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Research Article

Research on Corporate Social Responsibility for Civilized Unit in Shanghai Based on Grey Decision-Making

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Abstract: Based on the analysis of the development trend and the definition of corporate social responsibility, starting from employee responsibility, economic and service responsibility, honesty responsibility, community responsibility, environmental responsibility of the company and so on, this paper makes an investigation on corporate social responsibility of seven civilized units in Shanghai which combine with a single target situation decision method and decides if the companies meet the standards of civilized unit in Shanghai and the method of grey correlation is introduced to conduct the optimal choice. The results show that the method is effective.

Keywords: A single target situation decision method, civilized unit, corporate social responsibility, the method of grey correlation

INTRODUCTION

In February, 2012, the Spiritual Civilization Construction committee office in Shanghai released a book "Instruction manual on CSR (corporate social responsibility) for civilized unit in Shanghai (trial)", which introduced the social responsibility to civilized unit for the first time. It can help guide the civilized unit more normally and consciously in the performance of social responsibility and develop a constructive road of institutionalized social responsibility for civilized unit.

This instruction manual, helps guide the civilized unit to improve the consciousness of practicing the core value system and promote the companies with poor social responsibility can walk toward the good direction. It can help the civilized unit perform the social responsibility more normally and consciously and develop a constructive road of institutionalized social responsibility for civilized unit. It can also help the civilized unit play an exemplary and leading role in the construction of good faith in the industry and guide other industries which lack in the aspect of CSR in the industry. And help guide the civilized unit to play a positive role in social management of Shanghai. But it is worrying that Chinese industries' bearing the social responsibility at present, such as "clenbuterol", "illegal cooking oil", "poison twisted dough-strips" and so on, these phenomena are still vivid in our mind. From above, we can know it is of great theoretical significance in China's enterprises actively fulfilling the social responsibility, building a harmonious society and implementing the concept of scientific development. Therefore, the research of CSR can promote the whole society's construction of the good faith and is significant in enhancing the level of building spiritual civilization continuously in Shanghai.

LITERATURE REVIEW

Oliver Sheldon (1924) first proposed the concept of CSR, scholars such as Bowen (1953), McGuire (1963) and Sethi (1975) further supplement this concept. Carroll (1979) put forward four hierarchical model (economic responsibility, legal responsibility, ethical responsibility and discretional responsibility), which is adopted by academic world widely. Gallo (2004) proposed the CSR dimension model of family corporate (internal social responsibility and external social responsibility, the former includes: provide satisfying products/services to the public, create economic wealth, develop comprehensively corporate internal personnel, and ensure the continuous development of the corporate. External social responsibility embodied in efforts to correct or impede the good social affairs vandalism). Isabelle and David (2002) put forward CSR with five aspects and eleven dimensions (social aspects include artistic and cultural construction, affirmative education, improvement to the quality of life, safety and environmental protection; in the aspect of customer that including product/service quality and safety; in the aspect of employees that including equal opportunity, health and safety; in the aspect of shareholders that including create profit commitment, information disclosure, corporate governance; in the aspect of supplier that including fair opportunity). Domestic

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scholars, Xun and Han (2005) proposed that CSR could be divided into three levels: first is "basic CSR", the second is the "intermediate CSR", the third is "advanced CSR". Xu and Yang (2007) explored the dimension of CSR in China, constructed the suitable concept framework for China's practice of CSR, which provided a useful reference for the further study of CSR theory in our country; Shen and Jiang (2013) applied the method of longitudinal analysis, analyzed CSR from the inner dimension of concept, the development of the theoretical framework and research issues these three dimensions, gradually formed progressive trilogy "What-why-How".

In terms of the methods in researching CSR, Zhang *et al*. (2013) used Analytic Hierarchy Process to analyze and constructed a multi-level index system of CSR determine the weight of each index under the background of low-carbon economy. Tang and Wei (2013) used Solow model to measure the contribution degree of the industry social responsibility investment's to the company value creation by selecting panel data of listed companies. Mai *et al*. (2012) used TOPSIS based on entropy weight method evaluation model to evaluate seven samples' social responsibility.

The above research expounded the concept and system of CSR from different points of view, but the evaluation method about the civilized unit of CSR is less in the existed literature. Much research achievement only probed the principle and method by constructing the index system of CSR in theory, but did not apply in practice. Based on the collected questionnaire of the civilization units' CSR, this paper uses a single target situation decision method and grey correlation to study CSR of civilization units in Shanghai. A single target situation decision method is as one part of the grey theory, which can comprehensively and correctly reflect the implementation of object and the influence that each target to the overall goal, determine the overall level of CSR. And grey correlation can be best of best; we can sort CSR of different civilization units and select the best company. Combining two methods can make the result more accurate and provide a reference for CSR in the aspect of quantitative analysis.

The establishment of the index system and the weight: The directors of instruction manual on CSR for the civilized unit in Shanghai can be divided into three types: first is the benchmark, namely as a civilized unit's basic index requirements; Second is the variant index, namely we should set the variant index because there are many types and big differences of the civilized units; The third is the supplementary index, namely give expanding space to the corporate civilized units, different types of civilized units can increase the report indicators according to the new development demand. This paper refers to the instruction manual to classify the CSR, the setting principles is: key, integrity, stakeholder participation. Building index evaluation system by extracting five aspects of responsibility that can react of related to the nature of CSR.

In the domestic and foreign research, employee responsibility has become the general responsibility requirements, because company is essential made up of most employees, so the company must assume the responsibility to them. There is no doubt that the ultimate goal of company is to get profits and serve for the public, the most important and primary responsibility is economic and service responsibility. Whether the company can success cannot be separated from the good faith, the good faith is the foundation of the company. If the corporate lacks the good faith, not to mention the business. So we can see the importance of managing sincerely. Community responsibility mainly includes providing disaster relief and charity donations, volunteer service. Environmental protection has always been a hot contemporary topic, companies must pay attention to environmental protection when running the business. Protecting the environment and achieving energy conservation or emissions reduction are an important aspect of CSR.

The weight setting of five aspects in CSR is an integral part of this study. In the brochure "Instruction manual on CSR for civilized unit in Shanghai (trial)", which is mentioned that an important content of creating a civilized unit's work is "the degree of assuming social responsibility", namely that civilized unit should do social responsibility requirements. This study will convert the appraisal standards of civilized unit into the assessment of CSR. If the social responsibility the corporate do better, the greater the possibility it is awarded the civilized unit and vice versa. According to the appraisal standards of Shanghai civilized unit in 2011-2012, by putting a three-level index these three indicators can be concretely divided into five social responsibility aspects, finally the staff responsibility gets 32 points, economic and service responsibility 27.5 points, honesty responsibility 15.5 points, community responsibility 21 points, environmental responsibility 4 points. So the weight of each part is that the employee responsibility accounted for 32%, economic and service responsibility 27.5%, honesty responsibility 15.5%, community responsibility 21% and environmental responsibility 4%. We can see that in the five responsibilities, the employee responsibility is the most important part of CSR, environmental responsibility is the most ignorable for company and economic and service responsibility, community responsibility, honesty responsibility these three also occupy the important position in the CSR.

THEORETICAL ANALYSIS

The description and basic steps of a single target situation decision method: A single target situation

decision method is used to decide the subordinate state of an object and explicating the layout, which makes the results more objective, scientific and reasonable.

The first step: according to the combination of event set $A=\{a_1,a_2,\cdots a_n\}$ and strategy set $B=\{b_1,b_2,\cdots b_m\}$ that the situation sets $S=\{s_{ij}=(a_i,b_j),a_i\in A,b_j\in B\}$; so $r_{ij}^{(k)}=\frac{u_{ij}^{(k)}}{\max\limits_i \max\limits_j\{u_{ij}^{(k)}\}}$, which called ceiling effect measure:

$$r_{ij}^{(k)}=\frac{\min\limits_i\min\limits_j\{u_{ij}^{(k)}\}}{u_{ij}^{(k)}},$$

which called lower effect measure:

$$r_{ij}^{(k)}=\frac{u_{i_0j_0}^{(k)}}{u_{i_0j_0}^{(k)}+\left|u_{ij}^{(k)}-u_{i_0j_0}^{(k)}\right|},$$

which called Moderate effect measure and $u_{i_0j_0}$ is called the specified moderate effect value under the k target.

The second step: Determine the decision goal k = 1, 2, …, s.

The third step: for the decision target K = 1, 2, s, then calculate the corresponding effect sample matrix:

$$U^{(k)}=u_{ij}^{(k)}=\begin{bmatrix}u_{11}^{(k)} & u_{12}^{(k)} & \cdots & u_{1m}^{(k)}\\ u_{21}^{(k)} & u_{22}^{(k)} & \cdots & u_{2m}^{(k)}\\ \vdots & \vdots & & \vdots\\ u_{n1}^{(k)} & u_{n2}^{(k)} & \cdots & u_{nm}^{(k)}\end{bmatrix}$$

The fourth step: Work out the uniform effect measure matrix under the k target:

$$R^{(k)}=r_{ij}^{(k)}=\begin{bmatrix}r_{11}^{(k)} & r_{12}^{(k)} & \cdots & r_{1m}^{(k)}\\ r_{21}^{(k)} & r_{22}^{(k)} & \cdots & r_{2m}^{(k)}\\ \vdots & \vdots & & \vdots\\ r_{n1}^{(k)} & r_{n2}^{(k)} & \cdots & r_{nm}^{(k)}\end{bmatrix}$$

The fifth step: Determine the decision-making rights of each target $\lambda_1,\lambda_2,\cdots\lambda_s$;

The sixth step: Work out the comprehensive effect measure matrix by $r_{ij}=\sum_{k=1}^{s}\lambda_k\cdot r_{ij}^{(k)}$:

$$R=r_{ij}=\begin{bmatrix}r_{11} & r_{12} & \cdots & r_{1m}\\ r_{21} & r_{22} & \cdots & r_{2m}\\ \vdots & \vdots & & \vdots\\ r_{n1} & r_{n2} & \cdots & r_{nm}\end{bmatrix}$$

The seventh step: Determine the optimal situation $s_{i_0j_0}$.

The description and basic steps of the method of grey correlation: The principle of the method of grey correlation: a standard to measure the situation advantages and find out the optimal solution.

Firstly we introduce a proposition: suppose $S=\{s_{ij}=(a_i,b_j),a_i\in A,b_j\in B\}$ is the situation sets, the corresponding effect matrix of situation s_{ij} is $u_{ij}=\{u_{ij}^{(1)},u_{ij}^{(2)},\cdots,u_{ij}^{(s)}\}$; i=1,2,⋯,n;j=1,2,⋯,m. When k is bigger, the better effect of target value, then $u_{i_0j_0}^{(k)}=\max\limits_{1\le i\le n,1\le j\le m}\left\{u_{ij}^{(k)}\right\}$.

When the effect value of k is close to a moderate value u_0 is good, then $u_{i_0j_0}^{(k)}=u_0$.

When k is smaller, the better effect of target value, then $u_{i_0j_0}^{(k)}=\min\limits_{1\le i\le n,1\le j\le m}\left\{u_{ij}^{(k)}\right\}$.

So $u_{i_0j_0}=\left\{u_{i_0j_0}^{(1)},u_{i_0j_0}^{(2)},\cdots,u_{i_0j_0}^{(s)}\right\}$ is the ideal optimal effect vector.

The first step: According to the combination of event set $A=\{a_1,a_2,\cdots a_n\}$ and strategy set $B=\{b_1,b_2,\cdots b_m\}$ that the situation sets $S=\{s_{ij}=(a_i,b_j),a_i\in A,b_j\in B\}$.

The second step: Determine the decision goal k = 1,2, …s.

The third step: Work out the effect value of $u_{ij}^{(k)}$ under the k target in different situations — $s_{ij}(i=1,2,\cdots n;j=1,2,\cdots m)$:

$$u_{ij}=(u_{11}^{(k)},u_{12}^{(k)},\cdots u_{1m}^{(k)};u_{21}^{(k)},u_{22}^{(k)},\cdots u_{2m}^{(k)};\cdots;u_{n1}^{(k)},u_{n2}^{(k)},\cdots u_{nm}^{(k)});k=1,2,\cdots,s$$

The fourth step: Work out the mean like of the situation effect sequence u (k) under the k target.

The fifth step: Write the effect vector of situation s_{ij} according to the result of the fourth step:

$$u_{ij}=(u_{ij}^{(1)},u_{ij}^{(2)},\cdots u_{ij}^{(s)};i=1,2,\cdots,n;j=1,2,\cdots m$$

The sixth step: Work out the ideal optimal effect vector $u_{i0j0}=\{u_{i0j0}^{(1)},u_{i0j0}^{(2)},\cdots u_{iojo}^{(s)}\}$.

The seventh step: Calculate the gray absolute correlation degree ε_{ij} between u_{ij} and $u_{i_0 j_0}$ i = 1, 2, …, n, j = 1, 2, …, m:

$$|s_0| = \left|\sum_{k=2}^{n-1} x_0^0(k) + \frac{1}{2} x_0^0(n)\right|$$

$$|s_i| = \left|\sum_{k=2}^{n-1} x_i^0(k) + \frac{1}{2} x_i^0(n)\right|$$

$$\varepsilon_{0i} = \frac{1+|s_0|+|s_1|}{1+|s_0|+|s_1|+|s_1-s_0|}$$

$$|s_i - s_0| = \left|\sum_{k=2}^{n-1}(x_i^0(k)-x_0^0(k)) + \frac{1}{2}(x_i^0(n)-x_0^0(n))\right|$$

$$\varepsilon_{0i} = \frac{[1+\left|\sum_{k=2}^{n-1} x_0^0(k)+\frac{1}{2}x_0^0(n)\right|+\left|\sum_{k=2}^{n-1} x_i^0(k)+\frac{1}{2}x_i^0(n)\right|]}{[1+\left|\sum_{k=2}^{n-1} x_0^0(k)+\frac{1}{2}x_0^0(n)\right|+\left|\sum_{k=2}^{n-1} x_i^0(k)+\frac{1}{2}x_i^0(n)\right|+\left|\sum_{k=2}^{n-1}(x_i^0(k)-x_0^0(k))+\frac{1}{2}(x_i^0(n)-x_0^0(n))\right|]}$$

The eighth step: According to the formula $\max_{1\le i\le n, 1\le j\le m}\{\varepsilon_{ij}\} = \varepsilon_{i_1 j_1}$, we can get the suboptimum effect vector $u_{i_1 j_1}$ and the suboptimum situation $s_{i_1 j_1}$.

EMPIRICAL ANALYSIS

Illustrate by take the extracted seven units in Shanghai for example.

A single target situation decision method:
Step1: Establish event sets, strategy sets and situation sets.
We regard these seven units as event set $A = \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$, which $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ represents seven civilized units:

$$U^{(1)} = \begin{bmatrix} 15 & 75 & 30 & 30 \\ 100 & 20 & 30 & 0 \\ 15 & 30 & 90 & 15 \\ 50 & 50 & 25 & 25 \\ 60 & 30 & 50 & 10 \\ 20 & 40 & 25 & 65 \\ 75 & 25 & 35 & 15 \end{bmatrix}$$

$$U^{(2)} = \begin{bmatrix} 25 & 105 & 20 & 0 \\ 15 & 10 & 80 & 15 \\ 100 & 30 & 15 & 5 \\ 35 & 40 & 15 & 35 \\ 60 & 45 & 20 & 25 \\ 20 & 40 & 60 & 30 \\ 40 & 60 & 0 & 50 \end{bmatrix}$$

$$U^{(3)} = \begin{bmatrix} 60 & 30 & 50 & 10 \\ 40 & 50 & 60 & 0 \\ 80 & 20 & 40 & 10 \\ 105 & 25 & 20 & 0 \\ 50 & 25 & 35 & 15 \\ 45 & 60 & 30 & 15 \\ 25 & 75 & 35 & 15 \end{bmatrix}$$

$$U^{(4)} = \begin{bmatrix} 40 & 80 & 10 & 20 \\ 50 & 40 & 35 & 25 \\ 15 & 100 & 20 & 15 \\ 10 & 45 & 80 & 15 \\ 0 & 60 & 40 & 50 \\ 15 & 20 & 90 & 25 \\ 100 & 25 & 25 & 0 \end{bmatrix}$$

$$U^{(5)} = \begin{bmatrix} 0 & 40 & 80 & 30 \\ 50 & 30 & 30 & 40 \\ 60 & 40 & 25 & 25 \\ 35 & 25 & 40 & 50 \\ 15 & 75 & 10 & 50 \\ 105 & 25 & 10 & 10 \\ 75 & 30 & 15 & 30 \end{bmatrix}$$

Step 4: Work out the uniform effect measure matrix.

Targeted the fulfillment degree of employee responsibility, economy and service responsibility, honesty responsibility, community responsibility, environmental responsibility, all are adopted by ceiling effect measure. We can get the uniform effect measure matrix after processing the data of effect sample matrix:

$$R^{(1)} = \begin{bmatrix} 0.15 & 0.75 & 0.3 & 0.3 \\ 1 & 0.2 & 0.3 & 0 \\ 0.15 & 0.3 & 0.9 & 0.15 \\ 0.5 & 0.5 & 0.25 & 0.25 \\ 0.6 & 0.3 & 0.5 & 0.1 \\ 0.2 & 0.4 & 0.25 & 0.65 \\ 0.75 & 0.25 & 0.35 & 0.15 \end{bmatrix}$$

$$R^{(2)} = \begin{bmatrix} 0.238 & 1 & 0.19 & 0 \\ 0.143 & 0.381 & 0.762 & 0.143 \\ 0.952 & 0.286 & 0.143 & 0.048 \\ 0.333 & 0.381 & 0.143 & 0.333 \\ 0.571 & 0.429 & 0.19 & 0.238 \\ 0.19 & 0.381 & 0.571 & 0.286 \\ 0.381 & 0.571 & 0 & 0.476 \end{bmatrix}$$

$$R^{(3)} = \begin{bmatrix} 0.571 & 0.286 & 0.476 & 0.095 \\ 0.381 & 0.476 & 0.571 & 0 \\ 0.762 & 0.19 & 0.381 & 0.095 \\ 1 & 0.238 & 0.19 & 0 \\ 0.476 & 0.238 & 0.333 & 0.143 \\ 0.429 & 0.571 & 0.286 & 0.143 \\ 0.238 & 0.714 & 0.333 & 0.143 \end{bmatrix}$$

$$R^{(4)} = \begin{bmatrix} 0.4 & 0.8 & 0.1 & 0.2 \\ 0.5 & 0.4 & 0.35 & 0.25 \\ 0.15 & 1 & 0.2 & 0.15 \\ 0.1 & 0.45 & 0.8 & 0.15 \\ 0 & 0.6 & 0.4 & 0.5 \\ 0.15 & 0.2 & 0.9 & 0.25 \\ 1 & 0.25 & 0.25 & 0 \end{bmatrix}$$

$$R^{(5)} = \begin{bmatrix} 0 & 0.381 & 0.762 & 0.286 \\ 0.476 & 0.286 & 0.286 & 0.381 \\ 0.571 & 0.381 & 0.238 & 0.238 \\ 0.333 & 0.238 & 0.381 & 0.476 \\ 0.143 & 0.714 & 0.095 & 0.476 \\ 1 & 0.238 & 0.095 & 0.095 \\ 0.714 & 0.286 & 0.143 & 0.286 \end{bmatrix}$$

Step 5: Determine the decision-making rights of each target.

According to the score of each responsibility that has been calculated in the second quarter, namely employee responsibility $\lambda_1 = 0.32$, economy and service responsibility $\lambda_2 = 0.275$, honesty responsibility $\lambda_3 = 0.155$, community responsibility $\lambda_4 = 0.21$, environmental responsibility $\lambda_5 = 0.04$.

Step 6: Work out the comprehensive effect measure matrix

Work out the comprehensive effect measure matrix according to $r_{mn} = \sum_{k=1}^{s} \lambda_k \, . \, r_{mn}{}^{(k)}$,

$$R = \begin{bmatrix} 0.286 & 0.743 & 0.274 & 0.164 \\ 0.542 & 0.338 & 0.479 & 0.107 \\ 0.482 & 0.429 & 0.438 & 0.117 \\ 0.441 & 0.406 & 0.332 & 0.222 \\ 0.429 & 0.405 & 0.352 & 0.244 \\ 0.254 & 0.373 & 0.474 & 0.365 \\ 0.62 & 0.412 & 0.222 & 0.213 \end{bmatrix}$$

Step 7: Make decision

According to the principle of grey decision, because max $\{r_{1n}\} = r_{12} = 0.743$, max $\{r_{2n}\} = r_{21} = 0.542$, max $\{r_{3n}\} = r_{31} = 0.482$, max $\{r_{4n}\} = r_{41} = 0.441$, max $\{r_{5n}\} = r_{51} = 0.429$, max $\{r_{6n}\} = r_{63} = 0.474$, max $\{r_{7n}\} = r_{71} = 0.620$. The result shows that according to the CSR appraisal standard of civilized unit that companies 2, 3, 4, 5, 7 are excellent, 1 is good and 6 is qualified.

As the results of companies 2, 3, 4, 5, 7 are excellent; next we will analyze and select the best one with the method of grey correlation form these five companies.

The method of grey correlation:

Step 1: Combine the event set, strategy set and situation set.

We regard the five units as event set A = $\{a_1, a_2, a_3, a_4, a_5\}$, a_1, a_2, a_3, a_4, a_5 represents this these five units (company 2, 3, 4, 5, 7). And five choices as strategy set B = $\{b_1, b_2, b_3, b_4, b_5, b_1$ represents that company 2 is

the optimal, b_2 represents that company 3is the optimal, b_3 represents that company 4 is the optimal, b_4 represents that company 5 is the optimal, b_5 represents that company 7 is the optimal.

Step 2: Select the target

The target 1 is employee responsibility, target 2 is the economy and service responsibility, target 3 is honesty responsibility, target 4 is the community responsibility and target 5 is environmental responsibility.

Step 3: Work out the situation effect sequence under target k:

$$u^{(1)} = (u_{11}^{(1)}, u_{12}^{(1)}, u_{13}^{(1)}, u_{14}^{(1)}, u_{15}^{(1)}) = (100,15,50,60,75)$$

$$u^{(2)} = (u_{11}^{(2)}, u_{12}^{(2)}, u_{13}^{(2)}, u_{14}^{(2)}, u_{15}^{(2)}) = (15,100,35,60,40)$$

$$u^{(3)} = (u_{11}^{(3)}, u_{12}^{(3)}, u_{13}^{(3)}, u_{14}^{(3)}, u_{15}^{(3)}) = (40,80,105,50,25)$$

$$u^{(4)} = (u_{11}^{(4)}, u_{12}^{(4)}, u_{13}^{(4)}, u_{14}^{(4)}, u_{15}^{(4)}) = (50,15,10, 0,100)$$

$$u^{(5)} = (u_{11}^{(5)}, u_{12}^{(5)}, u_{13}^{(5)}, u_{14}^{(5)}, u_{15}^{(5)}) = (50,60,35,15,75)$$

Step 4: Work out the mean like

We work out the mean like of the situation effect sequence $u^{(k)}$ under the target k. We still use the original mark:

Step 5: Work out the effect vector

According to the result of the fourth step, we can work out the effect vector of situation s_{ij}, u_{ij} (i = 1; j = 1, 2, 3, 4, 5):

$$u^{(1)} = (1.667,0.250, 0.833,1,1.25)$$
$$u^{(2)} = (0.3,2, 0.7,1.2,0.8)$$
$$u^{(3)} = (0.667,1.3333,1.75,0.833,0.417)$$
$$u^{(4)} = (1.429,0.429,0.286,0,2.857)$$
$$u^{(5)} = (1.064,1.277,0.745,0319,1.596)$$

Step 6: Work out the ideal optimal effect vector

The above five aspects of the target all are the bigger the better, so the ideal optimal effect vector:

$$u_{ij} = (1.667,2,1.75,2.857,1.596)$$

Step 7: Calculate the gray absolute correlation degree ε_{ij} between u_{ij} and $u_{i_0 j_0}$, $\varepsilon_{11} = 0.550$, $\varepsilon_{12} = 0.757$, $\varepsilon_{13} = 0.667$ $\varepsilon_{14} = 0.667$, $\varepsilon_{15} = 0.741$.

Step 8: Choose the best

According to $\max_{i=1,1\le j\le 5}\{\varepsilon_{ij}\} = \varepsilon_{12}$, we know that the suboptimum effect vector is u12 and the suboptimum situation is s_{12}. So for the seven companies, company 3 is the desirable best countermeasure.

CONCLUSION

In this study, we combine a single target situation decision method with the method of grey correlation to assess the multiple civilized units and succeed in applying these two methods to the study of CSR. Results show that in the selected seven companies, company 3 is the most optimal and the most civilized unit that accord to the evaluation standard. After tracking analysis, the reason is that the fulfillment of economy and service responsibility and staff responsibility is better. So if companies want to be the optimal in the judgment of civilized unit, they should strengthen the corporate profits and economic benefits, products and services, at the same time, they also should pay attention to the education, registration and rights protection of staff, etc. So companies can meet the examination of civilized unit only by performing these two responsibilities properly. Application of these two methods to the study of CSR is significant. In the following work, we can consider applying these two methods in more and more companies to expand further research work. Each company can know the deficiency that they have done in the five aspects of responsibility by Expert Scoring Method and then improve. We hope these conclusions can facilitate the construction of the civilized units and provide some practical reference for civilized units' selection.

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REFERENCES

Bowen, H.R., 1953. Social Responsibilities of the Businessman. Harper and Row, New York.

Carroll, A.B., 1979. A three-dimensional conceptual model of corporate social performance. Acad. Manage. Rev., 4: 497-505.

Gallo, M.A., 2004. The Family business and its social responsibilities. Fam. Bus. Rev., 17: 135-149.

Isabelle, M. and A.R. David, 2002. Corporate social responsibility in Europe and the U.S.: Insights from businesses' self-presentations. J. Int. Bus. Stud., 33: 497-514.

Mai, S., H.B. Kuang and X.N. Zhang, 2012. The corporate social responsibility evaluation model based on the concept of scientific development. Sci. Res. Manag., 3: 148-154.

McGuire, J.W., 1963. Business and Society. McGraw-Hill, New York.

Sethi, S.P., 1975. Dimensions of corporate social performance: An analytic framework. Calif. Manag. Rev., 17: 58-64.

Shen, Q.T.S. and Z.H. Jiang, 2013. The evolution of corporate social responsibility research issues-from concept to vertically combed. Soc. Sci., 1: 75-78.

Tang, Y.Q. and F. Wei, 2013. The value of corporate social responsibility investment measures---- based on the Solow model. Friends Account., 3: 95-98.

Xu, S.K. and R.D. Yang, 2007. Inductive analysis of corporate social responsibility concept category. Chin. Ind. Econ., 5: 71-79.

Xun, C. and Y.Q. Han, 2005. Hierarchical model and application of enterprise social responsibility. Chin. Ind. Econ., 9: 99-105.

Zhang, L.J., X. Ma and M. Li, 2013. Research on evaluation system on corporate social responsibility under the background of low-carbon economy. Sci. Technol. Manag. Res., 5: 67-70.