

## The Relationship between Corporate Social Performance and Financial Performance: Modified Models and Their Application ——Evidence from Listed Companies in China<sup>1</sup>

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**Abstract:** The study employs modified interactive models and lead-lag models to investigate the correlation between corporate social performance (CSP) and financial performance (CFP) of listed companies in China. The samples are 1228 in both 2005 year and 2006 year, 1251 in the period of 2005- 2006, and 1577 in both 2009 year and 2010 year, 1603 in the period of 2009-2010 year. The serious empirical research finds the relationship between CSP and CFP measured by Tobin's Q is negative; and further research reveals social performance based on various stakeholders has different impact upon market value of listed companies in China. Moreover, more factors, such as special ownership structure, governance structure, culture background and wage rigidity, influence the CSP-CFP relationship in China.

**JEL Classifications:** M14; G32

**Keywords:** Corporate social performance; Corporate financial performance; Corporate social responsibility; Interactive impact model; Lead-lag model

### 1. Introduction

Since Milton Friedman's (1962, 1970) challenge that "a corporation's social responsibility is to make a profit", numerous researchers started to explore the correlation of corporate social performance and financial performance, and to prove or disprove their relationship. A few scholars asserted that "the only responsibility of a business is to its shareholders" (Locke, 1996), but numerous researchers viewed that the firm is not a simple economic organization, and the firm can't neglect the survival condition. As Porter and Kramer (2006) pointed out if the development of any firm is at the expense of the survival society, its achieving any success would become a mirage.

The research on the linkage between CFP and CSP has traditionally involved two different empirical issues: (1) the direction (if exists) of the causality; and (2) the sign of those identified

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causal relationship (Peston and O'Bannon, 1997; Surroca and Tribo, 2005). Although many researchers have explored the empirical relationship between CSP and CFP, still no consensus exists (Griffin and Mahon, 1997). Some researchers have found in their research only a negative relationship (Bromiley and Marcus, 1989; Davidson, Chandy, and Cross, 1987; Davidson and Worrell, 1988; Jarrell and Peltzman, 1985; Pruitt and Peterson, 1986; Shane and Spicer, 1983; Strachan, Smith, Beedles, 1983; Vance, 1975; Wier, 1983; Makni, Francoeur, Bellavance, 2009; Giannarakis and Theotokas, 2011); some researchers have found the contradictory results, that is the positive and inconclusive relationship (Anderson and Frankle, 1980; Freedman and Jaggi, 1982; Fray and Hock, 1976), or the positive and negative relationship (Chen and Metcalf, 1980; Cochran and Wood, 1984; Coffey and Fryxell, 1991); the majority of researchers have found the positive relationship (Belkaoui, 1976; Bowman, 1978; Hart and Ahuja, 1994; Orlitzky et al. 2003; Recchetti, 2007; Mahoney et al. 2008; McGuire et al. 1988; Simpson and Kohers, 2002; Stanwik and Sarah, 1998, etc.). Therefore, the impression that 'in the aggregate, results are inconclusive' regarding any theoretical conclusions about the relationship between CSP and CFP has persisted until today (Orlitzky, Schmidt, Rynes, 2003).

Why does the relationship between CSP and CFP seem so vague and unclear? Ruf et al. (2001) early argued that the conflicting findings of relationship between CSP and CFP are attributed to both theoretical and methodological issues: (1) lack of a theoretical foundation, (2) lack of a comprehensive systematic measure of CSP, (3) lack of methodological rigor, (4) sample size and composition limitations, and (5) mismatch between social and financial variables (Cochran and Wood, 1984; Ullmann, 1985; Wood and Jones, 1995). Brammer and Millington (2008) also pointed out that the failure to reach a consensus on the implications of improved social performance for financial performance arises for a number of reasons as follows: (1) the conceptual determinants of CSP, and consequently the theoretical expectations of the CSP-CFP relationship (Ullman, 1985; Wood and Jones, 1995); (2) severe difficulties encountered in measuring CSP (Waddock and Graves, 1997; Griffin and Mahon, 1997); (3) lack of consensus in the literature reflecting the very broad range of measures of CFP employed in existing studies (Margolis and Walsh, 2003); (4) lack of considering the time horizon over which CSP and CFP are related (Waddock and Graves, 1997; Hillman and Keim, 2001; Griffin and Mahon, 1997; Aupperle, Carroll, and Hatfield, 1985; McGuire, et al., 1988). Lee et al. (2009) asserted that the limitations of methodology obscured the real CSP-CFP relationship and led to the inconsistent results. These limitations referred to the samples, control factors, accounting-based measures and market-based measures, and analysis periods. Therefore, prior studies showed that limitations of methodology have become the issues on CSP-CFP relationship.

Investigating the correlation of CSP and CFP is favorable of regulating and improving relevant policies for governments, fulfilling social responsibilities and promoting social progress for firms, and of the rationalization of stakeholder in decision-making in enterprises. Therefore, the study will review the prior models, and then constructs the modified models with appropriate variables to investigate the relationship between social performance and financial performance in China. The remainder of the paper is organized as follows. In the next section, we review some prior representative models, the third section includes the hypothesis and modified models, the fourth section is data resource and descriptive statistics, the fifth section is empirical results, the sixth is the refined models and further research, the seventh section is conclusions and discussion.

## 2. Literature of the Relationship between Social Performance and Financial Performance

### 2.1 Corporate Social Performance Influenced Financial Performance

The majority of researchers explored the impact of CSP on CFP, so different models exist, such as McWilliams and Siegel's model, McGuire, Sundgren and Schneeweis's model, Barnett and Salomon's model. Waddock and Graves model was rather common, and many researchers employed it to investigate the link of CSP and CFP. Waddock and Graves (1997) called slack resource theory and good management theory, and constructed a model with an index of CSP based on the eight corporate social performance attributes rated consistently across the entire Standard and Poors 500 by the firm Kinder, Lydenberg, Domini (KLD).

$$PERF_i = f(CSP_i, SIZE_i, RISK_i, IND_i)$$

where  $PERF_i$  represented corporate financial performance, which was measured by return on assets (ROA), return on equity (ROE) or return on sales (ROS);  $CSP_i$  was the proxy variable for firm's social responsibility (social performance index);  $SIZE_i$  was the proxy variable for firm size, which was measured by total assets and by total sales;  $RISK_i$  is the proxy variable for riskiness of a firm, which is represented by the long-term debt to total assets ratio;  $IND_i$  is the proxy variable for industry, which was determined by 4-digit SIC and represented in the model by dummy variables. Peters and Mullen (2009) ever used the model to research the accumulative effect of corporate social responsibility on financial performance.

McWilliams and Siegel (2000) tried to use advertisement expenditures and R&D expenditure to explain financial performance, and pulled them in Waddock and Graves model. However, they found that R&D intensity highly related to CSP, but the impact of CSP on profitability was neutral because of R&D intensity.

On the base of McWilliams and Siegel's model, Andersen and Dejoy (2011) constructed a series of models to investigate the role of size, industry, risk, R&D and advertising expenses as control variables. They found that the best specification of the model was the one with size, industry, risk, and R&D expense as control variables, which was  $MV/TA = F(\text{Size, Industry, Risk, R\&D, CSP})$ , where  $MV/TA$  was the continuous response variable, and reflected corporate financial performance.

The differences between McWilliams and Siegel's model and Andersen and Dejoy's model are the measures of CSP and CFP: (1) for measures of CSP, McWilliams and Siegel (2000) used accounting profit, but Andersen and Dejoy (2011) used market value over total assets ( $MV/TA$ ); (2) for measures of CFP, McWilliams and Siegel (2000) used dummy variables by KLD database, but Andersen and Dejoy (2011) used the rating of the strengths and the concerns of community, governance, diversification, employee relation, environment, human rights and product in KLD STATS.

Therefore, Ruf et al. (2001) investigated the impact of change in CSP on change in CFP with the following model:

$$\Delta FIN_{i,t} = \beta_0 + \alpha_1 Size_{i,t} + \alpha_2 \Delta FIN_{i,t-1} + \sum_{j=1}^{k-1} \beta_j I_{i,j} + \alpha_3 \Delta CSP_i + \varepsilon_{i,t}$$

Ruf model existed four characteristics: (1) it reflected the incremental impact of change in CSP on change in CFP; (2) it took impact of previous CSP on current CFP into account; (3) it took firm size and industry as control variable; (4) it used AHP to measure change in CSP, which was  $\Delta CSP = \sum w_j \times (a_j - b_j)$ , where  $w_j$  is the relative importance weight of dimension  $j$ ; ( $a_1, a_2, \dots, a_k$ ) represented the performance rating in time period  $t$ , of a given company on the  $k$  dimensions of

CSP;  $(b_1, b_2 \dots b_k)$  represented the performance rating in time period  $t-I$ .

Callan and Thomas (2009) combined with previous studies, and constructed theoretical models and empirical models. The theoretical models include current model (1):  $CFP_i = f(CSP_i, X, Z_i)$  and lead-lag model (2):  $CFP_{i,t} = f(CSP_{i,t-1}, SIZE_{i,t}, CAPITAL_{i,t}, RISK_{i,t}, RD_{i,t}, ADV_{i,t}, Z_{i,t})$ . Following the theoretical structure, they specified basic model (3), refined model (4) and refined model (5), and full model (6):

$$CFP_t = \alpha_o + a_1CSP13_{t-1} + a_2Empl_t + a_3NetSales_t + a_4TotalAssets_t + a_5CapInt_t + \alpha_6DebtEquity_t + \alpha_7RDInt_t + \alpha_8ADVInt_t + \alpha_9Manuf_t + \alpha_{10}Wholesale_t + \alpha_{11}Retail_t + \mu_1 \quad (3)$$

$$CFP_t = \beta_o + \beta_1CSP13_{t-1} + \beta_2Empl_t + \beta_3Empl_t^2 + \beta_4NetSales_t + \beta_5NetSales_t^2 + \beta_6TotalAssets_t + \beta_7TotalAssets_t^2 + \beta_8CapInt_t + \beta_9DebtEquity_t + \beta_{10}RDInt_t + \beta_{11}ADVInt_t + \beta_{12}Manuf_t + \beta_{13}Wholesale_t + \beta_{14}Retail_t + \mu_2 \quad (4)$$

$$CFP_t = \gamma_o + \gamma_1CSP7_{t-1} + \gamma_2NegScreens_{t-1} + \gamma_3Empl_t + \gamma_4NetSales_t + \gamma_5TotalAssets_t + \gamma_6CapInt_t + \gamma_7DebtEquity_t + \gamma_8RDInt_t + \gamma_9ADVInt_t + \gamma_{10}Manuf_t + \gamma_{11}Wholesale_t + \gamma_{12}Retail_t + \mu_3 \quad (5)$$

$$CFP_t = \delta_o + \delta_1CSP7_{t-1} + \delta_2NegScreens_{t-1} + \delta_3Empl_t + \delta_4Empl_t^2 + \delta_5NetSales_t + \delta_6NetSales_t^2 + \delta_7TotalAssets_t + \delta_8TotalAssets_t^2 + \delta_9CapInt_t + \delta_{10}DebtEquity_t + \delta_{11}RDInt_t + \delta_{12}ADVInt_t + \delta_{13}Manuf_t + \delta_{14}Wholesale_t + \delta_{15}Retail_t + \mu_4 \quad (6)$$

Callan and Thomas (2009) referred to thirteen category stakeholders and took firm size, riskiness and industry into account to build the complete models. They found that the CSP-CFP relationship was positive, and control variables had to be properly specified to avoid bias.

However, the studies on CSP-CFP relationship are less in China, and only a few researchers explored the correlation of CSP and CFP. Their models were developed from Waddock and Graves's model. For example, Yang and Yun (2009) took employees, consumers, community relation and environment into account and pulled them in the model as follows:

$$CFP_i = c + \beta_1CSP_i + \beta_2 \ln(SIZE_i) + \beta_3LEV_i + \beta_4OWN_i + \beta_5GR_i + \varepsilon_i \quad (1)$$

$$CFP_i = c + \beta_1CSPL_i + \beta_2CSPM_i + \beta_3CSPE_i + \beta_4CSPC_i + \beta_5 \ln(SIZE_i) + \beta_6LEV_i + \beta_7OWN_i + \beta_8GR_i + \varepsilon_i \quad (2)$$

where  $CFP$  was firm's social performance, which was represented by return on total assets;  $CSP$  was equal to  $(CSPL + CSPM + CSPE + CSPC)/4$ , and  $CSPL$ ,  $CSPM$ ,  $CSPE$ ,  $CSPC$  represented respectively firm's social performance based on employees, consumers, environment, community relation. Zhu and Yang (2009) also constructed accounting-based model (3) and market-based model (4):

$$ROA_i = \alpha + \beta_1GCCCI_i + \beta_2ECI_i + \beta_3CCI_i + \beta_4SCI_i + \beta_5PCI_i + \beta_6SIZE_i + \beta_7INDU_i + \beta_8STRU_i + \beta_9ROA_{i-1} + \varepsilon_i \quad (3)$$

$$TobinQ_i = \alpha + \beta_1GCCCI_i + \beta_2ECI_i + \beta_3CCI_i + \beta_4SCI_i + \beta_5PCI_i + \beta_6SIZE_i + \beta_7INDU_i + \beta_8STRU_i + \beta_9TobinQ_{i-1} + \varepsilon_i \quad (4)$$

where  $GCCI$ ,  $ECI$ ,  $CCI$ ,  $SCI$ ,  $PCI$  respectively denoted social performance based on government, employees, creditors, suppliers, social welfare. The models featured investigating the correlation between CSP and CFP from both accounting and market angles.

## 2.2 Corporate Financial Performance Influenced Social Performance

Only a few researchers (McGuire, Sundgren, Schneeweis, 1988; Aupperle and Pham, 1989; Brammer and Millington, 2008) investigated the impact of CFP on CSP. McGuire, Sundgren and Schneeweis (1988) used the *Fortune* reputation ratings to represent social performance as

independent variable, and market-based measures (risk-adjusted return, or alpha, and total return) and accounting-based measures (return on assets, total assets, sales growth, asset growth, and operating income growth) as dependent variables. In the models, market risk measures were beta, a measure of systematic risk, and the standard deviation of total return, and accounting-based measures of risk were the debt to assets ratio, operating leverage, and the standard deviation of operating income. Similarly, McGuire, Sundgren and Schneeweis (1988) researched the impact of CFP on CSP from the four directions as follows: (1) the impact current CFP and current risk on current CSP; (2) the impact of current CFP and lag risk on current CSP; (3) the impact of previous CFP and current risk on current CSP; (4) the impact of previous CFP and lag risk on current CSP. Accordingly, Aupperle and Pham(1989)based on the four-part CSR constructure: economic, legal, ethical, and discretionary(philanthropy), and took CSR as dependent variable, and used long-term return on asset, long-term growth in sales, long-term growth in EPS, long-term chang in stock price, adjusted ROA and total return of investors as independent variables, and beta as risk variable. Aupperle and Pham’s model depent on social responsibility structural model developed by Carroll (1979), and reflected the influence of financial performance on economic, legal, ethical and discretionary social behavior. Moreover, Brammer and Millington (2008) only used charitable donations as dependent variable to investigate the CSP-CFP relationship. The equation is:

$$y_{i,t} = \beta_1 Industry_{i,t} + \beta_2 Size_{i,t} + \beta_3 R \& D_{i,t} / Sales_{i,t} + \beta_4 Profitability_{i,t} + \beta_5 Advertising_{i,t} + \beta_6 LabourIntensity_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 Cash_{i,t} / Sales_{i,t} + \beta_9 Dividends_{i,t} + Year_t + \varepsilon_{i,t} \quad (1)$$

where  $y_{i,t}$  was corporate social performance, and was equal to charitable donations divided by sales; *Industry* was industry variable, *Size* was represented by total assets, *Leverage* was debt to asset ratio, *Cash/Sales* was cash and cash equivalents divided by sales, *Dividends* was payable dividends divided by total assets, *Advertising* was the dummy variable, *LabourIntensity* was employees expenditure divided by sales, *Year* was period 1990-1999, *Profitability* was equal to EBT/total assets and market return.

### 2.3 The Interactive Models of Social Performance and Financial Performance

The interactive models reflected both the impact of CSP on CFP and the impact of CFP on CSP. Those models had some differences in detail. Cochran and Wood (1984) firstly tested the impact of CSP on CFP with the following model (1):

$$FP_i = \beta_0 + \beta_1 CSR_i + \beta_2 IND_i + \beta_3 TURN_i + \beta_4 AGE_i + \varepsilon_i \quad (i = 1,2,3) \quad (1)$$

where *CSR* were 0, 1 dummy variables reflecting the Moskowitz categories; *IND* were 0, 1 dummy variables reflecting industry; *FP* was financial performance, and three accounting returns measures were employed initially: (1) the ratio of operating earnings to assets [*OEA*], (2) the ratio of operating earnings to sales [*OES*], and (3) excess market valuation [*EV*]; *TURN* was asset turnover, and *AGE* was asset age.

Then, Cochran and Wood (1984) tested the impact of CFP on CSP by model (2):

$$CSR = \alpha_0 + \alpha_1 OES + \alpha_2 AGE + \alpha_3 TURN + \alpha_4 EV + \varepsilon \quad (2)$$

Nelling and Webb (2009) firstly employed two CSP-CFP models to respectively investigate the impact of lead CFP on current CSP and the impact of lead CSP on current CSP.

$$CSP_t = f(CFP_{t-1}, SIZE_{t-1}, RISK_{t-1})$$

$$CFP_t = f(CSP_{t-1}, SIZE_{t-1}, RISK_{t-1})$$

Then, they took corporate culture and managerial influence into account and constructed Tobit models based on Granger causality models:

$$SRPERF_t = \alpha_0 + \alpha_1 SRPERT_{t-1} + \alpha_2 SRPERT_{t-2} + \alpha_3 RET_t + \alpha_4 RET_{t-1} + ai + \varepsilon_t$$

$$RET_t = \beta_0 + \beta_1 RET_{t-1} + \beta_2 RET_{t-2} + \beta_3 SRPERT_t + \beta_4 SRPERF_{t-1} + ai + \varepsilon_t$$

where *SRPERF* was social performance, *RET* was financial performance, and *ai* was fixed effect. Nelling & Webb (2009) controlled the effect of unobserved variables, including corporate culture and managerial influence, and researched the impact of *CSP<sub>t-1</sub>* and *CSP<sub>t-2</sub>* (or *CFP<sub>t-1</sub>*, *CFP<sub>t-2</sub>*) on *CSP<sub>t</sub>* (or *CFP<sub>t</sub>*).

Chi and Lin (2008) select banking industry in Europe as the research objective and applied social impact hypothesis theory, slack resource theory, good management theory to build current interactive impact models of CSP and CFP:

$$CFP_{ijt} = \alpha_o + a_1CSP_{ijt} + a_2TotalAssets_{ijt} + a_3PGDP_{it} + a_4Population_{it} + a_5TotalLiabilities_{ijt} / TotalAssets_{ijt} + \alpha_6Non\ interest\ Expenses_{ijt} / Total\ Revenue_{ijt} + \alpha_7EarningsAssets_{ijt} + \alpha_8CR_{4it} + \varepsilon_{ijt} \quad (1)$$

$$CSP_{ijt} = \beta_o + \beta_1CFP_{ijt} + a_2PGDP_{it} + \beta_3EconomicsGrowth_{it} + \beta_4TotalAssets_{ijt} + \beta_5TotalAssetsTurnover_{ijt} + \beta_6CR_{4it} + \beta_7CR_{4it}^2 + \beta_8LegalEnforcement_{it} + \beta_9Antidireti\ or\ Rights_{it} + \varepsilon_{ijt} \quad (2)$$

where *i* denoted the country *i*; *j* denoted bank *j*; *t* denoted year *t*; *CFP<sub>ijt</sub>* denoted corporate financial performance of bank *j* of country *i* in year *t*; *CSP<sub>ijt</sub>* denoted corporate social performance of bank *j* of country *i* in year *t*.

Chi and Lin (2008) further researched the causality of corporate social responsibility and firm value based on lead-lag influence:

$$CFP_{ijt} = \lambda_o + \lambda_1CSP_{ijt-1} + \lambda_2TotalAssets_{ijt} + \lambda_3PGDP_{it} + \lambda_4Population_{it} + \lambda_5TotalLiabilities_{ijt} / TotalAssets_{ijt} + \lambda_6Non\ interest\ Expenses_{ijt} / Total\ Revenue_{ijt} + \lambda_7EarningsAssets_{ijt} + \lambda_8CR_{4it} + \varepsilon_{ijt} \quad (3)$$

$$CSP_{ijt} = \gamma_o + \gamma_1CFP_{ijt-1} + \gamma_2PGDP_{it} + \gamma_3EconomicsGrowth_{it} + \gamma_4TotalAssets_{ijt} + \lambda_5TotalAssetsTurnover_{ijt} + \lambda_6CR_{4it} + \gamma_7CR_{4it}^2 + \gamma_8LegalEnforcement_{it} + \gamma_9Antidireti\ or\ Rights_{it} + \varepsilon_{ijt} \quad (4)$$

## 2.4 Review

All models, mentioned before, have the same and many differences. All of the models were developed from  $CFP = f(CSP, ControlVariables)$  and  $CSP = f(CFP, ControlVariables)$ , in addition, control variables played the important roles in the models and largely influenced the correlation of CSP and CFP.

Because theories and hypothesis were different, the measures of CSP, CFP and control variables were various in the models. Firstly, the measures of CSP were so complex and different, such as Fortune reputation ratings (McGuire et al. 1988; Preston and O'Bannon, 1997), Moskowitz's reputation index (Cochran and Wood, 1984), charitable donations (Brammer and Millington, 2008), KLD ratings (Waddock and Graves, 1997; Peters and Mullen, 2009; Nelling and Webb, 2009; Andersen and Dejoy, 2011). Secondly, the measures of CFP included both market-based indicators and accounting-based indicators. The former included Tobin's Q value (Zhu and Yang, 2009; Chi and Lin, 2008), excess market valuation (Senbet, 1981; Cochran and Wood, 1984), market return ratio (Brammer and Millington, 2008), long-term change rate in stock price (Aupperle and Pham, 1989), risk-adjusted return or alpha (McGuire et al. 1988), the change rate in market value (Barnett and Salomon, 2002). But the majority of researchers employed the latter indicators, such as ROA (Yang and Yun, 2009; Cochran and Wood, 1984), ROE (Ruf et al. 2001), ROI (Preston and O'Bannon, 1997), ROS (Cochran and Wood, 1984; Waddock and Graves, 1997), accounting profit (McWilliams and Siegel, 2000), the growth of sales (McGuire et al. 1988).

Moreover, a number of researchers assumed the linear relationship between CSP and CFP, and

the minority of researchers supposed the nonlinear correlation of CSP and CFP (Callan and Thomas, 2009). In the previous studies, most of researchers asserted firm's social performance was the determinant of financial performance (Margolis and Walsh, 2003; Pava and Krausz, 1996), and they had the causal relationship. Accordingly, researchers assured that the appropriate control variables is extreme important to get dependable results (Callan and Thomas, 2009), so the vast majority of researchers pulled the different control variables in the models, such as size, risk, industry, R&D intensity, advertising intensity, asset age (Waddock and Graves, 1997; Cochran and Wood, 1984; Peters and Mullen, 2009.)

In general, the measures of CSP and CFP, as well as control variables were the important components in the models, and we may learn these indicators to construct better models in the following study, to explore deeply the relationship between corporate social performance and financial performance.

### **3. Research Hypothesis and Methodology**

#### **3.1 Theoretical Analysis and Research Hypothesis**

Cornell and Shapiro (1987) asserted failure to meet the expectations of various nonshareholder constituencies will generate market fears, which, in turn, will increase a company's risk premium and ultimately result in higher costs and lost profit opportunities. Preston and O'Bannon (1997) further proposed that meeting the major stakeholders (employees and consumers) might improve the firm's reputation, and had the positive impact upon the firm's financial performance; otherwise, if the firm failed to the expected return of those stakeholders, which would had the negative impact upon financial performance. These opinions are the key of social impact hypothesis, which meant that good social performance would lead to good financial performance and both of them had the positive relationship. According to social impact view of stakeholder theory, there is a lead-lag relationship between social performance and financial performance: external (good or bad) social impact is the first, which leads to internal (good or bad) financial performance.

Some researchers (Nostrand, 1960; Greenwald et al. 1988; Matthew, 2006) viewed "do well by doing good". Good management theorists consider that good social performance need some managerial skills and strategies, and also benefit good performance (Ullmann, 1985; Waddock and Graves, 1997). Schuler and Gording (2006) proposed that the firm who had good social behavior would be considered to do good market behavior frequently, and market participants would reward these "good management" behavior by consumption, investment and employed behavior. Similarly, Sandra and Samuel (1997) also insisted that there was a high correlation between good management practice and CSP, because attention to social responsibility domains would improve relationships with key stakeholder groups, resulting in better overall performance. For example, good employee (including women and minorities) relations might be expected to enhance loyalty, productivity, and satisfaction. Excellent community relations might bring incentives for local government to give tax breaks, improved school relations (and a better workforce over the long term), or regulation reduced, thereby decreasing costs of the firm and improving the bottom line (Waddock and Graves, 1997). Therefore, good social performance will better the firm's financial performance, and there is a positive relationship between them.

Stakeholder contract costs theory posits that the enterprises possess both explicit and implicit contracts with various constituents, and are responsible for honoring all contracts (Bernadette et al. 2001). As a result of honoring contracts, the company develops a reputation that helps determine the terms of trade it can negotiate with various stakeholders (Bull, 1987; Cornell and Shapiro, 1987; Jones, 1995). While explicit contracts legally define the relationship between a firm and its stakeholders, implicit contracts have no legal standing and are referred to in the economic literature

as self-enforcing relational contracts (Bernadette et al.2001). Since implicit contracts can be breached at any time, implicit contracts become self-enforcing when the present value of a firm's gains from maintaining its reputation is greater than the loss if the firm reneges on its implied contracts (Telser, 1980).

Moreover, stakeholder theorists view shareholders as one of the multiple stakeholder groups what managers must consider in their decision-making process (Donaldson and Preston, 1995; Wood and Jones, 1995, etc.). These stakeholder groups include internal, external, and environmental constituents. Like shareholders, the other stakeholders may place demands upon the firm with bestowing societal legitimacy. Firms must address these demands, or else they would face negative confrontations from non-shareholder value, through boycotts, lawsuits, protest, etc. (Bernadette et al.2001).

From a stakeholder theory perspective, corporate social performance is assessed in terms of a company meeting the demands of multiple stakeholders. Firms need, to a certain extent, satisfy stakeholder demands as an unavoidable cost of doing business. So, firms should adopt different approaches to meet stakeholder demands, ranging from cost minimizing to societal maximizing (Freeman, 1984).

All of three theories (social impact hypothesis, good management theory, stakeholder contract costs theory), mentioned before, mean that good corporate social performance may better the relationship with stakeholders and financial performance of the enterprise. So, we propose hypothesis 1:

***H1: When the firm pursues social responsibility activities, good corporate social performance generated from those activities would improve the relationship between the firm and the stakeholders, which should increase corporate financial performance.***

On the other hand, slack resource theorists argued that better financial performance potentially resulted in the availability of slack (financial and other) resources that provide the opportunities for companies to invest in social domains, such as community relations, employee relations, or environment. If slack resource are available, then better social performance would result from the allocation of these resources into the social domains, and thus better financial performance would be a predictor of better CSP(Sandra and Samuel,1997).Waddock and Graves(1997) ever argued firms that were in financial trouble may have little ability to make discretionary investments in traditional CSP activities, while those "doing well" financially had resources to spend in ways that might have more long-term strategic impacts.Such resource allocations may be linked to improvements in long-term image and relationships with the stakeholders. Similarly, Preston and O'Bannon (1997) viewed although firms might hope to follow the normative rules of good corporate citizenship; their actual behavior might depend on the resources available. Hence, profitability in one time period might increase a firm's ability to fund discretionary projects, including social performance projects. Kraft and Hage (1990) found that the availability of slack resources strongly influenced the level of community service undertaken by corporations.

Carroll (1979, 1991) argued that the pyramid of corporate social responsibility consisted of the firm's economic, legal, ethical, and philanthropic responsibilities, beginning with the basic building block notion that economic performance undergirds all else. The CSR firm should strive to make a profit firstly, then obey the law, be ethical, and be a good corporate citizen. Therefore, the firm would perform social responsibility activities while it had good financial performance; and the firm wouldn't perform social activities if financial performance was poor.

Slack theorists view that the available resources or funds are the determinants of social responsibility activities. Good financial performance increases the possibility of the firm's investing social activities, and improves the firm's social performance consequently. Hence, we propose hypothesis 2:

**H2: While the firm earns good financial performance, it will invest more available resources to undertake social responsibility activities and to improve firm's image, which further increase social performance of the firm.**

### **3.2 The Modified Models Based on Prior Studies**

#### 3.2.1 Measures of variables

##### *(1) Measures of corporate financial performance*

Corporate financial performance is “a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues”. There are a number of indicators to measure CFP, because researchers choose the indicators with various criteria from different angles. Orlitzky, Schmidt and Rynes (2003) argued that different CFP and CSP subsets showed different measurement strategies, which lead to systematically different effect sizes. There are three broad subdivisions of CFP, which consist of market-based (investor returns), accounting-based (accounting returns), and perceptual (survey) measures (Orlitzky, Schmidt and Rynes, 2003). Firstly, market-based measures of CFP, such as price per share or share price appreciation, reflect the notion that the shareholder is a primary stakeholder group, whose satisfaction determines the company's future (Cochran and Wood, 1984). Secondly, accounting-based indicators, such as the firm's return on assets (ROA), return on equity (ROE), or earning per share (EPS), capture a firm's internal efficiency in some way (Cochran and Wood, 1984). Lastly, perceptual measures of CFP survey respondents to provide subjective estimates of, for instance, firm's ‘soundness of financial position’, ‘wise use of corporate assets’, or ‘financial goal achievement relative to competitors’ (Conine and Madden, 1987; Reimann, 1975; Wartick, 1988).

Seen from above models, market-based indicators or accounting-based indicators were used frequently by researchers (Senbet, 1981; Cochran and Wood, 1984; Yang and Yun, 2009; Peters and Mullen, 2009), such as Tobin's Q value, return on asset (ROA), return on sales (ROS), return on equity (ROE). In past studies, ROA was equal to net income over total assets, ROS was equal to net income over net sales, and ROE was equal to net income over stockholder's equity. Based on Chinese Accounting Standards (2006), net income are net earnings after interest, business tax and the additional, income tax, which show that net income don't take creditors and government into account except stockholders. Moreover, net income includes the extraordinary item that is infrequent and unusual gain or losses in nature. And extraordinary item often influence largely the profitability for some enterprises. So we take ROE after subtracting extraordinary item (AROE) as accounting-based measure, which is equal to “(net income-extraordinary item)/average stockholder's equity”. Similarly, Tobin's Q value is as market-based measure in the study, which is equal to “market value/ (total assets-net intangible assets)”.

##### *(2) Measures of corporate social performance*

CSP is a complex phenomenon (Griffin, 2000). Past studies on CSP have often been criticized for using inappropriate measure of CSP (Mishra, Suar, 2010). Researchers have used various proxy measures to assess CSP: (1) one-dimensional surrogate measures, such as reputation ranking of companies on pollution control performance (Chen and Metcalf, 1980; Freedman and Jaggi, 1982), (2) Moskowitz's social responsibility ratings (Cochran and Wood, 1984; Moskowitz, 1972), (3) *Fortune* corporate reputation index (Fomburn and Shanley, 1990; McGuire et al., 1988), and (4) KLD index (Kinder et al., 2005; Ruf et al., 2001; Waddock and Graves, 1997).

CSP is a multidimensional construct (Griffin, 2000), with behaviors ranging across a wide variety of inputs, internal behaviors or processes and outputs (Carroll, 1979; Waddock and Graves, 1997), and each dimension has multiple variables and multiple operationalizations (Griffin, 2000) because it relates to the firm's stakeholders: various stakeholder groups generate different social performance. In fact, previous studies show there are nine stakeholder groups, which are consumers (Preston and O'Bannon, 1997; Mahoney and Roberts, 2007; Moore, 2001, etc.), government or

community (Brik, Rettab, Mellahi, 2011; Andersen and Dejoy, 2011; Surroca and Tribo, 2005; Fauzi, 2009; Baron, Harjoto and Hoje Jo, 2011, etc.), employees (Fauzi et al. 2007; Laan et al. 2008; Waddock and Graves, 1997, etc.), shareholder or investor (Moore, 2001; Brik et al. 2011; Laan et al. 2008; May and Khare, 2008, etc.), internal management or governance (Peter and Sarah, 1998; Andersen and Dejoy, 2011; Fauzi et al. 2007; May and Khare, 2008; Anderson and Olsen, 2011; Nelling and Webb, 2009), society and environment (Mishra and Suar, 2010; Clyde et al. 2011; Surroca et al. 2010; Brammer and Millington, 2008, etc.), suppliers (Mishra and Suar, 2010; Peters, Mullen, 2009; Brik et al. 2011), women or minority issues (Ruf et al. 2001; Waddock and Graves, 1997; Nelling and Webb, 2009, etc.) and others angles, such as fairness (Choi et al. 2010), concerning compensation (Fauzi et al. 2007), animal testing (Barnett and Salomon, 2002). Actually, the above-mentioned nine stakeholder groups led to different impact on the firm's social performance, but the impact usually related to each other. For example, when the firm increased the investment in environmental pollution, not only do expenditures increased the costs and decreased the taxed paid to the government, but the firm might also decrease the fine generated from environmental pollution. Under the special background, partial taxes paid by the firms ultimately would be distributed into communities, military, or non-governmental organizations, which better the relationship between them indirectly and lead to good reputation of the firms (such as, enjoying preferential tax policies, the selection and award for paying the most taxes); the fact based on corporate governance angle focus on stockholders' or investors' advantage; the attention to women, minorities and human rights is same to attention to employees. Moreover, because financial indicators are based on shareholder's advantage, in the study the important stakeholders considered finally are government, employees, suppliers, consumers, financial institutions, environment and social welfare.

Stakeholder groups are different, so measures of CSP are various. In the study, corporate social performance include government responsibility performance (GORP), employee responsibility performance (EMRP), supplier responsibility performance (SURP), consumer responsibility performance (CORP), financial responsibility performance (FIRP) and social welfare responsibility performance (SPRP). Environmental responsibility is the duty of the enterprise to protect the environment and to prevent the pollution, and it is the mandatory. The expenditures for the firm's affording environmental responsibility include the followings: (1) the expenditures for purchasing the equipments and constructing the facilities for protect environment, (2) the payments for administrative fine, and (3) losses of damages. The performance generated by the firm affording environmental responsibility have been partly reflected by both government responsibility performance and social welfare responsibility performance, and the other can't be measured directly, so no single indicator is employed to measure environmental responsibility performance. Furthermore, corporate social performance is measured by multidimensions, and we use the weighted approach to measure the total corporate social performance.

### *(3) The measures of control variables*

Most of prior studies showed that CFP was the determinant of CSP (Margolis and Walsh, 2003; Pava and Krausz, 1996), and the casualty between CSP and CFP existed. Furthermore, many researchers had identified a number of variables believed to influence how a firm's social performance relates to its financial performance (Andersen and Dejoy, 2011). Using appropriate control variables was critical to obtaining reliable results (Callan, Thomas, 2009), the vast majority of researchers employed different control variables to investigate the relationship between CSP and CFP.

Past researches verify that firm size is one of the first variables identified as being a necessary control variable when examining the relationship between CSP and CFP. Similarly, risk and industry are identified as important control variables, too. In China, a number of firms are controlled or owned by state owners, and there are big differences between state-owned enterprises and private enterprises: state-controlled enterprises are affected by government intervention and

have to usually engage in social responsibility activities; on the contrary, private enterprises are voluntary to engage in social responsibility activities. Stated-owned share is an important factor of social responsibility activities. Hence, we choose firm size, industry, risk and ownership characteristics as control variables.

**Table 1** Measures of corporate social performance, financial performance and control variables

Category	Indicator	Code	Formula	Note
Corporate financial performance (CFP)	Adjusted rate of return on equity	AROE	$=(\text{net income} - \text{extraordinary item}) / \text{ownership's equity}$	ownership's equity $=(\text{ending} + \text{beginning}) / 2$
	Tobin's Q value	Tobin's Q	$=\text{market value} / (\text{total assets} - \text{net intangible assets})$	MV=net stockholder's equity+net market value of liabilities
Corporate social performance (CSP)	Government responsibility performance	GORP	$=(\text{paid taxes and fees} - \text{refund of taxed} + \text{payable taxes and fees}) / \text{total sales}$	Total present responsibility to government considered
	Employee responsibility performance	EMRP	$=(\text{current payment for employees} + \text{payable salary and welfare}) / \text{total sales}$	Total responsibility to the firm's employees
	Supplier responsibility performance	SURP	$=(\text{the paid current for purchasing goods or services} + \text{payables}) / \text{total sales}$	
	Consumer responsibility performance	CORP	$=(\text{the received current for selling and services} + \text{receivables}) / \text{total sales}$	
	Financial institution responsibility performance	FIRP	$=\text{the paid current for debts} / \text{total sales}$	It is the responsibility for creditors (specially financial institution)
	Social welfare responsibility performance	SPRP	$=\text{donation expenditures} / \text{total sales}$	Including expenditures for public relief, sponsorships and donations.
	Total CSP	CSP	$=(\text{GORP} + \text{EMRP} + \text{SURP} + \text{CORP} + \text{FIRP} + \text{SPRP}) / 6$	
Control variable (CV)	Firm size	SIZE	$=\text{LN}(\text{total assets})$	
	Industry	INDU	$=1(\text{Manufacturing or Mining}), \text{ else } 0(\text{others})$	According to CSRC(2001)
	Firm risk	RISK	$=\text{total debt} / \text{total assets}$	
	Ownership characteristic	OWSH	$=1(\text{state-owned enterprise}), \text{ or } 0(\text{others})$	State-owned equity ratio $\geq 20\%$ , it is state-controlled firm in the study.

### 3.2.2 The models between corporate social performance and financial performance

#### (1) Interactive models between current CSP and current CFP

The impact of CSP and CFP could happen in the same time and influence each other, so we encounter the endogeneity problem of simultaneous equations, and the model sets are over-identified in the study. We lastly employ the two-stage least procedure (2SLS) as measuring

approach to reasonable research, and construct the following regression models:

$$CFP_{i,j} = \alpha_o + a_1CSP_{i,j} + a_2SIZE_{i,j} + a_3INDU_{i,j} + a_4RISK_{i,j} + a_5OWSH_{i,j} + \varepsilon(1)$$

$$CSP_{i,j} = \beta_o + \beta_1CFP_{i,j} + \beta_2SIZE_{i,j} + \beta_3INDU_{i,j} + \beta_4RISK_{i,j} + \beta_5OWSH_{i,j} + \varepsilon(2)$$

where  $CFP_{i,j}$  is the firm  $i$ 's financial performance in year  $j$ , and is denoted by  $AROE$  and Tobin's Q;  $CSP_{i,j}$  is the firm  $i$ 's social performance in year  $j$ , and is equal to  $(GORP_{i,j}+EMRP_{i,j}+SURP_{i,j}+CORP_{i,j}+FIRP_{i,j}+SPRP_{i,j})/6$ ;  $SIZE_{i,j}$  is the firm  $i$ 's size in year  $j$ , and is denoted by  $LN(\text{total assets})$ ;  $INDU_{i,j}$  is the industry, and according to science codes of industry issued by China Securities Regulatory Commission(CSRC), the proxy variables is 0,1(1 represents manufacturing industry or mining industry, and 0 otherwise);  $\varepsilon$  is the residual, and  $\alpha, \beta$  are the intercept and the coefficients.

#### (2) The lead-lag models between CSP and CFP

While the firm made a good financial performance early, it shows the firm could invest many resources in current social responsibility activities and financial activities, and vice versa. Similarly, when the firm has done a good social performance early, this shows that the stakeholders would do the favorable activities in next steps. For example, consumers will purchase more production, employees will work harder to improve the efficiency, the banks will lend more money, and the government will reward the firm. Accordingly, the firm will go on performing social responsibilities, which lead to better social performance and financial performance. Hence, we construct the following models:

$$CFP_{i,j} = \kappa_o + \kappa_1CSP_{i,j-1} + \kappa_2CFP_{i,j-1} + \kappa_3SIZE_{i,j} + \kappa_4INDU_{i,j} + \kappa_5RISK_{i,j} + \kappa_6OWSH_{i,j} + \varepsilon(3)$$

$$CSP_{i,j} = \lambda_o + \lambda_1CFP_{i,j-1} + \lambda_2CSP_{i,j-1} + \lambda_3SIZE_{i,j} + \lambda_4INDU_{i,j} + \lambda_5RISK_{i,j} + \lambda_6OWSH_{i,j} + \varepsilon(4)$$

where  $CSP_{i,j-1}, CFP_{i,j-1}$  respectively represent the firm  $i$ 's social performance and financial performance in year  $j-1$ ,  $\kappa$  and  $\lambda$  are the intercept and the coefficients.

## 4. Data Resource and Descriptive Statistics

### 4.1 The Samples and Data Resource

In China, the strengthening of corporate social responsibility is more reflected in the listed companies, because financial data are more available and information disclosures are more standard in listed companies than the others (Zhu and Yang, 2009), so the samples in the study are selected from the listed companies in Shenzhen Securities Exchange and Shanghai Securities Exchange. The study selects the datas in year 2005, 2006, 2009 and 2010 because of the following reasons: (1) the reform of the shareholder structure of listed companies began in 2005, and Chinese Accounting Standards (2006) was released on Feb. 15, 2006, but listed companies began to apply them since 2007. Therefore, financial datas in year 2005 and 2006 are comparable; (2) global financial crisis happened in 2008, and the crisis had influenced listed companies largely in China, and many listed companies haven't disclosed annual financial statements of year 2011, so we select the datas of year 2009 and 2010. Moreover, we filter some listed companies by certain standards: listed companies, whose sales, ownership equity, or Tobin's Q is zero, whose share ratio is missing, and whose debt-to-asset ratio or corporate social performance is abnormal ( $>1$ ), are removed. Last numbers of samples are 1259, 1326, 1594, and 1976 respectively. Furthermore, in order to analyze the impact of previous performance on current performance, we identify 1228 samples in 2005-2006 and 1557 samples in 2009-2010. Yet, when we perform further research the impact of the components of social performance on financial performance, the samples become 1251 in 2005-2006 and 1603 in 2009-2010. Specially, because it is difficult in getting datas about social welfare responsibility, the study selects donations and sponsorships from the notes of financial statements to count the

indicator. All datas come from CSMAR database in China, and SPSS software and Excel software are employed to process the datas.

### 4.2 Descriptive Statistics

Table 2 presents descriptive statistics in year 2005, 2006, 2009 and 2010. Seen the means, the means of AROE were negative in 2005, 2006 and 2009, but it was positive in 2010, which reflected that extraordinary items influenced earnings of listed companies largely in China and the effect from main business of listed companies were worse. In all years, Tobin's Q value was over 1, and increased year by year, which showed that market value of listed companies were increasing in past years.

**Table 2** Descriptive statistics for the variables

Statistics	AROE	Tobin's Q	CSP	GOR P	EM RP	SUR P	COR P	FIRP	SPR P	SIZE	IND U	RIS K	OW SH	
2005	Mean	-0.0390371	1.078429	0.503537	0.085036	0.095649	0.976797	1.387105	0.472356	0.004277	21.32194	0.609076	0.504884	0.656847
	SD	0.76913323	0.245692	0.129737	0.089773	0.06385	0.311857	0.380916	0.454674	0.016781	1.030119	0.488152	0.188455	0.474951
	Min	-22.98704	0.594789	0.091017	-0.2115	0.002217	0	-0.16754	0	0	18.3224	0	0.012581	0
	Max	0.49396574	5.173889	0.998688	0.716415	0.602712	2.417434	4.901369	2.773622	0.251718	27.07427	1	0.991091	1
2006	Mean	-0.06895	1.314541	0.489145	0.088691	0.100024	0.963749	1.335345	0.446688	0.000371	21.39781	0.604072	0.512715	0.61086
	SD	1.791011	0.432092	0.126157	0.100407	0.073355	0.318699	0.360916	0.429943	0.001458	1.156847	0.489234	0.186802	0.487739
	Min	-57.4493	0.607372	0.068598	-0.35352	0.001605	0	0	0	0	18.15721	0	0.020667	0
	Max	0.396079	4.374505	0.989424	1.244738	0.746761	2.809458	4.174406	3.629916	0.039151	29.64714	1	0.998558	1
2009	Mean	-0.02086	2.401886058	0.460092	0.092356	0.118532	0.890044	1.204949	0.453583	0.001087	21.72593	0.601631	0.488203	0.268507
	SD	0.994962	1.61988335	0.124637	0.113552	0.093355	0.346012	0.293557	0.480096	0.002349	1.426166	0.489716	0.208912	0.443322
	Min	-30.6648	0	0.015295	-0.51907	0.002957	0	0	0	0	17.76919	0	0.017795	0
	Max	1.254847	27.629333	0.991342	1.698535	1.23783	2.877136	2.995466	4.962581	0.032327	30.09785	1	0.996964	1
2010	Mean	0.028632	2.496053	0.439512	0.089517	0.118173	0.907135	1.185282	0.336035	0.000929	21.7933	0.618421	0.445447	0.181174
	SD	1.062371	2.310287	0.116334	0.124252	0.095538	0.38034	0.289224	0.378037	0.003437	1.437501	0.485897	0.229598	0.38526
	Min	-43.9395	0.791593	0.015194	-0.61122	0.003044	0	0	0	0	16.69431	0	0.010827	0
	Max	0.559199	57.51888	0.999282	2.108015	1.261316	4.177509	3.857148	3.718464	0.097431	30.23064	1	0.993431	1

Furthermore, the differences between the max and the min of both AROE and Tobin's Q were extremely significant, and it indicated that the performance differences of listed companies were much obvious. Moreover, corporate social performances decreased at the same period, and partial listed companies pursued social welfare activities less besides legal duty. Over 60 per cent of listed companies were manufacturing industry or mining industry; the changes of firm size were little, and financial leverage decreased and debt-to-asset ratio decreased from 50 per to 44 per. In 2005, state-owned shares of over 65 per cent of listed companies were held over 20 percent, but a great amount of state-owned capital withdrawn from listed companies after reform of the shareholder division, and state-owned shares of only 18 per cent of listed companies were over 20 percent.

## 5. Empirical Analysis

### 5.1 Correlation Analysis

Table 3 presents the correlation coefficients of variables in year 2010. The results show financial performance measured by AROE and social performance have no correlation; and it correlates with firm size and risk ( $p \leq 0.01$ ), but the former relation is positive and the latter relation is negative. AROE has no correlation with industry and ownership characteristics. Therefore, financial performance measured by Tobin's Q and CSP have a negative relationship ( $p \leq 0.01$ ); Tobin's Q has negative relationship with firm size and ownership structure, no relationship with industry and risk. And CSP correlates with size and risk.

**Table 3** Correlation coefficient matrix

	AROE	Tobin's Q	CSP	SIZE	INDU	RISK	OWSH
AROE	1						
Tobin's Q	-0.04559	1					
CSP	-0.04435	-0.07971363**	1				
SIZE	0.064574**	-0.3733743***	-0.09135***	1			
INDU	-0.0301	0.055286466*	-0.04696	-0.16117***	1		
RISK	-0.08263***	-0.1459544***	0.196793***	0.484152***	-0.1641***	1	
OWSH	-0.00981	-0.12480168***	-0.00272	0.175901	-0.0741**	0.082412***	1

Note: \* $p \leq 0.10$ , \*\* $p \leq 0.05$ , \*\*\* $p \leq 0.01$

### 5.2 Regression Analysis

The study employs AROE and Tobin's Q to measure CSP, in which AROE is accounting-based indicator and Tobin's Q is market-based indicator. Therefore, the study processes the related data and gets the regression results of model (1) (see tables 4 and 5), model (2) (see table 6), model (3) and model (4) (see talbe 7).

**Table 4** Regression results of model (1) (AROE is dependent variable)

	2005		2006		2009		2010	
	$\alpha$	t-value	$\alpha$	t-value	$\alpha$	t-value	$\alpha$	t-value
Intercept	-2.248***	-4.8	-2.921***	-2.96	-1.789***	-4.205	-1.778***	-4.093
CSP	-0.1311	-0.774	0.0509	0.127	-0.237	-1.166	-0.035	-0.163
SIZE	0.13227***	6.1529	0.1817***	4.003	0.114***	5.8631	0.1006***	5.1364
INDU	0.0262	0.6094	-0.116	-1.16	-0.109***	-2.176	-0.076	-1.539
RISK	-1.0346***	-8.755	-1.807***	-6.56	-1.075***	-8.084	-0.701***	-5.701
OWSH	-0.059	-1.321	-0.106	-1.03	-0.031	-0.558	-0.066	-1.054

R <sup>2</sup>	0.07837	0.0379	0.0539	0.0228
Adjusted R <sup>2</sup>	0.07469	0.0342	0.0509	0.0203
F	21.3101	10.398	18.096	9.1815
N	1259	1326	1594	1976

**Note:** \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

### 5.2.1 The correlation between current CSP and current CFP

Table 4 reveals regression results of AROE as dependent variable. In year 2005, 2006, 2009 and 2010, F(4,1259)=21.31,F(4,1326)=10.40,F(4,1594)=18.10,F(4,1976)=9.18, p<0.01, the fitting results are good, but both R<sup>2</sup> and adjusted R<sup>2</sup> are less than 0.1, which show worse explanatory. The impact of CSP on AROE is insignificant. But SIZE and RISK have correlation with AROE, and they are respectively positive and negative at 1% level (see table 4).

**Table 5** Regression result of model (1) (Tobin's Q is dependent variable)

	2005		2006		2009		2010	
	$\alpha$	t-value	$\alpha$	t-value	$\alpha$	t-value	$\alpha$	t-value
Intercept	2.74066***	18.75	3.6419***	16.11	12.314***	19.333	18.051***	20.63
CSP	-0.1163**	-2.198	-0.335***	-3.66	-1.154***	-3.79	-2.694***	-6.288
SIZE	-0.0711***	-10.6	-0.089***	-8.55	-0.413***	-14.17	-0.673***	-17.05
INDU	-0.007	-0.525	-0.014	-0.62	-0.004	-0.047	-0.041	-0.414
RISK	-0.1531***	-4.151	-0.418***	-6.62	-0.606***	-3.043	0.8754***	3.5321
OWSH	-0.009	-0.645	-0.059**	-2.52	-0.448***	-5.358	-0.356***	-2.826
R <sup>2</sup>	0.12116		0.1312		0.2004		0.1614	
Adjusted R <sup>2</sup>	0.11765		0.1279		0.1979		0.1593	
F	34.5482		39.864		9.1815		75.847	
N	1259		1326		1594		1976	

**Note:** \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

Table 5 presents regression results of Tobin's Q as dependent variable. In Table 5, F values are respectively 34.55, 39.86, 9.18, and 75.85, p<0.01, the whole effect is good, and R<sup>2</sup> and adjusted R<sup>2</sup> increase obviously and the explanatory become better. Seen table 5, the relationship between CSP and AROE is significant and negative at 1% level. Similarly, SIZE and OWSH have negative relation with AROE, but the correlation of OWSH and AROE is insignificant in year 2005. INDU has no impact on AROE. The correlation of RISK and AROE are vague, because their relationships are positive in year 2005, 2006 and 2009, but negative in year 2010.

**Table 6** Regression results of model (2) (CSP is dependent variable)

	2005		2006		2009		2010	
	$\beta$	t-value	$\beta$	t-value	$\beta$	t-value	$\beta$	t-value
Intercept	1.02374***	12.181	0.9462***	13.62	0.8157***	14.958	0.9292***	20.274
AROE	-0.0035	-0.747	0.0003	0.176	-0.004	-1.295	-0.0007	-0.286
Tobin's Q	-0.0329**	-2.188	-0.03***	-3.66	-0.008***	-3.831	-0.007***	-6.291
SIZE	-0.0256***	-6.899	-0.022***	-6.9	-0.019***	-7.423	-0.025***	-11.52
INDU	-0.0185**	-2.591	-0.014**	-2.1	-0.012**	-1.97	-0.009*	-1.655
RISK	0.17315***	8.7515	0.141***	7.379	0.1654***	10.216	0.1603***	12.788
OWSH	-0.0218***	-2.937	-0.024***	-3.43	-0.02***	-2.925	0.0012	0.1828

R <sup>2</sup>	0.10489	0.1049	0.0919	0.1037
Adjusted R <sup>2</sup>	0.1006	0.1006	0.0884	0.1009
F	24.4518	21.419	26.758	37.95
N	1259	1326	1594	1976

Note: \*p≤0.1, \*\*p≤0.05, \*\*\*p≤0.01

Table 6 reflects regression results of CSP as dependent variable and AROE and Tobin's Q as independent variables. The results from table 6 show the relationship of CSP and both AROE and Tobin's Q are same to the results from table 4 and table 5: CSP and AROE have negative but insignificant relationship, and CSP and Tobin's Q have significant and negative correlation at 1% level. Among control variables, CSP has significant and negative relationship with SIZE and INDU, has significant and positive relationship with RISK, and has significant and negative correlation with OWSH in year 2005, 2006, 2009, but insignificant and positive in year 2010.

### 5.2.2 The lead-lag impact of CSP and CFP

Table 7 reveals the impact of prior performance on current performance. As above-mentioned, model (3) is applied to investigate the impact of prior CSP and CFP on current CFP, and model (4) is applied to investigate the impact of prior CSP and CFP on current CSP. Seen from table 7, the whole effect of regression are better, and the explanatory are strong besides AROE<sub>t</sub> as dependent variable. Whatever in year 2006 or 2010, AROE<sub>t-1</sub> has significant and positive relationships with AROE<sub>t</sub> and CSP<sub>t</sub>, and the relationship with Tobin's Q is significant and positive only in 2010. The impact of Tobin's Q<sub>t-1</sub> on AROE<sub>t</sub> and CSP<sub>t</sub> are unobvious, and the relationship of prior and current Tobin's Q is significant and positive. CSP<sub>t-1</sub> has significant and positive correlation with CSP<sub>t</sub>, has significant and negative correlation with Tobin's Q<sub>t</sub>, and has no relation with AROE<sub>t</sub>.

**Table 7** Regression results of model (3) and model (4)

	2006						2010					
	Model(3)				Model(4)		Model(3)				Model(4)	
	AROE <sub>t</sub>		Tobin's Q <sub>t</sub>		CSP <sub>t</sub>		AROE <sub>t</sub>		Tobin's Q <sub>t</sub>		CSP <sub>t</sub>	
	κ	t-value	κ	t-value	λ	t-value	κ	t-value	κ	t-value	λ	t-value
Intercept	-1.758	-1.399	1.1906***	5.149	0.1364**	2.2619	-2.178***	-3.875	6.5201***	10.881	0.388***	9.131
AROE <sub>t-1</sub>	0.485***	6.6931	-0.002	-0.15	0.0081**	2.341	0.1317**	2.2785	0.1293**	2.0998	0.010**	2.342
Tobin's Q <sub>t-1</sub>	-0.1649	-0.754	1.0285***	25.55	0.0161	1.530	0.0151	0.7505	0.8101***	37.847	-0.002	-1.228
CSP <sub>t-1</sub>	-0.0544	-0.129	-0.181**	-2.33	0.6599***	32.638	0.2537	1.0048	-0.316*	-1.674	0.572***	29.99
SIZE <sub>t</sub>	0.1338**	2.4917	-0.034***	-3.43	-0.0009	-0.349	0.1156***	4.7092	-0.249***	-9.521	-0.01***	-5.627
INDU <sub>t</sub>	-0.1764*	-1.664	-0.0007	-0.04	-0.003	-0.664	-0.076	-1.244	0.076	1.1649	-0.01**	-2.161
RISK <sub>t</sub>	-1.548***	-5.127	-0.273***	-4.9	0.058***	4.0019	-0.869***	-5.106	-0.455**	-2.508	0.061***	4.748
OWSH <sub>t</sub>	-0.0942	-0.863	-0.049**	-2.45	-0.005	-1.027	-0.074	-0.963	-0.244***	-2.968	0.005	0.850
R <sup>2</sup>	0.07347		0.4327		0.5068		0.0299		0.6057		0.4217	
Adj. R <sup>2</sup>	0.06814		0.4294		0.5039		0.0256		0.6039		0.4191	
F	13.7854		132.58		178.64		6.9028		343.61		163.14	
N	1228						1577					

Note: \*p≤0.1, \*\*p≤0.05, \*\*\*p≤0.01

When the study tests the relationship between accounting-based and market-based financial performance and weighted corporate social performance, the results, mentioned before, show both hypothesis 1 and hypothesis 2 are not true, which is that the relationship between CSP and CFP is negative rather than positive. Furthermore, firm size, risk and ownership characteristics have the significant and negative impact on market-based financial performance, and industry has no impact on financial performance. Firm risk is positively related to social performance; industry, size and ownership negatively correlate with social performance.

## 6. Further Research

### 6.1 The Refined Impact Models of CSP on CFP

The above analysis shows market-based financial performance and social performance negatively correlate. CSP, as defined before, consists of GORP, EMRP, SURP, CORP, FIRP and SPRP. So, we refine model (2) and model (4) to construct model (5) and model (6) as follows:

$$CFP_{i,t} = \gamma_0 + \gamma_1 GORP_{i,t} + \gamma_2 EMRP_{i,t} + \gamma_3 SURP_{i,t} + \gamma_4 CORP_{i,t} + \gamma_5 FIRP_{i,t} + \gamma_6 SPRP_{i,t} + \gamma_7 SIZE_{i,t} + \gamma_8 INDU_{i,t} + \gamma_9 RISK_{i,t} + \gamma_{10} OWSH_{i,t} + \varepsilon(5)$$

$$CFP_{i,t} = \delta_0 + \delta_1 GORP_{i,t-1} + \delta_2 EMRP_{i,t-1} + \delta_3 SURP_{i,t-1} + \delta_4 CORP_{i,t-1} + \delta_5 FIRP_{i,t-1} + \delta_6 SPRP_{i,t-1} + \delta_7 SIZE_{i,t} + \delta_8 INDU_{i,t} + \delta_9 RISK_{i,t} + \delta_{10} OWSH_{i,t} + \varepsilon(6)$$

where *CFP* represents the firm's financial performance, and is measured by Tobin's Q.

### 6.2 Correlation Analysis

Table 8 presents the Pearson correlations among Tobin's Q, GORP, EMRP, SURP, CORP, FIRP and SPRP. The results show Tobin's Q has strong correlations with GORP, EMRP, SURP, FIRP and SPRP, but insignificant correlation with CORP.

**Table 8** Correlation coefficient matrix of Tobin's Q and social performance components

	Tobin's Q	GORP	EMRP	SURP	CORP	FIRP	SPRP
Tobin's Q	1						
GORP	0.074824**	1					
EMRP	0.187411***	0.319585***	1				
SURP	-0.12581***	-0.17757***	-0.37808***	1			
CORP	0.017177	-0.01888	-0.1181***	0.413186***	1		
FIRP	-0.10723***	-0.04164	-0.06103*	0.114304***	0.093059***	1	
SPRP	0.167603***	0.145653***	0.077802**	-0.02904	0.022585	0.00844***	1

**Note:** \*p<0.10, \*\*p<0.05, \*\*\*p<0.01

### 6.3 Further Research Results

Table 9 reveals the impact of current components of CSP on current Tobin's Q, but the effects are different. CFP is significantly and positively correlated with GORP, and is significantly and negatively correlated with SURP. The effects of other components are vague.

The impact of lead components of CSP on lag Tobin's Q is presented by Table 10. The results show all of GORP<sub>t-1</sub>, SURP<sub>t-1</sub> and FIRP<sub>t-1</sub> affect Tobin's Q<sub>t</sub> significantly. GORP<sub>t-1</sub> positively correlated with CFP<sub>t</sub> at 1% level, and both SURP<sub>t-1</sub> and FIRP<sub>t-1</sub> negatively correlate with CFP<sub>t</sub> at 5% level and 10% level respectively. The impacts of other components on CFP<sub>t</sub> are uncertain.

**Table 9** Regression results of model (5)

	2005		2006		2009		2010	
	$\gamma$	t-value	$\gamma$	t-value	$\gamma$	t-value	$\gamma$	t-value
Intercept	2.86504***	18.676	3.635007202***	15.4172	11.926***	17.881	16.526***	18.201
GORP	0.19551**	2.3615	0.477365174***	3.83977	1.6072***	4.6528	0.5065*	1.6473
EMRP	-0.0094	-0.081	0.038998491	0.22102	0.8758**	2.0888	2.5432***	4.5788
SURP	-0.087***	-3.24	-0.180620065***	-4.0231	-0.714***	-5.086	-0.618***	-3.875
CORP	-0.0391**	-1.967	-0.019071319	-0.5128	0.0723	0.4864	-0.176	-0.895
FIRP	0.0174	1.154	-0.054918152**	-2.0545	-0.109	-1.401	-0.524***	-4.059
SPRP	-0.0523	-0.131	2.567152749	0.33832	-5.152	-0.331	90.332***	6.5809
SIZE	-0.0757***	-11.0	-0.091158363***	-8.6325	-0.415***	-14.33	-0.646***	-16.51
INDU	0.00541	0.4018	0.005720481	0.25253	0.0997	1.3384	0.1024	1.0288
RISK	-0.1075***	-2.768	-0.312815363***	-4.813	-0.175	-0.816	1.3039***	4.9211
OWSH	-0.0082	-0.596	-0.059045919**	-2.5457	-0.491***	-5.947	-0.426***	-3.448
R <sup>2</sup>	0.14427		0.164856082		0.244		0.2071	
Adjusted R <sup>2</sup>	0.13741		0.158505178		0.2392		0.2031	
F	21.0396		25.95789102		51.08		51.339	
N	1259		1326		1594		1976	

Note: \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

**Table 10** Regression results of model (6)

	2006		2010	
	$\delta$	t-value	$\delta$	t-value
Intercept	3.40242***	13.623	16.28409269***	16.825
GORP <sub>t-1</sub>	0.42456***	3.5864	0.745010344**	2.30013
EMRP <sub>t-1</sub>	0.18678	1.151	0.774948576***	4.96051
SURP <sub>t-1</sub>	-0.0441*	-1.651	-0.598069989***	-4.4677
CORP <sub>t-1</sub>	0.00988	0.9588	0.617139545***	3.36827
FIRP <sub>t-1</sub>	-0.0342*	-1.657	-0.190595459*	-1.956
SPRP <sub>t-1</sub>	0.16374	0.2358	-13.01973382	-0.5877
SIZE <sub>t</sub>	-0.087***	-7.405	-0.617841582***	-14.132
INDU <sub>t</sub>	0.00476	0.1977	0.133873759	1.14386
RISK <sub>t</sub>	-0.4031***	-6.007	-0.641391025*	-1.9811
OWSH <sub>t</sub>	-0.0518**	-2.117	-0.562897739***	-3.8842
R <sup>2</sup>	0.14198		0.216096596	
Adjusted R <sup>2</sup>	0.13506		0.211172579	
F	20.518		43.88624649	
N	1251		1603	

Note: \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

## 7. Conclusions and Discussion

The relationship between corporate social performance and financial performance became one of the topics about fifty years ago, and serious empirical research on the association between financial and social performance indicators has been going on for several decades. Yet in spite of this long record of discussion and analysis, the connection between corporate social and financial performance has not been fully established (Preston, 1997), the nature of the relationship remains unresolved (Andersen and Olsen, 2011), let alone a state of "saturation" (Vishwanathan, 2010). The study selects listed companies from Shanghai and Shenzhen Securities Exchange as samples, and employs the modified multiple regression models to further test the causal relationship between corporate social performance and financial performance. The study draws the following conclusions.

First of all, we find that Tobin's Q and social performance of listed companies in China are negative relationship. In the study, we apply two categories of indicators, accounting-based indicator (adjusted ROE) and market-based indicator (Tobin's Q), to measure corporate financial performance, and make a serious empirical analysis. The results show both current and previous AROE and social performance have no significant correlation, and on the contrary, Tobin's Q and social performance have significant and negative relationship in the same years. We argue many reasons result in the contradictory conclusions. When listed companies perform social responsibility activities, they have to put in many resources. Actually those resources were planned to improve financial performance before, but now they are transferred to afford corporate social responsibility, which accordingly increase costs. And the companies don't get adequate returns from the activities in current and prior periods, which is same to the views of trade-off hypothesis and private costs theory. Moreover, the second reason is the special ownership structure of companies in China, which is numerous listed companies have large state-owned shares. Top management of companies with high state-owned shares is appointed by the governments, so it is difficult for owners in supervising management's activities. Yet, the majority of top managers as officers usually invest many resources to pursue social effect for their private and political advantages, and they would put firms' economic effect in the secondary position, in turn, those activities lower market values of companies. On the other hand, according to the view of managerial opportunism hypothesis, when the firm makes a good financial performance, the management appointed by the government might decrease social expenditures rather than pursuing private goals, and try to take advantage of the opportunities to increase their short-term income. On the contrary, when financial performance is worse, the management would engage in the obviously social activities and try to certify no way for the disappointing results. All factors have been tested by control variables in the study.

Moreover, seen the components of CSP, social performances based on different stakeholders have the different impact on market value of listed companies. Empirical results find government-based social performance positively influence market-based financial performance, supplier-based and financial institution (creditor)-based social performance have negative impact on market-based financial performance, the unobvious impacts of social performance based on employees, consumers and social welfare upon firm value happen. There are a few reasons for the differences. Firstly, the more the firm pays taxes, the greater the firm has the impact on government revenue. Accordingly, the government would give the firm some preferential policies, such as the deduction of taxes and much cheaper land, which lead to the growth of market value of the enterprise. On the contrary, medium and small-sized enterprises can't receive more local government supports so that market values of them become less. Secondly, after the enterprise pays the supplier for goods and return the borrowings from financial institutions, the enterprise will inevitably lead to a reduction in disposable resources, and affect the production and business activities, thereby reducing the financial performance of the enterprise. Of course, if the enterprise has fewer liabilities, you will have more resources and put into production to improve the enterprise's financial performance. Furthermore, the employees' wages are both mandatory and rigid, the enthusiasm of employees for production by high growth in wages is limited, and even higher wages would lead to

lower the enthusiasm of the staff, affecting the productivity of enterprises; on the contrary, when the wage levels of employees are low, even if they do not work hard and also get basic salary, so whether the wages are high or not, the impact on production efficiency and effectiveness are not significant. In addition, many present goods have been in a buyer's market, so improving the quality of products and services is the basis of the existence of the business, and they do not play a significant role in product sales or potential market development, unless it is a high-tech product. Lastly, present social donations in China show a few characteristics: (1) small amount and its less impact; (2) the existence of false donations, which affect social public credibility; and (3) a large number of low-key donation behaviors. Hence, only the minority of the enterprises benefit from social responsibility activities because of their advertising-style donations. For example, Guangzhou Wong Lo Kat Inc. ever donated 100 million RMB for "5.12" earthquake in 2008 and 110 million RMB for Yushu earthquake, and those donations led to the boom of drinking "Wong Lo Kat" in China, and increase the firm's sales largely. Actually, most of enterprises don't get obvious return from social welfare activities and also don't lead to significant impact on their earnings.

Yet, seen the above results, whether financial performance of the firm is good or not, will the firm not undertake social activities and afford social responsibility? It is not the truth. Corporate social responsibility emphasizes social and ethical attribute of capital. Both capital and business feature the ethics. Pursuing profit is not unique goal for the firm. The firms undertaking social activities will contribute to solve employment issue, to protect natural environment, to narrow the gap between the rich and the poor, and to improve the whole social public welfare. Moreover, the CSR is one of "the new competitions for 21 century", so enterprise's affording social responsibility will become new competitiveness in future (Chi and Lin, 2008). In fact, the enterprises in China should think how to increase their sales by performing social responsibility, and improve their incomes and market values.

Furthermore, the study finds market value of enterprises and synthesized social performance have significant and negative connection, which is same to the findings from Wen and Fang(2008), but opposite to the findings from, and inconsistent with the findings of most researchers(Johnson and Greening,1994;Simpson and Kohers,2002;Peter and Sarah,1998;Waddock and Graves,1997;Preston and O'Bannon,1997;Ruf et al. 2001;Brik et al.2011;Andersen and Dejoy,2011;Peters and Mullen,2010;Yang and Yun,2009). The reasons for inconsistent results are various, such as different models and data resources.

In addition, there are some limitations in the study, such as the proxy variables of measure corporate social performances, lack of continuous years' data and the employed control variables. Therefore, future research may acquire the data on social performance and other factors by field survey, and identify all stakeholders to perfect the models on the relationship of corporate social and financial performance.

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