

# The Grey Relational Analysis of the Influence Factors of Profit in Cartoon's Character Merchandising Rights

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**Abstract**—This paper constructs a four factors theoretical model of Chinese small and medium enterprises based on the “cartoon characters’ reputation - enterprise marketing and management capabilities - protection of the cartoon image - institutional environment” by literature research, case studies and investigation. The empirical study show that the greatest impact on current merchandising rights income is the institutional environment friendliness, followed by marketing and management capabilities, input of character image protection and Cartoon characters’ reputation through the real-time grey relational analysis, and the greatest impact on post-merchandising rights profit is Cartoon characters reputation, followed by the institutional environment friendliness, then marketing and management ability and input of character image protection through the time-delay grey relational analysis.

**Keywords**—Cartoon characters, merchandising rights, influence factors, grey relational analysis

## I. INTRODUCTION

CHARACTER merchandising rights is executive rights when copyright holder applies the image of animation to goods or services in order to get merchandising benefits. The benefit called cartoon’s character merchandising rights is brought by the anime enterprises permitting or franchising other companies to explore toys, stationery, clothing and so on or operating their own derivative products related to animation image.

In China, the low animation transaction and income of copyright can hardly support the cost of production and promotion, so the income of character merchandising rights is one of the important methods for the animation enterprise to get profits.

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## II. RESEARCH VARIABLES AND HYPOTHESIS

### A. Cartoon characters reputation

Document research, case analysis and field survey are used to determine the basic research variables and measurement index.

Character merchandising rights should be the exclusive rights of use and corresponding income and disposition rights created in works that has unique personality characteristics, good public effect and character reputation of merchandising current value used in goods and services(He Ying and Jiao Hongtao, 2005). Popularity and fame is the primary feature of merchandising the animation image [2]. Most commoditized characters are animation image which are the known to the public and enjoys a certain reputation. WIPO calls the character merchandising as “reputation merchandising”. The merchants use character merchandising rights of famous animation character to attract consumer and arise popularity of enterprises to get business profit. However nameless animation figure can hardly achieve ideal effect. Thus it can be seen that the profit of cartoon character merchandising depends on the effect of its original animation and reputation. Because broadcasting animation works is a kind of promotion of animation figure. The animation character reputation closely related to the broadcasting scope and time in TV, film, network, mobile phone and print media. The article takes the copyright income as the measurement index of animation character reputation, including the income of TV, network, mobile phone , cinema box office and periodical publication. From this, following assumptions can be suggested:

*H1*: There is positive correlation between reputation of animation character and profit of character merchandising rights of animation enterprises.

### B. Capability of marketing managements

Capability of marketing management is what the animation enterprises have to construct marketing channels, operate animation derivative products through authorizing the other manufacturers and expand the marketing network. It includes controlling and coordinating and integrating marketing capability on the sales networks, authorized manufacturers and the whole value chain of derivative products. Bonoma and Clark reveal the relation of enterprise’ capability of marketing management, and enterprise or sales(1998). Anderson et al. deem that the enterprise’ capability of marketing management was capable of improve client’s degree of satisfaction, gain and holding customer loyalty, so then get high revenue(1997).

Sunchime Cartoon Ltd. in Hunan started the creation of “naughty blue cat 3000 ask” since 1999; and then the company broadcasted it on more than 1,000 televisions for free to exchange for advertising time to publicize the books, videos, clothing, toys, etc. of Blue Cat. Meanwhile, Sunchime started a huge project of Blue Cat monopoly chain stores, by this way, it established more than 3,000 theme chain stores within 3-4 years, deriving as many as more than 6,000 types of products. Sunchime gets its products by the basic way of OEM. It concentrates its capital on high-valued areas such as producing and shooting of the animated films, the design and management of store system. However, along with the rapid expansion of authorizing way, mounting numbers of derivative products mix up, even products of repeated style and piracy “Blue Cat” spring up, which greatly reduce profits of authorized manufacturers and cause chaos in the market. During the following 2-3 years, nearly 3,000 “Blue Cat” stores shut down one after another, only a few still persevere in. In the whole market, the sales of Blue Cat decline.

This thesis will regard the derivative products’ profits of the animation enterprises and the authorized manufacturers as the index to measure the marketing management capability. For example, Pleasant Goat and Warm Goat, manufactured by Guangzhou Original Power Ltd, bring the company considerable profits. The company which has higher marketing and management capabilities can develop deriving products by itself or authorizing other manufacturers, including soft products such as advocacy advertising of virtual characters, mobile animation, online expression(QQ expression),and hardware products like toys, stationery, clothing, etc. Animation enterprises’ marketing and management capabilities have direct relationship with the expansion of authorizing sales networks and sales channels of derivative products, and it also affects the effectiveness of transferring the concrete cartoon characters to products of merchandising values. Cartoon image brings high profits to the enterprises and authorized manufacturers; it increases the number of licensed or franchised enterprises; and merchandising rights of cartoon characters in animation enterprises bring high profits. Thus, the thesis put forwards the following hypothesis.

*H2:* The enterprises’ marketing and management capability has positive relationships with profits brought by merchandising rights of cartoon characters in animation enterprises.

#### *C. Protection input of animation images*

The fund and manpower input in registering animation image in law and protection. The article uses the cost of registering, lawsuit and staff total annual salary as measurement index. Kevin G. Rivette and David Klines study indicates that the intellectual property as patent and so on is the most valuable and flexible asset that can make new profitable return. enterprise’s Income growth is positive correlation with the register or implement quantity of patent, trademark(2006).Austrian flying animation company has registered more than five hundred high level word mark and picture logo. A package picture logo can be used either as logo or as product of large-scale industrialization. Austrian flying

animation achieved operating income of 600.2 million, with the margin rate of 32.69%.From January to March in 2011, operating income has reached 278 million, against a 90.13% increase in the previous quarter. Its main business is licensing and cartoon animation toys development operation.

Hencent network technology Co., Ltd. Guangzhou registered its original local popular cartoon for trademark, such as “black pig” and “white pig”, and expanded brand authorization in the product market of plush toys, tags, small accessories and so on. In 2007, Hencent network technology Co., Ltd found in surprise that “white pig” was printed on bedding on store displays As a result, the company took legal steps to protect its own copyright and character merchandising rights. After the case was won, Hencent network technology Co. Ltd made an agreement with Bedding company, authorizing the Bedding company to use their series cartoon figurine image. The Bedding company once produced a batch of carpet printed “white pig” and “black pig”. Because of the lawsuit, they were afraid to sell. After the agreement was reached, the bedding company sold the carpet immediately and sales was well so that other companies were attracted to demand business permit. Thus, we put forward the following hypotheses:

*H3 :* There is a positive correlation between input of animation image protection and character merchandising rights of animation enterprises.

#### *D. Institutional environment friendliness*

Authors are responsible for obtaining any security clearances. As of animation enterprises, its living environment has high correlation with the profit of merchandising rights. The government pays attention to the intellectual property rights protection and strictly enforces the law, leading to less pirate products and sham behavior and showing a friendly environment. Conversely, if the products are pirate, counterfeit are fashionable, the law is difficult to follow and weakly enforced, there will have a negative impact on merchandising rights earnings for animation companies and cause significant damage to the animation business. In 2006, from the big shopping malls, supermarkets, wholesale markets to small business operators, all kinds of infringement, piracy, “Blue Cat” products were flooding. Only piracy “Blue Cat” VCD, fake publishers had signed as many as 16. According to the data of China Audio-Video Association, pirate “Blue Cat” VCD market accounted for more than 90% (Huang Wei, 2006) . Other piracy “Blue Cat” products such as clothing, school bags, stationery, shoes, instant noodles, beverages, candy food, video machines were also very rampant. Piracy affected “Blue Cat” original animation disc, book sales seriously, reducing the credibility and enthusiasm of other enterprises in the development of derivative product so that the sunchime Ltd. merchandising gain suffered successive years of decline. In this paper, we take the amount of piracy and the infringing products investigated by the industrial and merchandising department as metrics of environmentally friendly system. Thus, we put the following assumptions:

H4: There is a positive relationship between the institutional environment-friendliness and the character merchandising rights profit of cartoon enterprises.

### III. MODEL AND EMPIRICAL RESEARCH

The study assumed by all to build a model of influence factors in earnings of cartoon merchandising character, Figure 1.

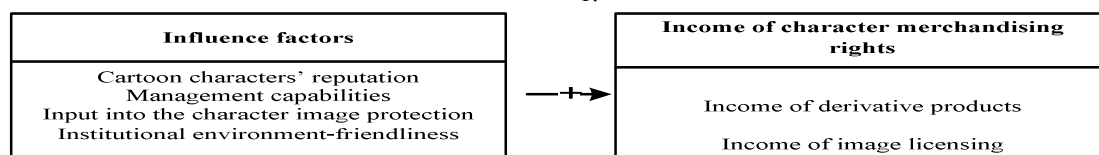


Fig. 1 Research model

#### A. Data collection

In this paper, we determine to use the sampling method to select 10 small and medium sized animation companies established more than five years in Nanjing, Wuxi, Suzhou, Changzhou as data analysis in 2010. Among them, the cartoon characters' reputation, marketing management, input of animation character protection were measured respectively by

annual copyright income of each enterprise, derivative products, the Patent and Trademark applications cost and human capital. Institutional environment-friendliness index was measured by the amount of relevant cartoon character piracy, counterfeiting quantity (amount) that the department of industry and commerce has investigated.

TABLE I  
ORIGINAL DATA OF INFLUENCE FACTORS OF CHARACTERS' MERCHANDISING INCOME

Enterprise	Merchandising rights income	Cartoon characters reputation (royalty income)	Management capabilities (derivatives Income)	protection into the character image (Patent and human power)	Institutional environment-friendliness (the amount of Investigative pirated counterfeit goods)
1	57	272.8	751.1	10.1	35.1
2	68	293.4	887.8	9.4	36.2
3	91	343.3	768.7	8.7	44.5
4	135	745.6	773.5	9.5	45.6
5	109	574.5	781.2	9.4	52.8
6	146	751.8	791.5	5.7	51.8
7	113	456.1	875.4	9.6	52.3
8	126	505.2	834.5	7.2	50.8
9	112	452.3	696.3	8.8	35.1
10	123	465.7	771.6	7.3	11.2

Date From: Field research

TABLE II  
CORRELATION AND SORTING

Factors	Lag phases	Resolution factor of 0.5		Resolution factor of 0.4		Resolution factor of 0.3	
		correlation	sort	correlation	sort	correlation	sort
Cartoon characters' reputation	0	0.5077	4	0.4605	4	0.4027	4
Marketing management	0	0.5418	2	0.4994	2	0.4479	2
Input of the Character image protection	0	0.5396	3	0.4931	3	0.4351	3
Institutional environment-friendliness	0	0.6220	1	0.5774	1	0.5195	1
The reputation of a cartoon character	1	0.6674	1	0.6292	1	0.5787	1
Marketing management	1	0.5318	3	0.4862	3	0.4299	3
Input of the Character image protection	1	0.4702	4	0.4239	4	0.3682	4
Institutional environment-friendliness	1	0.5668	2	0.4970	2	0.4389	2
cartoon characters' reputation	2	0.6107	1	0.5690	1	0.5160	1
Marketing management	2	0.5747	3	0.5349	3	0.4863	3
Input of the Character image protection	2	0.5636	4	0.5189	4	0.4629	4
Institutional environment-friendliness	2	0.5718	2	0.5274	2	0.4714	2
Cartoon characters' reputation	3	0.6405	1	0.6035	1	0.5561	1
Marketing management	3	0.5560	3	0.5127	3	0.4590	3
Input of the Character image protection	3	0.5030	4	0.4590	4	0.4059	4
Institutional environment-friendliness	3	0.5611	2	0.5160	2	0.4744	2

### B. Grey relational analysis

We take merchandising rights income in Table 1 as a reference sequence, the other parameters as relative sequences, using the general method of grey relative analysis to obtain the correlation of each factor and the relevant results of the correlation order through the gray system software (see Table 2), considering delay effects in the analysis (factor 1 may not affect factor2 currently). In order to have an intuitive understanding to the distinguishly coefficients, Table 2 also lists the results of resolution factor of 0.4 and 0.3.

## IV. CONCLUSIONS

According to Table II, the following empirical conclusions can be drawn:

First of all, both confirmation in terms of time dimension and parameters dimensions in analysis verify the theoretical conclusion that the profit in characters' merchandising rights has a significant positive relationship with cartoon characters' reputation, marketing management, the input of character image protection.

Secondly, current grey relational analysis shows that, among the four factors in evaluation, the Institutional environment friendliness impacts the income of current merchandising rights the most, followed by marketing and management capabilities, input of the character image protection and Cartoon characters' reputation. This reflects that among the real-time input factors, institutional environment friendliness makes the greatest impact, followed by marketing and management capabilities. In the management perspective, the reason may be that the government's regulation of the market and improvement of management systems to the environment can bring the enterprises immediate merchandising revenue. Meanwhile enterprises' upgrade in the marketing strategy, marketing channels, marketing and management capacity can bring synchronous income for the merchandising power. So it can be seen if the companies need to break through in the short term, the animation-style development efforts can start with these two aspects. Thirdly, According to the time-delay grey

relational analysis, the largest impact on the revenue of the latter merchandising power is character of reputation, followed by the institutional environment-friendliness, marketing management ability and input of the character image protection in the evaluation of the four factors. This reflects that among the four factors, the cartoon characters' reputation has lagged effect on the cartoon merchandising income, but its lagged impact is the greatest. Therefore animation enterprises need to focus on the factor in long-term.

Last but not least, it is show that of two dimensional grey relational analysis, the constraints of the animation business are local institutional environment-friendliness in short-term and long-term development. Therefore, on the one hand, the animation enterprises should pay full attention on the local institutional environment when choosing first location and operation. On the other hand, it also recommended the animation industry target the development of local area, giving priority to the awareness of IPR protection and institutional environment; Secondly, for the animation business, the cartoon character's reputation is crucial for the future development of enterprises. But their input can not be immediately reflected in the book, so the animation business should have strategic vision in long-term investment.

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