RESEARCH ON THE EVALUATION OF THE BOX OFFICE INVESTMENT VALUE BASED ON THE "NASH EQUILIBRIUM" THEORY -- TAKING ROMANTIC FILM AS AN EXAMPLE

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RESEARCH ON THE EVALUATION OF THE BOX OFFICE INVESTMENT VALUE BASED ON THE "NASH EQUILIBRIUM" THEORY -- TAKING ROMANTIC FILM AS AN EXAMPLE

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This Independent Study has been approved as a Partial Fulfillment of the Requirement of International Master of Business Administration in International Business Management

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The film industry plays a crucial role in the national economy, presenting significant investment opportunities as a promising sunrise industry. However, film investment is inherently high-risk and has posed challenges to investors. Despite notable successes, the overall return on film investment remains less optimistic, with approximately 90% of domestic films experiencing financial losses. This prevailing situation leads to considerable capital wastage, hinders effective fund allocation, and impedes the industry's development. This study addresses the root cause of these challenges, attributing them to investors' lack of understanding of film products and the absence of scientific and feasible evaluation methods, particularly in the context of China's romantic films. The "Nash Equilibrium" theory was employed to assess the investment value of films, utilizing variables such as box office income, estimated release schedule, intellectual property (IP), and film genre as critical factors.

The research findings revealed that the quality of the script, the director, and the actors significantly impact the investment value of a film, and the film genre also notably influences the evaluation of investment value. Additionally, films released during the prime scheduling period showed favorable publicity conditions, thereby positively influencing the investment value of the films. This study contributes to the field by providing valuable insights into evaluating investment value in the film industry, specifically in the context of China's romantic films. Applying the "Nash Equilibrium" theory is a practical approach to guide investors to make informed decisions. By understanding the significance of script quality, directorial expertise, actor selection, film genre, and release timing, investors can enhance their understanding of the investment potential and mitigate risks, ultimately fostering a more effective and sustainable film investment landscape.

Keywords: romantic movie box office, Nash equilibrium, investment value, film industry

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Declaration

I, Tang Peng, hereby certify that the work embodied in this independent study entitled "Research on the Evaluation of the Box Office Investment Value Based on the "Nash Equilibrium" Theory -- Taking romantic film as an Example" is result of original research and has not been submitted for a higher degree to any other university or institution.

(Tang Peng)

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Chapter 1 Introduction

1.1 Background of the Study

Since the introduction of films into China, government agencies, elites, the film industry, and film critics have clearly put forward various regulations and concepts that need to be obeyed by the audience, including the historical perspective or "new era" consciousness, which is a historical consciousness constructed with the film transformation in the 70s and 80s, simultaneously (Lin, 2002). Suppose Chinese intellectuals showed a rare sense of historical identity and cultural attitude during the social and cultural changes in the 1980s. In that case, this identity is based on the consensus of "farewell to revolution". In the past two years, with the adjustment of the national industrial policy, the film market has become very active, and the film box office has also shown a geometric growth, with an annual growth rate of 30% - 40%. In 2021, China's box office exceeded 54 billion yuan, up 16.6% from 2020 (Kušter et al, 2022). Take the 2017 film "I am not the God of Medicine", for example. The box office exceeded 1.9 billion yuan in just three months after its release, becoming the giant dark horse in the history of a Chinese film at that time, and even won the awards of "New Power of Chinese Film" and "Most Influential Film of the Year" (Anderson, 2018). This film's producer can also continue to invest in the shooting because it has made huge profits. However, at that time, the film's profits were very considerable.

The total box office of domestic films is successful. However, among the 74 domestic films, 15 have a box office of over 100 million, 22 box office of over 10 million, 19 have more than 10 million, and 18 films of less than 10 million. The proportion of quantity and distribution is relatively uniform. There are 37 films above 10 million and 37 films below 10 million. These two parts are distributed in equal proportion. The distribution of box office is different: 89.87%, 9.26%, 0.80%, and 0.07%; The total box office of less than ten million is less than 1% of the total box office of the summer season, and the number of more than ten million (Ni et al, 2022). The ratio of films with a box office of more than 100 million yuan to those with more than 1,000 yuan is about 10:1.

TABLE 1-1 Overview of the box office classification of summer movies in 2022

Over 100 million yuan	Over ten million yuan		More than one million	Less than one million
Quantity	15	22	19	18
The quantity than	20.27%	29.73%	25.68%	24.32%
Box office	853076.6	87889	7565	674
Box office than	89.87%	9.26%	0.80%	0.07%

Nevertheless, is it certain that investing in films will win a good reputation and a

good box office? This is not the case. The investment risk in the film and television industry is relatively high. Although everyone wants to participate in the industry, it is brutal for them to be handy (Kleine & Unwin, 2009). The film and television industry is a high-risk and high-investment industry. However, there are also times when the investment effect could be more satisfactory, resulting in poor investment return on the film and much capital loss. Even the director can not pay wages in severe cases. Therefore, there are many difficulties in terms of both cost and profit.

Although love film investment has been booming, the investment results could be more optimistic. The rate of return on box office costs is meagre, resulting in a large number of capital flights, often because investors have not conducted a scientific evaluation of the market value of the invested film projects, which is not conducive to the effective allocation of funds, nor conducive to the development of the film industry.

The entire summer box office was about 11.8 billion yuan, Chinese films about 9.5 billion yuan and foreign imported films about 2.3 billion yuan (Table1-2). Specific to the box office distribution of the summer season in 2022, the trend of the total box office is a "mountain" shaped trend (Ryu & Cho, 2022). The box office revenue in July accounted for the most significant proportion of the summer season. The total box office was more significant than the total box office in June and August.

TBALE 1-2 Overview of the summer box office distribution in 2022

Month	Total box office (ten thousand)	Chinese film	Imported film
JAN.-APR.	251529.7	98325	153209.7
MAY.-AGUST.	654579.6	648661.6	5918
SEP.-DEC	275272	202223	73049
Tatol	1181381.3	949204.6	232176.7

China romantic film are the basis of film development and also one of the indispensable elements in all our films. They are the spiritual food in our lives (Kusumawadhana & Imanjaya, 2016). Although they cannot point out the direction of people's emotions, they are also the existence of our love shadow. They provide spiritual comfort, emotional support, and deep resonance for our audience's yearning for romantic film and television companies invest inchina romantic film mainly to balance the balance of film products and the introduction of new people and to bond the audience withchina romantic film (Oh et al, 2017). The type of china romantic film is insignificant in the box office of films. The amount of profits brought to film and television companies after the success of commercial films affects the distribution of space for love film investment. The box office of china romantic film is generally less than 10% of that of commercial films, But every year, there will be a box office black horse (Esterhuyse & Wingard, 2016). Although there are risks in investing in love movies, its characteristics of less investment and quick results have also increased investor confidence.

Therefore, the evaluation of the investment value of the film project can be used as an effective means to reduce the investment risk of the film. Before investing in the film, investors can improve their investment power to a certain extent if they make a scientific and comprehensive analysis of the investment value of the film project. Therefore, the research task of this paper is to propose a scientific film investment evaluation method - based on the "Nash Equilibrium" theory for the romantic film script/box office investment value evaluation method.

1.2 Problem of the Study

China's film industry started earlier than western countries, and the corresponding policies could be better (Cynthia & Beeton, 2009). In addition to environmental restrictions, the film of romantic type is not mature, so the classification of film types could be more detailed. The film type expresses the story content and reflects the audience's preferences. Each film type has a different market size and market distribution.

According to their own experience, investors will compare with other similar films and make a rough guess of the future results by referring to the success or failure of the same type of film shortly. This is the most intuitive and effective comparison. At the same time, the box office income of the same type of film comprehensively reflects the preferences of consumers, and the positioning of the film type is the positioning of the audience and the market, which is one of the most critical and practical indicators to judge whether the film project is worth investment (Elberse, 2007). So how to improve the investment value of romantic movies has a certain research value.

1.3 Research Questions

For investors, even if they see the film script, director, cast and other information, the investment results are still unpredictable (Habek & Wolniak, 2015). Therefore, the research questions are divided into three aspects:

1. Will the box office income data of china romantic film affect the investment share of China's love film market?

2. Will the estimated release schedule of china romantic film affect the investment value of films?

3. Will the film stars of china romantic film affect the investment value of films?

1.4 Objectives of the Study

The research of Nash's equilibrium theory profoundly impacts his china romantic film (Krcmar & Kean, 2005). It mainly provides a reference for creating china romantic film with irrational choices. Combining case analysis and love film stories to make them exciting and rich and ensuring the completeness and rationality of the story is one of the guarantees for the film box office. It is also an effective supplement to the investment share. Therefore, this paper aims to:

1. Based on the "Nash Equilibrium" theory, analyze the investment share of China's romantic film market

2. Verify the expected release schedule of china romantic film to determine the investment value of films.

3. Verify that the film stars of china romantic film will affect the investment value of films.

1.5 Significant of the Study

1.5.1 Theoretical significance

The traditional film investment evaluation is either pointless or has too many factors to consider (Sokowati, 2022). This paper will use the "Nash Equilibrium" theory to demonstrate the current situation and future development of china romantic film, and prove the core role of love film value evaluation in film investment evaluation.This paper will guide investors to focus the evaluation of film investment on the evaluation of the investment value of film scripts, which provides a theoretical supplement for the evaluation of film investment.

1.5.2 Practical significance

On the basis of systematically combing the relevant research at home and abroad, combined with the basic situation of China's romantic film industry, the particularity and investment risk of romantic film investment, this paper makes an in-depth analysis of the factors affecting the investment value of romantic film, and seeks a model suitable for the evaluation of the investment value of romantic film in China.At present, whether china romantic film can get high box office depends more and more on the quality of film creation and the strength of publicity (Zeng et al, 2020).In addition, the insensitivity and strong exclusiveness of romantic film products are particularly prominent, which makes it of practical significance to evaluate the investment value of romantic film.

1.6 Limitation of the Study

Due to the scarce literature on the film and television investment score and box office investment value of romantic film and the limited information for reference, the determination of the box office investment value evaluation is bound to be omitted, and the setting of risk points is crossed in a certain sense, and there is a lot of room for optimization (Kevin, 2014). In addition, as the film and television industry is continuously developing and progressing, influenced by the market environment and the change in people's aesthetic habits, the film and television investment indicators should be updated in real time. The weight should also be determined according to the market situation to adapt to the ever-changing film and television environment (Croy et al, 2021). Therefore, when calculating the value correction coefficient in this paper, the relative weight of the index is determined through expert scoring and software analysis. Then the score is determined by the set scoring standard. Future research can start with avoiding the subjectivity of weight determination and scoring to improve the evaluation objectivity of the investment value of romantic film.

Chapter 2 Literatures Review

2.1 Introduction

Foreign research in the field of film industry investment is corresponding to the film industry market investment and financing situation, with the operation of the film industry law is summarized and induction, and focus on quantitative research using econometric model, research content mainly has the film industry investment situation, specific investment mode and the government supporting policies in the film industry.The research is conducted through CNKI, Google Scholar, Research Gate and other resource websites.

2.2 Literature Reviews

Research on the box office of films

The film box office and the film industry are inseparable. They complement each other and restrict each other, forming a potential rule. Upgrading the high-quality development of the film industry is conducive to the general trend and inevitable requirement of the sustainable development of the film box office (Gruca, 2000). Research has explored Hollywood data from the past 100 years (1915 to 2015) and analyzed the film database and social media content to predict the success of the box office in the pre-production stage. The trained model can make predictions at the early stage of the film release with a prediction accuracy of up to 85%, providing investors with decision-making reference and reducing decision-making risk (Ahmed et al, 2020). Therefore, the implementation strategy and implementation path of the institutional perfection, efficiency and accuracy of the film box office will promote the vigorous development of the film industry.

Research on film investment

Based on technological innovation, cultural self-confidence and traditional inheritance of the film industry, the research object is analyzed from a "qualitative" perspective,it is of strategic significance for the film industry to design and construct the next-generation digital film industry system by using the methods of induction and deduction, analysis and synthesis, and abstraction and generalization to process the various materials obtained to promote the informatization construction of the film industry chain (Koyama et al, 2012). From the perspective of industrial attributes, film investment has dual attributes of the economy and social culture, which is different from other material production fields (Natividad, 2013). From the economics perspective, film products can be exchanged to fill the market demand, so they have economic attributes. Film products can be produced in large quantities at the speed of copying and pasting, and the marginal cost is low. For the particular industry of film, the most competitive is the production of film content (Pangarker & Vdmsmit, 2013). Therefore, from the perspective of investors, this paper applies financial methods to

solve the problem of value evaluation in the field of film investment.

Research on the Theory of "Nash Equilibrium"

Theory of "Nash Equilibrium" explains the irrational choice of love. The irrational human choice is prevalent in the market economy and life. It has been well verified in the love movie "Beautiful Mind". The rational choice individuals make in love movies leads to collective irrationality. The case of Nash equilibrium theory is closely related to the investment in balanced love movies (Suki, 2011). According to Nash equilibrium theory, in the case of uncertain income, the enterprise invests according to the equilibrium state; that is, the enterprise's investment is a transaction with equal risk and income. In this quantitative study, we take love movies as an example for analysis. Therefore, this paper uses relevant statistical data combined with theory to prove and discuss. Provide some analytical ideas, but also as the preliminary idea of this research.

2.3 Theory of Reviews

2.3.1 Resource-based theory

The enterprise resource-based theory explains that the performance and operation results of an enterprise are related to its various resources. Enterprise is the provider of resources, and enterprise resources can be divided into tangible resources and intangible resources (Chawla, 2019). Tangible resources refer to the assets, equipment and technology owned by the enterprise, while intangible resources refer to the resources that can bring benefits composed of employees, customers and knowledge. The tangible resources of an enterprise include assets, equipment and knowledge, while the intangible resources include human capital, information and organizational model. Such intangible assets owned by enterprises can have a direct impact on their business activities. For example, human capital is the core competitiveness of enterprises, while information and organizational model are its external manifestations. For different types of enterprises, the impact of their intangible assets is also different, which has an important impact on the operation efficiency of enterprises. Wen and David (2001) classifies enterprise resources into fixed assets, plans and culture, which are any permanent (tangible or intangible) assets that are regarded as part of the advantages or disadvantages of a given enterprise at a given time. Altintas et al (2019) defined enterprise resources as "the stock of elements owned or controlled by enterprises", including tradable proprietary technology (patents and licenses), financial or physical assets (property rights, factories and equipment), human capital and other countries. This paper believes that enterprise resources are tangible or intangible elements that are owned or controlled by enterprises and have an impact on enterprise strategy.

2.3.2 Theory of "Nash Equilibrium"

Nash equilibrium, also known as non-cooperative game equilibrium, is an essential term in game theory, named after John Nash (Satalkina & Steiner, 2020). The game involves equilibrium, which is a state in which both sides of the game pay, and the result is equilibrium. Game theory was initially applied to economics. In the

relationship between supply and demand, the seller pays the price of the goods he wants to make a profit, and the buyer who wants to buy the goods at this price is also willing to pay the price proposed by the seller (Drake et al, 2019). At this time, we say that in this transaction, the buyer and the seller have reached an equilibrium state. In game theory, equilibrium refers to a state, and the result of equilibrium is the optimal decision set of the interests of all game participants. Nash equilibrium is defined as a game in which a player formulates a strategy, which is the best strategy for the sum of the interests of each participant in the game. At the same time, other participants support the participants who formulate the strategy and then pay for their corresponding strategy. It is composed of the optimal strategies of all participants. This strategic combination is Nash equilibrium.

2.4 Research Relevant

In this section, Nash equilibrium applied to the proposed method is introduced. Nash equilibrium was introduced by John Forbes Nash, Jr., and can provide forecasts when non-cooperative players are in a game (Mehta, 2005). From the market perspective, in addition to the film type, the factors influencing the audience, but also film practitioners, such as directors, screenwriters, actors, etc. In reality, actors have a certain appeal, but compared with the same year, the appeal of directors is the strongest. From an artistic point of view, the film director is responsible for the quality of the whole film, and his own unique style directs each film. Film directors can classify film control like film types (Qayyum et al. 2019). Assuming that film directors classify Chinese films in the summer of 2015, due to the absence of actors, and the particularity of animation production, the statistical process first excluded cartoons. From this perspective, Nash equilibrium analyses a solution among several decision-makers (Shehattah, 2020). With Nash equilibrium, players participate in a game and can act independently. Such actions are called strategies, and the strategies of one player affect those of the other players. The payoff is determined when the players select a strategy based on the current set of selected strategies. Each player will choose a strategy to achieve the highest payoff possible outcome. Based on this principle, Nash equilibrium means that players cannot select a better unilateral strategy because any player can receive a better payoff by changing their strategy. In other words, a situation of solidified strategies occurs, and thus the players cannot change their own strategy. Nash equilibrium can also be described as follows:

Let (S, f) be a game with n players, where

S=S1×S2×…×SnS=S1×S2×…×Sn is the strategy set of a profile;

Playeri∈{1,…,n}Playeri∈{1,…,n};

f(x)={f1(x),…,fn(x)}f(x)={f1(x),…,fn(x)} is the payoff function;

a payoff function is evaluated at x∈Sx∈S;

xixi is the strategy profile of player i;

x−ix−i is the strategy profile of the other players;

player i selects strategy xixi resulting in strategy profile x=(x1⋯xn)x=(x1⋯xn), then player i obtains payoff fi(x)fi(x); and x∗∈Sx∗∈S is a Nash equilibrium

when ∀i,xi∈Si∀i,xi∈Si,namely, fi(x∗i,x∗−i)≥fi(xi,x∗−i)fi(xi∗,x−i∗)≥fi(xi,x−i∗).

By definition, any player under Nash equilibrium can select a better unilateral strategy because all players can receive a better payoff by changing their strategy. In other words, the set of strategies in Nash equilibrium are the best solutions to a game. However, if multiple Nash equilibriums occur, an additional rule is needed to select the optimum strategy. In this study, the concept of Nash equilibrium is applied for decision-making among several requirements of an IoT environment. Details regarding the use of Nash equilibrium are described in Sect.

2.5 Conceptual Framework

Taking china romantic film as an example, this paper focuses on the evaluation of the value of china romantic film. Its theory involves the "Nash equilibrium" theory and brand marketing theory to carry out research on film investment and film box office, in order to reduce the blindness and risk of its investment, and create more excellent china romantic film that impress the audience, which has a certain positive effect,which provided theoretical guidance for the theoretical framework of this paper.

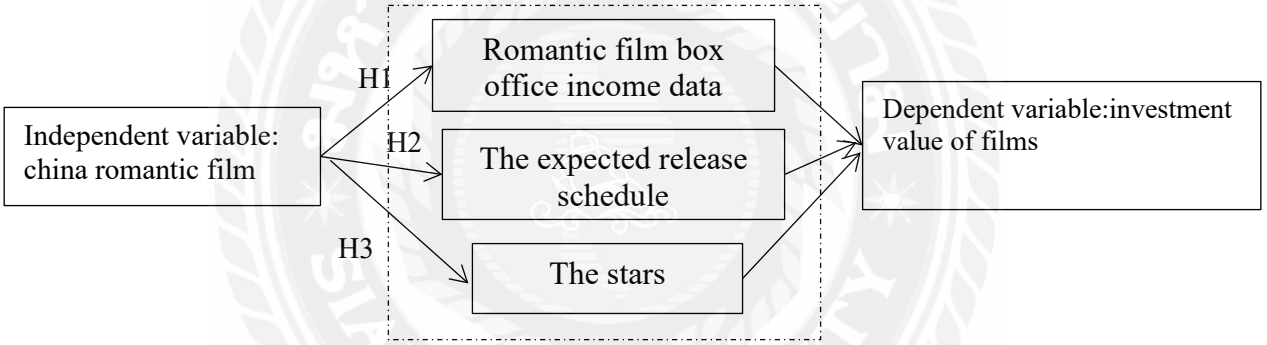


FIGURE 2-1 Model used as a guideline for this research

2.6 Terms and Definition Used in This Study

Film industry: The film industry refers to the general term of the economic forms of related industries, such as film production, distribution and screening, as well as the construction of audio-visual film products, film derivatives, cinemas and screening sites, with film production as the core (Croy et al, 2021). The development of the film industry is market-oriented and profit-oriented. Through the sale of film products, industrial profits can be realized, thus achieving the development and improvement of the industry itself. The film industry's basic structure comprises three industrial stages: film production, film distribution and film screening. The operation and development of the film industry is always closely connected with these three stages (Chen, 2020).Although these three stages are functionally independent, their structural features are mutually restrictive, reinforcing, and interdependent. With one, we can complete the circular production of films.

Film investment: Film investment is very risky. From the perspective of total

amount, almost only 10% of the profits can be made, and most of them can not be successfully released in the cinema (Fletcher, 2018). This has also become a major challenge for film investment. Although risks can be dispersed by investing in films of various styles, it is easy to waste resources and the actual risks have yet to be effectively reduced (Britt et al, 2019). This paper believes that when investing in a film project, we should analyze the various components of the film product to determine whether the film invested is worthy of investment and whether it will become a successful film. In addition, for consumers, film consumption is not necessary. The audience can choose to watch or not to watch, and has full decision-making power. Moreover, it is impossible for consumers to watch a film repeatedly in the cinema, and often enough for one time. This further leads to the high risk of film investment, so it is imperative to study the value of film investment to reduce risk.

Romantic movie box office: romantic movie "productivity" is low, romantic movie can only drive box office in terms of output, and its contribution rate is low. From 2014 to 2016, although the number of china romantic films and drama films increased rapidly, the passing rate decreased significantly. In 2016, the proportion of china romantic films with more than 100 million box office receipts was only 10.11%, the passing rate of quantity was only 9.47%, and the passing rate of drama films was also very low 7.08% (Fithratullah, 2021). It can be seen that the production capacity of china romantic films is indeed deficient, and the performance of a single film box office could be better (Zeng et al, 2020). In 2021, it was 39.73 million yuan, ranking at the bottom among the mainstream types. Therefore, investors should carefully consider the type of films they invest in in the subsequent investment.

Chapter 3 Research Methodology

3.1 Introduction

This study was conducted using a mixed analysis method, through a combination of qualitative (Literature analysis method and Comparative analysis methods) and quantitative analysis, mainly carried out through the quantitative research method, which emphasizes objective measurement, and generally uses computer technology to process existing statistical data, which is to express problems and phenomena in terms of quantity, and then analyze, test and explain them to obtain meaningful research methods and processes. The main research methods used in this paper are literature, comparative analysis, and quantitative.

Literature analysis method.

Through the literature analysis method, this paper combs the domestic and foreign literature on the value of film investment from the aspects of film investment research and box office research (Croy et al, 2021). The domestic research also includes research on the situation of China's film industry and points out the shortcomings of the existing research through comparative analysis.

Comparative analysis methods.

When analyzing the investment value of films, we should comprehensively consider a variety of indicators to measure (Zeng et al, 2020). At the same time, the paper compares and analyzes the box office income, box office growth rate, film attendance and film output of china romantic films in 2021, intending to find advantages and disadvantages.

Quantitative research method.

Through the establishment of an econometric model, the regression analysis is carried out with the box office income of the same type of films, the expected release schedule and the type of films as the explanatory variables, the evaluation of the investment value of films is discussed according to the quantitative results. Collect the box office data of china romantic films in combination with the "China Love Film Research Report (2021)" for quantitative analysis.

3.2 Research Design

Some scholars also try to study box office from other aspects. He and Hua (2017) classified the influencing factors of the box office from the perspective of consumption effect and consumption cost. They studied the box office by using a multiple-factor analysis of variance. The results showed that the high ticket price, huge investment and poor story plot could have been more conducive to the growth of the box office. Zheng (2014) constructed an improved neural network box office prediction model by changing the algorithm and process of the neural network. The results show that the model has good prediction and classification performance and can provide a more comprehensive and reliable reference scheme for the film's

investment, publicity and risk assessment before its release.

Drake (2019) analyzed and studied from the two dimensions of index selection and evaluation method of establishing the film risk control system, and divided the evaluation system into four stages: project preparation period, project implementation period, project publicity period and project income period. Hong (2019) and others selected nine indicators, including director, actor and schedule, and characterized the nine indicators by using the average box office weight interval, social network node influence measurement method and other methods, and then generated 34 features as the final explanatory variables, and built the GBRT box office prediction model to study the film box office from 2000 to 2015, and found that there was a good prediction effect.

To sum up, the film investment industry has good prospects for development, but there are also many problems, such as waste of funds, the proliferation of low-value films, low investment success rate, high investment risk, and uncertain investment returns (Fletcher, 2018). At present, the research on investment in the film industry is mostly carried out from the risk management and investment and financing methods, or the box office income is studied separately according to the film's performance after its release and the investment value of the film is less studied. Suppose the value of the invested film project is evaluated in advance to determine the film's probability of obtaining a high box office. In that case, the investment risk can be significantly reduced, and the capital waste can be reduced.

(1)The research of the film investment industry is mostly about risk management, or the box office income is studied separately according to the performance of the film after its release. The research methods are primarily qualitative analysis, and the research on the investment value evaluation of the film project is less. From the perspective of investors, this paper uses the credit rating idea to set a critical value to grade films and uses financial methods to solve the problem of value evaluation in the field of film investment.

(2) Film investment involves production, publicity and other aspects (Borges et al, 2019). Through quantitative research, this paper simplifies the seemingly complex film investment into judging the probability of the film reaching a certain level based on the existing information. For investors, the judgment method is more scientific, and the evaluation results are more intuitive. In addition, this method also helps to reduce capital waste and optimize the film investment market.

Therefore, this paper tries to study the film investment from the perspective of the evaluation of the investment value of china romantic films, and adopts more explanatory indicators to fit, providing a more comprehensive reference for the film investment decision.The focus of this study is to conduct quantitative research on the box-office data of china romantic films. The theoretical framework is established from the perspective of three stages by consulting a large number of literature and theoretical reviews on film investment and love film types. Then, through the theoretical framework, this paper analyzes and discusses the impact of the "Nash Equilibrium" theory on evaluating the box office investment value of china romantic films. Finally, based on the results of the above discussion, some suggestions are put

forward.

3.3 Hypothesis

H1: romantic film box office income data has a significant impact on the investment share of China's love film market.

H2: The expected release schedule of china romantic film has a significant impact on the investment value of films.

H3: The stars of china romantic film have a significant impact on the investment value of films.

3.4 Population and Sampling

The research on the evaluation of film investment value in this paper is mainly domestic, so the selection of research samples is also china romantic film. This paper selects 602 copies of china romantic film released in the four years from 2017 to 2021 (the films with incomplete data have been eliminated) for quantitative research. After ranking the films in descending order according to their income, it is found that the income of the top 20% of the sample films accounts for more than 80% of the total income, and the total income of the top 30 films at the box office is about 42.5 billion yuan, and the income decreases in a ladder manner, while the rate of income decline is significantly slower in the films with lower box office ranking.

3.5 Sample Size

According to the selected variables and quantitative methods, this paper decomposes 573 copies of china romantic film one by one, each film is vividly transformed into individuals expressed by data, and the data are statistically described with stata software. The results are as follows:

TABLE 3-1 Description of the variables

variable	mean	standard deviation	minimum	maximum
box office	1. 5802	3. 8781	11.4	56. 7275
director	0. 708	2. 088	0	16
actor	4. 432	5. 804	1	31
revenue	1. 5013	1.3450	0. 1924	5.5125
period	0. 480	0. 500	0	1
sequel	0. 107	0. 309	0	0
comedy	0. 293	0. 455	0	1
animation	0. 119	0. 324	0	1
romance	0. 314	0. 465	0	1
horror	0. 166	0.372	0	1
action	0. 288	0. 453	0	1

magic	0. 263	0. 441	0	1
war	0.035	0. 183	0	1

3.6 Data Collection

Network word of mouth, score and score is the most intuitive data, specific to a movie, douban movie and time network score and score site users respectively is the "value" and "quantity", the sample is for the movie "value", for the quality of the film of the most samples and direct statistics, the number of sample is the "quantity" of the movie, the number of users in the survey. The amount of online word of mouth is positively correlated with the box office. In the analysis of the number of reviews and box office, and in the analysis of the number of ratings and box office in the summer of 2022, Douban films are highly positive, the number of ratings of Mtime is moderately related, and the total number of Mtime and Douban is highly correlated to the box office. The amount of online word of mouth is positively correlated with the box office, and the two variables interact(Kim, 2017). The box office is high, the number of people watching movies is larger, and the amount of online word of mouth is naturally large.

For data statistics, the film investment income only considers the economic income, namely investment income is equal to the ticket price multiplied by the number of buyers, sample film according to the investment income from large to small, of domestic love film market impact factors for the quantitative study, whether the "lovers", film quantity, starring, director-writer awareness, douban score, whether reform, release schedule seven factors as explanatory variables introduced into the model, has established OLS regression model, gradually regression model, WLS regression model,the results found that in the distribution of Ming, show "and law", the top twenty percent of the film, the box office revenue accounted for the sample film revenue is as high as eighty percent.

3.7 Data Analysis

TABLE 3-2 Values of each variable

variable	Coefficient estimate	Variable value
director	0. 4028	2
direcror^2	-0. 0067	4
actor	0. 5104	23
actor	-0.0126	529
revenue	0. 0001	5
period	1. 0001	1
sequel	2. 0287	1
comedy	0. 8863	0
animation	0. 5841	0
romance	0. 5560	0
horror	0. 7649	0
action	1. 4641	0

magic	1.8003	1
war	0. 9034	0

Through the above design provides sufficient theoretical basis and analytical ideas, and also lays a solid foundation for the subsequent quantitative research.

3.8 Reliability analysis of the scale

Used SPSS27.0 to analyze the obtained data for reliability, as shown in Table 3-3. The index value is greater than 0.8, which is the ideal level. The reliability coefficient after deleting this item is lower than the original reliability coefficient, which indicates that removing the item will reduce the Cronbach'Alpha reliability coefficient of different items.

TABLE 3-3 Reliability test

variable	Cronbach'Alpha	Cronbach'Alpha The reliability coefficient after removing the item
romantic film box office income data	0.885	0.751
		0.775
		0.771
		0.765
		0.900
The expected release schedule of china romantic film		0.761
		0.738
		0.787
		0.807
The stars of china romantic film		0.799
		0.808
		0.800
		0.798
		0.838
		0.799
		0.802
		0.799
	0.885	

The SPSS27.0 software studied the two validity of the questionnaire, and analyzed the data obtained with the help of KMO value and Bartlett ball test.

TABLE 3-4 Overall scale KMO and Bartlett test data

		The expected release schedule of china romantic film	The expected release schedule of china romantic film	The stars of china romantic film
KMO checkout		0.935	0.940	0.895
Bartlett Spherical test	Approximate chi square	2018.632	2474.943	2928.267
	Df	28	36	34
	Sig	.000	.000	.000

Two common factors were extracted according to the principle of retaining the characteristic root greater than a factor of 1. From the factor rotation component matrix, the absolute value of the factor load of all variables gets the required values, indicating that the questionnaire has good structural validity, the survey results are valid, and the next analysis study can be conducted. In conclusion, the reliability coefficient values of each data in this study were greater than 0.6, indicating that this data's reliability and validity quality is acceptable.

Chapter 4 Result of the Study

4.1 Introduction

Through the establishment of a measurement model, the film is graded, and the director, actor, box office income of the same type of film, estimated release schedule, and film type are used as explanatory variables for regression analysis.

The specific model is set as follows:

$$InY=\beta_0+\beta_1 x1+\beta_2 Inx2+\beta_3 x3+\beta_4 x4+\beta_5 x5+\beta_6 x6+\beta_7 x7+\varepsilon; \quad (1)$$

Based on the quantitative results, the evaluation of the investment value of china romantic film is discussed,the hypotheses presented in Chapter 2 are then tested.

4.2 Description of statistical variables

According to the China Romantic Film Research Report (2021), with the upgrading of the system of China's film market, the dominant position of domestic films has become increasingly prominent, which is still true in the field of china romantic film.

TABLE4-1 Box office income distribution of china romantic film 2021s

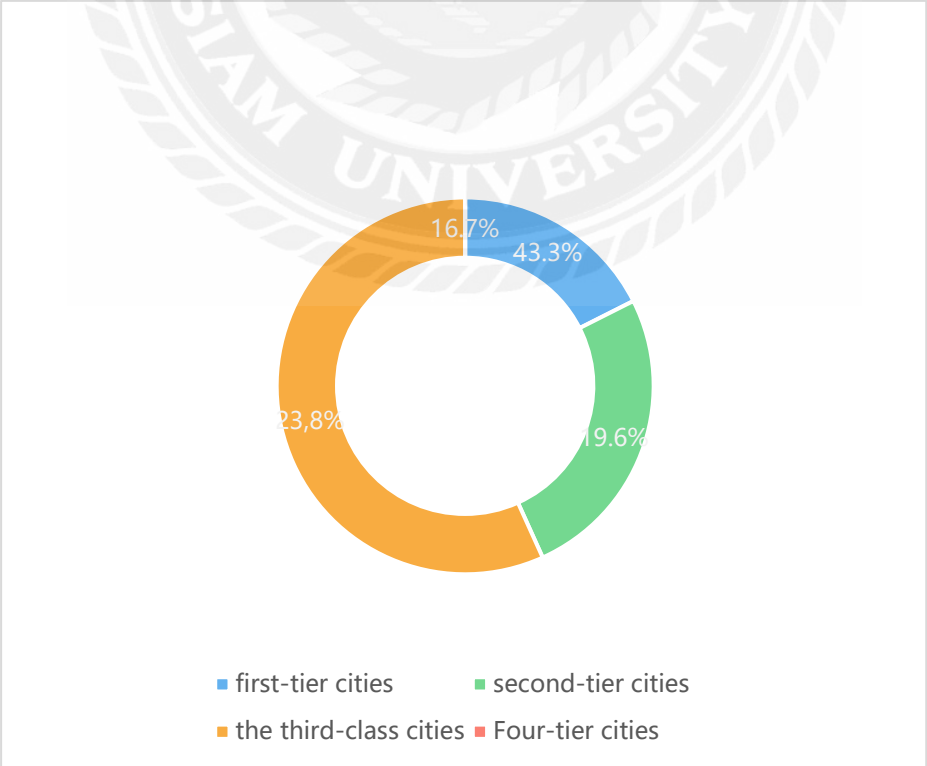
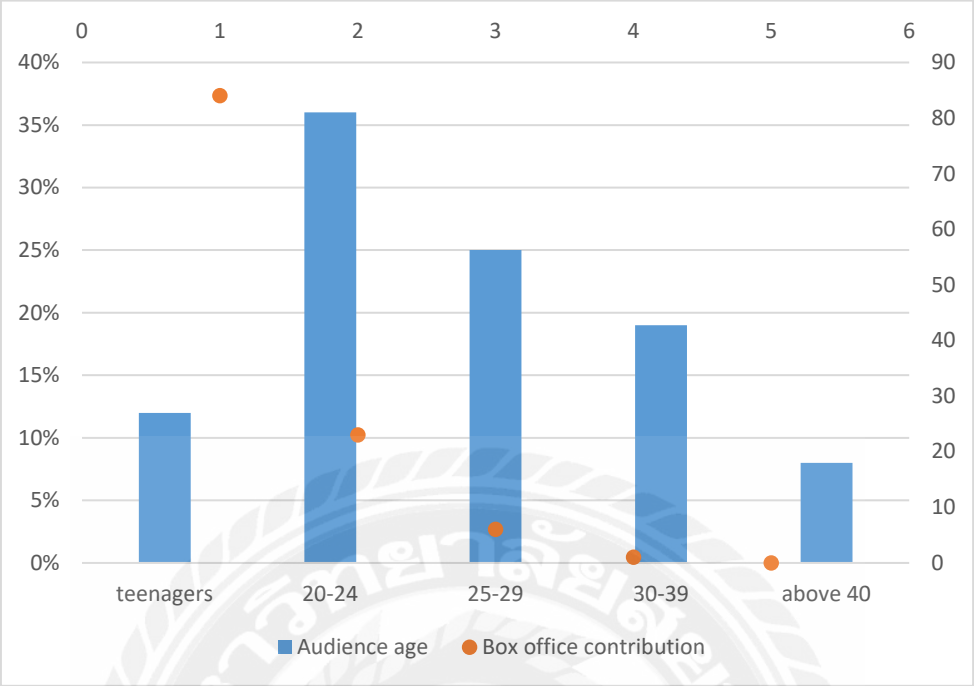


TABLE 4-2 Age distribution and box office contribution of love movie audiences in 2021



According to the age distribution and box office contribution of love movie audiences in Table 1 and 2, it can be seen that the overall evaluation of investors can be used to deduce the success probability of love movie investment. The higher the income of the film, the more worthy it is to invest, because it meets the spiritual needs of consumers, has a broad market and is likely to achieve good results at the box office. Moreover, most of the contribution objects of china romantic film are young people and middle-aged people.

In this paper, regression analysis is carried out with stata software and LR test is carried out on the model.

TABLE 4-3 Model LR inspection

Df	LR chi2	Pr0b>chi2
17	412.72	0.0000

As shown in Table 3, at the significance level of 0.05, the chi-square critical value is 1.63539, LR=412.72>1.63539, and the corresponding value of Pr0b>chi2 is very small. Therefore, at the significance level of 0.05, the model is significant.

Then,Ordinary Least Squares (OLS) Regression:Adjusted R square=0.866, the regression effect of the model is very good, with tolerances greater than 0.2 and VIFs less than 10. There is no significant multicollinearity between explanatory variables. Passed the F test at a 95% confidence level, but many dependent variables did not pass the T test.

About stepwise regression and testing for heterosexuality, the number of films arranged, the popularity of the leading actor, the score of the couple and the score of Douban were gradually selected into the model, and they passed the F test and T-test at a 95% significance level, but the R-value changed to 0.607, with a moderate degree of interpretation. Through observation of the residual diagram, it is found that there is heterosexuality.

WLS regression's weight is set to the inverse of the absolute value of the residual, and R square=0.891 indicates that the regression effect is perfect. At the 95% significance level, the model passes the F test, and all variables pass the T-test. The impact of four factors, namely, whether the couple is ranked, the douban score, the number of films arranged, and the celebrity of the leading actor, on the movie box office are significant.

It is observed that only one abnormal value in the weighted residual scatter diagram exceeds the range of (- 1,1), and the first film was directed by a film and television star which has achieved both box office and public praise. The explanatory variables in the model of this film are moderate in terms of star popularity, douban score, and film production, and there is no romantic partner effect. However, among the excluded variables, the director's scriptwriter's popularity is exceptionally high, and it is released in prime time.", Therefore, these two items are believed to have a particularly significant impact on the box office.

TABLE 4-4 Data description table (2021 - 2022)

Variable Name	Variable Explanation	Mean Value	Variable Name	Variable Explanation	Mean Value	Variance
BoxOffice	Box office (10,000 yuan)	22944.84	Style1	Romance film	0.23	0.18
ip	IP	0.23	Style2	Action film	0.22	0.33
score	Movie rating (10 points)	6.91	Style3	Suspense	0.12	0.14
ticket	Ticket Price (yuan)	31.32	Style4	Thriller	0.10	0.11
standard	3D	0.30	Style5	Comedy	0.44	0.33
area	Mainland China	0.58	Style6	Animation	0.17	0.14
time	Duration	106.60	Style7	Science Fiction	0.10	0.09
Schedule1	May Day Holiday	0.01	Style8	Adventure	0.02	0.02
Schedule2	National Day Holiday	0.01	Style9	Martial Arts	0.03	0.03
Schedule3	Summer Vacation	0.24	Style10	History	0.02	0.02
Schedule4	Chinese New Year	0.16	Style11	Documentary	0.01	0.01
Schedule5	Others	0.58	Style12	Disaster	0.01	0.01
actor	Actors' flow (million)	21.85	Style13	Feature films	0.36	0.23

How to understand the connection between film and Chinese cultural context from the perspective of film culture studies and how to perceive the characteristics of Chinese culture in film is a topic that deserves high attention. In terms of discussing the

relationship between Chinese cinema and reality, many people believe that realism is the main characteristic of Chinese cinema, but the substantive issue of the relationship between realism and Chinese culture and reality is an important topic that should be focused on in film culture research (Lee et al, 2019).

TABLE 4-5 quantitative evidence of the model

Variable names	probit			Opeobit
	10000	20000	60000	
Ip	0.988000	0.975000	0.736000	0.859000
Score	-0.124 0.654000	-0.122 689000	-0.155 0.903000	-0.098 0.694000
Ticket	-0.076 0.051000 -0.016	-0.084 0.052000 -0.051	-0.140 0.028000 -0.017	-0.069 0.046000 -0.014
Director	-0.054	-0.0960	-0.1210	-0.060
Actor	-0.044 0.014000	-0.051 0.011000	-0.068 0.006000	-0.037 0.011000
Style2	-0.001 0.303000	-0.002 0.27300	-0.002 0.433000	-0.001 0.323000
Style3	-0.117 0.3250 -0.174	-0.121 0.201 -0.206	-0.163 -0.59700 -0.259	0.35600 0.35600 -0.147
Style4	0.008 -0.151	0.063 -0.174	-0.73000 -0.338	0.122 -0.135
Style5	0.342000 -0.115	0.338000 -0.120	0.522000 -0.167	0.357000 -0.099

Domestic love box office often has a high skewness, the use of high popularity and box office income is relatively considerable electricity, film data as a representative of the whole domestic love film market, analysis, lengthen the time range of section data selection;The biggest impact on domestic china romantic film is the number of films, which is closely related to the producers in the upstream of the industrial chain and the downstream cinema theaters.

From the data, we can see that the difference in the volume of different domestic china romantic film is very large, which has a shallow relationship with the distributor. With the strength, of strong distribution companies, the volume and box office can be guaranteed to a certain extent. As the investors, the producers of domestic films have mastered most of the power of film production and have a considerable voice in the selection of actors and the creation of scripts (Busby & Klug, 2001). The directors weaken the quality of the film itself to a certain extent, which can explain the

phenomenon that famous directors frequently shoot bad films in recent years.

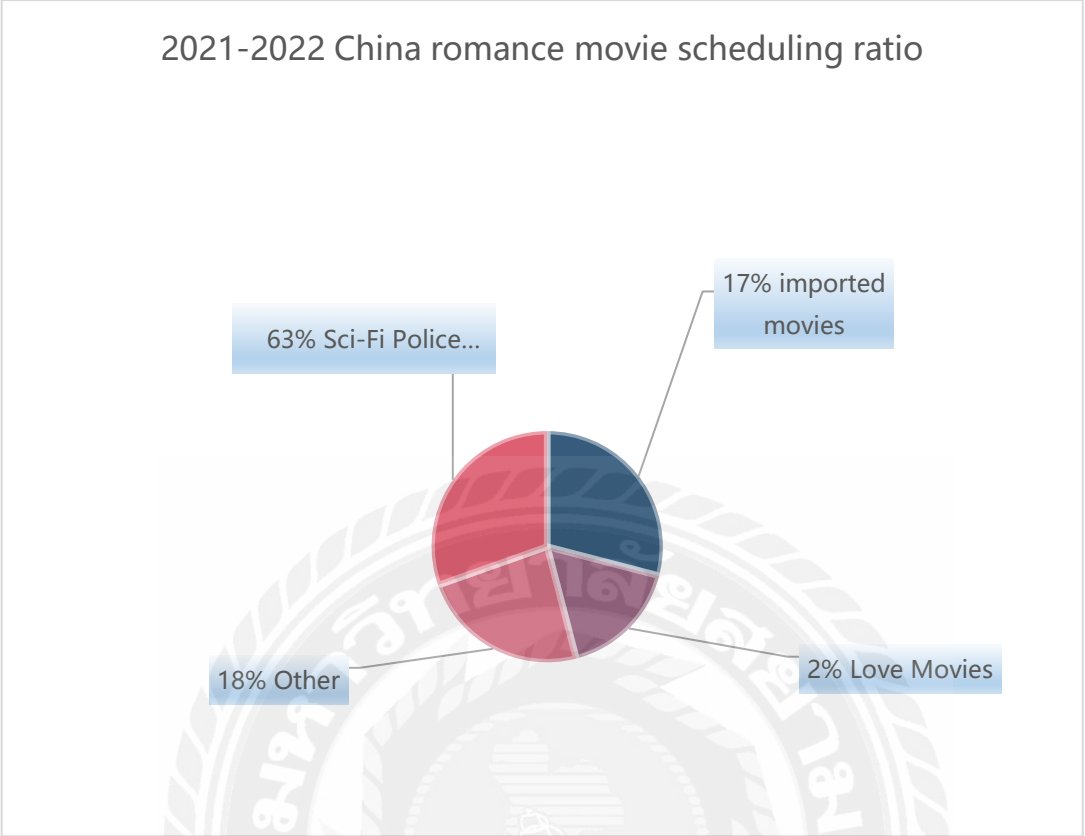


FIGURE 4-1 China Love Movie ratio data

Chinese cinema should maintain its cultural determination, transform the mature realism through the traditional Chinese culture, and spread this sentimental and culture both locally and globally, which will be the biggest challenge we face (Day, 2019). Another critical point of historical transformation is Chinese cinema how to break through the bottleneck of the future and seek future development, all of this has many complex issues and is still very uncertain.

Domestic love-themed films are released frequently, but the response is often dull, and the public evaluation is low (Liao & Huang, 2021). How to turn this tradition of realism into a driving force and then support our development in the future are all topics worth thinking about. In fact, these issues must be returned to the cultural study of cinema in order to obtain a more in-depth interpretation and understanding.The size of Douban rating is directly proportional to consumers' own viewing experience, showing the importance of film quality, requiring film producers to strictly check the topic selection, casting and production process in the early stage, and strive to improve the level of domestic china romantic film.

The regression equation for the normalized coefficients was $\ln Y=0.215x_5+0.192x_4+0.697x_1+0.381\ln x_2$

The influence on the film box office from large to small is the number of films, the popularity of the leading actors, whether it is a couple, and the score on Douban, which

are all positive effects.

4.3 Results of the Study

From the market perspective, in addition to the film type and the factors influencing the audience, there are also film practitioners, such as directors, screenwriters, actors, etc. In reality, actors have a certain appeal, but directors' appeal is the strongest compared to the same year. From an artistic point of view, the film director is responsible for the quality of the whole film, and his own unique style directs each film. Film directors can classify film control like film types. Assuming that film directors classify Chinese films in the summer season of 2022 as the control variable. Due to the lack of actors and the particularity of animation production, the statistical process is the first explanation.

First, this paper is divided into crossover and non-crossover directors according to whether the director makes a crossover. Non-crossover directors are divided into first-tier directors and second-tier directors according to the number of films created by the directors and whether the awards are awarded or not:

(1) Crossover director

Crossover director refers to the film director not being trained and having other identities, such as actor, writer, host, etc., which is a unique phenomenon that has emerged in recent years.

(2) A-line directors

The number of first-line directors is more than 5, and the first-line famous directors and first-line ordinary directors according to whether the director has won awards and their popularity.

(3) Second-tier directors

The number of second-tier directors is less than 5, according to the number of new directors and second-tier ordinary directors, according to the popularity of directors.

Through the director statistics overview, as follows:

TABLE 4-6 Classification of directors and box office statistics

		Total box office (100 million)	Amount	Average box office total	Amount
A-line director	Famous	38.9	45.9	43. 5	49.1
	Common	7		5. 6	
Second-line Director	New	19.6	39.7	6. 3	11.5
	Vigorous	34.6		5.2	
Crossover director		34	34	4. 9	4.9

First, the number of movies was analyzed. According to the type of director, there are certain differences in quantity, the number of the ordinary director is the most, the least number is the second line of the famous new guide, works, after all, can get the audience recognition is a minority, the number of crossover director currency new director more than 1, crossover director in number is less.

Secondly, the film box office statistics are analyzed. In terms of the classification of the total box office, the box office of first-tier directors is appealing, while the total box office of first-tier and second-tier directors and crossover directors is decreasing. Specific to the second-level classification, the appeal of famous directors is reflected, and the box office of famous directors and the box office of the second-line new directors are relatively high.

Finally, the average box office. Cross-border director is higher than a line and second line director at the average box office, but specific to the secondary classification, the average new director is the highest, the second, that the famous director's appeal is very powerful, at the same time a line and second line of ordinary director of the average box office is shallow, whether related to the famous director's film quality better, need further analysis.

TABLE 4-7 Statistics of director classification and scoring

		Douban	amount	Time net	amount
A-line director	Famous	6. 7	5. 4	6. 8	5.6
	ordinary	4. 6		4. 9	
Second-line director	New	7.4	4	7. 3	4.9
	ordinary	3. 6		4.6	
Crossover director		4	4	3. 9	3.9

According to the above statistics, the correlation between the rating of Douban films and the box office is higher than that of Mtime Network. There is no significant difference between the average rating of first-tier directors and cross-tier directors in Douban films, but there is a specific correlation between the rating of Mtime Network and the distribution at the box office.

However, in the second-level classification, the score gap is noticeable. Whether Douban film or Mtime, the average director is the highest, which is consistent with the highest average box office. Next is the average score of first-line famous directors, consistent with the average box office.

Among Douban films, the lowest average score is for second-tier ordinary directors. Mtime are crossover directors with low crossover directors in Douban films, which is different from the average box office, with a high average box office and low average score, which is also a common phenomenon of most crossover directors.

Then through the correlation analysis of the director and the box office, after all, the film director as a control variable, through the statistical situation can be seen that the different types of director scores and box office there are apparent differences alone to a director, second-line director and crossover director, the score and the relationship between the box office.

TABLE 4-8 Table of correlation coefficients for the director classification

Director type	Douban scores the number of Douban	The number of people scored by Mtime Network

A-line director	Pearson (Pearson) is related	.281	.852**	.269	.840**
	Significance	.195	.000	.214	.000
	N	23	23	23	23
		**. Correlation The layer is (Double tail).			
		*.The correlation is significant on the 0.05 layer			Double tail).
Second-line director	Pearson (Pearson) is related	.552**	.933**	.341	.941**
	Significance	.001	.000	.056	.000
	N	32	32	32	31
		**. Correlation The layer is (Double tail).			
		*. The correlation is significant on the 0.05 layer			Double tail).
Crossover director	Pearson (Pearson) is related	.808	.996**	*-.997″*	.989*
	Significance	.192	.004	.003	.011
	N	4	4	4	4
		**. Correlation The layer is (Double tail).			
		*. The correlation is significant on the 0.05 layer			Double tail).

(1) The correlation coefficient of the first-line directors

Network word of mouth score and no correlation at the box office, douban score and box office r=0.281, network score and box office r=0.269, no correlation, at the same time douban score and network score there is no significant difference, a director network score difference is not big, score on the high side, led to the score and the box office is significant. The number of online ratings of first-line directors is highly correlated to the box office, which is the same as the whole summer season and is within the normal range.

(2) Correlation coefficient of the second-line directors

The score of Douban films of second-tier directors is moderately related to the box office, r=0.552. In Douban films, the score of second-tier directors has a significant relationship with the box office. The moderate score has a certain reference for the box office. Mtime's ratings are not correlated with the box office, and are the same as the box office. The number of second-tier directors is highly correlated with the box office, with the correlation coefficient r> 0.9, close to the linear correlation, and the number of scores is directly proportional to the box office.

(3) Correlation coefficient of the crossover director

Due to the small number of crossover directors, accurate correlation coefficient is not obtained, and the reference value is of little significance. The statistical process found that the correlation coefficient of Mtime is-0.9, indicating that crossover

directors have a trend of low scores and high box office, which needs to be proved by increasing the statistics of data.

Financially, see Table 4-9 below for specific activities:

TABLE 4-9 Research hypothesis validation

No.	Hypothesis	Result
H1	romantic film box office income data has a significant impact on the investment share of China's love film market.	Establish
H2	The expected release schedule of china romantic film has a significant impact on the investment value of films.	Establish
H3	The stars of china romantic film have a significant impact on the investment value of films.	Establish

The degree of influence on the film's box office from the largest to the smallest is the number of films arranged, the time of screening, and the popularity of the leading actors are all positive. The biggest impact on domestic china romantic films is the film arrangement, which is closely related to the producers upstream of the industry chain and the cinemas downstream. From the data, there is a massive gap in the arrangement of different domestic china romantic films, which has much to do with the distributors. Relying on the power distribution companies, the arrangement and box office can be guaranteed to a certain extent (Altintas et al, 2019).

The script creation has considerable discourse power, which weakens the director's influence on the quality of the film itself, which explains why well-known directors frequently make bad films in recent years. It is found that the content of the hypothesis has a positive impact, so H1-H3 is valid.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

Through quantitative research on data, the following conclusions are obtained:

(1) Stars can improve the investment value of films, but their influence is diminishing marginally. This shows that although a strong performing cast can increase the box office guarantee, young idol stars can be used as the primary marketing breakthrough and story development as the object of discussion, which is a means to ensure the box office income of films.

(2) Film types are conducive to the high box office and high investment value. China romantic films are rich in content, easy to achieve low-cost and high-return investment results, and easy to attract investment.,

(3) Film release schedule can be used as a factor to measure the value of film investment (Chawla, 2019). china romantic films take release rankings and word of mouth as the main basis of box office income. According to the traditional release time of graduation season, Valentine's Day, Qixi, summer festival, etc., can reflect consumer preferences and the concentration of viewing time, which are issues investors must consider when investing in films.

To sum up, we need to adjust and adapt to the film box office data and content. We need to stand in the market and establish our position. We have a hypothesis about investing in films. We cannot leave the original intention and motivation, reduce the confusion of blind investment in the film market, and effectively reduce investment risks and capital waste. Therefore, investors must reasonably screen projects, evaluate the investment value of film projects, and improve the investment success rate.

5.2 Discussion

Most of the high box offices in China's love film market are precisely positioned, well-publicized and rich in content (Daú et al, 2020). That is to say, successful films' success must have advantages. However, most of thechina romantic film produced in China are still unprofitable or loss-making, and the investment risk is still high. China's love film investment risks mainly come from endogenous risk and exogenous risk. Endogenous risk refers to the risk of the love movie project, such as investment, casting, production and screening. The exogenous risk refers to the risk brought by the external environment, such as policy, capital, investment and financing.

5.2.1 Endogenous risk

Generally, we need to conduct market research in advance and do data analysis based on the research results and various aspects of information. Only when the project is feasible can we proceed with the next work. In contrast, some investors in China's film industry are particularly weak in objective support, such as data and research,

when investing in china romantic films (Bates, 2018). When selecting love movie projects, some investors start from their personal will, only consider whether they like it, completely do not consider the audience's preferences, and do not predict the rate of return in advance. Tens of millions of capital are invested in the project at the sill (Hong, 2021). Moreover, there is no effective management after the project is established, and the risk control work in all aspects of love movie production needs to be paid attention to. Most investment projects like this kind of projects, with random approval and lack of management, failed.

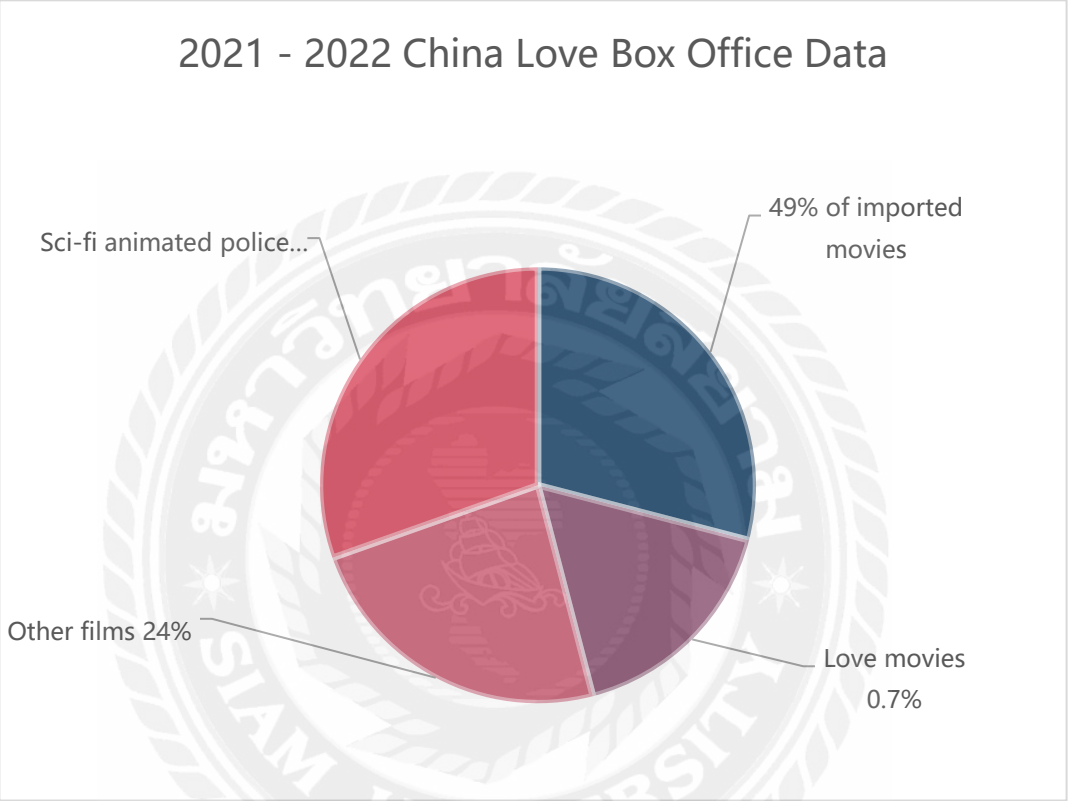


FIGURE 5-1 China Love Movie Box Office Data

The most regrettable thing is that they caused a waste of resources. The high capital investment not only did not get the expected return but also contributed to the proliferation of low-value films.

The love film industry includes multiple stages, such as production, publicity, distribution and other links, of which the production risk is the most difficult to control. For example, the shooting process may be stopped due to environmental and actor problems, or the cost may be increased due to props or angle changes. These risks are unpredictable, and the possible losses cannot be estimated. In addition, there are many unstable factors in the promotion and distribution of china romantic film, and some risks even lead to the premature death of china romantic film. For example, the film "No Other Love" suffered premature death because the protagonist Dai Liren belongs to the "Taiwan independence" artist, and the mainland netizens strongly resisted it. The love film faced huge public pressure and finally did not release, and the investor in the

love film also suffered heavy losses.

5.2.2 External risks

The investment risk of a love film is related to the project itself and is affected by the market supervision system. The uncertainty of China's relevant system of love film review greatly impacts investors. The exogenous risks of love film investment are mainly reflected in five aspects.

(1) Risks arising from policy and environmental changes

China's support for the cultural industry has also increased year by year, further promoting investment in china romantic films. However, there is uncertainty in the profit of love film investment, and the possibility of profit is relatively slight. There are many risks, such as production costs exceeding the budget, love of film homogenization, etc. In addition, China has also issued a restriction order, which greatly reduces the selling price of films and the selling channels.

(2) Operational risks caused by overcapacity

After capital from all walks of life has entered the field of love film investment, the capital pool of China's love film market can be described as overflowing, and the investment enthusiasm has also been high (Tanco et al, 2018). Driven by capital, two extremes in the box office of china romantic films are "huge win" Or "huge loss. "At the same time, the star film remuneration and the valuation of love film companies have also risen, and the investment risk of china romantic films has further increased. However, domestic china romantic films are still in overcapacity, and there are many china romantic films every year, but the audience will remember only a dozen. In addition, the production costs of china romantic films are increasing, but the prices offered by downstream buyers are unchanged. The non-standard capital market is likely to make the love film market. Business risks will inevitably arise as the balance between supply and demand worsens.

(3) Capital risk caused by high investment enthusiasm

In recent years, China'schina romantic films have been continuously favoured by various kinds of capital, including large film and television companies, cultural industry funds, professional film funds, joint-stock banks, mineral capital, real estate capital, and network companies (Talaulicar et al, 2005). Sufficient funds and diversified investment objects make the love film market more active.

However, the more capital inflows, the more foam will inevitably occur, and the number of investment failures will gradually increase. Most of the return on investment in china romantic films comes from the sale of china romantic films and online copyrights. Other derivative income is very low and can almost be ignored. The weak link of this copyright chain also increases the investment risk of china romantic films. The weak link of the copyright industry chain undoubtedly increases the investment risk of china romantic films. Moreover, investors need to have a strong sense of business when investing in love movies. Although many outsiders also invest, the probability of investment failure is significantly higher than that of insiders. In order to improve the safety of love movie investment, many investors choose big stars and famous directors to join and invest high capital. However, if the blockbusters of this

mode fail to achieve the expected effect, the loss will be even more severe.

(4) Investment liquidation risk caused by "asset light."

Since love film investment can provide cultural added value and ultimately improve the economic value of products, from this point of view, it can also be regarded as a kind of "creative industry" investment. Human capital accounts for the largest proportion in the distribution of investment in chinaChinantic film. The income of actors alone accounts for half of the total investment, or even 80% higher, making the investment in china romantic films more and more invisible (Parvulescu & Hanzlík, 2022). The cost of technology and equipment that originally needed to be invested in is suppressed by the actors' salaries, resulting in the decline of the production level of china romantic films, and the corresponding production quality of china romantic films will also be greatly reduced. Once the audience does not accept the film, there is almost no liquidation value. In addition, the production cost of love movies is high and takes a lot of time. It is very likely to be plagiarized. If it is stolen, investors will risk losing their money. It can be seen that the risks it brings can not be ignored.

(5) Financial risks caused by imperfect financing channels

Private capital is the main source of financing for China's love movie market, and most of it is self-owned capital with high financing costs (Zimmermann et al, 2015). Especially for some small and medium-sized investors, it is difficult to obtain bank loans. In addition, due to the low liquidity of the intangible property of the film and television company and the copyright pledge problem, even if the company has the copyright of the love film, it has not received the bank loan, and even if it has obtained it, it will take the physical object as the guarantee. Investors cannot cooperate with financial companies such as banks, which increases the diversification of risks. Judging from the relationship between the ratings of Chinese films and the box office during the whole summer season of 2022, the ratings of Douban films are low, while that of Mtime are not. Specifically to the types of control variables, Douban films have more relevant types than Mtime. There is also a certain gap in the user base. For the same film, the number of ratings of Douban films is several times higher than that of Mtime. The huge user group of Douban users has more advantages than Mtime in terms of statistical base. The base of the number of ratings is huge, and the difference is larger. Some false data have a lower impact on Douban films. For the evaluation of films, the score of Douban films is more reference value, which can better reflect the quality of the film.

In short, because of the investment characteristics and risks in the investment process, it is very necessary to study the investment value of china romantic films, which can also positively promote their long-term development.

5.3 Recommendation

5.3.1 Avoiding policy risk and film market demand risk

The lack of the current grading system for china romantic films affects the development of china romantic films (Simonoff & Sparrow, 2000). As a control variable, the effectiveness of the director is not high. No correlation between the score and the box office was found, but in the statistical process, we found that the network

word of mouth showed obvious differences according to the level of the director. As a control variable, one of the reasons why the network rating of first-line directors is not high is that the statistical number of samples is not enough. The other reason is that the difference in the network score of the works of first-line directors is not significant, and there is no significant relationship between these two reasons. The number of second-tier directors and the significance of the score is high, so the score is moderately related to the box office. The polarization of second-tier directors is more obvious, and word of mouth is more correlated with the box office. The process of statistics found that the box office presents obvious differences according to the level of directors (Maras & Alexandrou, 2019). The total box office of the first and second-line directors and crossover directors is linearly reduced, and the single box office of crossover directors is at a high level in terms of individual data. However, the total box office of crossover directors is horizontal compared to that of the first and second-line directors. After all, the number of crossover directors is small, so the total box office is small. The total box office of the directors who have long been active in the first line is obviously higher than that of the second-tier directors, and the level of the directors still has enough influence on the box office.

At the same time, the review of china romantic films is too idealistic, and no corresponding adjustment is made according to the needs of the market and the requirements of the nature of china romantic films, resulting in the marginalization of china romantic films (Simsek, 2009). Therefore, to understand many factors such as policy and environment, investors should do their homework on creating love film stories, such as the innovation of story structure, the fullness of the character set, the strictness of the plot, and core values. Understanding the audience's needs in the film market is the key factor to solving the problem of investment in china romantic films (Yang et al, 2019). Only through in-depth investigation and evidence collection, data collection, modification and formulation of investment share can we comply with the market rules and seize the gap period of the film market. We can solve the risk investment in the film market by making up for the film shortage in the film market and avoiding the collision with the time of commercial film release.

5.3.2 Pay attention to the value tendency of love movies.

The current love movie works ignore not the market impact of the love movie itself, but the opportunistic delight of the audience, which is a fatal blow to the love movie, leading to the distortion of the love movie, and even the loss of the box office, bringing a disastrous blow to the creators (Yadav & Jayswal, 2017).There are some statistical misunderstandings in the number of people who want to see it, because the film has been released, the number of people who want to see it should have not gone to the cinema to see the movie, but I am looking forward to the users of the film, the relevant relationship has become whether the box office will affect the number of people who want to see it. The analysis shows that the number of people who want to see it is affected by the box office, and the highly related relationship proves that the box office is high, and the number of people who want to see is more. The correlation degree of Douban films is relatively low.

In the statistics of the number of long and want to see the number has certain correlation, the long short number and want to see the number of correlation analysis found that the number of the long and want to see has a strong correlation, have reached a highly relevant level, that is to say, the number of long short review determines the number of want to see. The number of long and short comments is the spontaneous evaluation of users on the movie after watching the movie. So we should establish the traditional essential attribute to input and implement the love film works with pure emotion, without any direction or utility; And we should also attach importance to love movies, which are a crucial cultural output for our development abroad (Xiao et al, 2021). The box office has a low influence on the number of long and short comments. However, some users who have not seen the movie want to see the movie after browsing the long and short comments. The higher the number of long and short comments, the more intense the discussion about the film, which attracted a number of potential audiences.

5.4 Further Study

Concerning the relevant content of this study, many issues still need further in-depth discussion. The following is a brief overview of the issues that need to be further discussed:

(1) Identifying potential risks of film and television investment projects has yet to be especially combined. The role of expert investigation should be played more deeply so that the risk subjects can be classified more carefully, and then the causes of risks can be found more accurately.

(2) Due to time and other factors, in the investigation and analysis stage, this paper only selected the box office data of china romantic film and investigated them. Because the results are based on the box office investment value evaluation method generated by a relatively small amount of data, the conclusion reached is limited to a certain extent.Future research could further collect films with similar themes for comparison, or love-type TV series as comparison objects for analysis.

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Appendix

The basis for identifying the movie as a success was whether the movie earned twice as much money or more in profit as the movie's budget. *Figure 1* shows a chart depicting the percent of the total number of successful movies grouped by rating.This means that of those movies in the data set that were identified as successful, earning at least double the movie's budget in profit, approximately forty percent were rated R, followed by approximately thirty-seven percent being rated PG-13.*Figure 2* shows the count of the number of movies classified as each rating within the data set.From this, it can be seen that PG-13 movies are the most frequent in the data set, followed by R rated movies.This aligns with the results found in *Figure 1* except the top two positions are switched between PG-13 and R ratings.

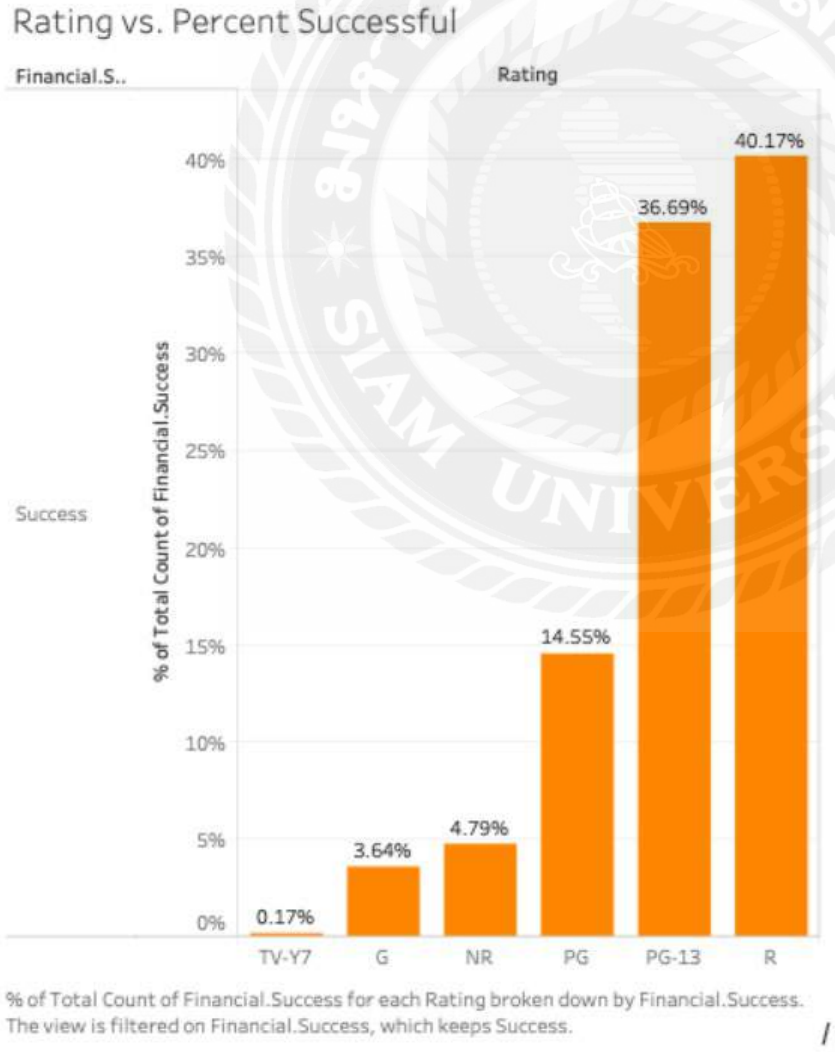
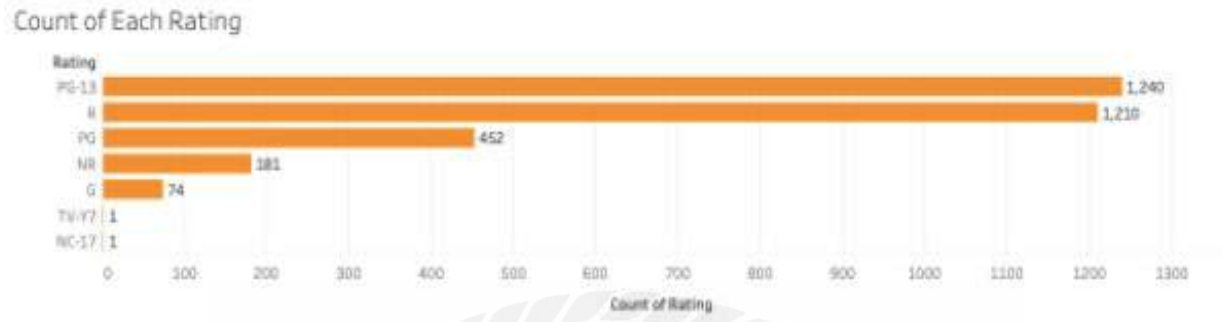


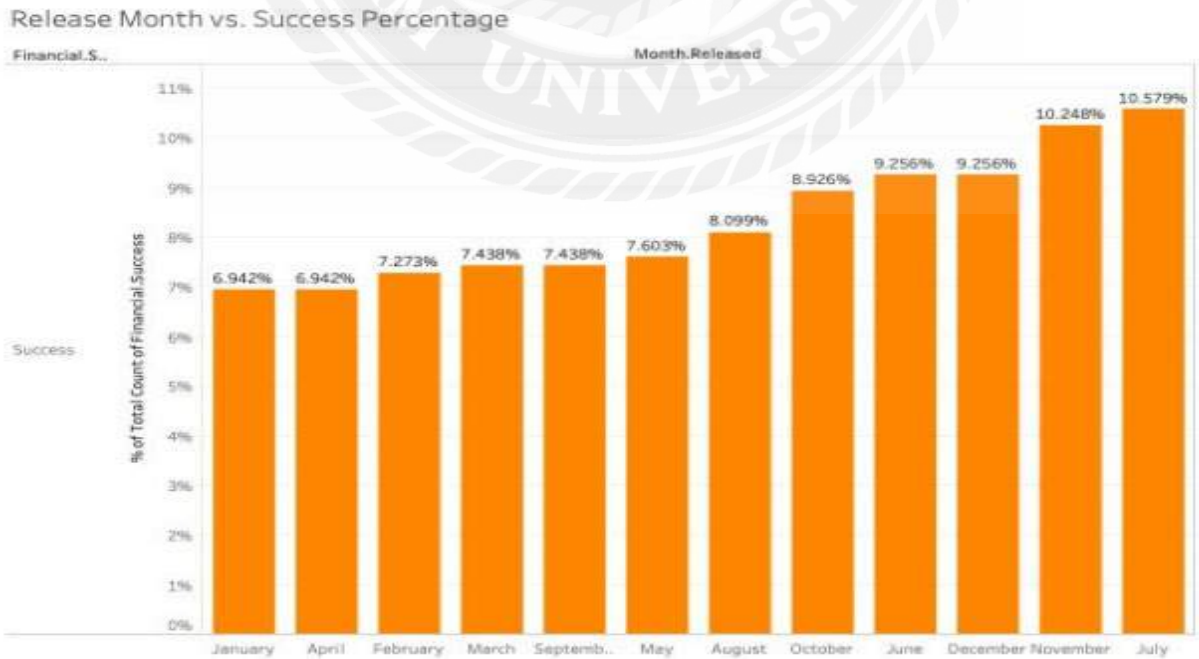
Figure1



Count of Rating for each Rating.

Figure 2

Figure 3 shows a chart depicting the percent of the total number of successful movies that were released each month. It shows that the largest percentage of successful movies were released in the month of July, with a percentage of approximately ten and a half percent, with the month of November following close behind. The smallest percentage of successful movies were released in the months of January and April, approximately seven percent each month.This is especially interesting because, as *Figure 4* shows, the most movies have been released in the month of December, while the number of movies released in July is significantly lower.



% of Total Count of Financial.Success for each Month.Released broken down by Financial.Success. The view is filtered on Financial.Success, which keeps Success.

Figure 3

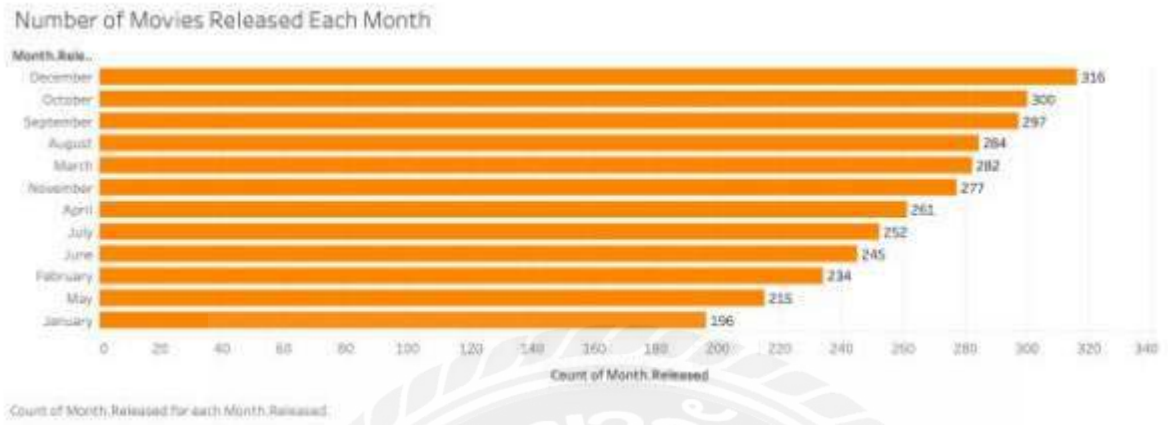


Figure 4

Figure 5 depicts some popular movie universes from the data set; the universes presented here are those in the data set that include five or more movies. The chart shows the percentage of the movies in that universe that were financial successes. Three franchises have a one hundred percent success rate, the Twilight saga, the Saw movies, and the Paranormal Activity franchise, meaning all of the movies in those franchises made more than double their budgets in profit. Universes that have been wildly popular in recent years have not been as financially successful in terms of their earnings in comparison to their budgets, such as the Marvel Cinematic Universe having only thirty-five percent of its movies as financial successes, the X-Men franchise only having approximately twenty-seven percent of its movies as successes, and only twenty percent of the James Bond films being successful. *Figure 6* shows an estimated average budget for a movie in each universe; it can be seen that the Saw franchise and the Paranormal Activity franchise, two of the three universes that have had all of their movies be successes, are the two franchises with the lowest estimated average budget, $14,357,143 and $6,904,500 respectively, meaning they needed the lowest profit to be a financial success. It can also be seen that the DCEU, one of the universes with the lowest percentage of financial successes, twenty percent, is the universe with the second highest estimated budget, $344,700,000, indicating each of its movies needed one of the highest estimated profits to be a financial success.

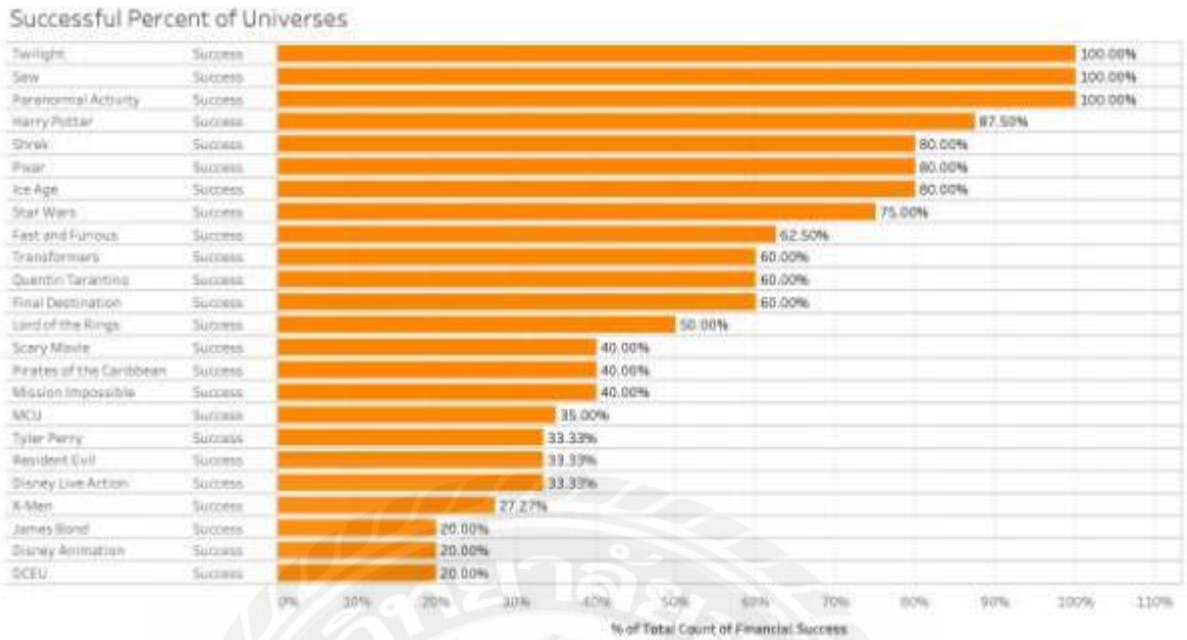


Figure 5

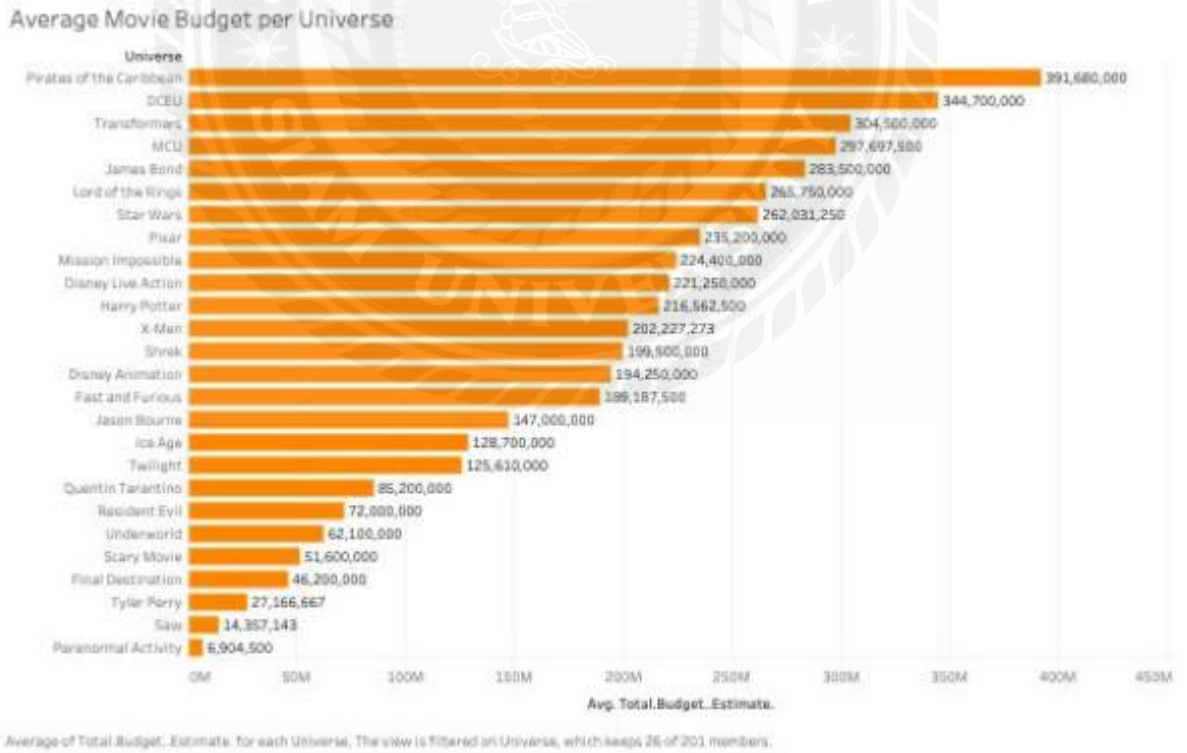


Figure 6

Figure 7 shows a list of distributors that appear at least ten times in the data

set that have had some financial success with the movies they have released. The percentages shown are the percent of the movies released by that distributor that were identified as financial successes. As can be seen, no studio had a majority of its releases be financially successful,with the highest percentage of successful movies being approximately thirty-six percent. It can be noted that the studios with the four highest percentages released fewer than one hundred movies, as seen in *Figure 8*. *Figure 9* shows the average estimated budget for a movie released by each distributor, and it can be noted that the studio with the lowest estimated budget, $9,483,871, is A24, the studio with the second highest percentage of successful movies, meaning that the studio on average had to earn less money than others in order to be a success.

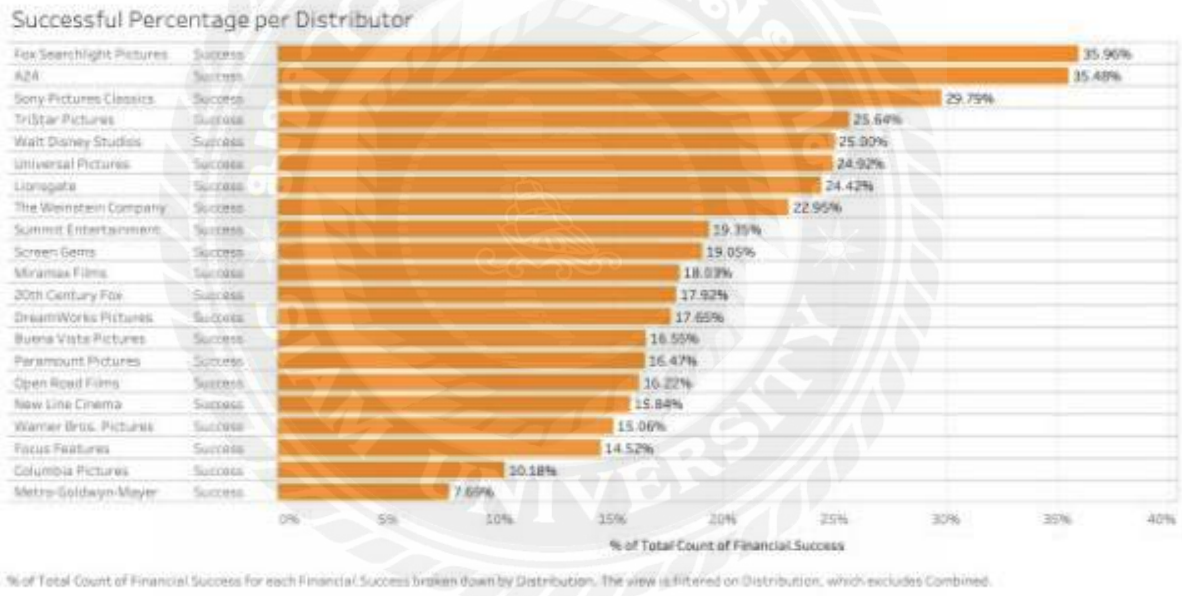


Figure 7

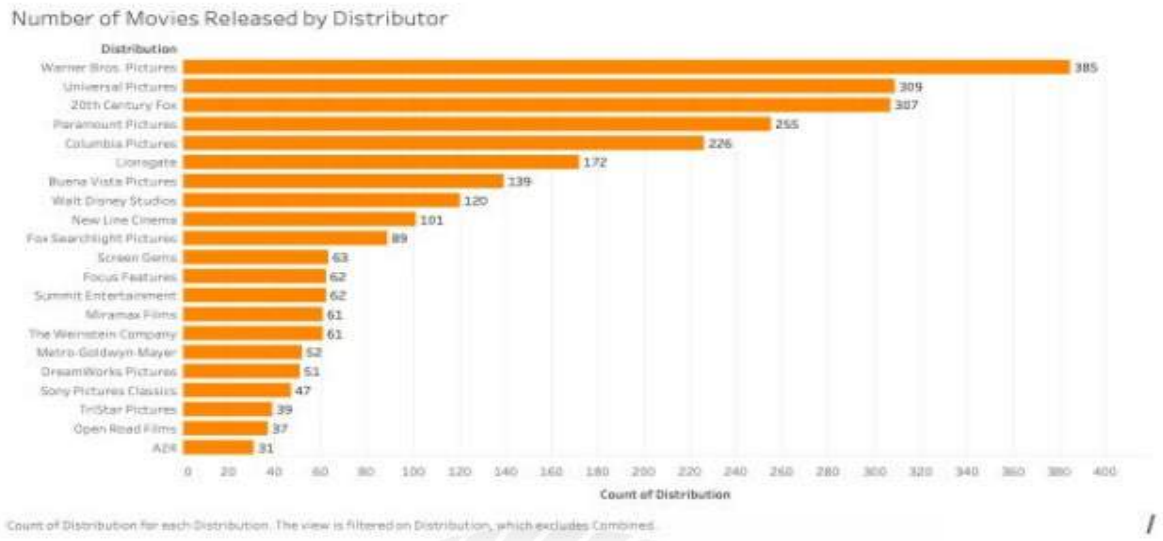


Figure 8

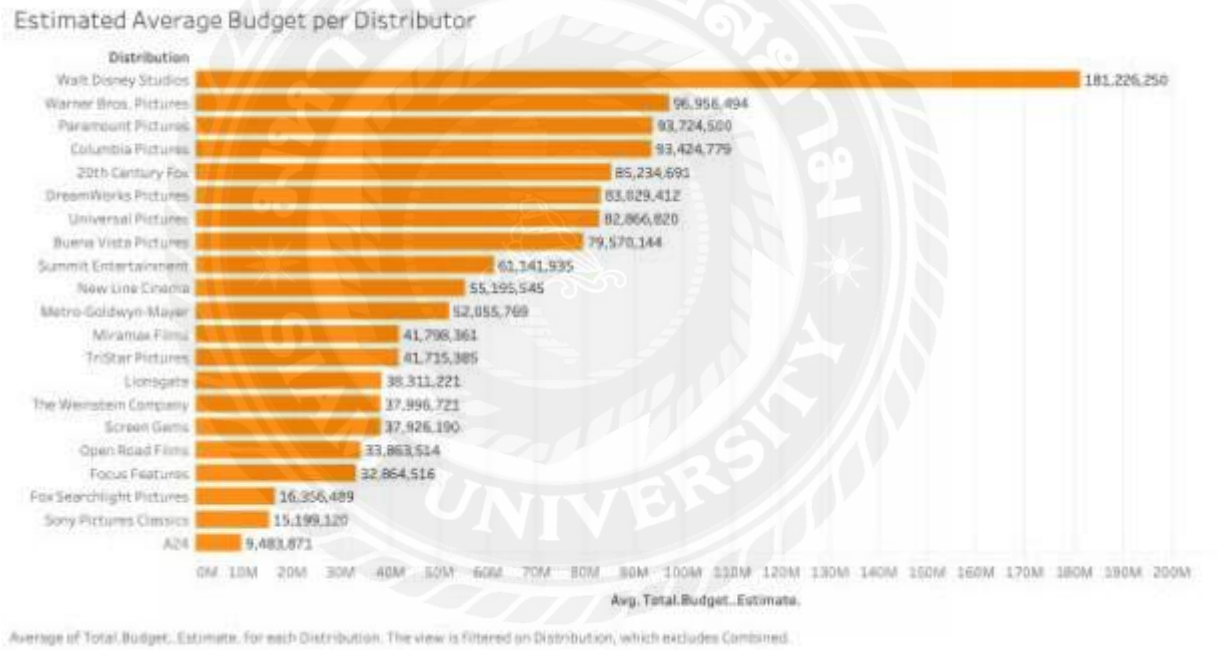


Figure 9

Figure 10 shows a list of directors that appear at least ten times in the data set that have had some percent of their movies be financial successes. The director with the largest success rate is M. Night Shyamalan with a success rate of forty percent; Ridley Scott has the lowest success rate with approximately six percent of his movies being successful.Interestingly, there is not a correlating distribution when examining the average estimated budget for a movie by each director, shown in *Figure 11*.

While Ridley Scott's movies cost more to make on average, $142,650,000, than M. Night Shyamalan, $101,850,000, both directors are in the middle of the range of average estimated budgets for the listed directors.

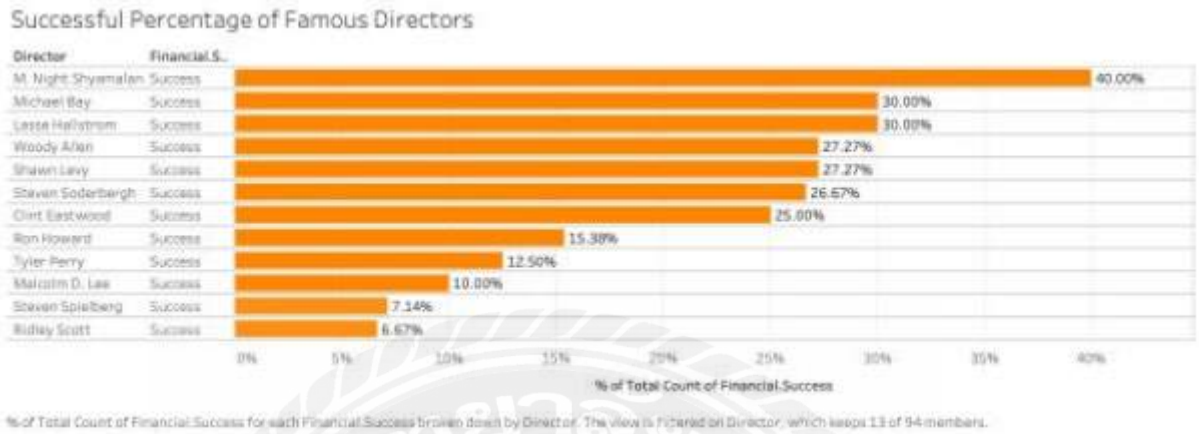


Figure 10

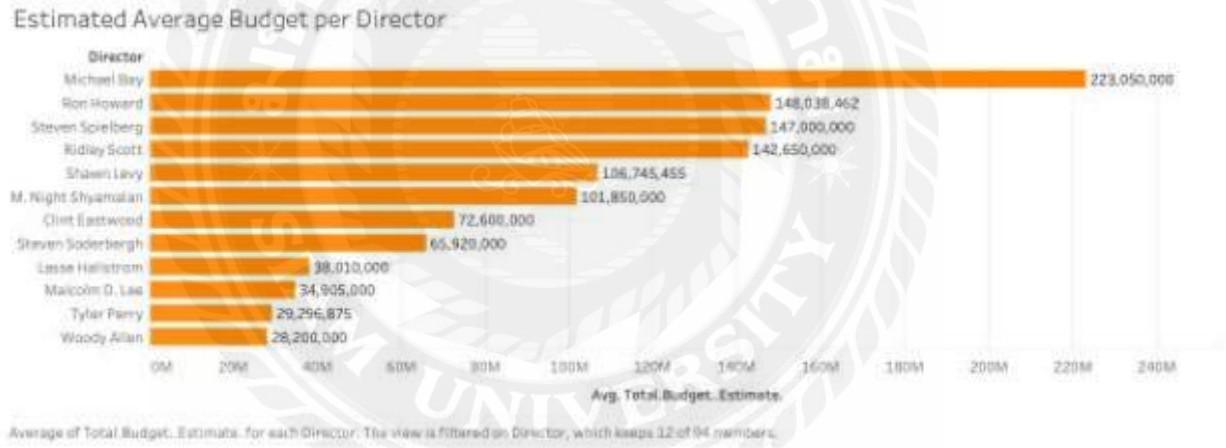


Figure 11

Figure 12 shows the percentage of the successful movies in the data set that are classified into each genre. The most frequent genre in the successful movies in the data set is Comedy while Space, Slasher, and Disaster movies appear the least. *Figure 13* shows the average estimated budget for a movie in each genre with Space movies being the most expensive at $292,500,000 and Exploitation movies costing the least at an average of $4,500,000. Space movies were one of the three least occurring genres in the successful movies; this correlates with the estimated average budget because the movies classified as Space movies had to make a much

greater amount of money to be considered a financial success while Comedy movies did not have to make as much money to be financial successes because the average estimated budget for Comedy movies is the fourth lowest as shown in.

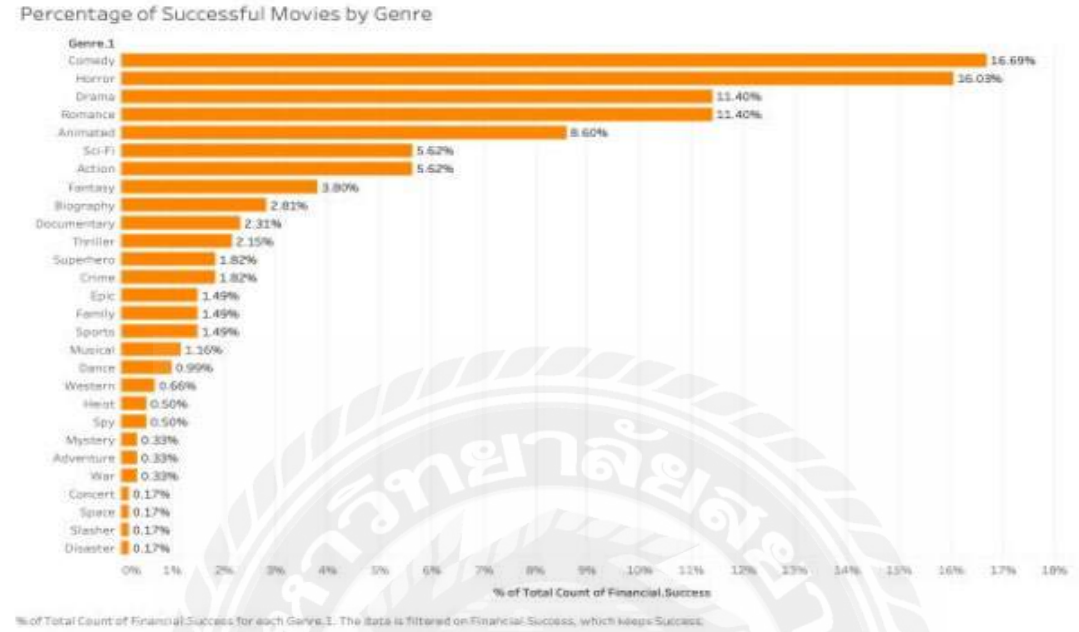


Figure 12

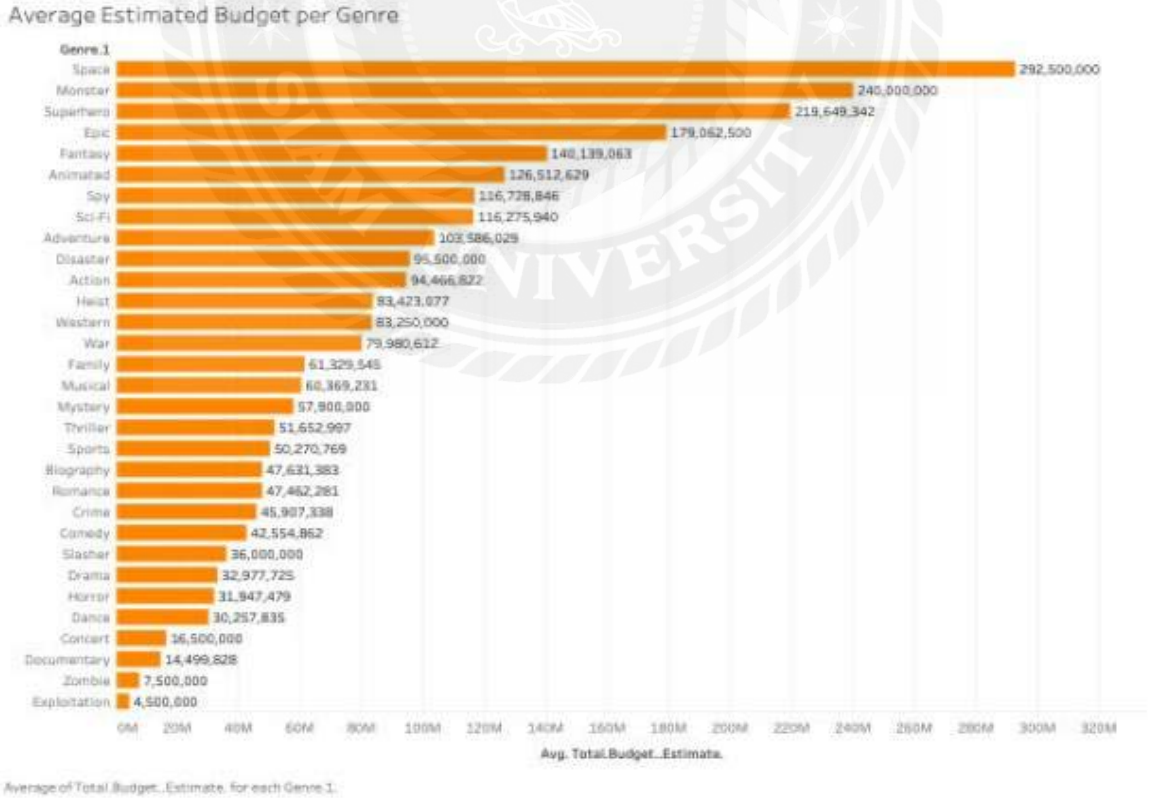


Figure 13