 + \beta 1\ \text{productioncost}\ \boldsymbol{i} + \beta 2\ \text{theatre}\ \boldsymbol{i} + \beta 3\ \text{mainactor}\ \boldsymbol{i} + \beta 4\ \text{studiodistributor}\ \boldsymbol{i} + \beta 5\ \text{MPAArating}\ \boldsymbol{i} + \beta 6\ \text{season}\ \boldsymbol{i} + \beta 7\ \text{Oscar}\ \boldsymbol{i} + \beta 8\ \text{nomination}\boldsymbol{i} + \beta 9\ \text{IMDbrating}\ \boldsymbol{i} + \beta 10\ \text{criticrating}\ \boldsymbol{i} + \beta 11\ \text{profit}\ \ \boldsymbol{i} + \boldsymbol{\varepsilon}$$

[5] For example, Beyond Skyline is defined as a horror, adventure film, while Harry Potter and the Chamber of Secrets is defined as a adventure, family, and fantasy; according to IMDb website

where subscript *i* denotes movie i, Y*i* is worldwide box office revenue throughout each movie's lifetime, and ε is the error term.

Independent Variables :

- productioncost is the official estimated budget in million USD, collected through the boxofficemojo website.
- theatre is the number of screening theatres throughout movie's lifetime, with having a criteria that the movie must be screened over a thousand theatre. The theatre variable is obtained from box-office mojo website.
- mainactor represents the average lifetime gross of main stars in million USD, collected via box-office mojo website.
- studiodistributor is the film production company including with Buenavista, Paramount, Fox, Sony Columbia, Dimension Films, Summit Entertainment, DreamWorks, Newline, while having Warner Brothers as a baseline. The data is collected via box-office mojo website.
- MPAArating is the Motion Picture Association of America film rating that is a guideline for the parents whether to let their children watch the movie. For the observed data, there are three MPAA rating for adventure films (PG, PG-13, R), in this case using PG as a baseline. The data is collected via box-office mojo website.
- season denotes the movie released season based on the Northern Hemisphere. The data is collected from boxoffice mojo website in 'month' form.
- Oscar denotes a number of Oscars film received. The Oscar variable is collected via IMDb website.
- Academy Award represents all awards it received which collected via IMDb website, note that this variable excludes an Oscar winning.

- ➢ Nomination denotes the number of award film being nominated, the data is obtained through IMDb website.
- ➢ IMDb rating is the IMDb-users' rating which represents moviegoer's rating and review.
- ➢ Critic rating is rating from film professionals via 'metacritic.com'. It is famous among moviegoers to see the reviews from critics.
- ➢ Profit is computed from the estimated budget and the revenue from 'boxofficemojo.com'.

Table 4 : The dummy variables

Factor	**Variable**	**Definition**
Dummy variables		
Studio distributor	buenavista	Film produced by Buenavista (yes=1, otherwise=0)
	paramount	Film produced by Paramount (yes=1, otherwise=0)
	fox	Film produced by Fox (yes=1, otherwise=0)
	sonycolumbia	Film produced by Sony Columbia (yes=1, otherwise=0)
	dimensionfilms	Film produced by Dimension Films (yes=1, otherwise=0)
	summitentertainment	Film produced by Summit Entertainment (yes=1, otherwise=0)
	dreamworks	Film produced by Dream Works (yes=1, otherwise=0)
	newline	Film produced by Newline (yes=1, otherwise=0)
MPAA rating	PG-13	Film rated as PG-13 (yes=1, otherwise=0)
	R	Film rated as R (yes=1, otherwise=0)
Season	summer	Film released in Summer (yes=1, otherwise=0)
	autumn	Film released in Autumn (yes=1, otherwise=0)
	winter	Film released in Winter (yes=1, otherwise=0)

The dummy variables are studio distributor, MPAA rating, season, using Warner Brothers studio, PG rated, spring released as baseline.

V. RESULTS

The empirical analysis of this paper is conducted through the multiple OLS linear regression with the significant level at five percent. The result is exhibited in Table 5 which has three models included, with the same dependent variable. Three models are applied for the analysis with different independent variables and same dependent variable which is the box office revenue. The first model (1) consists of production cost, the number of theatres, average gross of main actors, studio distributor, season, Oscar award, Award nomination, Academy Award, IMDb rating, critic rating, and profit as independent variables. While the second model (2) excludes Academy Award variable, and the final model (3) consists of the model (2)'s independent variables plus MPAA rating variable.

The initial model (1) can explain seventy percent of the variation in the box office revenue, having production cost, the number of theatres, average gross of main actors, winter release, critic rating, and profit as significant elements to the box office receipt. An increase in production budget could lead to $2.4 million more in box office revenue, as well as one more theatre screening could increase film's earning by almost $0.14 million.

However, there is eighty percent of correlation between Academy Awards and nomination and sixty percent of correlation between Academy Award and Oscar. To avoid multicollinearity problem, in the model (2), the author drops Academy Award variable, and

Table 5: Determinants of Worldwide Box Office Revenue

VARIABLES	(1) boxofficerevenue	(2) boxofficerevenue	(3) boxofficerevenue
productioncost	2.406***	2.360***	2.302***
	(0.445)	(0.432)	(0.419)
theatre	0.139***	0.142***	0.139***
	(0.0301)	(0.0288)	(0.0299)
mainactor	0.0230***	0.0233***	0.0217***
	(0.00786)	(0.00775)	(0.00777)
universal	41.12	37.31	24.67
	(42.01)	(42.22)	(41.35)
buenavista	71.58*	67.49*	77.26**
	(38.73)	(39.06)	(39.19)
paramount	11.35	4.516	-0.122
	(32.82)	(32.84)	(33.29)
fox	17.77	11.74	9.352
	(41.04)	(40.06)	(40.49)
sonycolumbia	44.93	41.34	30.01
	(28.65)	(28.80)	(28.39)
dimensionfilms	-11.02	-10.55	-27.07
	(39.49)	(39.61)	(38.11)
summitentertainment	91.83	93.30	68.03
	(59.12)	(58.77)	(56.39)
dreamworks	3.945	-3.306	-5.710
	(57.79)	(56.42)	(55.60)
newline	50.92	55.67	45.04
	(47.13)	(44.98)	(46.46)
pg13			67.44**
			(27.62)
r			45.31
			(32.52)
summer	27.74	27.99	26.16
	(25.73)	(25.35)	(25.39)
autumn	41.58	40.15	51.27*
	(26.33)	(26.60)	(28.76)
winter	134.7**	135.4**	146.1**
	(56.30)	(56.64)	(57.38)
Oscar	-23.22	-14.92	-13.87
	(26.90)	(17.80)	(17.30)
nomination	0.933	1.391**	1.344**
	(0.720)	(0.577)	(0.565)
IMDbrating	2.323	2.339	3.007
	(3.889)	(3.893)	(3.964)
criticrating	3.424***	3.361***	3.380***
	(1.080)	(1.081)	(1.080)
profit	32.31***	32.16***	32.62***
	(12.05)	(12.07)	(11.98)
academyaward	0.940		
	(1.824)		
Constant	-866.3***	-868.2***	-901.9***
	(97.63)	(95.53)	(101.6)
Observations	300	300	300
R-squared	0.709	0.708	0.712

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

gets nomination as an additional significant factor, however, the level of R squared in the model (2) is slightly lower than R squared of the model (1).

Adventure movie genre has variety of MPAA ratings ranked from PG to R, yet few existing literatures study on how MPAA ratings affect film's earning. To have a better empirical result, the final model (3) is conducted by adding MPAA rating as another independent variables. The model can explain more than seventy-one percent of the variation in the box office revenue, R squared is slightly improved from the model (1) and model (2). The variables that are highly significant toward box office revenue are production cost and number of theatres. An increasing in film's production cost would rise its revenue $2.30 million more, the value is slightly lower from the previous two models. While increasing in the number of theatre could add $0.14 million more in revenue. The main actor, critic rating and profit are positive and statistically significant elements to box office revenue as well. A film could earn $3.38 million more if having a better critic rating, whereas an improved in star gross could yield approximately $0.02 million more.

In addition, releasing film during winter season leads to a higher gain of $146.1 million compared to spring season, while being nominated for an award would make a higher box office revenue of $1.34 million. The result of winter release is related to some of the literature reviews. Einav (2001) states that the peak period is in the Christmas holiday since it is when the best movies[6] are released and is the most popular period that people wants to watch the films. He suggests that distributors can release during non-peak period, so the number of competitors will be less but have to trade with the higher quality of films. Apart from that, after adding MPAA rating into consideration, there are two more significant factors impact

[6] Famous adventure films released during winter season such as Star Wars the Last Jedi, Star Wars the Force Awaken, Rogue One, Harry Potter and the Deathly Hallows part 1, harry Potter and the Chamber of Secrets, Avatar.

box office revenue, Buenavista (studio distributor) and PG-13 (MPAA rating). By having Buenavista which is part of Walt Disney as a studio distributor could make that film gets a higher earning of $77.26 million compared to Warner Brothers studio. Furthermore, if film is rated as PG-13 rating, it could perform better than PG rated film by $67.44 million in box office which contradicts to the literature reviews. Note that the regression gives a robust result as the signs are the same and the result values are quite consistent across different specifications.

Another interesting point from all three models is receiving an Oscar could lead to a negative yield to that film box-office revenue. It might because this paper solely focuses on adventure films, so the result is different from other researchers. Furthermore, there are few movies included in this paper that receive an Oscar, only thirty-six out of three-hundred films get Oscar award while the mean is only 0.28. Most of the Oscar films in the observations are neither highly rated film nor receiving high gross revenue which similar to many publications' comments. "The Oscars aren't just about the most popular movie," said Jonathan Kuntz, film historian and lecturer at the U.C.L.A. School of Theater, Film and Television. Oscar cares mostly about artistic value, technical innovation, etc. which might be different from typical moviegoers This might be the reason of negative relationship between Oscar and box Office revenue.

VI. CONCLUSION

Film industry is considered as a significant contributor to US economy. Many countries like China, India or Japan see how favorable the film industry is to the economy. They, hence, try to develop domestic industry. The paper's purpose is to investigate what factors drive the

success of adventure film based on the box office revenue. The empirical result indicates that the highly significant factors are production cost, critic rating which is consistent with the original paper of Litman (1983) and several aforementioned literatures. In addition, the number of theatres, the main actors' average gross, film's profit are positive and highly significant determinants. Other significant factors are Buenavista (studio distributor), PG-13, winter season, and Award nomination. The paper's results mostly follow the literature reviews' result, except the result of PG-13 that the PG-13 rated film could lead to an increase in the film box office revenue that contradicts to Austin (1984) who states that MPAA ratings have no effect on increasing the number of audiences, and also Prag Casavanant (1994) who indicates that PG-13 and R rating would not drive more box office revenue. Different results probably comes the different characteristics between the literature reviews and this paper which focuses directly on adventure genre. Therefore, some of the results might be specific toward adventure genre only, for example, adventure filmmaker should be produced under Buenavista studio which is the main distributor which produces many famous adventure films, so the quality could be better, and focus more on producing films in the range of PG-13 rating.

VII. RESEARCH LIMITATION

The author faces some limitations that would have an effect on the analysis. Firstly, the time limitation, this paper was conducted around two-month period, thus, the number of observations is quite small. Secondly, the information limitation, some of the early and late launched films lack some information, thus, those films have to be excluded from the sampling. Hence, the result might be biased. Thirdly, the econometric knowledge limitation,

the methodology choice is limited. The OLS regression would be the most proper tool to examine the significant factors that impact the box office revenue of adventure movie.

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