



Empirical Analysis on the Relationship between Internationalization Degree and Operation Performance of China's Colour TV Industry

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Abstract

By building a regressive model, this paper studies the relationship between the internationalization degree and operation performance of China's five major colour TV corporations (TCL Group, Qingdao Haier, Shenzhen Konka, Hisense Electric and Sichuan Changhong). The study shows that the internationalization degree and operation performance of TCL Group, Qingdao Haier and Shenzhen Konka are negatively correlated while it is positively correlated for Hisense Electric and Sichuan Changhong, which indicates that the relationship between the internationalization degree and operation performance of China's colour TV industry is uncertain. The paper also makes in-depth analysis on reasons of the different results.

Keywords: Internationalization, Operation performance, Color TV corporation

1. Forword

Colour TV industry is one of the industries which were market-oriented rather early. Along with the process of its commercialization, internationalization has also been deepening. The modes of internationalization have been changing, from inward internationalization to outward internationalization, that is, from the introduction of advanced technologies from abroad at the end 1970s to export and direct investment abroad in recent decade. The degree of internationalization has been continuously strengthened. The issue of the relationship between the degree of internationalization and operation performance deserves concern.

1.1 Literature on Internationalization of Corporations

Currently, researches on the issue of firm's internationalization mainly focus on two aspects: One is the measurement of the degree of internationalization. American literate Danniell Sullivan put forward the measurement method of five economic indices. Finnish literate Welch built a six-dimension measurement model of internationalization process. Chinese literate Lu Tong (2007) raised the "Spider Model" and Lijian built an index system of evaluation of firm's internationalization by the introduction of fuzzy mathematics. The other is the relationship between internationalization and operation performance. There are four models built with regard to this aspect: (1) Positive linear model. This model holds that there is a positive linear relationship between the internationalization and operation performance; (2) Gains decreasing model. This model argues that at the beginning of internationalization, there is a positive impact on the operation performance which, however, will be gradually decreasing; (3) U model. This model argues that as a multinational corporation which has high level finance performance started its process of internationalization, there is a negative slope of operation performance. But with the deepening of internationalization and the accumulation of the firm's internationalization experience, its slope of operation performance will gradually be increasing; (4) Reversed U-shaped Model. This model holds that at its initial stage, internationalization positively impacts operation performance, but with its deepening and as transnational operation cost largely increases, its positive impact will be reducing and become negative at the end.

All in all, the literatures from both home and abroad mainly concentrate on the measurement of internationalization degree and general description of the relationship between internationalization and operation performance. Up to now, study specifically on the relationship between the internationalization degree and operation performance China's TV has not been found.

1.2 Research of This Paper

This paper is to make analysis on what kind of impact of the internationalization of China's TV corporations has on their operation performances and what the reasons are for these impacts in the hope of providing some insights for China's TV corporations in their internationalization.

2. Internationalization of China's Color TV Industry

Since the 1990s, along with the fierce competition in China's color TV industry, the number of color TV makers has been reduced from more than 100 corporations to about 30 corporations. The degree of concentration of the industry has largely raised. The total output of color TV in 2008 in China was 90.33 million sets, 6.5% growth over the previous year; among which 49.56 million sets were exported, an increase of 3.5% over the previous year. China's color TV industry has experienced the following three stages: (1) Technology introduction stage (from the end of 1970s to early 1990s). As color TV was a high input industry, at this stage, almost all local governments provided great support, resulting in the phenomenon of "repeated introduction", which also signified that the industry would quickly enter into an age of fierce competition; (2) Export expansion stage (from the middle of 1990s to 2003). At this stage, as domestic demand for color TV had been sufficiently met and it was hard for manufacturers to further expand their shares in domestic market, they had to turn to international market. In 2004, 30 million sets amounting to US\$3 billion of Chinese made color TV were exported. The export amount of Color TV ranked the first in terms of single item; (3) Stage of coexistence of export and overseas direct investment (after 2003). Since 2003, while expanding exports, China's color TV makers have also proactively implemented "go global" strategy. In 2003, TCL and France-based Thomson SA established a joint venture, then the largest color TV producer in the world with an annual output of 22 million sets.

3. Establishment of Regressive Model and Empirical Result

3.1 Selection of Variables

3.1.1 Measurement of Internationalization Degree

Comparing with European and American corporations, China's color TV corporations have a lower degree of internationalization or are at the initial stage of internationalization. At present, the internationalization of Chinese color TV corporations is transitioning from export-oriented to cross-board manufacture-oriented. Some corporations are building a global production network, but more corporations are still focusing on export. Therefore, we use the share of overseas (including Hongkong and Marca) sales income to the total main business income as the index measuring the degree of internationalization. The overseas sales includes both the export income and sales income directly earned by overseas factories in host countries. The source of data is from the annual financial report of the selected corporations.

3.1.2 Measurement of Operation Performance

There are various financial indices reflecting operation performance such as return on asset (ROA), ratio of profit to sales and return on equity (ROE), etc. Taking account of data availability, we use ROE to measure a firm's operation performance.

3.1.3 Controlled Variable

We use the scale of enterprise and debt ratio as the controlled variables. Large scale corporations are usually regarded as having the capability of obtaining abnormal profit ratio. Owing to market imperfectness, they are able to obtain superprofit through their advantages of monopoly. In addition, large scale corporations are capable of acquiring money at lower cost in capital market and thus operate at lower cost. Therefore, this paper use the scale of enterprise as a controlled variable which is measured here by the logarithmic of the total asset of the enterprise. Capital structure (especially liability) is regarded as one of the decisive factors that influence the performance and operation risks of corporations. Thus this paper use the ratio of liability as another controlled variable which is measured here by assets-liability ratio or ALR.

3.2 Regressive Model

We build a model as follows:

$$ROE_i = \beta_0 + \beta_1 DOI_i + \beta_2 \ln TA_i + \beta_3 ALR_i$$

Where ROE is the return to equity ratio, DOI is the degree of internationalization, TA is the scale of enterprise and ALR is assets-liability ratio.

China's color TV industry is highly concentrated with a concentration degree of 88.04% in 2007, thus we select five major color TV producers, i.e. TCL Group, Qingdao Haier, Shenzhen Konka, Hisense Electric and Sichuan Changhong to make a regressive analysis. The data of ROE, main business income, overseas (including Hongkong and Marca) sales income all come from the Stokstar website (www.stockstar.com), the stock website of Baidu (www.stock.baidu.com) and annual financial report of each corporation. The years selected for each corporation are: 2000-2008 for TCL Group,

1990-2008 for Qingdao Haier, 1991 -2008 for Shenzhen Konka, 1994 -2008 for Hisense Electric and 1994 -2008 for Sichuan Changhong.

3.3 Empirical Results

We use Eviews5.0 to make quantitative analysis on the data. For the purpose of multicollinearity, VIF is used to test the degree of the multicollinearity between variables. Through the test of multicollinearity, it is known that the VIF value of each variable is less than 6 indicating that there is no problem of multicollinearity between the data used in this paper (Note: When the VIF value of the variables is less than 1, there is no correlation between the variables. When the VIF value is more than 10, there is a high degree of relationship. Generally there is the problem of multicollinearity if the VIF value is more than 5). As to the problem of sequence correlation, this paper adopts Durbin-Watson test model. By computation, we find that the DW value of the model is within normal scope indicating there is no sequence correlation problem in this model.

Insert Table 1 here

Table 1 shows that all the values of regression coefficient β are not zero and below the significance level of 5%, t-test and F-test are all met. The computation result is: There is obvious linear relationship between the performance and degree of internationalization. The empirical result of regression model indicates that the impact of internationalization degree on performance is negative for TCL Group, Qingdao Haier and Shenzhen Kangjia while it is positive for Hisense Electric and Sichuan Changhong.

4. Analysis on the Empirical Results

In 2003, TCL and Thomson SA signed an agreement, establishing the world largest color TV joint venture. The cross boarder M&A made TCL a large multinational corporation. It was a worldwide resources integration which was supposed to be favorable to bring more advantage of scale. Although TC made remarkable achievements within a short period, with its operation platform extending globally, it failed, however, to deal with realistic problems with regard to efficiently integrating the quickly expanded corporation, controlling cost, optimizing technical and marketing channel advantages, etc. In 2004, while the sales of TCL reached 4.028 million yuan, an increase of 42.57% than the previous year, its net profit fell sharply by 57.03%. Thus, although TCL has greatly improved its degree of internationalization, its operation performance was not satisfactor. We are of the view that the obvious negative correlation between TCL's internationalization and operation performance is largely due to the failure in its overseas M&A which resulted from various causes such as insufficient investigation and analysis at the early stage of M&A, risks being undervalued and negligences of culture integration and so on.

Qingdao Haier is a corporation whose internationalization has been remarkable. However, the problem of low profit ratio has occurred in recent years. In fact, international production is only part of Haier's route of internationalization, the other part is its export. To be sure, its export price is rather lower. Therefore, the higher level of internationalization has not brought about higher economic benefit accordingly.

The internationalization degree of Shenzhen Kongka has been remaining higher. But its operation performance has not been satisfactory. In 2005, its main business income and net profit reduced by 18.92% and 17.33% respectively. Internationalization has been the focus of color TV industry. Shenzhen Kongka, however, made several mistakes in this respect. At the beginning, Shenzhen Kongka's internationalization was by the way of establishing overseas subsidiaries. But owing to fierce market competition and lackness of experience and talented people, its overseas subsidiaries suffered great losses and many of them were closed. Our empirical result reflects the impact of its internationalization degree on operation performance to some extent.

The regression analysis of this paper indicates that there is positive correlation between internationalization degree and operation performance for Hisense Electric and Sichuan Changhong. However in terms of the degree of internationalization, these two corporations differ: the former has first grown steadily and then declined sharply. The positive correlation illustrates that Hisense Electric's internationalization is rather successful. The following may be some of the reasons: (1) Clear overseas development strategy. *Hisense Strategy Plan 2000-2005* drafted specific strategy plan for its internationalization; (2) Practical overseas development strategy. Comparing with most multinational corporations, Hisense Electric is only a small one. Owing to this fact, it didn't run the risk of investing abroad. Instead, it started with foreign trade. On the basis of obtaining sufficient market information, it then considered foreign investment; (3) Establish technology innovation system to cultivate core international competitiveness. For Sichuan Changhong, the study of this paper only reflects the relationship between its internationalization and operation performance to some extent: Firstly, it is hard to say that its internationalization is successful. Actually there are drawbacks in its internationalization model. Since 2000, under market pressure, Sichuan Changhong has quickened its pace of internationalization. In the process of corporation with APEX, the account receivable from APEX reached an amount as high as US\$467.5 million; secondly, after the sharp decline of its internationalization degree, Sichuan Changhong has been obtaining its profit from domestic market and it takes lead in terms of domestic market share,

which implies that its improvement in operation performance largely originates from its domestic profit growth.

Insert Table 2 here

Insert Figure 1 here

One of the important financial indexes in measuring the successfulness of corporations' internationalization is that the ratio of overseas income to total income is over 20%. Figure 1 shows that since 2003 when TCL acquired the color TV business of Thomson SA and became the largest colour TV producer in the world, its overseas income has accounted for half of its main business income; In 2005, Qingdao Haier implemented a five-year plan of "three one thirds" (one third of its product domestically made and domestically sole, one third domestically made and overseas sold, one third locally made locally sold). Its degree of internationalization has remained at around 20%. The DOIs of Shenzhen Kangka and Hisense Electric have been relatively constant, except great growth in 2004 and sharp drop in 2007 and 2008. Sichuan Changhong's ratio of overseas main business income to total main business income has kept a rather high level with an exception of sharp drop in 2005.

To sum up, at the initial stage of internationalization, the overseas income of China's color TV corporations have grown quite quickly. But as later starter of multinational operation, under the condition of lower degree of internationalization, the impact of internationalization degree on the whole operation performance of corporations is uncertain.

5. Conclusion

This paper selected the relatively highly commercialized and internationalized color TV industry as study object and explored the correlation between the internationalization degree and operation business of China's five major manufacturers of color TV, i.e. TCL Group, Qingdao Haier, Shenzhen Kongka, Hisense Electric and Sichuan Changhong. The result of the research indicates that the impact of internationalization degree on operation performance of China's color TV corporations is uncertain.

There are some limitations in this study which is also the orientation of future study: Firstly, considering data availability as well as the present situation of internationalization of Chinese corporations, the share of overseas sales and export amount in the total main business income is used to indicate the degree of internationalization. With the development of internationalization of Chinese corporations, more comprehensive index may be better to indicate the degree of internationalization; Secondly, the data used in this study are from 1990 to 2008. More ideal approach should be: start from the year when export first took place and make comparative analysis of each phase. But as the data of export are not required in corporations' annual financial report, it is difficult to obtain these data. Thirdly, this paper selected the corporations which have high market shares. Although the results are somewhat representative, it should still be cautious when the results are adopted in the whole industry.

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Table 1. Regression results

	TCL Group		Qingdao Haier		Shenzhen Kangjia		Hisense Electric		Sichuan Changhong	
	β	t	β	t	β	t	β	t	β	t
DOI	-0.71 92	-0.75 81	-0.30 38	-0.9 679	-0.3422	-0.629 8	1.1957	1.6942	0.6069	1.12 84
lnTA	14.22 77	0.458 1	0.188 7	0.13 25	-13.544 8	-3.822 7	-13.065 6	-1.9986	-20.37 59	-2.49 75
ALR	-3.74 77	-1.53 97	-0.18 09	-1.5 724	1.3764	2.784 2	-0.5113	-1.3717	0.9030	1.89 62
F	4.3974		6.3882		5.1742		5.3138		4.5832	
VIF	4.3854		4.6323		2.5606		4.6803		2.3376	
DW	2.2057		0.3323		2.0428		1.7874		1.8100	

Table 2. Comparison of DOI between China's five major color TV corporations

	TCL Group	Qingdao Haier	Shenzhen Kangka	Hisense Electric	Sichuan Changhong
1990		2.01			
1991		9.51	7.27		
1992		13.60	0.01		
1993		11.38	8.76		
1994		16.92	12.66	3.79	30.65
1995		15.09	14.13	5.03	28.24
1996		11.35	14.11	9.32	28.42
1997		9.38	13.72	9.16	21.07
1998		10.47	10.85	8.34	36.01
1999		12.98	9.95	7.11	36.72
2000	8.58	12.44	8.88	5.37	37.92
2001	13.32	5.75	13.66	5.91	34.82
2002	12.66	12.28	9.55	5.16	44.03
2003	11.76	14.40	9.19	10.59	35.65
2004	39.66	16.94	17.44	14.98	25.14
2005	53.45	23.72	23.52	17.02	14.97
2006	53.49	22.76	30.57	18.27	13.65
2007	42.60	20.85	18.79	14.71	11.48
2008	43.41	16.87	24.98	18.31	13.39

Source: Calculation based on the annual financial report of each corporation.

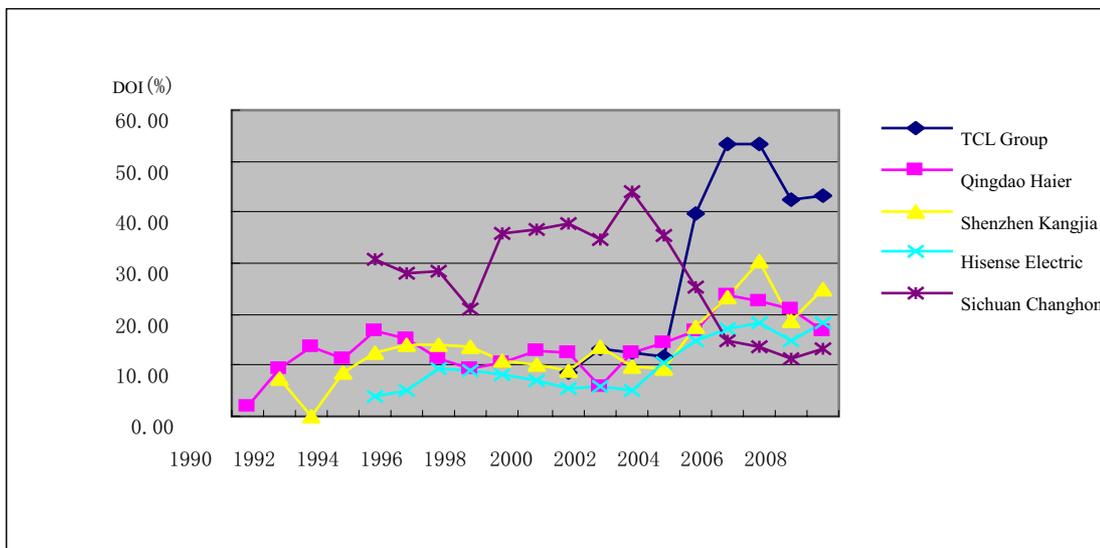


Figure 1. Comparison of DOI between China's Five Major Color TV Coporations