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# Will We-media Advertising and Marketing Boost Business Performance? – An Empirical Analysis Based on Micro Panel Data from the Film and Television Industry

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## Abstract

By virtue of the economic and social progress, the factors influencing business performance, being key segments in the market, have been attracting considerable attention. On the basis of summarizing the factors affecting business performance, further research is made on the impact of advertising and marketing. This paper uses manually collected micro panel data and adopts econometric methods to empirically study the impact of we-media advertising and marketing on the business performance of film and television industry. It is found that we-media advertising and marketing is positively correlated with the growth of box office and plays an important mediating role. This paper thus ends with practical suggestions for enterprises.

**Keywords:** We-media, Advertising and marketing, Business performance, Box office

## 1. Introduction

Serving as one of the foremost actors in an economy, the business performance plays a crucial role in the economic growth of a country or region. Domestic and foreign scholars have conducted a lot of research pertaining to the influencing factors of the business performance, and it is generally agreed that market demand conditions, industry competition, corporate governance structure, corporate culture, organizational management and advertising and marketing are all prominent influencing factors on business performance (Zhou, 2017). This paper will focus on the impact of advertising and marketing on business performance. Regarding the role of advertising, it has been suggested that advertising exerts influence on audiences' cultural psychology, changes audiences' cultural perceptions and value orientations, demonstrates and guides audiences to change their lifestyles, and promotes cultural evolution and cultural exchange and integration (Song, 2000). To date, however, there are few studies on the impact of we-media advertising and marketing on business performance, and most of the existing studies are theoretical or empirical ones based on macro data or cross-

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sectional data. Few empirical studies are based on micro panel data. In this paper, resorting to econometric methods, this paper will use micro panel data to empirically study the impact of we-media advertising and marketing on the performance of film and television industry. It is hoped that this paper will fill the vacancy in available literature and make a marginal contribution in this field.

China's box office reached CNY 44.069 billion in 2015, up 48.7% from 2014. The national box office gross in 2018 was CNY 60.976 billion, up 9.06% year-on-year, and the box office of domestic films in 2019 grossed CNY 41.175 billion, up 8.65% year-on-year.

On the grounds of the preliminary statistics of the National Film Special Fund Office, the national box office of urban theaters in the Spring Festival season of 2021 (February 11-17) was CNY 7.822 billion, exceeding the amount of RMB 5.905 billion in 2019, an increase of 32.47%, which set a new record for the box office during the Spring Festival season. A total of 160 million people were attracted into theaters during the Spring Festival Golden Week (132 million in 2019, up 21%); the number of screenings reached 2,639,700 (2,627,200 in 2019). Besides, the first day of the lunar year to the fifth day finds the epoch-making single-day box office of more than CNY 1 billion. The "dark horse" during Spring Festival, *Hi, Mom*, gave a counter attack by virtue of word-of-mouth and achieved the box office of CNY 5.413 billion, ranking the second in the Chinese film box office list; the first is still the *Wolf Warriors II* released in the summer of 2017. Be it the data of box office, or the number of screenings, or movie-going visits, the Chinese film and television industry is undergoing breakneck development. The influencing factors include the increase in national income, the general rise in ticket prices, the improvement in film production technology and the improvement in film quality; last but not least, the role of advertising and marketing matters. In particular, we-media, which has gradually emerged in recent years, plays an increasingly essential role in advertising. Does advertising and marketing in we-media affect the business performance of the film and television industry? This paper will give you the answer. Specifically, this paper will investigate whether different forms of we-media (text, video) have a significant impact on the box office of films. By manually collecting the box office data of five Wanda Cinemas in Xiamen on May 2021 and matching the data of we-media advertising and marketing, a panel data of "theater data - box office data - marketing data" is formulated. This paper empirically analyzes the impact of we-media marketing on film scheduling and film box office, and finds that we-media marketing can significantly increase the box office. This implies that advertising and marketing are also significant in terms of their contribution to improving business performance.

The rest of the paper is structured as follows: the second part is a literature review, which sorts out the available literature and proposes research hypotheses based on theoretical analysis; the third part introduces data sources and empirical models; the fourth part presents the empirical results and analysis; and the fifth part gives the conclusion.

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## **2. Literature review and theoretical analysis**

The existing literature on the factors influencing business performance has been studied in terms of external factors, organizational form, and internal factors.

From the analysis of external factors, the choice of an industry with higher profit potential exerts a significant influence on the improvement of business performance, and the industry effect is the main factor that determines the level of short-term profitability of enterprises (Guan et al., 2009). From the analysis of organizational forms, there are significant differences in performance management among different sizes and ownership forms of enterprises. State-owned enterprises have difficulty in carrying out management, while foreign enterprises have stricter regulations and management systems, which is more conducive to improving business performance (Luo, 2006). From the analysis of internal factors, R&D cost investment, advertising and publicity expenditure, technological innovation capability, human resource construction, competitive strategy choice, and enterprise management system are important factors affecting business performance (Mao, 2017). Corporate incentive mechanism is of equal importance. Collecting managers' shareholding from 799 companies and annual compensation of managers from 748 companies, linear regression model was resorted to study the impact of employee incentive mechanism on business performance. It was concluded that when managers hold a certain number of shares of the company, the level of shareholding has a significant impact on business performance (Li, 2009). Meanwhile, the greater the intensity of equity incentives is, the greater the internal control and the higher the effectiveness will be. The increase of internal control effectiveness plays a benign mediating role between equity incentives and innovation performance (Yang, 2020). The analysis of intra-firm wage structure leads to the conclusion that the phenomenon of "salary compression" has a negative impact on business performance (Wang, 2021).

While the above literature has analyzed the factors that affect business performance, the following studies have been conducted on the impact of advertising on business performance. Advertising expenditures have always occupied a position in industrial organization theory. But industrial organization theory has mainly examined various aspects of advertising expenditures in terms of theoretical model analysis, and empirical studies are quite few; besides, these empirical studies have mainly focused on examining the effects of advertising expenditures on industries, such as concentration, barriers to entry, etc. There is no statistically significant relationship between advertising expenditures and business performance (Sun & Huang, 2013). The advertising and industry concentration functions as a positive moderating role on profitability. The more concentrated the industry is, the higher the advertising density and the higher the profitability will be (Yu & Huang, 2015).

Following the popularity of the Internet, we-media has flourished. As of August 2020, including TikTok (Vigo Video), TikTok has more than 600 million daily active users. Weibo's Q2 earnings showed that Weibo had 246 million daily active users as of June 2021. We-media represented by WeChat, TikTok and Weibo has been deeply integrated into all aspects of life,

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and “advertising” through WeChat official accounts, Weibo promotion and TikTok videos has grown into the most common form of commercial film promotion.

Wang (2019) selected films from the second half of 2014 to the first half of 2017 as a sample, studied the box office as the dependent variable, selected the total box office, box office on release day and box office in the first week of release as the dependent variables, micro index and other independent variables, and finally concluded through multiple regression models that Weibo has played an important role in the publicity of the films, especially the hot discussion of the films based on Weibo in the early days of the films’ release. Zhou and Han (2014) observed the influence of online word-of-mouth and its characteristics by using box office and online word-of-mouth data, and established the association equation to obtain the relationship between online word-of-mouth and box office through sample data. Box office revenue was significantly related to the number of user ratings and user attention, while user ratings were usually a reflection of box office revenue and did not significantly affect box office.

It can be seen that there have been some studies on box office by online marketing, online word of mouth, etc. For the vacancy in the current research field, this paper, on the basis of previous scholars’ research, divides the we-media into the categories of text picture and video respectively, and takes the marketing data of WeChat, Weibo and TikTok as the main research variables. While selecting the theater releasing rate, attendance rate, and the percentage of number of shows at golden times as secondary research variables, the research hypotheses are proposed.

Hypothesis 1: We-media advertising and marketing represented by Weibo, WeChat and TikTok can lead audiences to go into theaters and promote the increase of box office, being positively correlated.

Hypothesis 2: We-media advertising and marketing represented by Weibo, WeChat and TikTok can influence the theaters’ scheduling and play a mediating effect.

### **3. Data source and model setting**

Our sample data comes from the App of MaoYan Movie Pro. By manually collecting film data, theater data and marketing data of 5 Wanda Cinemas in Xiamen on May 2021 in MaoYan Pro, the box office is matched with we-media advertising data to get panel data of “theater data - box office data - marketing data”.

The marketing data mainly contains Weibo heat score, TikTok heat value and Baidu index.

The Weibo heat score reflects the development trend of Weibo public opinion or account through the heat value of keywords and the average influence of the industry.

TikTok heat value is a ranking of the value by the sum of the official account influence, film buzz, topic index and search index of film and TV projects on the TikTok platform.

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Baidu index mainly contains the keyword search trends (including overall trends, PC trends and mobile trends).

Table 1: Descriptive Statistics of Major Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Weibo	787	79.986	11.495	36.09	100
date1	1465	22415.341	8.925	22401	22431
Baidu	940	52429.539	66014.911	5191	335967
Tiktok	64	569.52	556.905	103.2	2207.2
People	1314	162.45	359.382	0	3847
Changci	1314	6.901	8.491	1	123
Attendance	1314	14.388	15.704	0	221.3
paipian per	1314	11.97	14.68	1	235
Goldentimes	1314	1.412	1.779	0	12
goldentimes per	1314	15.304	107.337	0	3838
Goldenseats	1314	197.117	293.711	0	1921
goldenseats per	1314	11.745	17.572	0	100
Boxoffice	1314	12.274	232.742	0	5960
cinema1	1314	2.94	1.396	1	5
name1	1465	24.585	14.396	1	50

Note: Calculated based on the author's own manually collected data.

This paper analyzed the strength of the influence of we-media advertising campaign on box office. Combining with the description of previous analysis, and hereby chose the variables as shown in the table to do quantitative analysis of we-media advertising campaign. In particular, Weibo, WeChat, Baidu, and TikTok represent the independent variables Weibo heat score, Baidu index, and TikTok heat value, respectively, reflecting the film producers' publicity investment in different platforms. Separate samples were taken to eliminate incomplete variables and residual variables. Descriptive statistics were conducted, and the results showed that the maximum and minimum values of the two variables of publicity on the Baidu and TikTok had large differences and large variances, indicating that there were great differences in the publicity efforts of different films, so much so that there was a very large variance in the heat of each film on the three platforms. In particular, the differences are in the two aspects of Baidu advertising publicity heat and TikTok short video publicity heat. Similarly, descriptive statistics were conducted on the traditional factors affecting box office, and 1,314 samples were selected for observation, using the variables of *people*, *paipian per*, *goldentimes*, *attendance*, *goldentimes*, and *goldenseats* for quantitative analysis, with incomplete variables being excluded. Besides, the natural logarithms of the variables with large values were taken to reduce the variance of the values, thus facilitating the next step of regression analysis.

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#### 4. Experimental results and analysis

Considering that the impact of film marketing on box office may not work immediately, but has a lag period, in the regressions, marketing-related indicators were taken as one period lag to analyze its impact on box office. Firstly, the natural logarithm of the lagged one-period values of marketing data were taken separately, followed by multiple regression analysis of the lagged one-period values of the natural logarithm of marketing data and the natural logarithm of box office, and the specific regression results are shown in Table 2. *Table 2: Panel Data Regression Results of the Impact of Marketing on Box Office*

	(1)	(2)	(3)
<b>VARIABLES</b>	lnboxoffice	lnboxoffice	lnboxoffice
<b>lnweibo(-1)</b>	0.0168 (0.218)		
<b>lnbaidu(-1)</b>		-0.00209 (0.0743)	
<b>lntiktok(-1)</b>			0.239* (0.131)
<b>Lnchangci</b>	1.498*** (0.132)	1.463*** (0.139)	1.113** (0.461)
<b>lngoldentimes</b>	-0.179 (0.136)	-0.194 (0.128)	0.197 (0.322)
<b>lnattendance</b>	0.999*** (0.0713)	1.063*** (0.0701)	0.940*** (0.125)
<b>Constant</b>	-6.471*** (1.250)	-6.463*** (0.759)	-7.380*** (0.698)

Note: Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Based on the descriptive analysis, lagged one-period data of marketing data were selected as variables, and the *lnchangci*, *lngoldentimes*, and *lnattendance* were used as control variables for regression analysis.

As shown by the regression results, Weibo heat and box office are positively correlated, but the p-value is greater than 0.1, indicating that the positive correlation is not significant; Baidu index and box office are negatively correlated, but the p-value is greater than 0.1, indicating that the negative correlation is also not significant, and Baidu index has no effect on box office; TikTok heat value and box office are positively correlated, and the p-value is less than 0.05. The positive correlation is significant at the 5% level, which shows that the high heat value of TikTok has a promotion effect on the growth of box office in the end.

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In conclusion, we-media advertising methods such as TikTok videos have a positive impact on the box office of films, as we-media marketing promotes the increase of box office and brings more benefits to producers. The publicity and marketing on Weibo also have a positive effect on the growth of box office, but the influence of TikTok videos is greater, which attributes to TikTok's larger user base than Weibo, and the advantages of the video medium in terms of communication and marketing.

Then, this paper analyzed whether we-media marketing has a mediating effect on the box office. The paper selected the natural logarithm of *lngoldentimes*, and tested the mediating effect with the natural logarithm of Weibo's heat value lagging behind one period, TikTok heat value lagging behind one period, and Baidu's index lagging behind one period. The regression results are shown in Table 3.

Table 3: Mediating Effect Test of We-Media Marketing Affecting Box Office

	(1)	(2)	(3)
<b>VARIABLES</b>	lnboxoffice	lnboxoffice	lnboxoffice
<b>lngoldentimes</b>	1.055***	0.471**	0.862**
	(0.176)	(0.194)	(0.365)
<b>lnweibo</b>	0.626		
	(0.407)		
<b>lnbaidu</b>		0.662***	
		(0.127)	
<b>lntiktok</b>			0.765***
			(0.253)
<b>Constant</b>	-5.320**	-9.221***	-6.851***
	(2.387)	(1.468)	(2.039)

Note: Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

The test obtained that the Weibo heat value, Baidu index and TikTok heat value were all mediating variables and all played a mediating role. In the test of Weibo heat value, *lngoldentimes* and *lnboxoffice*, *lngoldentimes*, *lnweibo* and *lnboxoffice* were regressed respectively, and finally concluded that there was a mediating effect of 44.22% on box office through Weibo heat value; in the test of Baidu index, *lngoldentimes* and *lnboxoffice*, *lngoldentimes*, *lnbaidu* and *lnboxoffice* were regressed respectively, and it can be finally concluded that there was a mediating effect of 46.13% on box office through Baidu index. In the test of TikTok heat value, the *lngoldentimes* and *lnboxoffice*, *lngoldentimes*, *lntiktok* and *lnboxoffice* were regressed respectively, and finally it was concluded that there was a 31.87% intermediary effect on box office through TikTok heat value. The results of another table test obtained that the tests of mediating variables were all significant.

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In the study with marketing data and the number of shows at golden times as variables, the number of shows at golden times demonstrated a positive relationship with box office growth, i.e., the more the shows at golden times of a film are, the better the film's box office will be; Weibo heat value, Baidu index and TikTok heat value also showed a weak positive relationship with box office growth. Through the test, the marketing data significantly played a mediating effect in the process of the influence of the number of shows at golden times on box office, i.e., Weibo marketing could play a corresponding role in promoting the film's box office by influencing theaters' scheduling. This led to the conclusion that the scale of the film's advertising campaign would promote the increase of the box office through the increase of theater scheduling, thus inferring that we-media advertising and marketing could significantly play a "mediating effect" on the growth of business performance.

## **5. Conclusion**

By analyzing the data of five Wanda Cinemas in Xiamen, the results of the analysis of the influence of text image publicity represented by Baidu and Weibo and the short video publicity represented by TikTok showed that the growth of we-media marketing and box office demonstrated a positive correlation, and the meditating effect was very obvious. Film scheduling was still very important to box office, especially the impact of number of shows at golden times on box office. In addition to the game between film distribution and theaters, advertising on Weibo, Baidu and TikTok platforms would also have an impact on scheduling in the early stage of release. Therefore, the release of the film shall seize the publicity period before its release, carry out multi-angle publicity on Weibo, TikTok, and Baidu, and take the initiative to create hot topics. Not only will it attract the audience to go to the theater spontaneously, but also have an impact on the film scheduling through publicity, and the film scheduling and the number of shows at golden times have a decisive impact on the box office.

In the same way, we believe that advertising and marketing not only have a positive relationship with business performance, but also significantly contribute to the growth of business performance. In addition to advertising and marketing, companies should likewise implement actions in their business scope to maintain high quality and high reputation. After all, advertising and marketing only bring short-term benefit growth, while the long-term brand effect brought by word of mouth will bring higher enterprise benefits than advertising marketing.

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