

Research on Social Responsibility Evaluation Model of Listing Corporation Based on Accounting Information

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Abstract. Actively practicing social responsibility can enhance the corporate image of the listing Corporation, enhance the market competitiveness of the listing Corporation, and can contribute to the long-term development of the listing Corporation. Currently, social responsibility evaluation system of listing corporation is lack of comparability, and the operability is not high, so this paper established the social responsibility evaluation model of the listing corporation, which is based on accounting information. In this paper, we use the analytic hierarchy process (AHP) to determine the index weight, take the social responsibility report and financial report of the company as the evaluation index data source, to complete the social responsibility management status and responsibility information evaluation. This research takes companies with A-share listing more than five years as the research object. The result shows that: Firstly, nearly half of the listing corporation's responsibility management is not in place, and the information disclosed in the report of the social responsibility is not enough. Secondly, the scale of the enterprise is proportional to the social responsibility index. Namely, the greater the scale of the enterprise is, the higher the social responsibility index. Thirdly, the difference of social responsibility index among enterprises is obvious. Social responsibility index of state-owned enterprise is higher than that of foreign enterprises; the social responsibility index of foreign enterprises is higher than that of private enterprises, but the state-owned enterprise's social responsibility index is close to that of foreign enterprises.

1. Introduction

In recent ten years, problems such as environmental pollution accident, employee disability accident, and damage to public interest occur frequently. Serious incidents caused by enterprise's lack of social responsibility emerge in endlessly. Public pay more attention on enterprise's social responsibility and strongly request enterprises to disclose the information of social responsibility. The market of developed countries in Europe and the United States has already appeared more perfect enterprise social responsibility evaluation system. There have been many social responsibility index of great influence. The index plays a positive role in aspects such as evaluate the performance of the social responsibility of enterprises, and promote enterprise to take their social responsibility. However, the evaluation system of enterprise's social responsibility in the developed economies is based on the relatively perfect market economic system. The market mechanism is relatively perfect, and the punishment is large. For example, Mikasa, large-scale food enterprise of Japan, suffered heavy losses because of poisonous rice event. And officials of Japan's Agriculture and Forestry Ministry who related to the poisonous rice event are or resignation or suicide. It can be seen that the evaluation of enterprise's social responsibility plays an important role in the survival and development of enterprises in developed countries. In China, positive taking social responsibility can enhance the image of listing corporation, enhance the market competitiveness of the listing corporation, and can contribute to the long-term development of the listing corporation. However, our country's social responsibility evaluation system is not perfect, and the existing evaluation system can not reflect the performance and characteristics of enterprise's social responsibility very well. It is urgent to establish a social responsibility evaluation system of high feasibility.

2. Research status

One of the problems of the practice and academic research of the disclosure of social responsibility information is how to evaluate and measure the quality of social responsibility information. Most of the foreign countries measure the quality of social responsibility information by using content analysis, such as a primary content analysis method value by the number of words, sentences or pages of the disclosure. For example, Guthrie and Parker (1989), Zeghal and Ahmed (1995), Campbell et al (2003), and Joyce et al (2005). This method can measure the amount of information rather than the quality of the information. Its implicit assumption is that the more the information is involved, the more the quantity of the information and the better quality of the information. Abbott and Monsen (1979) constructed the SID (Involvement Disclosure Social) index according to the classification of social responsibility information. From then on, the index method based on content analysis became the main method to measure the quality of social responsibility information. For instance, Ahuja Richardson (1981), Welker Singh (2001), and Cooke Haniffa (2005). This method usually assigns by distinguishing whether the content of social responsibility information is disclosed or not, the disclosure is quantitative or qualitative, so as to measure the quality of information to some extent. The implicit assumption is that the quality of quantitative disclosure is higher than that of qualitative disclosure, but it did not measure quality characteristics such as whether the information is relevant to decision making or not, whether it is true and reliable or not, whether they are comparable with each other or not. At present, the common social responsibility evaluation method is triple bottom line method. For example, E. I. Du Pont Company follows the sustainable development strategy of triple bottom line. It not only improves the operating income, but also reduces the consumption of energy and material and the emission of greenhouse gas. It takes the economic responsibility, social responsibility and environmental responsibility of the enterprise into account.

The comprehensive evaluation of social responsibility of Chinese enterprises has just started. Most of the research focuses on the framework of the social responsibility index system of the enterprise, the selection of specific evaluation index and the empirical research on index system. Since the year 2006, China Securities Regulatory Commission and Shanghai and Shenzhen Stock Exchange gradually issued related guidelines of social responsibility. Trade associations and governmental authorities become the main driving force of China's enterprise to release the report of social responsibility. So far, about 45% of the listing corporation released a relatively complete social responsibility report. Research results of Shen Yi and other scholars (2014) show that the driving factors of Chinese enterprises' released the sustainable development report in turn are to enhance the image of the company, to support for government policies, the consciousness of enterprise's leader and the pressure of public opinion. Public, consumer, non-governmental organizations and communities have little effect on enterprise's reporting. But the report plays a less role in attracting talented people and promoting business innovation. Li Weiyang and Xiao Hongjun (2009) proposed the "3C+3T" model of the comprehensive social responsibility management. As a kind of social value target management mode, the comprehensive social responsibility management has the characteristics of global positioning the nature of management, comprehensive content of the responsibility of management, the full coverage of the scope of management, the full integration of management system construction, comprehensive intended target of the management and so on. Based on stakeholder theory, business ethics theory, signal transmission theory and externality theory, Lin Songchi (2009) analyzes the disclosure objectives, quality requirements, measurement methods, patterns, and other aspects of social responsibility accounting information, and puts forward the idea of building a social responsibility accounting information disclosure system that is suitable to China's enterprise.

Some scholars use the constructed index system to carry out an empirical study. Xiong Yongqing, Zhou Li (2008) analyze the enterprise's social responsibility from five aspects, which include enterprise's responsibility to the creditors, shareholders, employees, government and public welfare undertakings. Based on this, evaluation model of enterprise's social responsibility is constructed.

And then apply this model to analyze the social responsibility of the 163 manufacturing listed corporation of Shenzhen Stock Exchange. It can be seen from the research that social responsibility of different companies in the same industry is in an unbalanced state, and the polarization is rather serious. Several aspects of social responsibility in the same company are also in an unbalanced state. Some scholars have carried on the related research to the index system of specific industry. Hua Liqun and Zhu Bei (2009) study enterprise's social responsibility and its evaluation system. Combined with the characteristics of China's banking industry, they created the evaluation index system of enterprise's social responsibility in China's banking industry, and proposed a method to weight each index. The two grade evaluation index system of enterprise's social responsibility in banking industry can contribute to better evaluate the comprehensive effect of various banks in the process of enterprise's taking their social responsibility, and better guide the banking industry to farthest fulfill the social responsibility.

In summary, the existing evaluation system of enterprise's social responsibility has problems in comprehensiveness, operability and comparability. Therefore, this paper takes the stakeholder theory and the enterprise ethics theory as the theoretical foundation, and establishes a two grade social responsibility evaluation index system, and carries on an empirical research.

3. Modeling of social responsibility evaluation of listed corporate

3.1 Data source

This study selected companies with A-share listing more than five years as the research object, excluding the sample with incomplete financial report and social responsibility report, the research object is 468 in total. Taking the social responsibility report and annual financial report from 2009 to 2014 of the listed company as the main source of data, the social responsibility management status and the level of the disclosure of responsibility information of the case enterprise are studied.

3.2 Social Responsibility Evaluation Index System

Based on Stakeholder Theory and enterprise ethics theory, this paper takes the economic responsibility, legal responsibility, ethical responsibility and charitable responsibility as the first level index, and establishes an evaluation index system of two levels. The specific index system is shown in table 1.

Table 1 Social Responsibility Index System of Enterprises

First-grade index	Second index	Variable
Economic responsibility	The growth rate of total sales	ER1
	Capital maintenance and increment ratio	ER2
	customer churn rate	ER3
	Total of annual tax payment	ER4
Legal responsibility	Mortality rate of productivity accident of employee	LR1
	The number of violations of the principle of fair competition	LR2
	The number of violation of national laws and regulations	LR3
	The number of litigation and arbitration of enterprises	LR4
	Fine forfeits and penalty expenditure of enterprises	LR5
	Times of investigate the use of child labor	LR6
Ethical responsibility	The incidence of major safety accident	EER1
	The proportion of environmental protection expenditure accounting for current sales	EER2
	The incidence of occupational diseases	EER3
	The number of illegal records of environmental pollution	EER4
Charitable responsibility	The proportion of charitable spending accounts for the current sales	CR1

3.3 Determination of index weight

The two level evaluation index system established in this study has 15 index variables in total. There are many index variables and the unit is different. Therefore, this study adopted the analytic hierarchy process to determine the weight of index.

Firstly, normalized process the raw data of each index variable, so as to reduce the difficulty of calculation.

Secondly, averaging of the evaluation matrix, the average value matrix of the importance of the index is as follows:

$$A = (a_{ij})_{15 \times 15} = \left[\begin{array}{c} \left(\prod_{k=1}^{15} a_{ij} \right)^{\frac{1}{15}} \\ \vdots \\ \left(\prod_{k=1}^{15} a_{kj} \right)^{\frac{1}{15}} \end{array} \right]_{15 \times 15} \quad (1)$$

In the formula above, the evaluation matrix is $A = (a_{ij})_{15 \times 15}$. Calculating by using the analytic hierarchy process, the weights of the 15 evaluation indexes are determined:

$W = (w_1, w_2, \dots, w_n)$. Among them:

$$w_i = \frac{\frac{1}{n} \sum_{j=1}^n a_{ij}}{\sum_{k=1}^n \frac{1}{n} \sum_{j=1}^n a_{ik}} \quad (2)$$

In the formula above, $i = 1, 2, n$.

Then, normalized process the obtained weight, so as to get the normalized vector of the weight W' . Among them,

$$w'_i = \frac{w_i}{\sum_{i=1}^n w_i} \quad (3)$$

In order to evaluate the consistency of the evaluation matrix, the maximum eigenvalue of the evaluation matrix need to be calculated, and the formula is as follows:

$$CIX = \frac{1}{n} (\lambda_{\max} - n) = \frac{1}{n} \left(\sum_{j=1}^n \frac{A'_{ij} w'_j}{n w'_i} - n \right) \quad (4)$$

When $CIX=0$, the evaluation matrix has a complete consistency, the greater the CIX value, the worse the consistency of the evaluation matrix. When CIX value is less than 0.1, it is considered acceptable. According to the obtained evaluation index weight vector, we can calculate the social responsibility index of listed corporation. The formula is as follows:

$$SR = w_1 ER_1 + w_2 ER_2 + \dots + w_{15} CR_1 \quad (5)$$

3.4 Result of the research

In the process of sample selection, through careful inspection of enterprise's social responsibility report, we can find that responsible management in nearly half of China's listing corporation is not in place, and the information disclosed in the report of the social responsibility is not enough. Thus, it is urgent to improve social responsibility management.

According to the index weights calculated by the analytic hierarchy process, we can obtain the weight vector of the social responsibility of listing corporation:

$$W' = (0.5912, 0.3551, 0.7436, 0.4235) \quad (7)$$

Therefore, we can get the calculation formula of the social responsibility index of the listing corporation as follows:

$$SR = 0.5912ER + 0.3551LR + 0.7436EER + 0.4235CR \quad (8)$$

The CIX value of the evaluation matrix is 0.0531, which shows that the evaluation matrix is with consistency. The trend of the average index of the social responsibility of listed corporation from 2009 to 2014 is shown in figure 1.

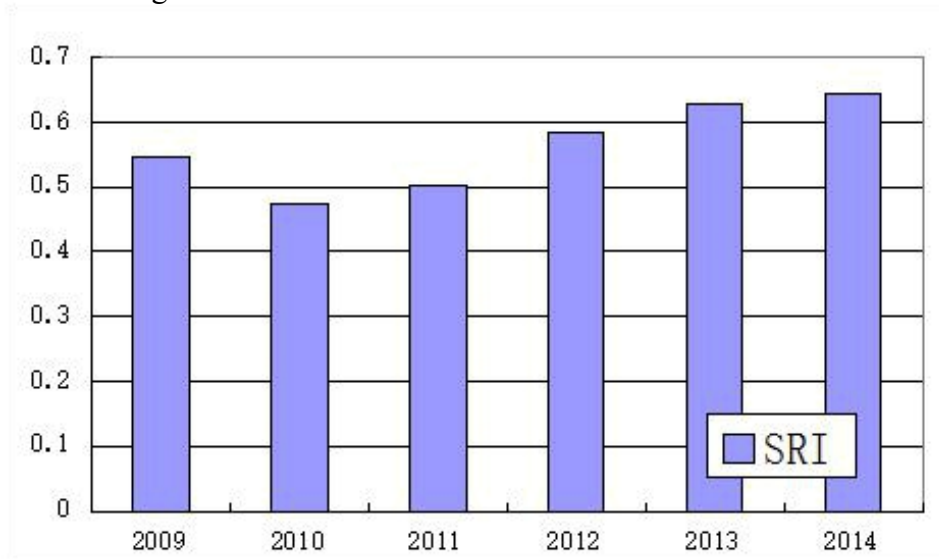


Figure 1 Trend of the average index of the social responsibility of sample enterprises

It can be seen from the figure above that the average index of the social responsibility of sample enterprises is at the bottom in the year 2010, and then increased year by year. This may be related to the overall environment of China's social economy. In the year 2010, financial crisis and subprime crisis shock China's economy. The operating conditions of many listing corporation in china became worse, which resulted in that enterprises did not have sufficient funds to undertake the social responsibility and the completion of the charity. Therefore, the average index of the social responsibility of sample enterprises had a slight decline but rapidly recovered. The descriptive result of the evaluation of first level index which includes economic responsibility, legal responsibility, ethical responsibility and charitable responsibility of the social responsibility of listing corporation is shown in table 2.

Table 2 Descriptive results

Variable	Mean value	Median	Maximum	Minimum
<i>ER</i>	0.7242	0.7081	0.8690	0.5794
<i>LR</i>	0.4702	0.4800	0.5643	0.3761
<i>EER</i>	0.3612	0.3657	0.4334	0.2890
<i>CR</i>	0.6523	0.6517	0.7827	0.5218

From the table above, we can see that the fulfillment of the social responsibility of the sample enterprises is in a clear polarization. The performance of social responsibility is not balanced in different aspects. Performance of economic responsibility and charitable responsibility is generally good, but the performance of legal responsibility and ethical responsibility and other aspects is obviously lagging behind. At the same time, enterprise of large scale has a relatively good performance of ethical responsibility. On the whole, China's listed companies pay more attention to the economic responsibility. We divided the social responsibility index according to the scale of the sample enterprise. The result is shown in table 3.

Table 3 Average value of social responsibility index of enterprises of different scale

Grouped by scale	Average sales revenue	Sample size	Social responsibility index
More than 100 billion yuan	239.1770	216	0.8162
50 billion to 100 billion yuan	173.4545	534	0.7956
20 billion to 50 billion yuan	87.7680	966	0.7397
10 billion to 20 billion yuan	42.8835	672	0.6269
Less than 10 billion yuan	19.3315	408	0.4862

As can be seen from the table above, the scale of the enterprise is proportional to the social responsibility index. Namely, the greater the scale of the listing corporation is, the higher the social responsibility index is. In order to investigate the difference of the social responsibility index of the listing corporation of different nature, the study divided the sample enterprises into state-owned enterprises, private enterprises and foreign-funded enterprises. The mean value of the social responsibility index of listing corporation of different nature is shown in table 4.

Table 4 Social responsibility index of listing Corporation in different nature

Grouped by nature	Sample	Social responsibility
	size	index
<u>State-owned enterprises</u>	1356	0.7936
Foreign enterprises	732	0.6812
Private enterprises	708	0.4836

From the table above, we can see that obvious difference exists in the social responsibility index of corporations of different nature. Social responsibility index of state-owned enterprise is higher than that of foreign enterprises; the social responsibility index of foreign enterprises is higher than that of private enterprises. This indicates that the state-owned enterprises are relatively better than private enterprises and foreign enterprises in social responsibility management. At the same time, the social responsibility index of the state-owned enterprises is close to that of the foreign enterprises, and the average index of the social responsibility of the private enterprises is obviously lagging behind. What we need to pay attention to is that our government departments need to strengthen the supervision of foreign enterprises. In order to avoid our country become the heaven of foreign enterprise to escape the social responsibility.

4. Conclusion

This study established a two level social responsibility evaluation index system based on four aspects of economic responsibility, legal responsibility, ethical responsibility and charitable responsibility, and applies AHP method to determine the index weight. The study quantitatively analyzed the social responsibility of the listing corporation. Public are supposed to pay attention to problems such as the laggard management of enterprise's responsibility, and the insufficient disclosure of responsibility information. Listed corporation should also improve their social responsibility management system, in order to enhance their market competitiveness, establish a good image, and ultimately enhance the potential for sustainable development.

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