An Empirical Study on the Impact of Corporate Social Responsibility on Financial Performance—A Case Study of the Pharmaceutical Industry

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Abstract. This paper adopts the method of empirical research to select 200 pharmaceutical listed companies from 2014 to 2018 as the research objects, and constructs the model of pharmaceutical enterprises' social responsibility from the perspectives of shareholders, government and employees, and studies the correlation between pharmaceutical enterprises' social responsibility and financial performance. The results show that there is a positive correlation between the active fulfillment of social responsibility and the financial performance of listed pharmaceutical companies, among which, the positive correlation between the social responsibility for shareholders and the financial performance is the strongest, followed by the correlation between the social responsibility for the government and employees and the financial performance. Accordingly, reasonable Suggestions are put forward from three aspects: social responsibility assumed by shareholders, social responsibility assumed by government and social responsibility assumed by employees.

Introduction

As the main driving force to maintain social and economic development and protect people's life and health, the pharmaceutical industry's products are crucial to people's life and health, so its fulfillment of social responsibilities is particularly important. For the pharmaceutical industry, pharmaceutical product quality, price and availability, to a certain extent affect people's lives and social stability, which means pharmaceutical enterprises are faced with the huge challenge to fulfill social responsibility and social supervision, at the same time, the pharmaceutical industry specific business model determines the heterogeneity of the pharmaceutical industry's social responsibility, due to the particularity of its existence, determines the pharmaceutical industry on other industry is particularly important for the implementation of the social responsibility. Therefore, the study decided to take the pharmaceutical industry as the object of study and conduct empirical analysis on the empirical data of 200 listed pharmaceutical companies.

Literature Review and Research Hypothesis

Sheldon (1924) first proposed the term "corporate social responsibility". He believes that enterprises should not only fulfill the relevant responsibilities within the industry, but also fulfill the corresponding social responsibilities, and believes that the social responsibility of managers is one of the foundation and fundamental of enterprises. Stakeholder theory clearly put forward the responsibility object of corporate social responsibility so that social responsibility theory can find an effective way to measure corporate social responsibility. At the same time, this theory divides CSR into multiple aspects of responsibility, including corporate responsibilities to shareholders, employees, government, suppliers, creditors, customers and the public, providing a basis for the construction of CSR evaluation index system [1].

Financial performance is the financial reflection of the results of business activities. In the research process of many scholars, financial performance is mainly measured in the following two ways: one is financial performance measured by Tobin 'sq value based on market method; The other is financial...
performance measured by total return on assets and return on equity based on accounting method [2]. Wu Fang (2015) and Quan Chen (2015) mentioned in the “citation” that, considering the research on social responsibility and financial performance and the particularity of the pharmaceutical industry, it is more appropriate to choose the return on total assets as the indicator reflecting financial performance.

When Wu Fang (2015) studied the relationship between social responsibility and financial performance in the “citation”, he concluded that social responsibility of listed pharmaceutical companies had a positive effect on corporate financial performance [3]. Chen Guanyu (2019) made the following hypothesis based on the fact that China's real estate industry proved that the fulfillment of corporate social responsibility could promote corporate financial performance [4].

H1: Corporate social responsibility to shareholders is positively correlated with corporate financial performance.

H2: Corporate social responsibility to the government is positively correlated with corporate financial performance.

H3: Corporate social responsibility to employees is positively correlated with corporate financial performance.

Research Design

Data Sources

This paper selected data of listed companies in the pharmaceutical industry from 2014 to 2018 for analysis. The collected data are processed as follows: (1) eliminate all ST, *ST companies; (2) eliminate variables missing samples, exceptions and cannot calculate the sample enterprise; (3) at the level of 1% of the data to Winsorize shrink processing. Finally, the data of 200 listed companies in the pharmaceutical industry were obtained for 5 consecutive years. Stata15 was used for empirical analysis of the data, and the sample data were all from the database of flush and guotai ‘an.

Variable Design

Table 1. Variable Declaration.

| Types of Variables | Category                        | Variable Symbol | Meaning                                      | Variable Value Method and Description            |
|--------------------|---------------------------------|-----------------|----------------------------------------------|------------------------------------------------|
| Explained Variable | financial performance           | ROA             | rate of return on total assets/earnings per share | (total profit+interest expense)/average total assets |
|                    | responsibility to shareholders  | SP              |                                              | net margin/Issued out of the stock weighted average |
| Explanatory Variable | responsibility to the government | TR              | income tax rate                              | total income tax/total profit                   |
|                    | responsibility to employees     | EP              | wage benefit Rate                           | employee pay payable/operating receipt          |
| Control Variable   | Size                            |                 | enterprise scale                             | ln(total assets)                                |

Explained variable: return on total assets. This paper chooses the return rate of total assets to measure the financial performance of enterprises. The rate of return on total assets can reflect the profitability and input-output of the chain of liabilities and net assets, so as to comprehensively measure the financial status of enterprises; Explanatory variable: responsibility to shareholders. The social responsibility to shareholders is mainly reflected in the earnings or distribution of dividends for shareholders. Therefore, earnings per share is chosen to measure. Responsibility to the government. As taxpayers, enterprises can get strong support from the government if they actively respond to government policies and pay taxes. The more the amount of general income tax and fee is paid, the more responsibility the enterprise bears to the government. Therefore, it is measured by the income tax rate. Responsibility to employees. Being responsible to employees is mainly reflected in higher wage level and generous social welfare, so the employee wage and welfare rate is chosen to measure;
Control variables: for the robustness of regression results, control variables are introduced. The enterprise scale was selected to control the influence of other characteristics on the financial performance of the enterprise, and the natural logarithm of total assets was taken to measure the enterprise scale.

**Model Design**

According to the research hypothesis and the characteristics of the data in this paper, the following regression model is constructed based on the above specific indicators of CSR and financial performance:

\[(i=1,2,\ldots,N, t=1,2,\ldots,N)\]

**Empirical Analysis**

**Descriptive Statistics**

In this paper, descriptive statistics were carried out on 1000 samples from 200 listed pharmaceutical companies for 5 consecutive years, and the analysis results were shown in table 2. As can be seen from the table, compared with other indicators, the standard deviation of social responsibility for shareholders is 0.6672, indicating that there is a big difference in this indicator, and the difference between the maximum and minimum of other indicators is also obvious.

| Variable | Mean Value | Standard Deviation | Minimum Value | Maximum Value |
|----------|------------|--------------------|---------------|---------------|
| ROA      | 0.0628     | 0.067              | -0.4955       | 0.3396        |
| SP       | 0.4896     | 0.6672             | -2.0177       | 8.0900        |
| TR       | 0.1729     | 0.1444             | -1.1093       | 1.6156        |
| EP       | 0.0200     | 0.0227             | 0.0000        | 0.3440        |
| SIZE     | 22.0055    | 1.0395             | 18.4849       | 25.5665       |

**Analysis of Empirical Results**

In this paper, fixed effect regression and random effect suitable for panel data regression are adopted to conduct regression analysis on the relationship between CSR and financial performance. Then Hausman test is used to determine the regression results more suitable for research indicators, and reasonable analysis is conducted on the results. The analysis results are shown in table 3.

| Variable | Mean Value | Standard Deviation | Minimum Value | Maximum Value |
|----------|------------|--------------------|---------------|---------------|
| ROA      | 0.0628     | 0.067              | -0.4955       | 0.3396        |
| SP       | 0.4896     | 0.6672             | -2.0177       | 8.0900        |
| TR       | 0.1729     | 0.1444             | -1.1093       | 1.6156        |
| EP       | 0.0200     | 0.0227             | 0.0000        | 0.3440        |
| SIZE     | 22.0055    | 1.0395             | 18.4849       | 25.5665       |

**Table 2. Descriptive Statistics of Variables.**

**Note:** standard error in brackets, *, ** and *** indicate significant levels of 10%, 5% and 1%, respectively.

As shown in table 3, the results of mixed regression, fixed effect regression and random effect regression are respectively. At the same time, the Hausman test shows that the p value is greater than 0.001. Therefore, the influence of random effect results on corporate social responsibility and
financial performance is analyzed. As can be seen from the results, the coefficients of social responsibility to shareholders, social responsibility to the government and social responsibility to employees are respectively 0.0726, 0.0214 and 0.134, and the coefficients are all positive, indicating that enterprises actively assume social responsibility can effectively promote the improvement of corporate financial performance to a certain extent. However, through observation, it is not difficult to see that there is a difference in the correlation between each indicator and financial performance. The indicator of social responsibility for shareholders has the highest correlation with corporate performance, with a significant positive correlation at the level of 10%, while the other two indicators have a significant correlation at the level of 5%.

Conclusions and Recommendations

Based on the data of 200 listed pharmaceutical companies from 2014 to 2018, this paper studies the relationship between CSR and financial performance. Through empirical research, the following conclusions are drawn: there is a significant positive correlation between CSR and financial performance in the pharmaceutical industry. According to the results and conclusions, reasonable Suggestions are given from the perspectives of shareholders, government and employees:

1. The enterprise should strengthen its responsibility contribution to shareholders.
   Should be rational to assume corresponding responsibility of shareholders, while corporate profits, to shareholders to obtain more proportion of share out bonus, actively take on the responsibility of shareholders, to set a good image among shareholders, enable companies to have greater access to investment, broaden the channels, and increasing cash flow, to use more money enough for business development, promote enterprise's financial performance.

2. Enterprises should attach importance to their responsible contributions to the government.
   The high tax rate paid by enterprises to the government is a reflection of the good business performance of enterprises. Combined with the regression results, active tax payment by enterprises will not reduce the benefits of enterprises but promote the improvement of financial performance. Therefore, enterprises should pay taxes actively, make greater contributions to the government, and get more benefits from the government, so as to improve the financial performance of enterprises.

3. Enterprises should enhance their responsibility contribution to employees.
   Nowadays, if an enterprise wants to expand its scale and production, it must improve the welfare of employees. Therefore, the enterprise should pay employees on time and timely increase wages and benefits. Only when employees have a sense of satisfaction and happiness can they work actively, improve work efficiency, make positive contributions to the enterprise, create more value for the enterprise, and thus improve the financial performance of the enterprise.

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