

## Article

# Interplay of External and Internal Knowledge: Business Model Innovation Analysis in Chinese Publicly Traded Film Companies

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**Abstract:** The application of business model innovation (BMI) generally creates more competent and flexible enterprises in changeable markets and helps to achieve competitive advantages. Especially in a post-pandemic age, BMI has a particular significance. As such, in this study, based on the resource-based view theory, we aimed to explore how Chinese publicly traded film companies apply BMI from the perspective of the interplay of external and internal knowledge acquisition. Our focus was examining the influence of the search for external knowledge and the creation of internal knowledge on the BMI of Chinese film companies. On the basis of interviews and field observation, we selected environmental volatility and management attention as the independent variables in the study model. We analyzed the data collected from 36 Chinese publicly traded film companies by correlation and regression. The results showed that external knowledge search and internal knowledge creation substantially influenced the BMI of Chinese film companies. In addition, environmental volatility and management attention positively influenced BMI. The findings provide practical information motivating Chinese publicly traded film companies to apply BMI in the post-pandemic era.

**Keywords:** business model innovation; external knowledge search; internal knowledge creation; Chinese publicly traded film companies



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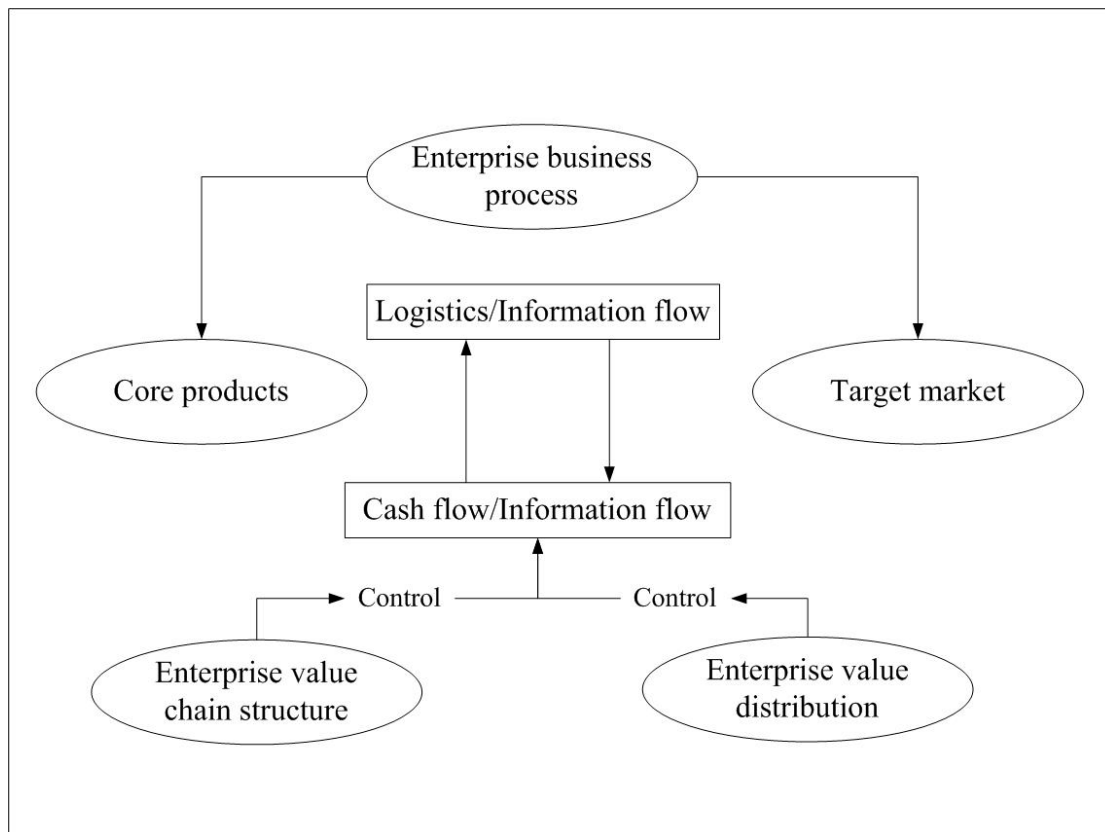
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## 1. Introduction

China's film market has encountered an impressive 50-fold increase in the past 20 years, from a total box office of USD 140 million in 2001 to a current USD 7.4 billion in 2021. After the pandemic outbreak of COVID-19, China's annual box office revenue in film industry surpassed the United States and retained the world's largest film market [1]. Chinese publicly traded film companies contributed the largest part to the development of China's film industry. Based on the past 4 years' interviews with China's film study scholars and film practitioners, the film companies' innovation, especially the business model innovation (BMI), is the key to drive the business performance. This research aims to focus on the BMI of Chinese publicly traded film companies and explores what drivers are pushing the advance of BMI of film enterprises.

Since the definition of "business model" was proposed in 1960, many authors have put forward different concepts from different perspectives. Timmers has especially developed the definition of business model and extended the concept [2], which has become a notable focus of scholars in the fields of economics and management. Currently, many enterprises prefer to seek business model innovation (BMI) through technology innovation to achieve a competitive advantage, because BMI can be used to efficiently contain technological innovation. Therefore, BMI theories and practices have been widely explored from different perspectives.

Generally, BMI is defined as the logic of value created by the enterprises [3]. Based on the acquired knowledge, enterprises identify opportunities, gain competitive advantages, and increase profits in unpredictable market environments [4]. Hamel (2000) emphasized that customer interface, core strategic, strategy resources, and network value jointly comprise a business model [5]. Different scholars have different points of view, but the consensus among them is that the business model is used to explore how companies further increase their profit. As such, nearly all enterprises conduct business through delivering core products, engaging in the target market, and implementing their routine operating process, as shown in Figure 1.



**Figure 1.** Business model elements [4].

To seek increased profits and acquire a competitive advantage, enterprises need to optimize their business model in accordance with the changes in the market and environment: this optimizing process is defined as BMI. Therefore, BMI is usually used to enhance the market competition capabilities of enterprises. Current BMI researchers have analyzed its antecedents from both market-pull and technology-driven perspectives [2,6]. Some researchers focused on the description and portrayal of successful BMI practices and their positive impact on enterprise performance [7], but studies on the driving forces and processes of BMI are scarce [8], which has affected the theoretical development of BMI.

## 2. Theoretical Framing

As such, in this study, we adopted a resource-based view (RBV) as our theoretical foundation to analyze the driving forces and process of BMI. In 1984, Wernerfelt first introduced the concept [9] to examine how enterprises achieve business success. The answer is resources, both internal and external. Internal resources can be divided into the assets and capabilities of a business [10]. The capabilities of employees are generally acquired and accumulated, such as through working techniques and knowledge [11]. According to the RBV, both the internal and external environments are important for

business success. Generally, enterprises examine the external information on the newest technologies, market status, and competent competitors to maintain their advantage or survive the competition; they also seek to enhance their internal capabilities to improve business performance. Based on the RBV, several key factors determine the business performance of an enterprise, such as knowledge, innovation, capabilities, and so on. In this study, with Chinese film enterprises as research objects, we conducted interviews and surveys in the past few years and then introduced the RBV into enterprise BMI analysis. We wanted to determine which resources were driving the BMI of Chinese film companies.

Knowledge is widely thought to be an important source of BMI: BMI is essentially the acquisition of established knowledge and the creation of new knowledge. In an open innovation environment, innovation search theory emphasizes the importance of searching for external knowledge. Researchers have explored the leverage created by external knowledge search, enterprise technology innovation, product innovation, and innovation performance [12], but studies of the link between BMI and external knowledge search are lacking. However, the influence of new knowledge on BMI cannot be studied only from the perspective of external knowledge search, because two typical paths are used to acquire novel knowledge: searching for external knowledge search and creating internal knowledge. Compared with the external knowledge literature, researchers have neglected the influence of internal knowledge creation on BMI.

Studies about the relationship between searching for knowledge and innovation have mainly focused on the influence of external circumstances such as environmental volatility and competition intensity [13]. Compared with the research on external factors, analyses of internal factors in the academic literature are even more lacking. The decisions of enterprises are strongly influenced by the leading managers [14], and managerial attention directly affects the formulation of knowledge search strategies and the construction of business models [15]. In summary, from a static perspective, researchers have explored the relationship between BMI and external knowledge search, but have ignored the process of external knowledge transformation inside enterprises. When studying the relationship between new knowledge creation and BMI, researchers have paid more attention to the influence of external environmental factors and ignored the restrictions caused by internal factors. As such, in this study, we examined the mechanism through which novel knowledge influences BMI from the perspective of external knowledge search and internal knowledge creation and analyzed the moderating effect of internal and external factors on the above relationship. We chose Chinese publicly traded film companies as the case study because the film industry in China is an emerging and innovative industry, and especially because China has been the world's second largest film market since 2012. Chinese publicly traded film companies release annual reports, which clearly described the general information, financial indicators, business conditions, important events, and status of the directors, supervisors, officers and employees. All the above-mentioned information provided convenience for our data and relationship analysis.

### 3. Research Hypothesis

BMI is essentially a developing course in which an enterprise establishes heuristic logic and links knowledge with its underlying economic value. New knowledge is widely thought as a major driving force of enterprise BMI. Searching for external knowledge can help enterprises acquire new technologies and markets over time and advance the BMI as well. Timmers (1998) stated that the main force driving BMI is the emergence of novel technologies, especially the emerging technologies represented by the Internet industry [2]. Similarly, Zott and Amit (2010) held that new technological knowledge can promote BMI [16]. Chesbrough and Rosenbloom (2002) found that innovation activities are closely connected with the support of technical knowledge, and acquiring corresponding market knowledge from consumers, suppliers, and competitors is important [6]. Searching for external knowledge involves the intake and application of knowledge beyond the boundaries of existing customers and competition, which provides enterprises with diversified infor-

mation about customers and competitors, in addition to their existing skills, knowledge, and experience. Sofka and Grimpe (2010) reported that searching external knowledge can allow enterprises to absorb complementary knowledge and resources from the outside to compensate for the deficiencies in the original knowledge inside the enterprise [17]. In conclusion, searching for external knowledge provides a technical guarantee for the BMI of enterprises and benefits enterprises through the commercialization of research and development achievements. Therefore, we proposed the following hypothesis:

**Hypothesis 1 (H1).** *External knowledge search has a positive effect on enterprise BMI.*

The core of BMI is a process of using and creating knowledge, which requires not only the acquisition of external knowledge but also the processing and creation of knowledge [18]. Enterprises create new knowledge by integrating the complementary knowledge externally obtained and the existing internal knowledge. Generally, searching for new knowledge helps start-up enterprises to quickly develop new products but without the processing, use, and creation of new knowledge, enterprises struggle to build a competitive advantage against incumbent competitors. Based on the perspective of the knowledge value chain, the process of organizational knowledge creation first involves acquiring external knowledge, then integrating and innovating knowledge on this basis, and finally diffusing and sharing knowledge in the enterprise [19]. Generally, knowledge resource exchange and integration are different in nature, and organizational learning can be divided into acquired and experimental learning [20]. Recently, acquired learning and experimental learning have both been introduced into studies of BMI: the core of acquired learning is knowledge search, while that of experimental learning is knowledge creation. Through interviews and field observations of Chinese film enterprises, we found that knowledge search and knowledge creation play different roles in different stages of BMI, and searching for external knowledge usually precedes knowledge creation, i.e., the search for knowledge influences the BMI content through knowledge creation.

Knowledge creation inside an organization generally refers to the ability of an organization to create novel, publicize, and demonstrate knowledge in the products, services, and organization systems. Nonaka and Takeuchi (1995) proposed that knowledge in an organization is created through the transformation and interaction between tacit and external knowledge, and they introduced the SECI model of knowledge creation [21]. New organizational knowledge is also generated in the process of the continuous cycle of transformation. The factors influencing enterprise BMI have been widely studied from the perspective of knowledge, and through the empirical evidence obtained from survey data of high-tech enterprises, findings showed that organizational learning has a significant positive impact on business model innovation [22]. In the process of organizational learning, members of high-tech enterprises can generate new knowledge through continuous experimentation and internal and external interactions; these members communicate with each other and participate in organizational judgment and decision making, which can help improve the BMI of the organization.

Based on the above analysis, we proposed the second and the third hypotheses: H2 is to show the relationship between knowledge creation and BMI, and H3 is the mediating role of knowledge creation played between knowledge search and BMI:

**Hypothesis 2 (H2).** *Knowledge creation has a positive influence on enterprise BMI.*

**Hypothesis 3 (H3).** *Knowledge creation mediates the relationship between knowledge search and enterprise BMI.*

Environmental volatility refers to the changing and unpredictable nature of the environment [23], which usually affects the process and characteristics of BMI. Scholars have investigated the relationship between knowledge search and technological innovation in different environments [24,25]. They found that when the technological environment is

turbulent, searching for knowledge on the supply side is inclined to promote technological innovation, so that the enterprises can take advantage of novel technology and make the most profits. Based on patent data from the global pharmaceutical industry, Kim and Park studied the link between searching for knowledge and innovation. They concluded that searching for knowledge has an important positive influence on enterprise BMI [26].

In a highly volatile environment, technological changes are constantly occurring, as are customer needs and preferences [27,28]. In China's socialist context, the changes in film policies also considerably affect the direction of enterprise BMI. For film enterprises, they are mostly audience-dependent during the product life cycle growth period; they must also consider film censorship by the government. During the BMI of Chinese film enterprises, audience consumption and governmental policies must be simultaneously considered. As consumer demands are unclear and product development technologies are constantly evolving, film enterprises face challenges in predicting which knowledge is useful given the large amount of external knowledge. Additionally, external knowledge is usually heterogeneous, and its cognition, digestion, and absorption are both time- and energy-intensive. Excessive searching for external knowledge may interfere with the decision-making process of enterprise managers and thus reduce the efficiency of resource allocation or inhibit the enterprise's BMI. Furthermore, in volatile environments, enterprises must learn external knowledge and create the novel enterprise knowledge so to identify the needs of customers and governmental guidance, then generate new ideas to ensure the enterprise is competent in the market. Many enterprise practices prove that BMI cannot be achieved by simple imitation; instead, enterprises must create their own new knowledge in accordance with their own resources and advantages, and integrate the new knowledge into all processes of value creation before they establish BMIs. In summary, the more volatile the environment, the more the BMI will occur to maintain the enterprise's competitive advantage. Accordingly, we proposed the following hypothesis:

**Hypothesis 4 (H4).** *Environmental volatility positively influences enterprise BMI through adjusting the search for external knowledge and internal knowledge creation.*

Management attention refers to the extent to which top managers pay attention to internal and external circumstances, such as industry changes, governmental policies, customers and markets, technology, and employees [29]. Due to the bounded rationality of humans, managers are limited in the amount of external information they can process when making decisions. Researchers argued that external events or knowledge influence enterprise leadership in their judgment and strategic decision making [30]; if these events or knowledge do not attract the managers' attention, they do not influence their decisions. Managers' attention to the search for external knowledge can help enterprises perceive and understand the external environment so that they can more accurately predict the future market demand and technology direction, clarify the search target, and improve the competence in knowledge searches. In addition, the knowledge from external search can be used for the development of future products and new markets and channels, and the success rate of BMI can be improved. The attention of managers is helpful for unifying the thinking within the enterprise, quickly reaching a consensus on the innovation direction, effectively integrating the internal and external knowledge and resources and creatively solving various problems in the BMI process. Therefore, we constructed the following hypothesis:

**Hypothesis 5 (H5).** *Management attention positively influences the enterprise BMI.*

Thus, we established the relationships framework for this study, as shown in Figure 2:

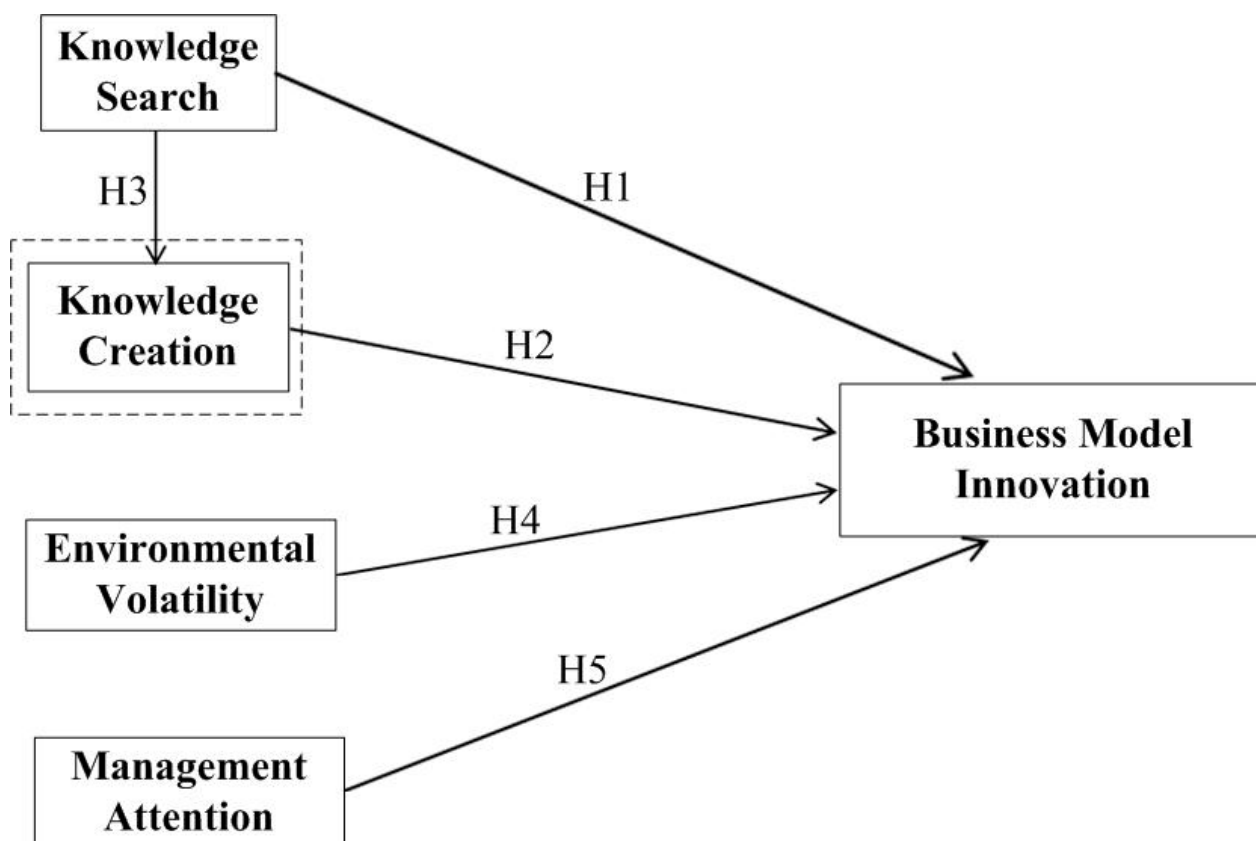


Figure 2. The relationships among our hypotheses.

#### 4. Research Design

##### 4.1. Research Samples

As a case study, we selected Chinese publicly traded film companies active in the market in recent years. Since the Chinese government issued the Plan on Reinvigoration of the Cultural Industry in 2009, qualified cultural enterprises have been encouraged to obtain financial support through the stock market, and the cultural enterprises active in the stock market were encouraged to expand through mergers and reorganization by the public issue of additional stocks and other means of refinancing. Chinese film enterprises have taken advantage of this cultural policy and began to be publicly traded in the following years. Among them, Huayi Brothers was the first film enterprise to be listed in A shares. Following Huayi Brothers, other Chinese film enterprises, both private and state-owned were increasingly listed to gain public finance and increase in strength. According to the summary of listed companies in the film industry by Qianzhan Industry Research Institute and Yin Hong's series of Memorandum [1] on the Chinese film Industry, we constructed a table containing nearly all 36 Chinese publicly traded film companies that were active in the film market, as shown in Table 1. During the 4 years of finishing a Ph.D. dissertation, we interviewed 40 managers of these companies. With their help, we sent 700 printed questionnaires to the management personnel. Before answering the questionnaire, we assured the respondents that the whole process was confidential and their names were concealed, and that we would use the results of the survey only for academic research. As the questionnaire involves business model and knowledge search, the respondents were limited to the managerial personnel of enterprises. We received 610 valid questionnaires, for an effective recall rate of 87.14%.

**Table 1.** Currently active Chinese publicly traded film companies.

Company Name	Stock Code	Total Market Value (CNY 100 Million) [31]	Stock Type
Mango Excellent Media Co., Ltd. (Changsha, China)	300413.SZ	615.47	A share
Wanda Film Holding Co., Ltd. (Beijing, China)	002739.SZ	296.91	A share
Perfect World Co., Ltd. (Huzhou, China)	002624.SZ	273.92	A share
Beijing Enlight Media Co., Ltd. (Beijing, China)	300251.SZ	268.13	A share
Oriental Pearl Group Co., Ltd. (Shanghai, China)	600637.SH	240.04	A share
China Film Co., Ltd. (Beijing, China)	600977.SH	212.28	A share
Alibaba Pictures Group Limited (Hong Kong, China)	01060.HK	207.71	H share
Beijing Jetsen Technology Co., Ltd. (Beijing, China)	300182.SZ	140.34	A share
Chinese Universe Publishing and Media Group Co., Ltd. (Shangrao, China)	600373.SH	134.29	A share
Zhejiang Jinke Tom Culture Industry Co., Ltd. (Shaoxing, China)	300459.SZ	127.62	A share
Zhejiang Huace Film & TV Co., Ltd. (Hangzhou, China)	300133.SZ	91.06	A share
Hengdian Entertainment Co., Ltd. (Dongyang, China)	603103.SH	84.73	A share
Huayi Brothers Media Corporation (Dongyang, China)	300027.SZ	83.79	A share
Hunan TV & Broadcast Intermediary Co., Ltd. (Changsha, China)	000917.SZ	73.85	A share
Alpha Group (Shantou, China)	002292.SZ	67.87	A share
Jiangyin Zhongnan Heavy Industries Co., Ltd. (Jiangyin, China)	002445.SZ	54.77	A share
Huanxi Media Group Limited (Hong Kong, China)	01003.HK	47.17	H share
Shanghai Film Co., Ltd. (Shanghai, China)	601595.SH	47.15	A share
Cultural Investment Holdings Co., Ltd. (Shenyang, China)	600715.SH	45.44	A share
Hylink Digital Solutions Co., Ltd. (Beijing, China)	603825.SH	43.37	A share
Zhewen Pictures Group Co., Ltd. (Hangzhou, China)	601599.SH	42.94	A share
Beijing HualuBaina Film&TV Co., Ltd. (Beijing, China)	300291.SZ	42.08	A share
China Calxon Group Co., Ltd. (Hangzhou, China)	000918.SZ	41.68	A share
Zhejiang Dongwang Times Technology Co., Ltd. (Dongyang, China)	600052.SH	40.61	A share
China Television Media, Ltd. (Shanghai, China)	600088.SH	36.03	A share
Zhejiang Sunriver Culture Co., Ltd. (Hangzhou, China)	600576.SH	34.50	A share
H&R Century Union Corporation (Chongqing, China)	000892.SZ	33.94	A share
Beijing Jingxi Culture & Tourism Co., Ltd. (Beijing, China)	000802.SZ	33.22	A share
Zhejiang Talent Television and Film Co., Ltd. (Dongyang, China)	300426.SZ	31.73	A share
Guangzhou Jinyi Media Corporation (Guangzhou, China)	002905.SZ	30.37	A share
Ciwen Media Co., Ltd. (Jiaying, China)	002343.SZ	26.93	A share
Omnijoi Media Corporation (Nanjing, China)	300528.SZ	26.31	A share
Simei Media Co., Ltd. (Hangzhou, China)	002712.SZ	24.82	A share
Dasheng Times Cultural Investment Co., Ltd. (Shenzhen, China)	600892.SH	21.20	A share
TVZone Media Co., Ltd. (Changsha, China)	603721.SH	16.87	A share
Shanghai New Culture Media Group Co., Ltd. (Shanghai, China)	300336.SZ	11.93	A share

#### 4.2. Variable Measurements

To enhance the reliability and validity of the scales, we used established scales from domestic and international journals, which we modified through expert discussions and small-scale interviews. We adopted a Likert 7-point scale for the independent, dependent, and moderator variables in the questionnaire, as shown in Table 2.

Independent variables: external knowledge search and internal knowledge creation. The search for external knowledge search can be measured in two dimensions: technology and market [13,32]. We used five questions in two dimensions to measure external knowledge search. We used knowledge obtained from advanced countries, universities or research institutions, patents, or standards to measure external searches for technical knowledge; we used knowledge obtained from competitors or customers to measure external market knowledge searches. In terms of the developing status of China's film industry, learning from advanced countries (especially the production, distribution, and exhibition techniques from Hollywood) is an important part of the search for external knowledge. Thus, we added acquiring knowledge from advanced countries in this study to measure the independent variable "external knowledge search".

Referring to previous studies on internal knowledge creation [33], especially the SECI model introduced by Nonaka and Takeuchi (1995), we adopted four items as the independent variables of knowledge creation: sharing tacit knowledge among individuals through joint activities, expressing and describing tacit knowledge as explicit knowledge

in an easily understandable way, transforming explicit knowledge into complex explicit knowledge, and transforming explicit into tacit knowledge in the organization.

**Table 2.** Variables and factor analysis results.

Variables	Measurement Question Items	Factor Loadings
Knowledge Search	Acquire knowledge from advanced countries	0.88
	Acquire knowledge from academic research institutions or think tanks	0.898
	Acquire knowledge from patents and standards	0.898
	Acquire knowledge from audience	0.863
Knowledge Creation	Acquire knowledge from competitors	0.852
	Sharing of tacit knowledge among individuals	0.811
	Externalization of tacit knowledge	0.898
	Complication of explicit knowledge	0.92
Business Model Innovation	Make explicit knowledge tacit within organization	0.914
	Present novel value proposition	0.839
	Add novel value activities	0.887
	Introduce new trading partners	0.884
	Develop new channels	0.89
	Adopt new benefit distribution mechanism	0.86
Environmental Volatility	Adopt new incentives and constraints	0.829
	Degree of technological change	0.908
	Degree of change in R&D activities	0.914
	Elimination rate of products (services)	0.893
Management Attention	Changes of film policies	0.774
	Industry changes	0.925
	Customer needs	0.959
	Technology trends	0.738
	China's film policies	0.732

In addition to external knowledge search and internal knowledge creation, we also considered environmental volatility and management attention as independent variables. We chose four items to measure environmental volatility, including film policy change, technological change, R&D activities, and product (service) obsolescence [13]. Based on the literature on managerial attention, we used four items for measurements, including attention to industry changes, customer needs, technological trends [15,34], and China's film policies. China's film censorship has been playing a role in guiding the direction of enterprise BMI, especially the content of film production. Based on the 4 years of interviews with film practitioners, "new melody films" are widely accepted as production innovation: socialist core values packaged with advanced Hollywood techniques, which satisfies audiences as well as the government, such as *The Battle at Lake Changjin* (2021), *The Eight Hundred* (2020), *Wolf Warrior 2* (2017), and so on. Thus, we also included managers' focus on China's film policies in "management attention".

Dependent variable: Based on the academic literature, BMI is usually measured from three dimensions: content, structure, and governance [35]. The content dimension includes new value propositions and new value activities; the structure dimension includes introducing new trading partners and developing new channels; the governance dimension includes adopting new benefit distribution mechanisms and adopting new incentives and constraints.

## 5. Results

We used Statistical Product Service Solutions (SPSS) to analyze the inter-relationships among variables. The sample size (the valid collected questionnaire) in this study was 610, and the hypothesized relationships mainly included the effects of the independent variables on enterprise BMI. We used a measurement model to test the model reliability and validity, and a structural model to test whether the hypothesized relationship was valid.



### 5.1. Measurement Model

We analyzed the reliability and validity of the measurement model in this study using Statistical Product Service Solutions (SPSS). In the literature, Cronbach's  $\alpha$  is an indicator commonly used to test reliability, and the results showed that the Cronbach's  $\alpha$  values of all our scales were above 0.9 (Table 3); thus, we determined the reliability of the scales was high. In addition, the obtained Kaiser–Meyer–Olkin (KMO) of KS, KC, BMI, EV, and MA were above 0.7 (Table 3), and the factor loadings of all items were above 0.7 (Table 2). The coefficients of correlation were all higher than 0.6 (Table 4); thus, we found that the obtained values showed that our chosen scale had good validity.

**Table 3.** Cronbach's  $\alpha$  and KMO measurement.

Item	Cronbach's $\alpha$	KMO
KS	0.944	0.877
KC	0.933	0.854
BMI	0.945	0.909
EV	0.921	0.846
MA	0.908	0.758

**Table 4.** Results of correlation analysis.

Variables	BMI	KS	KC	EV	MA
BMI	1				
KS	0.821 **	1			
KC	0.811 **	0.732 **	1		
EV	0.749 **	0.742 **	0.723 **	1	
MA	0.720 **	0.699 **	0.655 **	0.767 **	1

\*\*  $p < 0.01$ .

### 5.2. Structural Model

Using KS, KC, EV, and MA as independent variables and BMI as the dependent variable for linear regression analysis, Table 5 shows that the model equation was:  $BMI = -0.478 + 0.405 \times KS + 0.391 \times KC + 0.097 \times EV + 0.160 \times MA$ . The model's R-squared value was 0.785, implying that KS, KC, EV, and MA explained 78.5% of the variation in BMI. When we performed the F test on the model, the results showed that the model passed the F test ( $F = 553.041$ ,  $p = 0.000 < 0.05$ ), which means that at least one of KS, KC, EV, and MA had an influential relationship on BMI.

**Table 5.** Hypothesis testing results.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p	R <sup>2</sup>	F
	B	Std. Error	$\beta$				
Constant	-0.478	0.139	-	-3.439	0.001 **		
KS	0.405	0.033	0.386	12.091	0.000 **	0.785	F (4605) = 553.041, $p = 0.000$
KC	0.391	0.031	0.377	12.452	0.000 **		
EV	0.097	0.041	0.082	2.383	0.017 *		
MA	0.16	0.035	0.141	4.535	0.000 **		

Dependent Variable: BMI. \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Based on the obtained data in Table 6, we found that the regression coefficient value of KS was 0.405 ( $t = 12.091$ ,  $p = 0.000 < 0.01$ ), implying that KS had a significant positive influence on BMI. The regression coefficient value of KC was 0.391 ( $t = 12.452$ ,  $p = 0.000 < 0.01$ ), implying that KC had a significant positive influence on BMI. The regression coefficient value of EV was 0.097 ( $t = 2.383$ ,  $p = 0.017 < 0.05$ ), implying that EV had a significant positive influence on BMI. The regression coefficient value of MA was 0.160 ( $t = 4.535$ ,  $p = 0.000 < 0.01$ ), implying that MA had a significant positive influence on BMI. External knowledge search

(KS) had an important positive influence on BMI ( $\beta = 0.386, p < 0.01$ ); therefore, hypothesis H1 was supported. Internal knowledge creation (KC) had a significant positive impact on BMI ( $\beta = 0.377, p < 0.01$ ), thus supporting hypothesis H2. External knowledge search and internal knowledge creation both had important positive influences on BMI. Similarly, environmental volatility (EV) had an important positive influence on BMI ( $\beta = 0.082, p < 0.05$ ), supporting hypothesis H4. Management attention (MA) had a significant positive impact on BMI ( $\beta = 0.141, p < 0.01$ ), thus supporting hypothesis H5.

**Table 6.** Testing results between independent and dependent variables.

Relationship	t	$\beta$	p	Corresponding Hypothesis	Test Results
KS → BMI	12.091	0.386	0.000	H1	Supported
KC → BMI	12.452	0.377	0.000	H2	Supported
EV → BMI	2.383	0.082	0.017	H4	Supported
MA → BMI	4.535	0.141	0.000	H5	Supported

### 5.3. Stepwise Regression for H3

As to the testing of mediating role of knowledge creation between knowledge search and enterprise BMI, we adopted the method of stepwise regression. Influence of knowledge search to BMI, knowledge search to knowledge creation, knowledge search & knowledge creation to BMI, and the results were shown in Tables 7–9: with EV and MA as the control variables, the regression coefficient value of KS to BMI is 0.563 ( $t = 16.26, p = 0.000 < 0.01$ ), the regression coefficient value of KS to KC is 0.406 ( $t = 10.14, p = 0.000 < 0.01$ ), the regression coefficient value of KS, KC to BMI is 0.405 ( $t = 12.09, p = 0.000 < 0.01$ ) and 0.391 ( $t = 12.45, p = 0.000 < 0.01$ ); finally, we obtained the proportion of total effect that is mediated, 0.282. Thus, H3 was positively tested: knowledge creation has played a role of mediation between KS and BMI. What is more, the test was repeated 500 times with Bootstrap, and the Confidence intervals did not contain 0, indicating the presence of mediating effects.

**Table 7.** Influence of KS to BMI.

BMI	B	Std. Error	t	p
KS	0.563393	0.0346502	16.26	0.000
EV	0.2459681	0.0434468	5.66	0.000
MA	0.2106344	0.0392347	5.37	0.000
_cons	−0.3624795	0.1553117	−2.33	0.020

**Table 8.** Influence of KS to KC.

KC	B	Std. Error	t	p
KS	0.4060559	0.0400485	10.14	0.000
EV	0.3815241	0.0502156	7.60	0.000
MA	0.1297479	0.0453473	2.86	0.004
_cons	0.2962964	0.1795085	1.65	0.099

**Table 9.** Influence of KS, KC to BMI.

BMI	B	Std. Error	t	p
KC	0.3908561	0.0313817	12.45	0.000
KS	0.4046836	0.03346	12.09	0.000
EV	0.096847	0.0405985	2.39	0.017
MA	0.1599216	0.0352678	4.53	0.000
_cons	−0.4782888	0.1389864	−3.44	0.001

## 6. Conclusions

Many researchers have discussed the drivers of enterprise BMI, but none have applied the RBV to analyze the BMI of Chinese publicly traded film companies. As such, we

considered four constructs (external knowledge search, internal knowledge creation, environmental volatility, and management attention) as the influencing independent variables, and explored their correlation with BMI. In addition, the findings indicate that knowledge creation is playing a role or mediation between knowledge search and BMI.

Based on our analysis of Chinese publicly traded film companies, we concluded that BMI is an important means for film enterprises to avoid competition from incumbents and find opportunities for enterprise survival and development, especially after the COVID-19 pandemic affected the film industry. Until recently, few studies on the BMI of Chinese film enterprises have been conducted. Drawing on the findings of previous studies, we divided the process of using new knowledge into the search for external knowledge and the creation of internal knowledge and established a model of the influence of these two factors on the BMI of enterprises. Our main conclusions were as follows:

First, external knowledge searching and internal knowledge creation had the strongest positive impact on the BMI of Chinese film enterprises. New knowledge was a significant force driving enterprise BMI; the two methods of generating new knowledge are through external knowledge searches and internal knowledge creation. New technology knowledge can be acquired through searches for external knowledge; for example, Chinese film companies have acquired large amounts of knowledge on film production, distribution, and exhibition from those more advanced in the film industry, especially Hollywood. To some extent, Hollywood's mature film industry has inspired China's film development. Chinese film enterprises have accurately grasped the development trends in technology and have introduced advanced technology and new trading partners; by acquiring new market knowledge through external knowledge searches, film enterprises have accurately identified customer needs and preferences and opened up new markets or channels. Knowledge creation can effectively combine the found external knowledge with the internal knowledge of the enterprise, thus creating new ideas and new perspectives in the process of continuous experimentation, inspiring new value propositions, and achieving business model innovation. Through many interviews with managerial personnel, we concluded that, especially after 2012, the Chinese film industry has witnessed a golden era of development, and the key factor was that Chinese film enterprises have taken advantage of advanced technology and have integrated and internalized the learned knowledge as their own. For example, Chinese film enterprises invented a unique Chinese film type called "new main melody films", which apply Hollywood techniques and incorporate national characteristic content. This type now dominates the Chinese domestic film market, especially in the post-COVID-19 era.

Second, searching for external knowledge influences BMI through internal knowledge creation. The external knowledge that film enterprises acquire through searching is usually heterogeneous. This heterogeneous knowledge can rarely be directly employed by enterprises for BMI; instead, a complex process of knowledge integration and innovation is required. According to the SECI model of knowledge creation, new knowledge is generated through a process of continuous cyclic transformation of explicit and tacit knowledge. In the process of BMI in Chinese film enterprises, the enterprises must first search for external knowledge, then deconstruct the found external knowledge, then integrate and reconstruct it with the original enterprise knowledge to generate new knowledge.

Third, environmental volatility and management attention also significantly influenced the enterprise BMI of Chinese publicly traded film companies. The findings indicated that environmental volatility, in China's socialist context, was and is playing a significant moderating role in film enterprise BMI. Since the early 2000s, China has maintained a relatively stable social environment, with economic development as the core task of the government; thus, those from the top leadership to the managerial personnel of film enterprises have emphasized technological progress and R&D activities. Film policy changes have also supported the upgrading of film production and exhibition techniques. As a developing film industry, China's film enterprises have fully taken advantage of these

post-emergence advantages in the film market. Therefore, the environmental volatility in China has mainly played a role in driving BMI.

In addition to the external factors, we included the internal factor of film enterprise management attention in the analysis framework, and we found that this variable is more important in the BMI of Chinese publicly traded film companies. The empirical results showed that managerial attention positively affected the BMI of film enterprises. In the capitalization current in China's film industry, the managerial personnel have emphasized profit-seeking, and they seized nearly every chance to push their enterprise to develop. Compared with film enterprises in Western countries, Chinese publicly traded film companies have paid more attention to film censorship policies, which directly determine whether the produced films can be shown in the cinemas. Customer needs have also always been the priority for managerial personnel. Based on our field observations and interviews, we found that Chinese audiences prefer the most advanced film technology, which is why 3D and 4D cinemas have developed throughout China.

Our findings clarified the impact of knowledge search, knowledge creation, environmental volatility, and managerial attention on the BMI of Chinese publicly traded film companies, and partially explained the variation in BMI performance of companies. These findings enrich and expand upon innovation search theory.

## 7. Discussion

Chinese film companies pushed China's domestic film market to surpass other countries; especially in 2020–2021, China became the largest film market around the world. This research, from the "resource" part, analyzed the drivers promoting BMI of film enterprises. Thus, our findings enriched the theoretical framework used for analyzing BMI from a resource-based view; this is in fact a combination of RBV and BMI studies. The case study of Chinese film companies contributed to the resource-based view by taking a more comprehensive perspective on the drivers of BMI. For a film industry in a socialist China, resources such as external and internal knowledge, the environmental factors, and management attention are jointly promoting the BMI of Chinese publicly traded film companies. Among the independent variables, to search knowledge from advanced countries and the digestion of the changing film policies are specially influencing BMI. Therefore, we extended RBV application and actually established the resource frame for BMI of China's film companies. The resources our findings showed to drive the BMI of Chinese film companies are valuable for China's film industry's development in the future as well as cultural industries around the world.

In addition, our research extended RBV from a relatively static and straightforward model into a dynamic and multi-dimensional one; therefore, the five tested hypotheses robustly explained why BMI happened in Chinese film companies.

For the practitioners in film enterprises, we provided some valuable implications for managerial personnel. Because the search for external knowledge, internal knowledge creation, environmental volatility, and management attention have positive influences on enterprise BMI, especially internal knowledge creation mediates the relationship between knowledge search and BMI. Therefore, managers can clearly understand the relationship between the four constructs, the mediating role of knowledge creation, and their business performance. Especially, the interplay of external knowledge and internal knowledge creation can drive a company's BMI.

Though we explored the key factors driving BMI in Chinese film companies, this study had some limitations. First, we conducted this study mainly on the basis of questionnaire and interviews, so the obtained results, to some extent, may not be objective. Second, we pre-emptively determined the four main constructs, but various other factors may be identified, so further studies are required. Therefore, in the future, Chinese film companies can be classified into different categories to deepen BMI research. Since COVID-19, most Chinese film companies have faced development challenges; as such, BMI research will be more important in the future.

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