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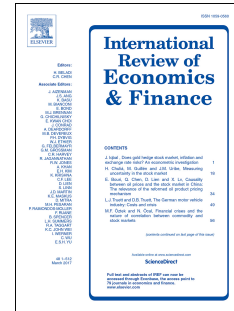
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Corporate Social Responsibility, Product Market Competition, and Product Market Performance

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Abstract: Using the data of Chinese listed firms from 2008 to 2014，we explore how product market competition affects the impact of corporate social responsibility (CSR) on firms' product market performance and the underlying mechanism. We document that CSR significantly decreases firms' product market performance only in noncompetitive industries, and the evidence is significant only for non-state-owned firms, primarily through the channel of weaker debt financing capability. Better corporate governance can effectively alleviate the negative impact of CSR on firms' product market performance in noncompetitive industries.

Keywords: Corporate Social Responsibility, Product Market Competition, Product Market Performance

JEL Classification: G34, L11, M21

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1. Introduction

Driven by the forces of government sectors, capital market and industry associations, Chinese listed companies have made significant progress in CSR engagement over the past ten years. According to the Social Responsibility Reports of Chinese Enterprises published by Chinese Academy of Social Science, the yearly average proportion of CSR reports announced by listed companies is 71.4% between 2014 and 2016,[1] implying that China's listed companies remain highly active in CSR activities.

Stakeholder theory points out that CSR does play an important role in achieving competitive advantage, enhancing corporate reputation and increasing firm value (Fombrun and Shanley, 1990; Jamali, 2008; Dhaliwal et al., 2012). Such argument provides a possible explanation for listed firms' involvement in CSR activities. However, doing good is not always good for shareholders. As more and more CSR scandals expose, CSR engagements have negatively affected public opinion concerning firms and their CSR performance, raising concerns about the sincerity and trustworthiness of CSR engagement (Du et al., 2010). Some studies have found that managers over-invest in CSR to obtain private benefits such as personal reputation and media coverage at the expense of shareholders (Barnea and Rubin, 2010; Jo and Harjoto, 2011). It has also been argued that corporations use CSR to conceal corporate misdemeanour (Hemingway and Maclagan, 2004). A typical example was the Shuanghui event. Shuanghui Group was the largest meat and food processing company in China, who stuck into a severe product quality scandal in 2011. According to Shuanghui's semi-annual report, this "lean meat powder" event caused the company's operating revenue decreased by 6.65%. In order to reduce the panic of consumers,

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[1] The average proportion is calculated by the yearly proportion of CSR reports announced by listed companies from 2014 to 2016, which can be found in the annual Social Responsibility Reports of Chinese Enterprises (2014-2016) published by Chinese Academy of Social Science.

investors and agencies, and to restore brand reputation and market share, Shuanghui actively participated in many CSR activities thereafter, e.g., Shuanghui donated 130 million RMB and spent 830 million RMB on environment protection. Such heavy investments in CSR seem to take effect, and the chairman of Shuanghui was awarded the prize of Outstanding Contribution People of Mainland China in the next year, and the company was awarded Excellent Enterprise. Do socially responsible activities enhance fundamental business objectives such as revenue growth and competitive advantage? Or just for appearance's sake and serving the interests of managers? How does CSR influence firm performance? What is the mechanism behind? Addressing the above CSR-related issues is of both theoretical and practical significance.

In this paper, we try to explore the interactive impact of product market competition and CSR on product market performance and the underlying mechanism. We use product market performance, i.e., sales growth, to measure firm performance, through which the problem of accounting manipulation could be alleviated. In Chinese market, stock prices are very noisy and fundamental information is often not reliable (Chen et al., 2010); earnings management and accounting manipulation have been found to be prevalent (e.g., Chen and Yuan, 2004; Haw et al., 2005; Jian and Wong, 2004); there is also evidence of rampant stock market manipulation in Chinese market (e.g., Tingting, 2004; Shengzhen Stock Exchange, 2005).Therefore, financial performance may not precisely reflect firms' operating conditions. To mitigate the problem of accounting manipulation, we use product market performance to measure firm performance instead of financial performance measures.

Using the data of Chinese listed firms from 2008 to 2014, we document that CSR significantly decreases firms' product market performance only in noncompetitive industries, and

the evidence is significant only for non-state-owned firms, primarily through the channel of weaker debt financing capability. Better corporate governance can effectively alleviate the negative impact of CSR on firms' product market performance in noncompetitive industries. Overall, our findings suggest that CSR reflects more about the self-serving purpose of management than conflict resolution in Chinese market.

Our study contributes to the literature in the following aspects. First, we explore an important external governance characteristic, i.e., product market competition, and its interaction with CSR on product market performance, which is lack of deep research in the existing literature. The intuitive appeal of competition in the product market as a potentially powerful force to discipline managerial behavior can be even dated back to Adam Smith (Giroud and Mueller, 2010). Consistent with the theoretical argument on competition that a decrease in the number of competitors may provide less information which may lead to severe moral hazard problem (Holmstrom, 1982; Nalebuff and Stiglitz, 1983), we document the new evidence that the impact of CSR on product market performance is significantly negative only in noncompetitive industries, i.e., CSR reflects more about self-serving purpose of management than conflict resolution in noncompetitive market in China. Fierce competition can provide external discipline on managerial behavior and thus mitigate the negative impact of CSR on firms' product market performance. This is in sharp contrast with the empirical evidence documented by Ryu, Ryu and Hwang (2016), who find that for Korean market, CSR activities significantly increase stock return when product market competition is low, and those documented by Flammer (2015) and Lins et al. (2017), who find a positive effect of CSR on firms' sales growth based on the US developed market.

Second, while Ryu, Ryu and Hwang (2016) study the impact of product market competition

on the relationship between CSR and stock return, they did not document the channel through which stock return may be influenced by CSR when product market competition is low. In contrast, we first time document the channel of weaker debt financing capability, through which firms' product market performance may be influenced by CSR in noncompetitive industries in China. This finding is in line with our findings above, i.e., CSR is negatively related to firms' debt financing capability in China only in noncompetitive industries. This stands sharp contrast with that documented by Lins et al. (2017), who find a positive effect of CSR on debt capital raising during the financial crisis and an insignificant effect of CSR on debt capital raising in the post-crisis period based on the US developed market. Our finding shows that the impact of CSR on debt capital raising also depends on the degree of product market competition, which implies a different mechanism in emerging markets like China.

Third, we provide a significant supplement for the literature on product market performance. In the existing research (Opler and Titman, 1994; Campello, 2006; Rahaman, 2011; Kim, 2016), financial elements are the sole driver of product market performance, such as capital structure, debt financing ability and financing constraints, non-financial factors are neglected. CSR is a very important non-financial factor. From the perspective of stakeholders (e.g., investors, employees, customers, suppliers, and the community), a firm's CSR performance may influence investors' valuation and the market's decision of capital investment towards it, and impact customers' loyalty (for investors, see Guiso, Sapienza, and Zingales (2008); for customers, see Kotler and Lee (2005)), which may have a further impact on firms' sales growth. Therefore, CSR is of great importance for product market performance. Our studies on the relation between CSR and product market performance thus shed more light on the existing literature.

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2. Literature review and Hypotheses Development

The impact of CSR on firm performance has been under controversy for decades. According to Jensen and Meckling's (1976) agency theory, this strand of research perceives CSR engagement as an agency problem which may harm shareholder's wealth. Barnea and Rubin (2010) regard CSR engagement as a principal-agent relation between managers and shareholders. Managers tend to over-invest in CSR to enhance their own private benefits, such as personal reputation and media coverage, rather than to maximize shareholders' wealth. The self-serving purpose of management tends to occur under CSR because the benefits of building reputation as good global citizens accrue principally to the manager, whereas the cost is borne by shareholders (Barnea and Rubin，2010; Jo and Harjoto, 2011). Neoclassical theory argues that being ethical and taking positive externality problems into account generates non-income costs (Palmer et al., 1995; Walley and Whitehead, 1994). In competitive environment, firms that support lower ethical costs are supposed to have better performance than more ethical ones. Following the same argumentation, other researchers also show that investments, or expenditures, in activities not associated with the main objective of the corporation represent diversion of resources from shareholders. Empirically, Richardson and Welker (2001) observe that more voluntary CSR disclosure raises firms' cost of capital. Jones et al. (2007) assert that the level of CSR engagement is negatively related to firm value.

On the other hand, there is a growing literature on conflict resolution among stakeholders based on Freeman's (1984) stakeholder theory (e,g., Calton and Payne, 2003; Harjoto and Jo, 2011; Jensen, 2002; Sherere et al., 2006), which points out that CSR can enhance shareholder's wealth.

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Stakeholder theory asserts that a firm can be viewed as a set of interdependent relationships among stakeholders (Clarkson, 1995). A firm's success depends largely on its ability to comply with stakeholders' expectations and to meet their diverse information-related needs. Therefore, many companies view CSR reporting as a public relations vehicle designed to build a good image and a solid reputation in the market, which can help them gain various stakeholders' support and approval (Gray et al., 1995). Empirical studies also suggest that CSR can generate competitive advantages (Jamali, 2008；Flammer, 2015), create corporate reputation (Fombrun and Shanley, 1990；Fombrun, 2005), and positively influence firm value through several mechanisms, including sales, costs, operational efficiency, financing, and litigation risk (Dhaliwal et al., 2012).

Overall, the agency theory argues that firm performance will be adversely affected by the CSR engagement because of the agency cost created by the managers' engagement in CSR, whereas the stakeholder theory suggests that if managers use CSR as a strategic device to satisfy other stakeholders to alleviate conflicts, then firm performance could be positively associated with CSR engagement. Hence, if a firm's CSR engagement reflects more about the self-serving purpose of management than conflict resolution, the market may perceive and reduce capital investment towards the firm, which may adversely influence the firm's debt financing ability. Compello (2006) documents a positive association between the ability of debt financing and product market performance. Thus, firms' product market performance may become eventually worse as their debt financing ability decreases. On the other hand, if a firm's CSR engagement reflects more about conflict resolution among stakeholders than the self-serving purpose of management, attention to the interests of various stakeholders of the corporation may improve firms' image and reputation, and thus exert positive impact on firm's value creation, although it

may trigger agency conflicts between shareholders and managers in the meantime. If firms engage in CSR mostly for longer-term goals, they will obtain more support and approval from the market, and so does the source of financing. Better ability of debt financing will eventually lead to better product market performance. In short, if CSR's conflict resolution effect dominates the self-serving purpose of management, CSR engagement will increase firms' product market performance finally.

Most of the existing literature focuses on the discussion concerning the economic consequence of CSR from the perspective of financial performance, and few of them take into account product market performance. Product market performance is only considered to be a channel through which CSR influences financial performance such as stock returns. For example, Flammer (2015) examines the effect of CSR-related shareholder proposals on firms' abnormal returns, who finds that firms benefit from CSR through increasing labor productivity and sales growth. Similarly, Lins et al. (2017) find that firms with high CSR ratings outperform firms with low CSR ratings during the financial crisis, primarily through higher sales growth, profitability, margins, and employee productivity. However, few studies consider the impact of CSR on product market performance.

Based on the above discussion, we put forward the following hypotheses:

H1a: If CSR's self-serving purpose of management dominates conflict resolution effect, there will be a negative relation between CSR and product market performance.

H1b: If CSR's conflict resolution effect dominates the self-serving purpose of management, there will be a positive relation between CSR and product market performance.

Moreover, due to the agency conflict, managers may not always act in the best interest of

shareholders. Thus, corporate governance mechanisms are needed to be put in place to alleviate the agency conflict, which naturally raises our interest concerning the relationship between corporate governance and the economic consequence of CSR. The extant literature has concentrated on the impact of internal corporate governance quality on CSR, and finds that more effective governance leads to significantly less investment in CSR (Chintrakarn et al., 2016), Another strand of literature also investigates the impact of product market competition on CSR, which is regarded as an important external governance factor. These studies provide supportive evidence for the view of "CSR as a competitive strategy". For example, Fernandez-Kranz and Santalo (2010) find that firms in more competitive environments have a superior environmental performance. Fisman et al. (2006) and Declerck and M'Zali (2012) assert a positive correlation between competition and CSR. Similarly, Flammer (2015) documents an exogenous increase in foreign competition leads to an increase in CSR. However, this strand of literature did not explore the interactive impact of product market competition and CSR on firm performance.

Due to great survival pressure and risk of demission in industries with fierce competition, managers tend to improve their management efficiency and are less likely to over-invest for private benefits. Yu et al. (2017) document that product market competition and corporate governance are complements in China. In competitive industries, product market competition can work together with better corporate governance at the same time. Therefore, we posit that firms operating in more competitive industries are less likely to over-invest in CSR for self-serving purpose since managers are highly disciplined by fierce market competition, and thus the negative impact of CSR on product market performance may be alleviated. In the meantime, better external governance in competitive industries may increase management's morality and duty of diligence,

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as well as the efficiency of investment in CSR, and thus the positive impact of CSR on product market performance may be enhanced. We then suggest the following hypotheses:

H2a: If CSR's self-serving purpose of management dominates conflict resolution effect, there will be a negative relation between CSR and product market performance, and such an adverse impact will be alleviated in more competitive industries.

H2b: If CSR's conflict resolution effect dominates the self-serving purpose of management, there will be a positive relation between CSR and product market performance, and such a positive impact will be strengthened in more competitive industries.

3. Data

3.1 Variables

Our sample consists of all firms with listed A-shares on either the Shenzhen or Shanghai stock exchange between 2008 and 2014 in China. We select this period due to the availability of firm-level CSR data. We obtain financial data from China Stock Market Accounting Research (CSMAR), and institutional investor data from Wind database. Following the literature (e.g., Opler and Titman, 1994; Campello, 2003; 2006; Kim, 2016), we adopt sales growth as a measure of a firm's product market performance. We exclude financial industry and firms for which sales, assets and CSR are either missing or negative. Moreover, industries with no more than five firms are also excluded from our sample. After applying these selection criteria we retain 3424 firm-years of observations in our sample. Observations of all variables except dummy variables and LnAge (the logarithm of a firm's age) are winsorized based on the top and bottom 2.5

percentile level.

1) CSR

We obtain CSR data from Rankins Corporate Social Responsibility Ratings (RKS). RKS

constructs MCT Social Responsibility Rating System using a scoring algorithm from four

dimensions: Macrocosm, Content, Technique and Industry. This system comprehensively

describes Chinese listed companies' CSR performance and disclosure based on their CSR reports.

It contains 63 CSR attributes which can be sub-categorized into fifteen categories such as strategy,

stakeholder, labor and human rights, fair operation. If a firm satisfies all 63 attributes, CSR score

for this firm would be equal to 100. Firms with better performance in CSR will have higher

scores.

2) Product market competition

Our measure of product market competition is the Herfindahl-Hirschman index (HHI), which

is calculated by summing up the sales-based square market shares of all firms in a given industry:

$$
\text{HHI}_{j,t} = \sum_{i=1}^{N_{jt}} s^2_{ijt}, \tag{1}
$$

Where s_{ijt} is the market share of firm i in industry j in year t, and N_{jt} denotes the numbers of

firms in industry j in year t. We classify the industries using the letter-plus-the-first-digit of a

firm's letter-plus-four-digit industry classification codes specified by China Securities Regulatory

Commission (CSRC) in 2012.[2]

3) Corporate governance

We describe corporate governance from two dimensions: internal governance and external

governance. Internal governance variable comes from Yu et al.'s (2017) corporate governance

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[2] The reason why we do not use finer industry classification codes is that the number of companies in some industries would be too few in that case.

index CGI. This index comprehensively describes the internal governance for all listed Chinese firms based on publicly available information which contains 43 governance attributes. The 43 attributes are sub-categorized into five categories, board accountability, financial disclosure and internal control, shareholder rights and market for control, remuneration, and corporate behavior. External governance is measured with the proportion of institutional investor holding. As previous literature points out, institutional investors play an important role of external supervision in corporate governance (Shleifer and Vishny, 1986; Maug, 1998).

Table 1 reports descriptive statistics for the main variables used in this paper, sales growth (SG), CSR, HHI and other control variables. Definition of all the variables can be found in the Appendix Table A1. We find that the mean value of CSR in the full sample is 36.77, while the standard deviation is 12.20, which indicates the CSR performance is quite different among listed companies. Comparing Panel B and Panel C, we find that the average CSR score in noncompetitive industries (38.30) is higher than in competitive industries (36.41), and sales growth and other control variables are also different across industries with different degrees of product market competition. The results of t-test for the mean value of main variables in competitive and non-competitive industries in Panel D further reflect the industry heterogeneity in our sample. To purge idiosyncratic effects, prior to the estimations, we adjust all of the realizations of the variables in Eq. (2) (see below) by removing their mean industry effects in each year based on Campello (2006). In unreported tests, we also explore the correlation between CSR and HHI. The correlation between HHI and CSR is -0.0019 for the whole sample, which is not significantly different from zero.

Table 1 Descriptive statistics

	Mean	Median	Std.dev	P25	P75	Obs.
Panel A: Full sample						
SG	0.152	0.120	0.270	-0.016	0.272	3347
CSR	36.770	33.950	12.200	28.430	41.730	3424
HHI	0.128	0.078	0.164	0.029	0.116	3424
LnAge	2.898	2.890	0.276	2.773	3.135	3424
Size	22.910	22.790	1.365	21.880	23.810	3418
Profitability	0.068	0.058	0.050	0.036	0.092	3398
Invest	0.059	0.046	0.049	0.021	0.085	3418
SellEx	0.038	0.018	0.050	0.007	0.044	3381
Lev	0.108	0.075	0.116	0.004	0.179	3418
Panel B: High competition						
SG	0.147	0.113	0.269	-0.018	0.264	2726
CSR	36.410	33.680	11.790	28.370	41.220	2781
HHI	0.063	0.049	0.038	0.028	0.098	2781
LnAge	2.909	2.944	0.267	2.773	3.135	2781
Size	22.900	22.780	1.313	21.890	23.780	2778
Profitability	0.067	0.058	0.050	0.036	0.092	2778
Invest	0.058	0.046	0.048	0.022	0.083	2778
SellEx	0.040	0.019	0.052	0.008	0.047	2761
Lev	0.111	0.076	0.117	0.005	0.183	2778
Panel C：Low competition						
SG	0.171	0.149	0.273	0.002	0.309	621
CSR	38.300	35.040	13.730	28.540	44.840	643
HHI	0.408	0.393	0.201	0.210	0.636	643
LnAge	2.855	2.890	0.309	2.773	3.135	643
Size	22.990	22.850	1.570	21.770	23.990	640
Profitability	0.070	0.056	0.054	0.033	0.094	620
Invest	0.063	0.050	0.054	0.017	0.097	640
SellEx	0.028	0.014	0.039	0.005	0.036	620
Lev	0.099	0.065	0.107	0.002	0.158	640

Panel D: Mean difference of variables in different industries			
Variables	Mean-Low competition	Mean -High competition	t-test
SG	0.171	0.147	0.024**
CSR	38.300	36.410	1.893***
HHI	0.408	0.063	0.345***
LnAge	2.855	2.909	-0.054***
Size	22.990	22.900	0.095
Profitability	0.070	0.067	0.002
Invest	0.063	0.058	0.005**
SellEx	0.028	0.040	-0.012***
Lev	0.099	0.111	-0.012**

*, ** and *** denote statistical significance at the 10%, 5％ and 1％ level, respectively.

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3.2 Methodology

The main model specification in this study closely follows Campello (2006). Based on Giroud and Mueller (2011), we also introduce interaction terms between HHI dummies and CSR to examine the relationship between CSR and product market performance across industries with different degrees of product market competition. We run the panel regression below:

$$SG_{i,t} = \alpha_j + \lambda_t + \beta^{'}(CSR_{i,t-2} \times I_{i,t}) + \gamma^{'}X_{i,t} + \varepsilon_{it},$$ （2）

where $SG_{i,t}$ is the sales growth of firm i in year t, α_j and λ_t are industry- and year-fixed effects, $CSR_{i,t-2}$ is the CSR score of firm i in year t-2. Since the influence of CSR on sales performance usually lags, we introduce the lagging structure for CSR into Eq. (2), which can also minimize the endogeneity issue of CSR. $I_{i,t}$ is a (n×1) vector of HHI dummies, where n=2, 3, 4. n=2 means whether firm i in year t is in the fractile with the lowest HHI or the highest HHI. Similarly, n=3 means whether firm i in year t is in the fractile with the lowest, the medium, or the highest HHI, and n=4 means whether firm i in year t is in the fractile with the lowest, the lower, the higher, or the highest HHI. $X_{i,t}$ is a set of control variables, including Size (the logarithm of total assets), LnAge (the logarithm of firm age), two-year lagged Lev (long-term debt scaled by assets). As in Campello (2006), lags of firm profitability, investment and sell expenses (i.e., $\sum_{k=1}^{2}Profitability_{i,t-k}$, $\sum_{k=1}^{2}Invest_{i,t-k}$, $\sum_{k=1}^{2}SellEx_{i,t-k}$) are also used as control variables in Eq. (2). Similar to Giroud and Mueller (2011), we also include HHI dummies to control for direct effects of competition.

In line with Campello (2006), we use asset tangibility as an instrument for debt financing (Lev) in sales performance equations, for a firm's asset tangibility may correlate with its financing,

the tangible attributes of a firm's assets should not influence its relative sales performance other than through the association with financing itself. Specifically, we standardize the predicted values from a regression of leverage on asset tangibility in models to construct the instrument zLev for Lev. Similar to Berger et al. (1996), we define asset tangibility as follows:

$$\text{Tangibility} = 0.715 \times \text{Re ceivables} + 0.547 \times \text{Inventory} + 0.535 \times \text{FixedCapital} + \text{Cash}$$

4. Empirical Results

4.1 CSR, product market competition and product market performance

We first examine the average effect of CSR on product market performance across all industries and hence exclude vector $I_{i,t}$ and its interaction with $CSR_{i,t-2}$ from the regression equation. The results are reported in Column 1 in Table 2. As expected, the coefficient on CSR is negative, implying that better CSR has a negative effect on product market performance. The coefficient, however, is statistically insignificant. In Columns 2 to 4, we allow the effect of CSR on market performance to vary in the competitiveness of industries by including interaction terms between HHI dummies and CSR. The results show that the effect of CSR is negative and significant only in the fractile with the highest HHI. Therefore, consistent with our conjecture of H1a and H2a, CSR activities imply more about management's self-serving purpose than conflict resolution in Chinese market. This self-serving purpose emerges in industries with low market competition. In other words, CSR engagement significantly decreases Chinese listed companies' product market performance only in noncompetitive industries. Fierce competition can mitigate the negative impact of CSR on firms' product market performance. Our result is largely consistent

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with the theoretical argument that competition can provide effective external discipline on managerial behavior.[3]

Consistent with the existing studies, we also find that firm size and previous investments can positively impact product market performance (Campello, 2006), whereas previous profitability has no significant effect on product market performance.

One possible concern with our analysis so far is that our classification of industry competitiveness based on Giroud and Mueller (2011) might be ad hoc and it is possible that our results could be sensitive to the way that we divide the industries into different fractiles. In Column 1 of Table3, we address this concern by running regressions of SG on the CSR, the HHI, the interaction term between CSR and HHI, and control variables in Eq. (2). If the finding that CSR is not doing good only in noncompetitive industries is indeed valid, we would expect a negative coefficient on the interaction term. The results in Column 1 in Table 3 confirm the main finding and exhibit a negative and significant coefficient on the interaction term between CSR and HHI. Second, we run panel regressions for sub-samples of firm-years in high competitive, medium competitive and low competitive industries. Columns 2 to 4 of Table 3 report the results for the sub-sample. Again, the results are in line with those in Table 2.

Table 2 CSR, competition, and product market performance

Dependent variable：				
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0006			

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[3] Following the referee's suggestion, we also replace sales growth with other dependent variables, including stock return and operating performance (such as return on equity (ROE) and change in EBIT), as in Opler and Titman (1994). However, our basic finding does not hold in these regressions. One possible reason why the results of sales growth are different from those of EBIT or ROE could be that the latter are more vulnerable to accounting manipulation, given that stock prices are very noisy (Chen et al., 2010); earnings management and accounting manipulation have been found to be prevalent in Chinese market (e.g., Chen and Yuan, 2004; Haw et al., 2005; Jian and Wong, 2004). Obviously, such analysis and evidence is preliminary, and further investigation should be conducted in future research.

	(-1.35)			
LOWMED×L2.CSR		-0.0002		
		(-0.51)		
HIGHMED×L2.CSR		-0.0027**		
		(-2.87)		
LOWTER×L2.CSR			-0.0001	
			(-0.51)	
MEDTER×L2.CSR			-0.0002	
			(-0.15)	
HIGHTER×L2.CSR			-0.0040**	
			(-3.09)	
Q1×L2.CSR				-0.0004
				(-0.96)
Q2×L2.CSR				0.0004
				(0.34)
Q3×L2.CSR				0.0004
				(0.48)
Q4×L2.CSR				-0.0040**
				(-2.91)
Size	0.0183***	0.0189***	0.0193***	0.0192***
	(4.05)	(4.07)	(4.37)	(4.35)
LnAge	-0.0258	-0.0272	-0.0269	-0.0245
	(-1.06)	(-1.11)	(-1.13)	(-0.98)
SProfitability	-0.0648	-0.0586	-0.0517	-0.0524
	(-1.37)	(-1.16)	(-1.00)	(-0.99)
SInvest	0.2956***	0.2996***	0.3031***	0.3043***
	(7.98)	(7.75)	(7.67)	(7.71)
SSellEx	-0.0141	-0.0208	-0.0211	-0.0211
	(-0.38)	(-0.53)	(-0.54)	(-0.55)
L2.zLev	-0.0046	-0.0044	-0.0048	-0.0050
	(-0.76)	(-0.70)	(-0.78)	(-0.81)
_cons	0.1049	0.1064	0.1045	0.0350
	(0.99)	(0.96)	(0.94)	(1.02)
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1947	1947	1947	1947
adj. R^2	0.012	0.015	0.015	0.015

The HHI dummies indicate whether an industry's HHI is above or below the median HHI (Column 2), whether the HHI is in the highest, middle, or lowest percentile of its empirical distribution (Column 3), or whether the HHI is in the first, second, third, and fourth quartile (Column 4). t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table 3 CSR, competition, and product market performance: sub-sample analysis

Dependent variable：	Full sample	High competition	Medium competition	Low competition
SG	(1)	(2)	(3)	(4)
L2.CSR	0.0004	0.0001	-0.0003	-0.0052***
	(1.01)	(0.36)	(-0.36)	(-4.45)
HHI×L2.CSR	-0.0079***			
	(-3.70)			
HHI	0.0368			
	(0.33)			
_cons	0.0851	-0.0317	-0.0081	0.0414
	(0.64)	(-0.84)	(-0.18)	(0.63)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1947	1393	344	210
adj. R^2	0.014	0.012	0.027	-0.000

For space reasons only the interaction terms between the CSR and the HHI are reported. Control variables are Size, LnAge, SProfitability, SInvest, SSellEx, L2.zLev (the same below). t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Omitted variables may be a major source for endogeneity problem. To address this concern, we then allow for more control variables that are not contained in the CSR, but might influence the dependent variable, such as the logarithm of a firm's book-to-market ratio (LnBM) and the dummy of SOE (SOE) that takes value 1 if a firm's state share proportion is above 50%. LnBM is two-year lagged. The estimation results are reported in Table 4 and Table 5. Again, our basic finding that CSR has a negative and significant effect on sales performance only in noncompetitive industries remains to hold.

Table 4 Robustness check based on other control variables

Dependent variable：				
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0007			
	(-1.44)			
LOWMED×L2.CSR		-0.0004		

	(-1.17)		
HIGHMED×L2.CSR	-0.0020**		
	(-2.46)		
LOWTER×L2.CSR		-0.0003	
		(-1.05)	
MEDTER×L2.CSR		-0.0004	
		(-0.40)	
HIGHTER×L2.CSR		-0.0030**	
		(-2.80)	
Q1×L2.CSR			-0.0005
			(-1.03)
Q2×L2.CSR			-0.0001
			(-0.15)
Q3×L2.CSR			0.0004
			(0.44)
Q4×L2.CSR			-0.0030**
			(-2.64)
SOE	0.0331	0.0306	0.0306	0.0316
	(1.55)	(1.42)	(1.48)	(1.56)
L2.LnBM	-0.0855***	-0.0843***	-0.0833***	-0.0832***
	(-8.65)	(-9.37)	(-9.31)	(-9.22)
_cons	-0.0105	-0.0092	0.1017	0.0306
	(-0.33)	(-0.43)	(1.03)	(0.75)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1927	1927	1927	1927
adj. R^2	0.039	0.040	0.040	0.039

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table 5 Robustness check based on other control variables: sub-sample analysis

Dependent variable: SG	Full sample	High competition	Medium competition	Low competition
	(1)	(2)	(3)	(4)
L2.CSR	0.0000	-0.0001	-0.0004	-0.0047**
	(0.11)	(-0.58)	(-0.45)	(-3.06)
HHI×L2.CSR	-0.0056***			
	(-3.80)			
HHI	0.0517			
	(0.41)			
SOE	0.0299	0.0219	0.0246	0.1086***
	(1.40)	(0.67)	(1.12)	(4.77)

L2.LnBM	-0.0841***	-0.0701***	-0.0909**	-0.1725***
	(-9.17)	(-7.60)	(-2.81)	(-4.85)
_cons	-0.0262	0.0073	-0.0191	0.0159
	(-0.64)	(0.72)	(-0.41)	(0.66)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1927	1380	340	207
adj. R^2	0.040	0.032	0.037	0.117

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

4.2 The state versus private ownership

We also seek to determine whether firm ownership affects the relationship between product market performance and CSR. Under the special institutional background in China, firm ownership could have a great influence on a firm's internal decision-making as well as its economic consequences. We believe that our findings may be sensitive to firms' private versus state ownership for the following reasons. First, previous literature has shown that CSR can loosen firms' financing constraints and provide capital convenience (Ioannou and Serafeim, 2015). Since SOEs have great advantage of debt financing, they operate under soft budget constraints with loss-making firms often being bailed out by the government, it is less likely for SOEs to engage in CSR for alleviating financing constraints. Second, product market of SOEs is mostly influenced by political factors and more stable than non-SOEs, therefore it may be less subject to the CSR mechanisms. Different from SOEs, non-SOEs have great incentives to engage in CSR to gain the market's support and approval and thereby expand their financing. So there may be a much closer association between CSR and product market performance in non-SOEs. On the other hand, if the financing constraint mitigation effect of CSR turns out to be managerial private interest rather than

shareholder's wealth in non-SOEs, the market will make corresponding decisions and change the direction of capital as soon as the self-serving purpose of management is perceived, which may negatively influence non-SOEs' debt financing capacity and thus their product market performance.

We thus divide the full sample into two sub-samples, the state-owned firms' (SOEs) sample and non-state-owned firms' (non-SOEs) sample. A firm is classified as an SOE if the state share proportion is above 50% and otherwise a non-SOE. Table 6 (resp. Table 7) reports the results for SOEs (resp. non SOEs) for the whole sample period. In Column 1 of Table 6 and Table 7, we report the effect of CSR on product market performance across all industries for SOEs and

Table 6 The impact of firms' ownership: state-owned firms

Dependent variable:	State-owned firms			
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0001			
	(-0.04)			
LOWMED×L2.CSR		0.0003		
		(0.16)		
HIGHMED×L2.CSR		-0.0029		
		(-0.84)		
LOWTER×L2.CSR			-0.0011	
			(-0.99)	
MEDTER×L2.CSR			0.0035	
			(0.82)	
HIGHTER×L2.CSR			-0.0045	
			(-1.31)	
Q1×L2.CSR				0.0008
				(0.39)
Q2×L2.CSR				-0.0009
				(-0.17)
Q3×L2.CSR				-0.0068
				(-1.86)
Q4×L2.CSR				-0.0039
				(-0.98)
_cons	0.0712[***]	0.0586	0.0089	0.8013[***]

	(3.93)	(0.60)	(0.17)	(5.91)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	116	116	116	116
adj. R^2	-0.011	-0.027	0.000	-0.022

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5% and 1%level, respectively.

Table 7 The impact of firms' ownership: non-state-owned firms

Dependent variable：	Non-state-owned firms			
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0007			
	(-1.56)			
LOWMED×L2.CSR		-0.0004		
		(-0.88)		
HIGHMED×L2.CSR		-0.0026**		
		(-2.47)		
LOWTER×L2.CSR			-0.0001	
			(-0.73)	
MEDTER×L2.CSR			-0.0008	
			(-0.47)	
HIGHTER×L2.CSR			-0.0038**	
			(-2.66)	
Q1×L2.CSR				-0.0005
				(-1.60)
Q2×L2.CSR				0.0001
				(0.09)
Q3×L2.CSR				0.0004
				(0.49)
Q4×L2.CSR				-0.0037**
				(-2.48)
_cons	0.1004	0.1022	-0.0059	0.1059
	(0.94)	(0.92)	(-0.17)	(0.95)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1831	1831	1831	1831
adj. R^2	0.016	0.018	0.017	0.018

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5% and 1%level, respectively.

non-SOEs, respectively; in Columns 2 to 4, CSR is interacted with HHI dummies and HHI dummies are included as an additional control variable. As expected, SOEs' CSR engagement has no significant influence on product market performance, even though the impact of product market competition is considered. The results for non-SOEs are consistent with those in Tables 2, i.e., the evidence that CSR has a negative and significant effect on product market performance only in noncompetitive industries remains to hold for non-SOEs.[4] The above finding suggests that non-SOEs' CSR engagement implies more about self-serving purpose of management than conflict resolution in noncompetitive industries.

4.3 Possible channels of lowering product market performance by CSR

To further confirm the validity of the basic finding, we now move on to explore the mechanism through which CSR affects product market performance in noncompetitive industries. As mentioned above, non-SOEs face tight financing constraint and their debt financing ability is more sensitive to market sentiment, and therefore the association between CSR and product market performance in non-SOEs tends to be closer. So we posit that CSR may influence product market performance through the channel of debt financing.

To verify our conjecture, we measure a firm's ability of debt financing with long-term leverage (Lev) and explore the interactive effect of CSR and product market competition on its debt financing capability. Specifically, we employ the same empirical specification as in Eq. (2) except that the dependent variable changes to be Lev.[5] Our first examination of the whole sample

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[4] We also use the property of actual controllers to classify SOEs and non-SOEs and run similar regressions as those in Table 6 and Table 7. Again, our findings remain to hold in this case. To save space, we do not report the estimation results here, which are available upon request.

[5] We add lags of profitability as control variable in the regression to control for direct effects of macroeconomic

reports in Table 8. In Column 1, we find the average effect of CSR on debt financing is negative but statistically insignificant. In Columns 2 to 4, we allow the effect of CSR on debt financing to vary in the competitiveness of industries by including the interaction term between the HHI dummies and CSR. The results show that the effect of CSR is negative and significant only in the fractile with the highest HHI. In other words, firms with higher CSR score have lower debt financing ability, but only in noncompetitive industries.

Table 8 CSR, competition and debt financing

Dependent variable:				
Lev	(1)	(2)	(3)	(4)
L2.CSR	-0.0001			
	(-0.35)			
LOWMED×L2.CSR		0.0001		
		(0.31)		
HIGHMED×L2.CSR		-0.0007**		
		(-2.34)		
LOWTER×L2.CSR			0.0000	
			(0.11)	
MEDTER×L2.CSR			0.0001	
			(0.14)	
HIGHTER×L2.CSR			-0.0008**	
			(-2.41)	
Q1×L2.CSR				0.0001
				(0.27)
Q2×L2.CSR				0.0001
				(0.16)
Q3×L2.CSR				-0.0006
				(-1.00)
Q4×L2.CSR				-0.0008*
				(-2.20)
_cons	0.0060	0.0060	0.0054	0.0404
	(1.59)	(1.17)	(1.00)	(0.65)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes

factors such as investment opportunity. Hence the coefficient of CSR can nearly represent the effect of CSR on firm leverage.

N	1947	1947	1947	1947
adj. R^2	0.300	0.301	0.300	0.300

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5% and 1%level, respectively.

We then move on to examine the non-SOEs sample. The results are reported in Table 9. Column 1 shows that the average effect of CSR on non-SOEs' debt financing is negative but statistically insignificant. When we distinguish firms operating in industries with different degrees of product market competition in Columns 2 to 4, it becomes evident that CSR has a negative effect on Lev only in the highest fractile of HHI. Clearly, as compared to the full sample of Table 8, the results are qualitatively unchanged.

Table 9 CSR, competition and debt financing: non-state-owned firms

Dependent variable：	Non-state-owned firms			
Lev	(1)	(2)	(3)	(4)
L2.CSR	-0.0001			
	(-0.40)			
LOWMED×L2.CSR		0.0001		
		(0.46)		
HIGHMED×L2.CSR		-0.0010***		
		(-3.48)		
LOWTER×L2.CSR			0.0001	
			(0.62)	
MEDTER×L2.CSR			-0.0002	
			(-0.32)	
HIGHTER×L2.CSR			-0.0010**	
			(-2.91)	
Q1×L2.CSR				0.0001
				(0.50)
Q2×L2.CSR				0.0001
				(0.12)
Q3×L2.CSR				-0.0010
				(-1.65)
Q4×L2.CSR				-0.0010**
				(-2.77)

_cons	0.0053	0.0055	0.0293	0.0051
	(1.33)	(0.97)	(0.63)	(0.90)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1831	1831	1831	1831
adj. R^2	0.295	0.297	0.297	0.296

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

To further confirm the negative effect of CSR on debt financing ability in noncompetitive industries will affect product market performance, we then conduct the additional description of the relationship between debt financing capability and product market performance. Specifically, we divide the whole sample into two sub-samples according to their long-term leverage, i.e., firms with Lev above (resp. below) the top (resp. bottom) 30th percentile are referred to as high (resp. low) leverage group, and then compare the mean value of sales growth between these two groups for each year. Figure 1 shows that the average sales growth of high-leverage group is higher than the low-leverage one during the whole sample period. Moreover, the mean difference of sales growth between high-low leverage groups is 0.06 and is significantly at 1% level by t-test.[6] These results show that the high debt-taking Chinese firms exhibit significantly better product market performance, which verify that CSR negatively influence product market performance only in noncompetitive industries through weaker debt financing capability.

The above findings are consistent with our conjecture, i.e., CSR activities imply more about self-serving purpose of management than conflict resolution in Chinese market. This self-serving characteristic makes the market change its direction of capital and thus negatively impact firms'

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[6] The result is available upon request.

debt financing capability. Since debt financing is important for the improvement of product market performance, which will get damaged as the debt financing capacity decreases. However, this negative influence of CSR on debt financing and product market performance is only significant in noncompetitive industries, because firms in noncompetitive industries where competition pressure is low fail to enforce discipline on managers, which may lead to over-investment in CSR. As the degree of competition increases, the agency problem of CSR is mitigated and the negative effect fades away. [7]We find the evidence that CSR significantly decreases firms' product market performance in noncompetitive industries is only significant for non-SOEs, which face more serious financing constraints.

In sum, we document that CSR affects product market performance in noncompetitive industries primarily through the channel of weaker debt financing capability.
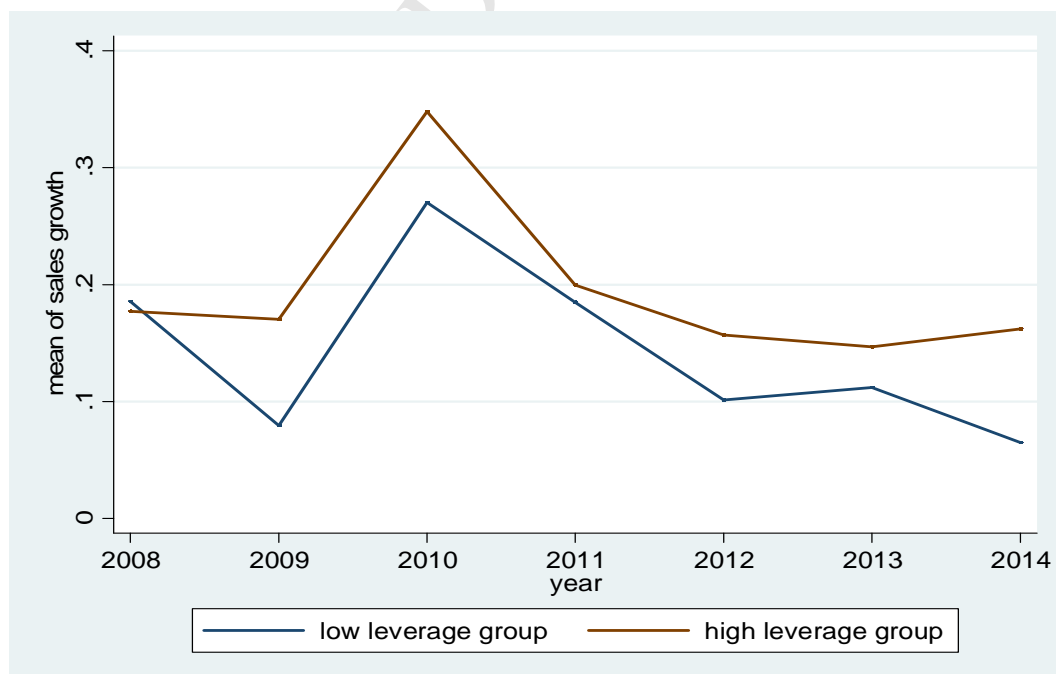

Figure 1 Mean of sales growth for different leverage firms

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[7] This paper fails to capture the impact of CSR on SOEs' product market performance which is determined by more complicated and unobservable factors.

4.4 Additional analysis: corporate governance

As the literature (Nekhili et al., 2017) suggests that the association between CSR and firm value would be quite different across firms with different corporate governance, we believe that our findings may be sensitive to firms with poor governance firms than firms with good governance for the following reason: Conflicts of interest between owners and managers are less likely to arise in firms with better governance and managers have less incentive to over-invest in CSR for self-serving purpose. Therefore in noncompetitive industries, the negative impact of CSR on those firms' product market performance may be smaller compared with firms with poor governance.

We thus explore the potential impact of corporate governance on our basic finding. Specifically, in the aspect of internal governance, we divide firms into two sub-samples according to their CGI index, i.e., firms with CGI above the top 30 percentile are referred to as good internal governance sample, otherwise are referred to as poor one. In the aspect of external governance, we classify firms into two sub-samples according to the median of firms' institutional investor holding proportion, i.e., firms are classified as good external governance sample if institutional investor holding proportion is above the median, otherwise are classified as poor external governance sample. Then we run similar regressions as in Table 2 for the four subsamples, respectively. The results are reported in Tables 10 to 13. In Column 1 of Table 10 and Table 12, we find that the average effect of CSR on product market performance across all industries is not significant in both good internal and external governance samples. When differentiating among different levels of competition, the results in Columns 2 to 4 are qualitatively unchanged. On the

contrary, the results of Table 11 and Table 13 show that the negative effect of CSR on product market performance can only be observed in the highest fractile of product market competition in both poor internal and external governance samples. In other words, our basic finding remains to hold in poor governance environment but not in good governance environment. The above finding suggests that better internal and external governance or more fierce competition can discipline management's incentive to overinvest in CSR for serving their own interests, and thus the negative influence of CSR on product market performance in noncompetitive industries can be alleviated.

We also run similar regressions for the four subsamples as in Table 3 and obtain robust results, which can be found in the Appendix Tables A2 to A5. In sum, we document that better corporate governance can effectively mitigate the negative impact of CSR on firms' product market performance in noncompetitive industries.

Table 10 CSR, competition and market performance: good internal governance

Dependent variable： SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0009			
	(-1.40)			
LOWMED×L2.CSR		-0.0009		
		(-1.23)		
HIGHMED×L2.CSR		-0.0009		
		(-0.68)		
LOWTER×L2.CSR			-0.0011	
			(-1.52)	
MEDTER×L2.CSR			0.0003	
			(0.15)	
HIGHTER×L2.CSR			-0.0013	
			(-1.14)	
Q1×L2.CSR				-0.0014
				(-1.22)
Q2×L2.CSR				0.0003
				(0.19)
Q3×L2.CSR				0.0029

				(0.78)
Q4×L2.CSR				-0.0015
				(-1.34)
_cons	-0.2225***	-0.2217***	0.0293	0.0701
	(-7.82)	(-8.69)	(0.50)	(0.55)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	545	545	545	545
adj. R^2	-0.012	-0.016	-0.019	-0.021

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table 11 CSR, competition and market performance: poor internal governance

Dependent variable：				
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0006			
	(-1.12)			
LOWMED×L2.CSR		0.0001		
		(0.21)		
HIGHMED×L2.CSR		-0.0037**		
		(-2.81)		
LOWTER×L2.CSR			0.0002	
			(1.32)	
MEDTER×L2.CSR			-0.0003	
			(-0.25)	
HIGHTER×L2.CSR			-0.0058***	
			(-3.46)	
Q1×L2.CSR				0.0000
				(0.13)
Q2×L2.CSR				0.0001
				(0.13)
Q3×L2.CSR				0.0005
				(0.34)
Q4×L2.CSR				-0.0056***
				(-3.38)
_cons	0.2137***	0.2095**	0.2171**	0.2105**
	(3.34)	(2.97)	(2.81)	(2.77)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1402	1402	1402	1402

| adj. R^2 | 0.017 | 0.021 | 0.023 | 0.022 |

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table 12 CSR, competition and market performance: good external governance

Dependent variable：				
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0001			
	(-0.25)			
LOWMED×L2.CSR		-0.0000		
		(-0.14)		
HIGHMED×L2.CSR		-0.0002		
		(-0.28)		
LOWTER×L2.CSR			0.0002	
			(0.62)	
MEDTER×L2.CSR			-0.0003	
			(-0.23)	
HIGHTER×L2.CSR			-0.0009	
			(-1.08)	
Q1×L2.CSR				0.0000
				(0.05)
Q2×L2.CSR				-0.0002
				(-0.15)
Q3×L2.CSR				0.0024
				(1.23)
Q4×L2.CSR				-0.0010
				(-1.15)
_cons	0.2743***	0.2690***	0.2774***	-0.0634
	(4.14)	(4.11)	(4.33)	(-0.99)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	953	953	953	953
adj. R^2	0.034	0.033	0.030	0.031

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table 13 CSR, competition and market performance: poor external governance

Dependent variable：				
SG	(1)	(2)	(3)	(4)

L2.CSR	-0.0008			
	(-1.17)			
LOWMED×L2.CSR		-0.0005		
		(-0.87)		
HIGHMED×L2.CSR		-0.0034		
		(-1.15)		
LOWTER×L2.CSR			-0.0006	
			(-1.05)	
MEDTER×L2.CSR			0.0005	
			(0.27)	
HIGHTER×L2.CSR			-0.0074**	
			(-2.84)	
Q1×L2.CSR				-0.0010
				(-1.03)
Q2×L2.CSR				0.0004
				(0.25)
Q3×L2.CSR				0.0015
				(0.41)
Q4×L2.CSR				-0.0074**
				(-2.54)
_cons	0.0330	0.0103	0.0266	0.1234***
	(1.08)	(0.26)	(0.41)	(3.92)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	994	994	994	994
adj. R^2	0.034	0.034	0.036	0.035

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

5. Conclusions

Whether the engagement of CSR implies more about management's self-serving purpose or shareholder value creation? This issue has received extensive attention among financial economists, practitioners, and policymakers. Using the data of Chinese listed firms from 2008 to 2014，we explore how product market competition and CSR interactively influence firms' product market performance and the underlying mechanism. We document that CSR significantly

decreases firms' product market performance only in noncompetitive industries, and the evidence is significant only for non-state-owned firms, primarily through the channel of weaker debt financing capability. Better corporate governance can effectively alleviate the negative impact of CSR on firms' product market performance in noncompetitive industries.

Overall, this paper finds that industry competition plays an important governance role in disciplining the self-serving purpose of management. Our findings suggest that Chinese listed firms should establish a series of complete CSR supervision, assessment, rewarding and punishment mechanisms to reduce the discretion of managers in CSR resource allocation and to mitigate agency problems between managers and shareholders. Our findings also yield important policy implications that governments in emerging markets should take measures to improve listed companies' corporate governance and propel the process of marketization, given that the lack of external pressure and internal governance will exacerbate the self-serving purpose of management.

Since publicly traded companies may be socially responsible in some CSR dimensions, yet socially irresponsible in others, further research could be extended to explore the different dimensions of CSR separately, examining the relation between its different components and product market performance.

Appendix

Table A1 Definition of variables

Variables	Definition
Sales	Operating revenue
SG	Sales growth
Assets	Total assets
Cash	(Currency+ trading financial assets) / Assets
FixedCapital	Net fixed capital / Assets
Inventory	Net inventories / Assets
Receivable	Net accounts receivables / Assets
Size	The logarithm of Assets
Lev	Long-term debt / Assets
Age	Proxied by calculating the number of years since the beginning of public trading
Profitability	(Operating earnings+ depreciation) / Assets
Invest	Capital expenditures /Assets
SellEx	Selling expenses /Assets
SProfitability	$\text{SProfitability}=\sum_{k=1}^{2}\text{Profitability}_{i,t-k}$
SInvest	$\text{SInvest}=\sum_{k=1}^{2}\text{Invest}_{i,t-k}$
SSellEx	$\text{SSellEx}=\sum_{k=1}^{2}\text{SellEx}_{i,t-k}$
SOE	A dummy that takes value 1 (0) if a firm's state share proportion is above (below or equal to) 50%.
Inst	The proportion of institutional investor holding
LnBM	The logarithm of book-to-market ratio

Table A2 Sub-sample analysis of good internal governance firms

Dependent variable:	Full sample	High competition	Medium competition	Low competition
SG	(1)	(2)	(3)	(4)
L2.CSR	-0.0007	-0.0007	0.0013	0.0004

	(-0.90)	(-1.18)	(0.77)	(0.33)
HHI×L2.CSR	-0.0017			
	(-0.51)			
HHI	0.1733			
	(0.50)			
Size	0.0156**	0.0052	0.0438	0.0001
	(3.08)	(0.77)	(1.17)	(0.00)
_cons	-0.3297*	0.0510	-0.3153**	-0.0600
	(-2.15)	(0.30)	(-2.62)	(-1.67)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	545	384	99	114
adj. R^2	-0.016	-0.003	-0.013	0.111

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table A3 Sub-sample analysis of poor internal governance firms

Dependent variable：SG	Full sample (1)	High competition (2)	Medium competition (3)	Low competition (4)
L2.CSR	0.0007*	0.0003	-0.0004	-0.0049***
	(1.93)	(0.92)	(-0.38)	(-3.80)
HHI×L2.CSR	-0.0104***			
	(-6.18)			
HHI	-0.1120			
	(-0.75)			
_cons	0.2834**	-0.0406	-0.0184	-0.0747
	(2.50)	(-1.68)	(-0.43)	(-0.78)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	1402	1009	245	148
adj. R^2	0.021	0.013	0.035	0.013

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table A4 Sub-sample analysis of good external governance firms

Dependent variable：	Full sample (1)	High competition (2)	Medium competition (3)	Low competition (4)
L2.CSR	0.0003	0.0004	-0.0011	0.0004

	(0.97)	(0.99)	(-0.76)	(0.33)
HHI×L2.CSR	-0.0030			
	(-1.36)			
HHI	-0.1447			
	(-0.87)			
_cons	0.3635***	-0.0269	0.0412	-0.0600
	(3.31)	(-1.27)	(0.49)	(-1.67)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	953	668	171	114
adj. R^2	0.033	0.021	-0.019	0.111

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

Table A5 Sub-sample analysis of poor external governance firms

Dependent variable：	Full sample	High competition	Medium competition	Low competition
SG	(1)	(2)	(3)	(4)
L2.CSR	0.0002	-0.0005	0.0009	-0.0127***
	(0.39)	(-1.22)	(0.44)	(-4.66)
HHI×L2.CSR	-0.0103**			
	(-2.68)			
HHI	0.1289			
	(0.64)			
_cons	-0.0226	-0.1020*	0.0064	0.0544
	(-0.24)	(-1.98)	(0.21)	(0.53)
Control variables	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
N	994	725	173	96
adj. R^2	0.034	0.024	0.055	0.137

t-statistics are in parentheses and allow for clustering at the industry level (the letter industry classification code). *, ** and **** denote statistical significance at the 10%, 5％ and 1％level, respectively.

References

[1] Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics, 97*(1), 71-86.

[2] Berger, P. G., Ofek, E., & Swary, I. (1996). Investor valuation of the abandonment option. *Journal of financial economics*, *42*(2), 257-287.

[3] Calton, J. M., & Payne, S. L. (2003). Coping with paradox: Multistakeholder learning dialogue as a pluralist sensemaking process for addressing messy problems. *Business & Society*, *42*(1), 7-42.

[4] Campello, M. (2003). Capital structure and product markets interactions: evidence from business cycles. *Journal of Financial Economics*, *68*(3), 353-378.

[5] Campello, M. (2006). Debt financing: Does it boost or hurt firm performance in product markets?. *Journal of Financial Economics*, *82*(1), 135-172.

[6] Chen, X., Kim, K. A., Yao, T., & Yu, T. (2010). On the predictability of Chinese stock returns. *Pacific-Basin Finance Journal, 18*(4), 403-425.

[7] Chen, K. C., & Yuan, H. (2004). Earnings management and capital resource allocation: Evidence from China's accounting-based regulation of rights issues. *The Accounting Review*, *79*(3), 645-665.

[8] Chintrakarn, P., Jiraporn, P., Kim, J. C., & Kim, Y. S. (2016). The effect of corporate governance on corporate social responsibility. *Asia‐Pacific Journal of Financial Studies*, *45*(1), 102-123.

[9] Clarkson, M. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of management review*, *20*(1), 92-117.

[10] Declerck, M. D., & M'Zali, B. (2012). Product market competition and corporate social responsibility. *Draft vom*, *14*.

[11] Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review*, *87*(3), 723-759.

[12] Du, S., Bhattacharya, C. B., & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International Journal of*

Management Reviews, *12*(1), 8-19.

[13] Fernández‑Kranz, D., & Santaló, J. (2010). When necessity becomes a virtue: The effect of product market competition on corporate social responsibility. *Journal of Economics & Management Strategy*, *19*(2), 453-487.

[14] Fisman, R., Heal, G., & Nair, V. (2006). A model of corporate philanthropy. *Columbia University and University of Pennsylvania*.

[15] Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*, *61*(11), 2549-2568.

[16] Flammer, C. (2015). Does product market competition foster corporate social responsibility? Evidence from trade liberalization. *Strategic Management Journal*, *36*(10), 1469-1485.

[17] Fombrun, C., & Shanley, M. (1990). What's in a name? Reputation building and corporate strategy. *Academy of management Journal*, *33*(2), 233-258.

[18] Fombrun, C. J. (2005). A world of reputation research, analysis and thinking—building corporate reputation through CSR initiatives: evolving standards. *Corporate reputation review*, *8*(1), 7-12.

[19] Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge university press.

[20] Giroud, X., & Mueller, H. M. (2011). Corporate governance, product market competition, and equity prices. *The Journal of Finance*, *66*(2), 563-600.

[21] Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal*, *8*(2), 47-77.

[22] Guiso, L., Sapienza, P., & Zingales, L. (2008). Trusting the stock market. *Journal of Finance*, *63*(6), 2557-2600.

[23] Harjoto, M. A., & Jo, H. (2011). Corporate governance and CSR nexus. *Journal of Business Ethics*, *100*(1), 45-67.

[24] Haw, I. M., Qi, D., Wu, D., & Wu, W. (2005). Market consequences of earnings management in response to security regulations in China. *Contemporary Accounting Research*, *22*(1), 95-140.

[25] Hemingway, C. A., & Maclagan, P. W. (2004). Managers' personal values as drivers of

corporate social responsibility. *Journal of Business Ethics*, *50*(1), 33-44.

[26] Holmstrom, B. (1982). Moral hazard in teams. *The Bell Journal of Economics*, 324-340.

[27] Ioannou, I., & Serafeim, G. (2015). The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics. *Strategic Management Journal*, *36*(7), 1053-1081.

[28] Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

[29] Jensen, M. C. (2010). Value maximization, stakeholder theory, and the corporate objective function. *Journal of applied corporate finance*, *22*(1), 32-42.

[30] Jian, M., & Wong, T. J. (2004). Earnings management and tunneling through related party transactions: evidence from Chinese corporate groups. *Chinese University of Hong Kong working paper*.

[31] Jo, H., & Harjoto, M. A. (2011). Corporate governance and firm value: The impact of corporate social responsibility. *Journal of business ethics*, *103*(3), 351-383.

[32] Jones, S., Frost, G., Loftus, J., & Laan, S. (2007). An empirical examination of the market returns and financial performance of entities engaged in sustainability reporting. *Australian Accounting Review*, *17*(41), 78-87.

[33] Kotler, P., & Lee, N. (2005). Best of breed: When it comes to gaining a market edge while supporting a social cause,"corporate social marketing" leads the pack. *Social marketing quarterly*, *11*(3-4), 91-103.

[34] Kim, R. (2016). Financial weakness and product market performance: Internal capital market evidence. *Journal of Financial and Quantitative Analysis*, *51*(1), 307-332.

[35] Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance*, *72*(4), 1785-1824.

[36] Maug, E. (1998). Large shareholders as monitors: is there a trade‐off between liquidity and control?. *The journal of finance*, *53*(1), 65-98.

[37] Nalebuff, B. J., & Stiglitz, J. E. (1983). Prizes and incentives: towards a general theory of compensation and competition. *The Bell Journal of Economics*, 21-43.

[38] Nekhili, M., Nagati, H., Chtioui, T., & Rebolledo, C. (2017). Corporate social responsibility

disclosure and market value: Family versus nonfamily firms. *Journal of Business Research*, *77*, 41-52.

[39] Opler, T. C., & Titman, S. (1994). Financial distress and corporate performance. *The Journal of Finance*, *49*(3), 1015-1040.

[40] Palmer, K., Oates, W. E., & Portney, P. R. (1995). Tightening environmental standards: the benefit-cost or the no-cost paradigm?. *Journal of economic perspectives*, *9*(4), 119-132.

[41] Rahaman, M. M. (2011). Access to financing and firm growth. *Journal of Banking & Finance*, *35*(3), 709-723.

[42] Richardson, A. J., & Welker, M. (2001). Social disclosure, financial disclosure and the cost of equity capital. *Accounting, organizations and society*, *26*(7-8), 597-616.

[43] Ryu, D., Ryu, D., & Hwang, J. H. (2016). Corporate social responsibility, market competition, and shareholder wealth. *Investment Analysts Journal*, *45*(1), 16-30.

[44] Shengzhen Stock Exchange. (2005). The major illegal behaviors in the Chinese stock market: case study on insider trading and price manipulation. Shengzhen.

[45] Scherer, A. G., Palazzo, G., & Baumann, D. (2006). Global rules and private actors: Toward a new role of the transnational corporation in global governance. *Business Ethics Quarterly*, *16*(4), 505-532.

[46] Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of political economy*, *94*(3, Part 1), 461-488.

[47] Tingting, S. (2004). The regulation of stock trading and its enforcement in China. Masters Thesis in Economics, University of Konstanz, Germany.

[48] Walley, N., & Whitehead, B. (1994). It's not easy being green. *Harvard Business Review,* 46-52.

[49] Yu, Z., Li, J., & Yang, J. (2017). Does corporate governance matter in competitive industries? Evidence from China. *Pacific-Basin Finance Journal*, *43*, 238-255.