DOES CORPORATE SOCIAL RESPONSIBILITY LEAD TO SUPERIOR PERFORMANCE?

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Abstract

In view of the inconsistent empirical findings in the literature and the limitations of least squares regressions, this paper employs a quantile regression method to investigate the impact that engagement in corporate social responsibility (CSR) activities has on corporate performance in China. An important finding of this work is that a significant, negative relationship across all quantiles exists between engagement in CSR activities and corporate performance in China when using return on assets (ROA), return on equity (ROE), and earnings per share (EPS) as performance measures. However, a significant, negative relationship between engagement in CSR activities and corporate performance only exists at low quantiles when using gross profit to net sales (GP) as a performance measure.

Keywords: Corporate Performance, Quantile Regression

JEL Classification: C50, G30

1. Introduction

With the globalization of economy, corporate social responsibility (CSR) is no longer an issue that is discussed only in western developed nations. Global corporations search business opportunities in emerging markets, especially developing countries such as China. China has become the most watched economy in the world for these years no matter of the direction of political strategies

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or the trend of economic development. China has enjoyed rapid economic growth over the last thirty years. However, China's economic development has often been accompanied by reports of poor business practices. The growing number of business scandals, such as overworked and underpaid employees, worker suicides, faulty consumer products, toxic emissions and water pollution profoundly affected Chinese economic growth and sustainable development for business. These wrongdoings show that many Chinese corporate just blindly pursue high profits and do not have enough experience in governing business. These phenomena highlight the urgent need to promote CSR in China.

In the mid and late 1990s, China approved a set of laws that resulted in significant influences on CSR in China, such as Environmental Protection Law (1994), Consumer Protection Law (1994) and Labor Law (1995). These laws acted as guidelines of CSR for businesses in terms of labor, environment responsibilities, and so on. In recent years, Chinese authorities have introduced several CSR initiatives, while stock market regulators have issued guidelines for CSR reporting requirements on a subset of Chinese firms. The Company Law of the People's Republic of China (effective 2006), Article 5, requires companies to comply with social morality, business morality, and meet their social responsibilities. In 2006 the Shanghai Stock Exchange and Shenzhen Stock Exchange issued guidelines for CSR disclosure, which in 2008 were made mandatory for a subset of listed firms.

All of Chinese government departments, industries and enterprises have considered that developing CSR is an important means to build a harmonious society, implement an empirical approach to development and carry out sustainable development. Accordingly, they employed a series of positive measures to foster the advancement of CSR movement. Chinese President Hu Jintao noted at an APEC meeting, held in November 2009, that "Enterprises should become aware of global responsibility, voluntarily include social responsibility in their business strategy, optimize business model and seek harmony between economic and social benefits." Against such backdrop, China's CSR movement has rapidly developed. As of June 2009, over 400 Chinese enterprises have published CSR reports, and many have set up CSR departments to advance their practices in this area. In addition, some leading enterprises are actively exploring the inclusion of CSR practices in

their business strategies and day-to-day management, in an effort to build comprehensive CSR management systems.

CSR is when enterprises work to consider the welfare of stakeholders beyond investors, including employees, customers, suppliers, government bodies, local communities, and the environment. This issue has attracted more attention over the last decade, as organizations have realized the strategic importance of such activities, with as many as 90% of the Fortune 500 companies now having explicit CSR initiatives (Kotler & Lee 2004; Lichtenstein, Drumwright, & Bridgette 2004). However, the nature of the relationship between the socially responsible practices of a corporation and its financial performance has long been debated, and remains unresolved (Margolis & Walsh, 2003; Foote et al., 2010). The literature has yielded a mixed set of results, including positive (e.g. Inoue and Lee, 2011; Wang, 2011; Huang and Lien, 2012), negative (e.g. Aupperle et al., 1985; McGuire et al., 1988; Brammer et al., 2006), neutral (e.g. McWilliams & Siegel, 2001; Makni et al., 2009; Soana, 2011), or even complex (e.g. Barnett and Salomon, 2002) relationships, and hence there remains no agreement as to whether or not high levels of CSR activity lead to improved corporate financial performance (McWilliams & Siegel, 2000; Margolis & Walsh, 2003; Inoue & Lee, 2011).

In view of the inconsistent empirical findings in the literature and the limitations of least squares regressions, this study considers that a restudy of the CSR–performance relation is thus needed, and adopts a quantile regression method, to fill this gap. This study can analyze whether and how CSR affects corporate performance with different levels of corporate performance by using quantile regression. This study hopes to provide different point of view to the literature with regard to the impact of CSR on corporate performance based on its empirical results.

In this study, the performance measures, namely return on assets (ROA), return on equity (ROE), gross profit to net sales (GP) and earnings per share (EPS), exhibit skewed distributions, so the assumption of normal distribution error terms in ordinary least squares (OLS) is not guaranteed, and may lead to misleading results. Quantile regression can resolve these problems and also offer a more flexible and complete characterization when there is an interest in the impact of CSR at both higher and lower levels of corporate performance. In addition, some studies have determined that the

relationship between corporate performance and CSR is not linear (e.g., McWilliams & Siegel, 2001; Barnett & Salomon, 2002), and therefore we suspect that the sensitivity of a company's performance to CSR activities will vary with the level of performance. For these reasons, we adopt a quantile regression method to analyze whether and how CSR activities affect different levels of corporate performance.

The main contributions of this paper are twofold. First, this work applies quantile regression to analyze the separate responses of different quantiles of the performance distribution to the CSR, using our panel data for Chinese samples. Quantile regression enables us to observe the whole distribution of the variables, rather than only focus on a single measure of the central tendency of the distribution, so it is suitable to examine potential differences in parameters between firms at different segments of the distribution of performance variables. Specific to the concerns of this study, the quantile regression method is appropriate to examine the impact of CSR on corporate performance for both more and less successful firms. Different from previous works, this study investigates the impact of corporate social responsibility activities on corporate performance from the perspective of different levels of performance, and thus adopts a quantile regression approach. Second, few studies in the current literature explore the CSR–performance relationship in China. The present paper employs Chinese data and obtains significantly negative relationship between CSR and corporate performance which may result from specific China's socialist market economy, contrasted on previous studies on western countries with inconsistent conclusions(Huang and Lien 2012; Soana, 2011; Brammer et al., 2006). Based on the particular finding, we also address the related implications for Chinese entrepreneurs and officials.

2. Corporate Social Responsibility and Corporate Performance

What is the relationship between CSR and corporate performance? Can business implementing CSR gain positive outcomes such as reputation enhancement, performance improvement and consumer identification, or is CSR vain, heading to expense increase and loss of competitiveness? The issue has been

studied extensively in academic field for decades and it has also been scrutinized by business.

Shen and Chang (2009) noted that there are two prominent but conflicting theoretical views regarding the financial impacts of CSR, the social impact hypothesis (Cornell and Shapiro 1987) and shift of focus hypothesis (Becchetti, Ciciretti and Hasan, 2007). The stakeholder theory claims that for obtaining long-term success, managers need to satisfy requirements of all stakeholders while carrying out strategic management. Cornell and Shapiro (1987) stated that when top managers execute financial policies, their objective is to reach the requirements of stakeholders and therefore increase corporate value; that is, if corporate can fully complete its obligations towards stakeholders, it will establish positive social image and maintain cooperation with stakeholders in the same time. Therefore, the social impact hypothesis states that there exists a positive relationship between social and financial performances. Wang (2011) argued that a socially responsible firm may be welcome by investors due to better corporate image, thus having a positive impact on stock performance. Huang and Lien (2012) suggest that CSR is positively correlated with corporate image and organizational performance. Additionally, levels of corporate image are positively associated with organizational performance levels.

In contrast, Becchetti, Ciciretti and Hasan (2007) proposed the shift of focus hypothesis that found business conducting social activities, such as having a good relationship with employee and community, paying attention to environmental protection and improving corporate governance, not only to pursue stockholder interest maximization but also to pursue the interests of a broader set of stakeholders. However, these ways will result in cost expense increasing. Friedman (1970) claimed that business involving in social responsibility activities will lead to several problems, like as resource-using inefficiency and limiting product development, so as to decrease its competitiveness. Hence, the shift of focus hypothesis states that if the corporate focus on social performance, it will result in worse financial performance. Mahapatra (1984) also indicated that external investors like rational economic investors instead of ethical investors reflected the firms' expenses of pollution prevention to stock return. This meant that the expenses of pollution prevention had a negative impact on stock return. In other word, when corporation

invests largely in improving corporate social responsibility, it may damage the benefit of stockholders.

3. Data and Variables

For the empirical analysis, this study employs a sample of the top 300 Chinese firms over the period 2009–2011. This is an unbalanced panel dataset that comes from the Taiwan Economic Journal (TEJ) database. Any firms in the TEJ data set without complete information are also deleted from the sample before further analysis. The final sample consists of 254 effective observations.

The external evaluation of a firm's CSR engagement is an important element of promoting CSR practices in business. In addition, firms also need a system to evaluate the performance of their CSR efforts. Therefore, the CSR Research Center of Chinese Academy of Social Sciences has built a comprehensive evaluation system covering the latest developments in CSR practices and CSR information disclosure levels. By collecting the CSR information disclosed voluntarily by the top 300 Chinese firms through public media, like CSR reports, financial reports and official websites, and studying the latest CSR management practices and information disclosure levels of these firms, the CSR Research Center has produced the China Top 300 Firms CSR Indices each year since 2009. The CSR score is constructed by assessing a firm's CSR-related practices along four dimensions: economic, social and environmental performance, and responsibility management. The specific indicators examined in each dimension are adapted from a set of widely accepted international CSR standards, including ISO26000[1] and the Global 500 companies' CSR reporting metrics. This paper employs the variable "CSR_score" to measure CSR.

Following Shen and Chang (2009), this study uses return on assets (ROA), return on equity (ROE), gross profit to net sales (GP) and earnings per share (EPS) as the corporate performance variables.

Several variables are also likely to influence corporate performance. Based on earlier studies on the subject (Agrawal & Knoeber, 1996; Florackis et al., 2009; Li et al., 2009), this study also

[1] *ISO26000 is a set of social responsibility standards developed by the International Standardization Organization, and was first adopted in July 2010.*

controls for firm size, financial leverage, growth rate of sales, and growth rate of assets differences across firms by including the variables *size*, which is the natural logarithm of total assets, *leverage*, which is the ratio of total debt to total assets, *salegrow*, which is the annual growth rate of sales, and *assetgrow*, which is the annual growth rate of the assets in the model. The definitions of all the variables are presented in Table 1.

The following equation is the basic model of the empirical study:

$$performance_i = \beta_0 + \beta_1 CSR\_score_i + \beta_2 size_i + \beta_3 leverage_i + \beta_4 salegrow_i + \beta_5 assetgrow_i + \varepsilon_i \quad (1)$$

4. The Econometric Model

First proposed by Koenker and Bassett (1978), quantile regression is an extension of the classical least squares estimation of the conditional mean to a collection of models for different conditional quantile functions. The least squares regression only enables researchers to approximate the conditional mean and median located at the center of the distribution, and this can only result in an incomplete picture of a conditional distribution (Mosteller & Tukey, 1977). However, quantile regression enables the estimation of conditional quantile functions, where each function characterizes the behavior of a specific point in the conditional distribution, and thus it fully represents the distribution. Quantile regression is applied when an estimate of the various quantiles in a population is needed, and also has several other important features. First, the quantile regression estimator minimizes the weighted sum of absolute residuals rather than the sum of squared residuals, and thus the estimated coefficient vector is not sensitive to outliers. Second, a quantile regression model uses a linear programming representation and simplifies examination. Third, this form of analysis is specifically useful when the conditional distribution does not have a standard shape, such as a fat-tailed, truncated, or asymmetric distribution. The quantile regression approach can thus obtain a much more complete view of the effects of explanatory variables on the dependent variable. The basic quantile regression model specifies the conditional quantile as a linear function of explanatory variables, and is given by:

$$y_i = x_i'\beta_\theta + u_{\theta i} \text{ , } 0<\theta<1 \quad (2)$$

$$Quant_\theta(y_i|x_i) = x_i\beta_\theta \quad (3)$$

where *y* is the dependent variable; *x* is a matrix of explanatory variables; *u* is the error term whose conditional quantile distribution equals zero, and $Quant_\theta(y_i|x_i)$ denotes the θth quantile of *y* conditional on *x*. The distribution of the error term *u* is left unspecified. An individual coefficient $\beta_{\theta j}$ associated with the j_{th} independent variable in the vector x_i, called x_{ij} , could be explained as 'how y_i in its θ_{th} conditional quantile reacts to a (ceteris paribus) marginal change in x_{ij} '.The quantile regression method thus allows us to testify the effects of the covariates at different locations in the conditional distribution of the dependent variable.

The θth regression quantile estimate $\hat{\beta}_\theta$, is the solution to the following minimization problem:

$$\min_\beta \sum_{y_i \geq x_i'\beta} \theta|y_i - x_i'\beta| + \sum_{y_i < x_i'\beta} (1-\theta)|y_i - x_i'\beta| \quad (4)$$

which is solved via linear programming. The median regression, which is a special case of the quantile regression, is obtained by setting $\theta = 0.5$. We can use variations of θ to obtain other quantiles of the conditional distribution. To convey a sense of the relationship of selected explanatory variables across the conditional corporate performance distribution, the results for the 20th, 30th, 40th, 60th, 70th, and 80th quantiles are reported. We use the bootstrap method illustrated in Buchinsky (1995) to get estimates of the standard errors for the coefficients in quantile regression. Quantile regression is also of particular importance, as it is a consistent and robust estimation method, especially when the error term is heteroscedastic and non-normally distributed.

Additionally, it is also worth mentioning that quantile regression can help with regard to the following issue. For each quantile, all sample observations are used in the process of a quantile-fitting regression. This approach is different from the

conventional piecewise regressions that segment the dependent variable (unconditional distribution) and then run an OLS on the subsets. Moreover, piecewise regressions are not an appropriate alternative to quantile regressions, due to severe sample selection problems (Koenker & Hallock, 2001), and they are also based on least-squares, and can be sensitive to the Gaussian assumption or to the presence of outliers. For a more detailed discussion on the model specifications with quantile regression, refer to Koenker (2005).

5. Empirical Results

Table 2 provides the descriptive statistics for the variables used in the analysis. The skewness results for ROA, ROE, GP, and EPS are 0.128, 2.762, 0.322, and 1.329, respectively. Moreover, the regression residuals in all cases significantly depart from normal distribution as the results of the Shapiro–Wilk and Shapiro–Francia test indicates that we can reject the null hypothesis that the data are normally distributed at a 1% level (Tables 3-6). All four performance measures in this study thus have a skewed distribution, and the assumption of normal distribution of the error terms in OLS is not guaranteed. These findings suggest that the use of least squares may produce misleading results. As noted earlier, quantile regression can solve these problems and also provide a more flexible and complete characterization when there is a focus on the impact of CSR on corporate performance at both higher and lower levels of corporate performance.

This study conducts the empirical investigation by estimating Eq. (1) at six quantiles, namely the 20th, 30th, 40th, 60th, 70th and 80th quantiles, using the same list of explanatory variables for each of these. Doing so allows us to examine the impact of explanatory variables at different points of the corporate performance distribution. For comparison purposes, we also provide the OLS estimates, which are reported in the last column of Tables 3 to 6. In addition, this study also reports the statistical comparison of quantile regression coefficients (coefficient test of inter-quantile) in Tables 3 to 6.

Starting from Table 3 and focusing on the CSR_score, the OLS estimates indicate that there is a significant, negative correlation between the CSR_score and corporate performance levels, and the quantile regression shows the same results across all quantiles of corporate performance. This suggests that the sensitivity of a

company's performance to its engagement in CSR activities does not vary with the quantile location of the firm's performance. On the other hand, although the coefficients of the CSR_score seem to vary with the quantile location, the inter-quantile coefficient test indicates that the coefficient differences between each quantile are statistically insignificant. There is thus no significant difference in the extent of the negative impact of engagement in CSR activities between higher and lower levels of corporate performance. Similar results are obtained in Tables 4. The negative correlation that is found between the CSR_score and corporate performance levels may be because firm's insiders have an incentive to increase CSR expenditure to a level that is higher than that which maximizes firm value if they gain utility from a high CSR rating of their companies. For example, a favorable CSR rating can enhance the reputations of managers, since they will be seen as individuals who respect their employees, communities, and the environment (Barnea & Rubin, 2010).

When using EPS as a performance measure (Table 5), similar results are obtained. Although the coefficient in the 60th quantile becomes insignificant, its sign is still negative and the second panel of Table 5 indicates that the coefficient differences in terms of the 60th versus other quantiles are statistically insignificant. However, when further exploring the different coefficients of the CSR_score variable across different quantiles, the coefficient is substantially lower at higher quantiles. The inter-quantile coefficient test indicates that the coefficient of the 80th quantile is statistically significantly smaller than the coefficients of the 20th and 30th quantiles. This may be because firms with better performance have a greater ability to afford CSR-related activities, and thus have higher CSR expenditures, which may then lead to worse performance.

In the case of GP, the quantile regression shows a significant, negative relationship between the CSR_score and corporate performance at only the 20th, 30th, and 40th quantiles. Although coefficients in the 60th, 70th, and 80th quantiles become insignificant, their signs are still negative. However, the second panel of Table 6 indicates that the coefficient differences in terms of the upper versus lower quantiles are statistically significant. This may because less profitable firms cannot afford to spend much on CSR, but still do so in order to comply with government regulations, thus using resources that could otherwise be spent on developing new products and services, and further reducing corporate performance. However,

profitable firms have more resources available to spend on CSR, and thus their performance does not fall significantly when complying with government regulations. This is why the coefficients in the 60th, 70th, and 80th quantiles become insignificant when using GP as a performance measure, and it should be noted that GP measures the relationship between sales revenue and cost of goods sold, and does not consider operating expenses.

In addition, the OLS estimates are inconsistent with the quantile regression estimates in Table 6. The sometimes different results from the OLS vis-a-vis the quantile regression indicate that estimating only the conditional mean of the response variable can be inappropriate when the data fail to meet the assumptions needed to perform an OLS regression analysis.

In summary, although some of the estimated results for the quantile coefficients are insignificantly negative, it can still be concluded that engaging in CSR activities does not improve firm performance in China. Moreover, the results of the inter-quantile coefficient test suggest that the significant, negative correlation could hold for all quantiles (Table 5). The estimated coefficients of the CSR_score are thus significantly negative across all quantiles when using ROA, ROE, and EPS as performance measures. In the case of GP, the estimated coefficients of the CSR_score are significantly negative at low quantiles. These results support the shift of focus hypothesis (Becchetti, Ciciretti & Hasan, 2007), which conjectures that there is a negative relation between CSR and financial performance.

High levels of CSR result in additional costs that put a firm at an economic disadvantage compared to other, less socially responsible firms (Bragdon & Marlin, 1985; Vance, 1975). On the other hand, socially responsible activities may also bring economic benefits (Moussavi & Evans, 1986). Nevertheless, this study finds that adopting CSR leads to smaller financial returns than the related costs in China, and so a significant, negative relationship exists between engagement in CSR activities and corporate performance. This finding is in line with Brammer et al. (2006).

There are still many state-owned enterprises (SOEs) in China, which are legally owned by the state and administered by central, provincial, or local governments. In addition, according to Chen, Firth, Gao, and Rui (2006), about 30% of all shares in Chinese firms are owned by central or local governments, and another 30% by legal

entities which are usually ultimately controlled by these. About 70% of the Chinese samples in this study are SOEs, which often pursue social and political objectives that may conflict with purely economic ones (Rawski, 1994; Qi et al., 2000; Lin & Zhu, 2001; Chen et al., 2006; Huang & Boateng, 2013), and this may be why negative relationship exists between engagement in CSR activities and corporate performance in China.

6. Conclusions

This paper investigates the impact that engagement in CSR activities has on corporate performance in China. In view of the inconsistent empirical findings in the literature and the limitations of least squares regressions, we adopt a quantile regression method to fill this gap in the literature and provide a different perspective to that in the current literature with regard to the relationship between CSR and corporate performance. The conditional quantile regression estimator extends the classical least squares estimation of the conditional mean to a collection of models running for different quantile functions. Accordingly, it permits the effect of a regressor to differ at different points of the conditional dependent-variable distribution, allowing us to examine the relations between the engagement in CSR activities and corporate performance for better and worse performing firms. According to the empirical results, the sensitivity of a company's performance to its engagement in CSR activities vary with the quantile location of the firm's performance level when using GP as a performance measure, although this does not occur when using other performance measures. However, these findings could not be obtained with conditional mean-focused regressions. The sometimes different results from the OLS vis-a-vis the quantile regression indicate that estimating only the conditional mean of the response variable can be inappropriate when the data fail to meet the assumptions needed to perform an OLS regression analysis.

Moreover, the results of the quantile regression can provide a more complete understanding of the impact of engagement in CSR activities on corporate performance, thus overcoming the weaknesses of earlier studies. The inconsistent findings on this issue in other works might be due to the inappropriate use of conditional mean-focused regressions.

An important finding of this work is that a significant, negative relationship across all quantiles exists between engagement in CSR activities and corporate performance in China when using ROA, ROE, and EPS as performance measures. However, a significant, negative relationship between engagement in CSR activities and corporate performance only exists at low quantiles when using GP as a performance measure. This may be because the measures of ROA, ROE, and EPS consider the operating expenses due to engagement in CSR activities, while the measure of GP does not.

To sum up, this study argues that in China adopting CSR leads to smaller financial returns than the related costs, and so a significant, negative relationship exists between engagement in CSR activities and corporate performance, supporting the shift of focus hypothesis. The reason may be that there are many SOEs in China, and these often pursue social and political objectives that hinder economic performance (Rawski, 1994; Qi et al., 2000; Lin & Zhu, 2001; Chen et al., 2006; Huang & Boateng, 2013). Although the results for China suggest that firms should not engage in CSR activities, we think that this would be short-sighted. With its accession to the WTO, China has become more integrated into the global economy, and so its companies should consider how to use the concept of CSR in order to derive new competitive advantages, as this would benefit investors and other stakeholders. Therefore, this study suggests that the firms in China should avoid lowering competitive advantage due to additional costs resulted from high levels of CSR. In addition, managers need to consider economic, social, and political objectives simultaneously. Only paying attention to specific or some aspect is not a way to manage permanently. Managers should encourage innovation and think strategically how to create business opportunities from engaging in CSR activities so as to increase shareholders' interests.

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APPENDIX

Table 1

Definitions of variables

Variable	Definition
Dependent variable	
ROA (%)	Return on assets=the ratio of net income to total asset.
ROE (%)	Return on equity=the ratio of net income to total equity.
GP (%)	Gross profit to net sales=the ratio of gross profit to net sales.
EPS	Earnings per share= net income divided by the number of shares outstanding.
Independent variable	
CSR_score	CSR Development Index, measured as the sum of scores in four social rating categories: responsibility management, economic, social and environmental responsibilities.
size	The natural logarithm of total assets.
leverage	Ratio of total debt to total assets.
salegrow (%)	Annual growth rate of sales.
assetgrow (%)	Annual growth rate of assets.

Table 2

Summary statistics of main variables

	Obs	Mean	Median	Standard deviation	Skewness	Kurtosis
ROA	254	3.621	3.191	4.087	0.128	5.635
ROE	254	10.356	10.019	14.600	2.762	36.578
GP	254	16.050	14.2	10.637	0.322	4.524
EPS	254	0.434	0.32	0.511	1.329	6.534
CSR_score	254	36.998	37.75	21.925	0.138	1.825
size	254	17.291	17.207	1.852	-0.078	2.234
leverage	254	0.617	0.655	0.189	-0.836	3.185
salegrow	254	76.605	23.27	662.720	12.988	170.438
assetgrow	254	25.482	15.81	65.845	10.237	121.415

Table 3

Regression results with ROA as the performance measure

	Quantile regressions						OLS
	20th Quant	**30th Quant**	**40th Quant**	**60th Quant**	**70th Quant**	**80th Quant**	
CSR_score	-0.018 (0.052)*	-0.028 (0.001)***	-0.025 (0.019)**	-0.036 (0.034)**	-0.028 (0.05)**	-0.030 (0.048)**	-0.027 (0.053)*
assetgrow	0.017 (0.121)	0.004 (0.389)	0.012 (0.218)	0.020 (0.155)	0.018 (0.191)	0.009 (0.382)	0.023 (0.054)*
salegrow	-0.0013 (0.211)	-0.0002 (0.683)	-0.0009 (0.313)	-0.0018 (0.168)	-0.0017 (0.179)	-0.0010 (0.271)	-0.0020 (0.089)*
size	0.336 (0.035)**	0.483 (0.00)***	0.533 (0.00)***	0.527 (0.014)**	0.364 (0.17)	0.092 (0.669)	0.359 (0.043)**
leverage	-2.075 (0.185)	-5.711 (0.00)***	-7.437 (0.00)***	-11.963 (0.00)***	-12.394 (0.00)***	-15.889 (0.00)***	-7.669 (0.00)***
Pseudo R^2	0.0400	0.0683	0.0917	0.1347	0.1678	0.2196	R^2 = 0.1529
Shapiro–Wilk test: statistic=0.939*** Shapiro–Francia test: statistic= 0.932***							
Inter-quantile comparison of the coefficient of CSR_score, p-values							
30th Quant	0.352						
40th Quant	0.562	0.773					
60th Quant	0.303	0.589	0.376				
70th Quant	0.584	0.985	0.849	0.513			
80th Quant	0.583	0.913	0.812	0.741	0.908		

*Note: A constant term is included, but not reported. The numbers in parentheses are p-values. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.*

Table 4

Regression results with ROE as the performance measure

	Quantile regressions						OLS
	20th Quant	**30th Quant**	**40th Quant**	**60th Quant**	**70th Quant**	**80th Quant**	
CSR_score	-0.083 (0.04)**	-0.094 (0.001)***	-0.089 (0.003)***	-0.082 (0.056)*	-0.090 (0.052)*	-0.102 (0.037)**	-0.122 (0.024)**
assetgrow	0.028 (0.522)	0.036 (0.192)	0.071 (0.006)***	0.028 (0.381)	0.079 (0.068)*	0.038 (0.268)	-0.010 (0.819)
salegrow	-0.0016 (0.677)	-0.0025 (0.317)	-0.0059 (0.013)**	-0.0024 (0.401)	-0.0076 (0.055)*	-0.0043 (0.164)	0.0011 (0.81)
size	1.230 (0.006)***	1.549 (0.00)***	1.631 (0.00)***	1.045 (0.058)*	0.892 (0.284)	0.520 (0.467)	0.291 (0.664)
leverage	-0.718 (0.869)	-1.068 (0.749)	-1.253 (0.709)	-1.488 (0.762)	4.462 (0.557)	9.601 (0.153)	10.504 (0.09)*
Pseudo R^2	0.0545	0.0701	0.0674	0.0345	0.0298	0.0365	R^2 =0.0450
Shapiro–Wilk test: statistic=0.689*** Shapiro–Francia test: statistic=0.669***							
Inter-quantile comparison of the coefficient of CSR_score, p-values							
30th Quant	0.731						
40th Quant	0.880	0.849					
60th Quant	0.985	0.784	0.856				
70th Quant	0.905	0.940	0.981	0.826			
80th Quant	0.762	0.879	0.805	0.693	0.765		

Note: Same as in Table 3.

Table 5

Regression results with EPS as the performance measure

	Quantile regressions						OLS
	20th Quant	**30th Quant**	**40th Quant**	**60th Quant**	**70th Quant**	**80th Quant**	
CSR_score	-0.0024 (0.03)**	-0.0026 (0.013)**	-0.0033 (0.01)***	-0.0030 (0.123)	-0.0059 (0.031)**	-0.0089 (0.004)***	-0.0060 (0.001)***
assetgrow	0.0014 (0.248)	0.0033 (0.001)***	0.0028 (0.01)***	0.0021 (0.193)	0.0010 (0.582)	0.0028 (0.128)	0.0031 (0.045)**
salegrow	-0.00009 (0.399)	-0.00027 (0.002)***	-0.00023 (0.02)**	-0.00019 (0.211)	-0.00010 (0.561)	-0.00028 (0.106)	-0.00027 (0.078)*
size	0.032 (0.012)**	0.050 (0.00)***	0.062 (0.00)***	0.071 (0.005)***	0.077 (0.02)**	0.110 (0.003)***	0.078 (0.001)***

leverage	-0.015 (0.903)	-0.111 (0.298)	-0.196 (0.173)	-0.189 (0.413)	-0.434 (0.15)	-0.480 (0.159)	-0.488 (0.019)**
Pseudo R^2	0.0598	0.0637	0.0609	0.0691	0.0843	0.1158	R^2 =0.1283
Shapiro–Wilk test: statistic= 0.885*** Shapiro–Francia test: statistic=0.879***							
Inter-quantile comparison of the coefficient of CSR_score, p-values							
30th Quant	0.848						
40th Quant	0.498	0.488					
60th Quant	0.776	0.831	0.872				
70th Quant	0.253	0.239	0.331	0.193			
80th Quant	0.076*	0.081*	0.113	0.109	0.223		

Note: Same as in Table 3.

Table 6

Regression results with GP as the performance measure

	Quantile regressions						**OLS**
	20th Quant	**30th Quant**	**40th Quant**	**60th Quant**	**70th Quant**	**80th Quant**	
CSR_score	-0.061 (0.087)*	-0.073 (0.007)***	-0.037 (0.039)**	-0.025 (0.356)	-0.011 (0.826)	-0.017 (0.814)	-0.024 (0.539)
assetgrow	0.0261 (0.356)	0.0268 (0.201)	0.0974 (0.00)***	0.0694 (0.033)**	0.0163 (0.685)	-0.0004 (0.995)	0.0618 (0.066)*
salegrow	-0.0029 (0.266)	-0.0031 (0.109)	-0.0099 (0.00)***	-0.0079 (0.008)***	-0.0035 (0.346)	-0.0022 (0.697)	-0.0070 (0.036)**
size	0.975 (0.004)***	0.933 (0.001)***	0.269 (0.468)	-0.307 (0.555)	-0.629 (0.431)	-0.326 (0.825)	0.375 (0.44)
leverage	-6.019 (0.068)*	-8.056 (0.003)***	-6.479 (0.056)*	-2.284 (0.629)	-11.211 (0.106)	-13.576 (0.273)	-9.222 (0.041)**
Pseudo R^2	0.0321	0.0407	0.0386	0.0356	0.0511	0.0699	R^2 =0.0534
Shapiro–Wilk test: statistic=0.954*** Shapiro–Francia test: statistic=0.950***							
Inter-quantile comparison of the coefficient of CSR_score, p-values							
30th Quant	0.650						
40th Quant	0.477	0.161					
60th Quant	0.098*	0.085*	0.173				
70th Quant	0.073*	0.053*	0.071*	0.550			
80th Quant	0.044**	0.060*	0.078*	0.399	0.591		

Note: Same as in Table 3.