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On the impact of corporate environment responsibility act on financial competitiveness

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ABSTRACT

In the process of rapid economic growth, environment problems become more serious than before, as the major groups of economic activity, Enterprises should take environmental responsibility actively, and combine its own development with social development and and environment development hardly. This paper analyzes from four parts, the first is the background, and then reviewing the relationship with environment and financial results, concluding the affect corporate assume environment responsibility act on financial competitiveness, proposing the improve advice finally.

KEYWORDS

INTRODUCTION

Some scholars and entrepreneurs think that if companies take environmental responsibility (the following abbreviations for ER), it can increase the financial burden, affect cash flow, and then reduce the financial competitiveness. Whether it is true? Since British scholar Shelton had published "management philosophy" in 1924, seeing from the views of scholars, we can find that the relationships between them can be classified to four kinds but not one, ①after the companies take ER, the economic interests of stakeholders can be meet with, and then the financial results improve[1,2]. ②if the companies take ER, the price of products would rise, consumers choose low price products to avoid ER, which lead bad to financial results[3]. ③the better corporate financial performance, the more they take the ER, and improve corporate image[4]. ④the relationship between them is not sure, it is hard to analyze statistically[5]. This paper is to analyze from the relationship between ER and financial competitiveness.

EMPIRICAL ANALYSIS BETWEEN ER AND CORPORATE FINANAIAL COMPETITIVENESS

Correlation and regression analysis are used to analyze the affect that environment responsibility act on financial competitiveness. In this paper, the object of analysis is the listed companies in the manufacturing industry that commit to ER and make annual social responsibility reports. Contrary to other industries, the manufacturing industry is likely to bring more damages to our environment and at the same time, it needs more work to make it up. Therefore, we choose the manufacturing as an object when we do our study further.

Talking about the financial data of sample companies' that we use in the paper, it will be helpful to make clear that they are all from Shanghai Stock Exchange from 2007 to 2010, and the ST, SST A-share companies are excluded, and the A-share company from financing industry is also contributed a lot. In a word, all the financial data of the sample companies' are from Shanghai Stock Exchange, the huge influx of information network data centers, financial annual report and corporate social responsibility network. They are input by hands.

The main indexes for empirical study. We can see all the commonly used indexes when choosing and analyzing the data. They are listed in TABLE 1, the four indexes of the ER−the environmental protection investment rate, the environmental protection expenditure on income, the environmental protection funs growth rate and the wastage exhaust per unit income are made from the environmental protection equipment investment, environmental protection expenditure and "three waste" discharge respectively. Environmental protection funds is a concept of net value, which not only includes sewage charges, fines, the cost of litigation and other expenses, but also includes the daily revenue from green products, the revenue from improvement of reputation and image, and the share of government subsidies and other incentives. Therefore, it is the net value including these three sides, rather than a cost simply.

TABLE 1 : The indexes for empirical study

Index category	Index name	Index equation
Enterprises' environmental responsibility indexes	Environmental protection investment rate	Environmental protection equipment net value/fixed assets net value ×100%
	Environmental protection expenditure on income	Environmental protection funds/operating income ×100%
	Environmental protection funds growth rate	(total value of environmental protection funds this year − total value of environmental protection funds last year)/ total value of environmental protection funds last year × 100%
	The wastage exhaust per unit income.	Enterprise non-reaching standard exhaust/operating income
	Return on Net Assets	net profit/ net assets per share×100%
	Return on total assets	(Total profit + interest payment)/total assets per share×100%
Enterprises' financial competiveness index	Current ratio	Current assets/current liabilities
	quick ratio	(current assets-inventory)/ current liabilities
	total assets turnover ratio	the major business income/average total assets
	inventory turnover ratio	Sale cost/average inventory
	the ratio of sales to cash	net cash flow from operating activities/operating income
	Total assets growth rate	The gorwth of total assets this year/total assets early year×100%
	Growth rate of net profit	(net profit in current period/net profit in base period) ×100% - 100%

Profitability, solvency, operational capabilities, ability to obtain cash and ability to grow make up the financial competitiveness indicators, and it is the dependent variable to ER. Specific indicators include, ER variable (expenditure on income), financial competitiveness indicators (net return on income, quick ratio, total asset turnover, cash sales ratio, and net profit growth), and risk and control variables.

The reason of the paper chooses income as the only one index. When looking for and analyzing the data, there is a problem that the data the sample companies offered is far less than what we need. So it will be great if we make a couple of things more clear here. In the index system of ER cost, the paper chooses the environmental protection expenditure on income as the only one index. The reason we make such a decision is listed as follows.

First and foremost, since many companies just commit to the environmental protection responsibility, or they have not put this part of expenditure into the related annual report or social responsibility report officially yet, it is impossible to find the whole package of the information that we need. Considering of this difficulty, the analysis we are making is from of the macro point of view because of the limited information disclosure.

Secondly, the data that we get from the sample companies are all from the expenditure that the company spent in pollution treatment. As for the "three waste" discharge index, it is eliminated because of the lack of the related data.

Thirdly, the regressive analysis will be a method in the paper. However, the data of the ER disclosed by the sample companies are so limited that we have to get it as much as possible to support our study.

The financial competitiveness variable. As we have already learned, profitability, solvency, operational capabilities, ability to obtain cash and ability to grow make up the financial competitiveness indicators, the work we will do next is to analyze it from these five sides to get to know the influence that ER produces.

TABLE 2 : Choosing the study variables in SPSS analysis

Variables	Symbol	Definition
Group1 : ER variables		
environmental protection expenditure on income	EOI	The ratio of environmental protection expenditure to operating income
Group2 : financial competiveness variables		
Return on Net Assets	ROE	Return on Net Assets=net profit/ net assets per share×100%
quick ratio	QR	(current assets-inventory)/ current liabilities
total assets turnover ratio	TAT	the major business income/average total assets
the ratio of sales to cash	SC	net cash flow from operating activities/operating income
growth rate of net profit	ΔRP	(net profit in current period/net profit in base period) ×100%－100%
Group3 : Risk variable —— the standard deviation of the financial competiveness ratio		
Group4 : Control variable		
The year of enterprise ER	Yeari	i=2010, 1; or 0, i=2007,2008,2009

When analyzing the ER in chapter 2, three sides and four indexes are introduced to complete our analysis. However, many data that we need can only find in the detail account books of the sample companies, which it is hard to get to the outsiders, or there is no record for them in the sample companies at all. So the ER evaluation system that we build in chapter 3 is an ideal index system. Since the ER information in the financial report and the social responsibility report are so limited, we tried to get to know the related information by contacting some intermediary organizations, but they offered little help in this light. Therefore, we have to admit that the empirical study is limited by the lack of the information. The data we use in the paper is from the annual report and social responsibility report to illustrate the very condition for the companies commit to the social responsibility. As listed in chart 4-2, there are three indexes we must get out of our study since their data cannot be found anywhere.

The correlation analysis and the regression analysis are used in the paper to test the influence that the ER have to the financial competiveness. Correlation is used to analyze the relationship of ER and financial competitiveness. If there is some relation between them, it is positive or negative. After the correlation analysis, if they are interrelated, regression analysis is needed to determine the nature of the relationship between them. Research hypothesis 1, the better corporate take ER, the higher its financial competitiveness is.

Test model 1: $CF_{it} = \alpha_{it} + \beta_1 \ln TA_{it} + \beta_2 CER_{it} + \beta_3 CFR_{it-1} + \beta_4 CER_{it-2} + \beta_5 CER_{it-3} + \varepsilon_i$ **(1)**

CF is used to express financial competitiveness, and it is measured by return on assets, current ratio, total asset turnover, total asset growth. Taking it into account that, the activities of companies' ER understood by stakeholders and

linked with the financial results need some time, in addition to current expenditure on ER (CER_i), the cost of the first three ER are also included, $CER_{I-1}, CER_{I-2}, CER_{I-3}$.

Research hypothesis 2, the better corporate take ER, which lead to increased financial risk, the lower the competitiveness of its financial

Test model 2: $CF_i = \alpha_i + \beta_1 \ln TA_i + \beta_2 CER_i + Risk_i + \varepsilon_i$ **(2)**

This assumption is mainly to the companies that assumed ER but its financial results reduced. Some studies suggest that, ER increase the company's financial risk, and it will do bad to the development of enterprises without positive response. Risk is took into this model, and it is measured by the standard deviation of financial competitiveness indicators.

ANALYSIS RESULT

Test results of relevance between ER and financial competitiveness is showed in TABLE 3. Seen from the results of TABLE 3, in 2010, corporate ER and a variety of current financial performance indicators are positively correlated, and it has not significant correlation with return on total assets and inventory turnover rate, in 2009, corporate ER and the current return on equity, inventory turnover and total assets growth rate was not significant correlation, but it negatively related to return on total assets, current ratio and sales ratio of cash, in 2008, ER and the current ratio, quick ratio, cash ratio and net sales growth was significantly correlated, but obvious with other five indicators, in 2007, the relationship between corporate ER and four indicators was not significant correlation, and others had both positive correlation and negative correlation.

The impact that corporate ER is to all aspects of financial competitiveness indicators is not very clear. This paper carried out a series of regression test, the results showed (TABLE 4): in 2007, ER do weak negative impact to financial competitiveness such as the net return on assets, quick ratio, cash ratio of the total asset turnover and sales and other financial indicators, the slope of negative correlation coefficient is very small, and not related to the net profit growth target. In 2008, ER and the quick ratio of the company's financial competitiveness was significantly negatively correlated, and significant positive correlation with the ratio of cash sales, and was not significant with net assets, total asset turnover and net profit growth. In 2009, ER on the quick ratio, total asset turnover and net profit growth and other indicators shows a significant positive correlation, but not significant with the rate of return on net assets and cash sales ratio. In 2010, ER on the rate of return of net assets, quick ratio, total asset turnover, sales and net profit growth of cash ratio is not significant, that is to say, in 2010, ER and financial competitiveness had no relevance.

TABLE 3: Test results of relevance between ER and financial competitiveness

index	ROE	QR	TAT	SC	△RP
Group1:the relationship between EOI and financial competitiveness indicators in 2010					
Correlation coefficient	0.003	0.015	0.003	0.122	0.003
Significance level	0.481	0.132	0.762	0.304	0.217
Group2:the relationship between EOI and financial competitiveness indicators in 2009					
Correlation coefficient	0.003***	0.249	0.018	0.004***	0.978**
Significance level	0.003	0.169	0.226	0.007	0.016
Group3:the relationship between EOI and financial competitiveness indicators in 2008					
Correlation coefficient	-0.003	-0.001**	0.003	-0.167	0.205
Significance level	0.319	0.022	0.899	0.415	0.143
Group4:the relationship between EOI and financial competitiveness indicators in 2007					
Correlation coefficient	-0.019*	-0.264***	-0.462	-0.402***	-0.005**
Significance level	0.095	0.000	0.207	0.005	0.023

Note: ***, Significance level is 1%; **, Significance level is 5%; *, Significance level is 10%

Analyzing from above, among 2007-2010, the trend that Chinese enterprises take ER have not obvious correlation with financial competitiveness, it illustrate that invest on environment can both do negative impact to the cost and do positive effects to benefits. From a dynamic point of view, Chinese enterprises that take environment responsibility on the financial competitiveness in four years has become from weak negative correlation to unrelated. The initial investment in an enterprise environment in 2007 showed a negative correlation in a short-term, 2008, ER on the financial competitiveness' negative impact becomes smaller, in 2009, it appeared a slight positive correlation effects, illustrating the ER have a positive role to the data of the financial indicators, in 2010, corporate ER no significant impact on the financial competitiveness.

TABLE 4: Regression analysis on the annual er impact on the company's financial results

Explanatory variables	Coefficient estimatesβ	P	Adjusted R^2	FStatistics
Group 1: the company's financial competitiveness measured by ROE CF=ROE				
EOI_{2010}	−0.110	0.117	0.195	21.903
EOI_{2009}	−0.068	0.382		
EOI_{2008}	0.121	0.219		
EOI_{2007}	−0.214	0.202		
Group 2: the company's financial competitiveness measured by QR CF=QR				
EOI_{2010}	−0.462	0.138	0.226	24.184
EOI_{2009}	0.245***	0.005		
EOI_{2008}	−0.039***	0.001		
EOI_{2007}	−0.056	0.268		
Group 3: the company's financial competitiveness measured by TAT CF=TAT				
EOI_{2010}	0.200	0.114	0.139	14.869
EOI_{2009}	0.003***	0.004		
EOI_{2008}	−0.189	0.216		
EOI_{2007}	−0.145	0.152		
Group 4: the company's financial competitiveness measured by SC CF=SC				
EOI_{2010}	−0.561	0.146	-0.001	0.892
EOI_{2009}	−0.067	0.516		
EOI_{2008}	0.033**	0.035		
EOI_{2007}	−0.081	0.241		
Group 5: the company's financial competitiveness measured by △RP CF=△RP				
EOI_{2010}	−0.328***	0.000	0.049	5.490
EOI_{2009}	0.235***	0.004		
EOI_{2008}	−0.046	0.359		
EOI_{2007}	0.071	0.273		

RESULT AND DISSCUSS

ER has not obvious correlation with financial competitiveness, that is to say, the trepidation that financial competitiveness would drop according with not taking ER is unreasonable. Nowadays, Chinese environmental problems is very prominent, corporate should take more ER. A number of management measures conducive to business growth can not only promote the enterprise's financial competitiveness, market competitiveness, but also has the characteristics of ER.

Strengthen cost control can play a role in energy conservation. Pushing down the same control system from costs, procurement, raw material inputs, production, packaging, marketing and other aspects can significantly reduce costs, and enhance the financial competitiveness, meanwhile, reduce energy consumption, material consumption, reduce waste, promote recycling economy effectively, so as to reflect the environmental factors responsible while pursue low-cost strategy. This can not only reduce business costs, increase profits, but also assume responsibility for the environment.

Development of green products can help improve the environment. Green products is an important criterion for today's consumers, companies can develop green products from three-phase that is design, production and recovery. At the design stage, green elements include the process of the manufacture and use can reduce energy consumption, minimize waste generation, and make full consideration for the use of each part of the possible by-product, at the production stage, to update new equipment or environmental protection equipment can reduce sewage charges expenditure, and enhance financial competitiveness in the long run. At recovery phase, product recovery and recycling of intermediate products could reduce the cost of buying raw materials and components, while reducing environmental pollution.

Improvement of combination of production factors can protect environmental and save energy. Improving production equipment and processes and using new energy, new materials, purchasing or improving sewerage alternative factors can replace factors of production on the environment, and reduce emissions of production process, and then reduce the use of factors of production on the environment. From the current point of view, it is to increase the financial burden, but in the long run, production costs would reduce by adjusting production combination, and promote corporate ER and improved production technology positively. While pursuing maximum economic benefits, enterprises should take ER, and

ER does not reduce the competitiveness of financial in turn, but improve the enterprises' green competitiveness, bring enterprises green benefits, improve the financial competitiveness[6].

Technical transformation of enterprises can effectively promote energy conservation. Business transformation is a transformation from the primary processing to deep processing, from manual production to mechanized production, automated production, from traditional production to technology-based production, from extensive production that is high energy cost and emission to technology, recycling-based economic. Business transformation requires upgrading technology, improving production equipment and production technology, while improving products and production efficiency, increasing market share and efficiency, it can improve resource and energy efficiency, reduce the "three wastes" emissions, promote recycling, and achieve energy conservation.

CONCLUSIONS

Corporate ER will not necessarily reduce the financial competitiveness. The relationship between ER and financial competitiveness in 2007-2010 is not relevant totally. There is a big space and room for Chinese enterprises to increase ER. To strengthen cost control, develop of green products, improve the combination of production factors, promote the technical transformation of enterprises and other activities are all win-win measures for corporate to take ER and enhance the financial competitiveness, and it should be widely promoted in China.

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