

An Empirical Study on Impacts of China Listed Companies' Intangible Assets to Operating Performance

¹Rui-zhi Wu, ²Lu-ying Hao

^{1,2}University of Shanghai for Science and Technology, Shanghai, China

Email: ruiamy@sina.com

Abstract - This paper empirically analyzes the impacts of companies' intangible assets to operating performance based on the data of listed companies in China's automobile industry from 2009 to 2011, the empirical results show that: Intangible assets have significantly positive effects on the listed companies' operating performance, and the contribution rate of intangible assets to companies' operating performance is increasing year by year.

Key words - intangible assets; companies' operating performance; listed companies

1. Introduction

Intangible assets (IAs) are increasingly seen as critical drivers for knowledge creation, innovation and consequently economic growth. These assets can be defined as "all non-material factors that contribute to the performance of firms in the production of goods or the provision of services, or that are expected to generate future economic benefits to the entities or individuals that control their deployment". In the era of knowledge economy, through the way of technological innovation and cultural strategy, intangible assets are transformed into the assets which can increase companies' profit. Baruch Gulliver (2001) pointed this out in his book "Intangible assets - management, measurement and reporting": today, wealth of the society and economic growth is mainly affected by the intangible assets". Actually, 80% of assets are intangible assets in the five hundred top companies of United States. For some high-tech, IT companies, the proportion of intangible assets is much higher. According to the statistics of the United States Patent and Trademark Office, the nation's intellectual property rights are worth \$ 5 trillion.

2. Literature Review

A lot of western studies concluded that: intangible assets play a significant role in companies' productivity improving, value creation and business innovation. The first empirical study of the intangible assets aboard began in 1942: Avery (1942) used empirical methods to examine 346 USA companies' intangible assets recorded in corporate balance sheets in 1929-1939 year. Amir and Lev (1996) found that there exist value relevance among growth, unrecorded intangible assets, and other non-financial variables in the mobile phone industry. The combination of these non-financial variables and financial variables will enhance the interpretation of the enterprise value. Barth and Clinch (1998) proved that there is a

significant correlation between the revaluation of intangible assets and stock returns based on evidences from Australian listed companies in 1991-1995 year. Aboody and Lev (1998) studied the value relevance of intangible assets from the perspective of software development costs capitalization. A significant positive correlation between the annual capitalized software development costs and the company equity returns was discovered based on the data of 163 Software companies in 1987-1995 year. 500Standard & Poor's (S & P) companies' financial statements show that \$1 of every \$6 value of the company reflected in the balance sheet, but about \$2 stayed in intangible assets in 2000(Hall, 2000). Lev B. (2001) created the value chain scoreboard of intangible assets, this method analyzes the value creation mechanism of intangible assets in innovation three stages from the perspective of enterprise value chain. Belen Villalonga (2004) used American listed companies as a sample to analyze the relationship between intangible assets and the sustainable development of enterprise. This study firstly confirmed the invisible resources are double-edged sword, which not only bring competitive advantages but also bring disadvantages to the enterprise.

Since the 1980s, due to intangible assets play a more and more important role in the market economy and enterprise management, China's enterprises have stepped up the investment and management of intangible assets. In China, the first empirical study about intangible assets was done by Xue Yunkui and Wang Zhitai from Shanghai University of Finance and Economics in 2001. They studied the information disclosure status of Chinese listed companies' intangible assets and R&D expenditures, as well as its impact on corporate earnings and the value of accounting information. Liu Bin and Han Chuanmo's (2009) studies have shown that the contribution of intangible assets to business performance is significant and positive. Taking all listed textiles and clothing companies from 2000 to 2007 as a sample, Gong Juhong, Wang Yaojun and Chen Qiuxia (2010) tested the

relevance of intangible assets and business performance, by focusing on the analysis and evaluation of the intangible assets management based on statistical description and gray relational analysis method. Results show that intangible assets of China textile enterprises have strong correlations with business performance, reflecting China textile industry has made some progress in the management of intangible assets. Zhao Min and Zhu Limin (2010) used positive analysis to study on relation between listed companies' intangible assets and companies' value, by selecting listed companies of Shanghai Stock Exchange from 2006 to 2008. The findings show that intangible assets have significant positive effect on stock price and companies' operating performance. Wang Li (2011) selected a sample of 34 social services listed companies and used a linear model to empirically analyze the relationship between the return on assets and the ratio of intangible assets to total assets. The result shows that the correlation is not obvious.

3. Empirical Analysis

3.1. Research Design

Don't consider whether the entering value of intangible assets is quite the true sense of actual costs, directly use the book value of intangible assets in the company annual

report. This paper chooses 2009-2011 as the study period and listed companies in China automotive industry as the sample. To ensure the validity of the study sample, this paper, the following companies have been removed: (1) In order to ensure the continuity, consistency and comparability of the data, exclude the sample companies with missing and non-continuous data; (2) Considering some companies have huge losses such as: ST *,ST ** companies, the data may be not stable so exclude the above type sample companies. Finally we get 45 sample companies, three consecutive years of data, and 135 groups of sample data.

The dependent variable, representing company's performance level, was measured by the net profit value; the independent variable, on behalf of the level of company's intangible assets, was measured by the book value of intangible assets.

Then, we can put forward the following research hypotheses:

H1: The automotive industry listed companies' intangible assets have a positive correlation with the performance of companies.

H2: The contribution rate of intangible assets to companies' operating performance is increasing year by year.

3.2. Descriptive Statistics Results

Table 1. Sample companies' intangible assets value analysis (unit: million)

year	Average	Median	Max.	Min.	Standard deviation
2009	26311.34	10675.89	294613.47	185.76	48683.00
2010	38346.04	11971.67	576035.58	669.01	88462.60
2011	57592.30	17701.2	819206.71	630.21	128218.75

As Table 1 shows, the average of auto automotive industry listed companies' intangible assets has a growing trend, especially in 2011 there is a relatively large increase. At the same time, the gap between the maximum and minimum of intangible assets is large and this gap is increasing year by year. This reflects divergences in the development of intangible assets among companies, resulting in a serious imbalance in the distribution of intangible assets. The gradual growth of

the standard deviation also reflects the intangible assets of the automotive industry did not form a common trend of development.

3.3. Regression Results Analysis

The regression results are as follows:

Table 2. Regression analysis of intangible assets on corporate performance

	Coefficients	P-value	F	Significance-F	R Square
Intercept	-42826.05339	0.005808894	630.5471805	1.13957E-50	0.83455699
intangible assets	3.629810092	1.13957E-50			

As Table 2 shows, in a given significant level 0.05, Significance-F = 1.13957E-50 is far less than 0.05, which means the model through the significant inspection. Meanwhile, the influence coefficient of the

intangible assets to net profit value is 3.629810092, which presents a significant positive correlation. So Hypothesis 1 was set up.

Table 3. Regression analysis of intangible assets on corporate performance for each year

Dependent variable	Independent variable	R-Square	F	Significance-F
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2009 net profit value	2009 intangible assets	0.789682196	146.4336595	8.87568E-15
2010 net profit value	2010 intangible assets	0.843268937	215.214245	1.08746E-17
2011 net profit value	2011 intangible assets	0.860948897	253.8556262	3.62135E-19

As Table 3 shows, in a given significant level 0.05, the Significance-F value of three groups are less than 0.05, which means three models are significant at 5%. At the same time, the coefficient R-Square is increasing year by year, thus we can confirm Hypothesis 2.

4. Conclusions and Suggestions

4.1. Conclusions

Our research puts the data of listed companies in China's automobile industry from 2009 to 2011 as a sample, and empirically analyzes the impacts of companies' intangible assets on operating performance. The empirical results show two important conclusions: firstly, intangible assets have significantly positive effects to listed companies' operating performance and play an important role in value creation. Secondly, the contribution rate of intangible assets to companies' operating performance is increasing year by year.

4.2. Suggestions

In the era of knowledge economy and a globalized market environment, companies should occupy the commanding heights of the intangible assets strategy. Based on the model and its variables, we may put forward the following suggestions:

4.2.1. Fully understand the role of intangible assets:

Set up the consciousness of intangible assets management. Intangible assets (the foundation of sustainable development) are the ability to innovate and cultivate the core competitiveness of companies. The operation of the intangible assets has more space than the tangible assets, so intangible assets bring rewards faster than tangible assets. In some international well-known companies, the value of intangible assets is much more than tangible assets. With the arrival of knowledge economy era, the value of intangible assets, such as brands, intellectual property, software, media content and skills, is rising rapidly. Thus, the proportion of intangible assets in total assets is higher and higher. Compared with foreign companies, intangible assets of China listed companies failed to reflect its proper value. There is no development prospect for the companies, which have no intangible assets or ignore them. Therefore, it's necessary to set up the consciousness of intangible assets management in the asset ownerships and the operators. Pay attention to the development, utilization and protection of the intangible assets; take it as the important production elements to set up companies' core competitive ability.

4.2.2. Increase the investment and utilization of intangible assets:

Companies should strive to tap the value creation potential of intangible assets. The invisibility of intangible assets increases the difficulty of management, on the other hand creates the non-competitive and the increment of remuneration. So companies should expand the using scope of intangible assets to increase profit. Companies can use the conversion of intangible assets, license trade, investment in intangible assets or other channels to gain excess returns.

4.2.3. Improve the structure of intangible assets:

Increase the investment and exploitation of knowledge intangible assets to enhance the awareness of increasing the value of intangible assets. The inputs of the knowledge intangible assets, on one hand can make the existing intangible assets structure more reasonable, which means using patent, trademark, goodwill and other intangible assets better to achieve maximum value; on the other hand can make the knowledge intangible assets play a full role on improving product performance and quality, expanding the product market and establishing a corporate image leading company's products and services becoming more competitive to enhance the capability of obtaining excess returns.

4.2.4. Strengthen the scientific management of intangible assets:

As the management of intangible assets relates to various aspects of the companies' operation, an intangible asset management institution must be established to arrange the exploitation, investment, application, development and protection of companies' intangible assets. This also will help on the coordination of corporate and external relations and the maintenance of intangible assets for its safety and integrity. Meanwhile, as the management of intangible assets relates to the legal, economic, technical, policy and other aspects of knowledge, so strong analytical skills and organizational skills are needed for the management staff, which means they should have a very high-quality. Moreover, a perfect internal management system of intangible assets, such as the technical data storage system and the management system of technical personnel's technical development agreement rules, should be established to seek the relevant laws for safeguarding the legitimate rights and interests of the corporate-owned intangible assets. At last, the enterprise should establish a performance evaluation analysis system of intangible assets to analyze the effectiveness of intangible assets' utilization and the increasing of assets value regularly, which will provide the basis for decision-making to improve the company's performance.

Acknowledgements

This research is supported by The Innovation Fund Project For Graduate Student of Shanghai (Project No. JWCXSL1102).

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