

Article

Does CSR Signal the Firm Value? Evidence from China

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Abstract: Compared to the rapid development of Corporate Social Responsibility (CSR) practices in developing countries, especially in China, the research about the effect of CSR on firm value has evolved more slowly. This paper examines the relationship between CSR and firm value used by listed Chinese companies from 2010 to 2017. The results for the whole sample show CSR significantly reduces firm value. Additionally, there are no significant differences for the effect of CSR on firm value between state owned enterprises (SOEs) and non-SOEs or sensitive industry and non-sensitive industry. To explore whether the relationship changes over time, we divided the period into two sub-periods. During 2010–2014, the results are similar with those obtained by the whole sample. However, the results significantly change during 2015–2017. Specifically, the negative and significant relationship between CSR and firm value becomes non-significant in the second sub-period. Compared to the weakening effect of CSR for non-SOEs on firm value, CSR for SOEs alleviates the effect, and CSR of SOEs increases firm value significantly. Similar results are obtained for non-sensitive industry and sensitive industry. The changes are the result of increasing awareness by government, companies, and investors on sustainable development after 2015. This finding enriches the research on the dynamic effect of CSR on firm value in developing countries.

Keywords: CSR; ESG; firm value; China; sustainable development

1. Introduction

Nowadays, sustainable development has been an essential part of government governance and enterprise development, and also been an academic focus. Specific to enterprise development, the concept is called corporate social responsibility (CSR), and the investing based CSR is called socially responsible investing (SRI) which has experienced strong growth in the past decade. According to Eurosif 2012 and Eurosif 2018 [1], the SRI in Europe grew from 2.63 trillion Euros in 2011 to 20 trillion Euros in 2017; and according to US SIF [2], the SRI in US increased from 3.3 trillion USD in 2011 to 12 trillion USD in October 2018. These data reveal that CSR is playing an important role in measuring firm value in the developed countries.

Though CSR practice and SRI in developing countries still fall behind that in developed countries, the situation is improving [3]. For example, the Securities and Exchange Board of India has mandated that the top 500 Indian firms should reveal their ESG activities in 2015; according to GSIR 2016 [3], the exchanges in developing countries like Brazil, South Africa, and Mexico have launched the Sustainability Index.

When China, the biggest developing country in the world, is considered, the CSR and SRI in China have developed rapidly in recent years since the government and the listed companies pay more attention to sustainable development. For regulatory policy, the Shanghai Stock Exchange and Shenzhen Stock Exchange firstly encouraged the CSR disclosure of listed companies as early as in

2000 and 2006, respectively. In 2018, the China Securities Regulatory Commission (CSRC), the Chinese regulator, established the basic framework of CSR disclosure by the rule of Corporate Governance Guidelines for Listed Companies. Additionally, there are some other rules proposed by the two exchanges and the CSRC. Until the end of 2018, there were 851 listed companies (about a quarter of the total listed companies in China) which disclosed their CSR report voluntarily. For SRI, the number of SRI index increases to 30 in 2017, while the number is only 1 in 2005. From the establishment of the first SRI fund in 2008, the number has increased to 62 until the end of 2017. In addition, according to GSIR 2016, the size of SRI asset has grown 157% annually since 2014, from \$450.9 million to \$2.9 billion. With the acceleration of the internationalization of the Chinese capital market, such as the inclusion of China A-shares into the MSCI and FTSE global indexes, the CSR practices and SRI in China will be further promoted.

For academic research, most of the research on the impact of CSR to firm value has focused on developed countries [4–7], while the research in developing countries such as China is even more scarce [8,9]. With the rapid expansion of CSR practice and the availability of the reliable data about CSR for China provided by Bloomberg, Thomson Reuters, and some other firms, the research of CSR on Chinese limited firms is possible. Therefore, several natural questions arise. First, how does the CSR of listed companies in China affect their value? Then, is there any difference for the effect of CSR on firm value between SOEs (state owned enterprises) and non-SOEs? Additionally, what would the difference for the effect between sensitive industries and non-sensitive industries be? Finally, whether the above impact changes over time with the rapid development of CSR practice, especially after the year 2015 when the economic environment, capital market, and regulatory policy in China changed significantly.

To address these questions, we explore the relationship between CSR of companies listed in China and their firm value based on the ESG score provided by Bloomberg [10–13] from 2010 to 2017. The empirical results for whole samples indicate that the CSR negatively affects firm value overall. This is consistent with the reality that “the government sits at the top of the CSR pyramid in China” [14–16] and the increasing expenditure of CSR practices negatively affect firm value. Besides, there is no significant difference for the effect of CSR on firm value between SOEs and non-SOEs or sensitive industries and non-sensitive industries. To examine whether the above relationship changes over time, we take the year 2015 as the dividing point and divide the sample period into two sub-periods. During the period 2010–2014, the empirical results are undifferentiated from those obtained by the whole sample. However, the empirical results change significantly for the period of 2015–2017. Firstly, the negative and significant relationship between CSR and firm value becomes non-significant in the second sub-period. Secondly, compared to the negative relationship between CSR of non-SOEs and firm value, the CSR of SOEs alleviates the negative effect. In addition, the relationship between CSR of SOEs and firm value is positive. Similarly, compared to the negative relationship between CSR of non-sensitive industries and firm value, the CSR for sensitive industries alleviates the negative effect. Additionally, CSR increases firm value for sensitive industries. The changes reveal that the effect of CSR in enhancing the firm value is emerging in China with the growing attention on sustainable development of regulators firms and investors after 2015.

This paper contributes to the research about the impact of CSR on firm value in several ways. First, we explore the impact of CSR of Chinese listed companies on firm value by different perspectives with the latest data, such as firm ownership (SOEs or non-SOEs), firm industry (sensitive industry or non-sensitive industry), and different time periods. Thus our study enriches the literature of CSR for the developing countries [17,18]. Second, we show that the impact of CSR on firm value in China significantly changes over time. To the best of our knowledge, we are the first to report such a finding. This enriches the research of dynamic effect of CSR on firm value [5,19–21]. Finally, our findings have important implications not only for investors who can improve their investing decision, but also for the regulators and the listed companies.

The remainder of this paper is organized as follows. In Section 2, we present a review of related literature and develop our hypotheses. In Section 3, we explain data and variable information. Section 4 shows the empirical results. Section 5 concludes our study.

2. Literature Review and Hypotheses

The research about the impact of CSR on firm value firstly focuses on the listed companies in developed countries where CSR practices first develop. However, there are still no consistent conclusions on this research [22,23]. Most of the early research examined the impact from the perspective of expenditure of CSR. As Friedman [24] notes, “the only social responsibility of corporations is to make money.” However, in fact, most of the CSR activities need financial support, and the activities cannot increase the firm value in a short time. Once the cost of the CSR exceeds the legally binding minimum standards, CSR will negatively affect the firm value. In addition, some research finds that CSR practice can lead to over-investment which satisfies the private benefit of the managers and large blockholders [25–28]. Such evidence suggests that CSR puts the company at an uneconomic level. Therefore, CSR practice reduces the firm value.

However, with the increasing attention on CSR practices in recent years, research from a more comprehensive perspective comes to the conclusion that CSR practice increases the firm value. The value enhancing effect is realized by the following two ways. First, for the internal development of the enterprise, CSR activities could motivate workers to perform better and reduce the workers' wage requirements on average [29], improving the production and operation efficiency [30]. What is more, CSR activities could also reduce the corporate risk, create new growth drivers, and form the competitive advantage for the companies [31,32]. Second, for the external relationship, firms could build good relationships with customers, shareholders, regulators, and governments. Research shows that firms with superior performance on CSR have better access to finance [33], and can have a lower cost of capital [13,34]. Besides, the CSR practice can enhance the firm's reputation [35], increase customer loyalty [36], and improve the relationship between the firms and the regulators [37]. Therefore, CSR activities increase the firm value.

As McWilliams et al. [38] note that the CSR in different countries will show different characteristics as a result of the different development stage and legal requirements, and then affect the firm value and financial performance differently. For example, Breuer et al. [39] find that for firms investing in CSR, the cost of equity falls (rises) in countries where investor protection is strong (poor). Auer and Schuhmacher [40] find that performance of the portfolios with high or low ESG has no significant difference with that of the benchmarks in the Asia-Pacific region and in the United States. However, in Europe, investors would pay a price for SRI portfolios in certain industries and depending on the used ESG criterion.

For the developing countries, though CSR activities develop later than that in developed countries, they are expected to be in greater demand [41,42]. Firstly, it should be noted that CSR activities in developing countries have distinctive characteristics. For example, they are most commonly associated with charity. The firms provide much more social services to the public and broaden their social influence by CSR activities [43]. Consequently, regarding the research on the relationship between CSR and firm value, there are also some different findings compared to developed countries. Manrique et al. [17] find that the environmental practices significantly and positively affect the firm financial performance both in developed and developing countries. However, the effect is stronger for firms in developing countries. Miralles-Quirós et al. [18] report that the three ESG pillars have different effects on stock price, and for the sensitive industries the market positively and significantly values the social and governance practices.

As mentioned above, CSR practices in China develop rapidly. Since the social arrangement is different, the firms in China and Western countries consider enterprise development differently. For firms in Western countries, they focus on customers and stakeholders and their CSR activities are more motivated by firm development. However, for firms in China, the situation is different [44].

As the Chinese government plays the critical role in resource allocation and CSR practice in developing countries has the characteristics of charity and serving the society, CSR practice in China is largely motivated by, and oriented to, governments [14–16]. Such practice is motivated by non-profit purpose, and not motivated by corporate development [45,46]. Besides, they consume much more expenditure which will negatively affect firm value. Based on these arguments, we formulate the first hypothesis:

Hypothesis 1. *The CSR practices of listed Chinese companies reduce their firm value.*

Except the above overall relationship between CSR and firm value, researchers also pay more attention towards novel findings caused by the unique characteristics of developing countries, such as the institutional features, market characteristics, and the environment characteristics. For example, Chauhan and Kumar [8] find that, compared to business group firms in India, ESG disclosure is more valuable to standalone firms. Miralles-Quirós et al. [18] report that, for Brazil, the country with the largest rainforest and richest biodiversity in the world, the market positively and significantly values the environmental practice of environmentally non-sensitive industries. However, the market just positively and significantly values the social and governance practices of environmentally sensitive industries.

In China, due to the pervasiveness of political embeddedness in listed firms, the stock market is different with that in Western countries [47,48]. Although with the reform many firms have transformed to publicly traded companies, there are still many firms that are controlled by the government [49,50]. Research shows that ownership structure has a significant effect on firms' performance and firm value [50–52]. For example, Ng et al. [53] found that Chinese firms with mixed control perform poorer than state or private controlled firms.

Research on the relationship between the CSR of Chinese SOEs and their value has also been carried out [54,55]. Wang et al. [54] found that the Chinese politically embedded firms show better CSR performance than non-politically embedded firms. However, the CSR performance of politically embedded firms is more negatively related to financial performance than that of firms without political embeddedness. Du et al. [55] show that CSR and corporate political activities have a positive joint effect on firms' financial performance. Additionally, when the government involvement is high, the positive effect is stronger.

As shown by the above studies, although the relationship between CSR of SOEs and their value has been examined, there is still no unanimous conclusion. In fact, because of the realistic characteristics of CSR in China (CSR of listed Chinese companies is largely motivated by governments), CSR activities for non-SOEs lead to more expenditure. In addition, compared to SOEs, they are still at a disadvantage in national resource allocation even though they engage in CSR practices. Therefore, CSR practices reduce their value. For SOEs, because of the government ownership it is easy to obtain resources, such as the financing, subsidies, and so on. Therefore, they would reciprocate government support to alleviate the administrative burden of social issues by CSR activities. The result of these invisible policy interventions is not only the increasing expenditure, but also the lower efficiency and the non-optimal reallocation of resources, which will reduce firm value [54]. However, it is worth noting that SOEs strengthen the business-government relationship by CSR practices. In addition, they can get much more resources and support from government to develop the main business, which will increase their value. Thus, the combination of the above positive and negative impact may lead to an ambiguous effect. Based on the above discussion, we propose the following hypothesis:

Hypothesis 2. *There are no significant performance differences for the impact of CSR on firm value between SOEs and non-SOEs.*

Another emphasis for research in developing countries is the relationship between CSR for firms belonging to sensitive industries and their value. This is not only because whether the firms of sensitive industries could be socially responsible is still an open question [56,57], but because the reality that the quantity of economy development is more important than economy quality in developing countries

complicates the question further. Sensitive industries with social taboos, moral debates, and great impact on social environment, include sinful industries, such as tobacco, alcohol, gambling, weapons, nuclear, oil, and adult entertainment [58,59]. They receive much more attention and face more strict regulation because of their industry characteristics. Therefore, the research on the impact of CSR on firm value is sophisticated. Furthermore, most firms in developing countries, especially for the countries in the early stage of economy development, focus on speed rather than quality, namely lacking in the idea of sustainable development. Additionally, the regulation is not in place because of the imperfect regulation policy. The above makes the relationship between CSR and firm value for sensitive industries in developing countries more complicated.

Generally, firms of sensitive industries face stricter requirements from customers, communities, and government, which include non-toxic packaging, production with low pollution, better working places, and so on. If the requirements are satisfied, firms will meet the shareholders' expectations and receive their recognition, which will improve firms' financial performance. In contrast, for firms of non-sensitive industries, shareholders' requirements are not as strict as that for sensitive industries. In addition, CSR activities are not necessarily recognized by shareholders, especially with the increasing expenditure of CSR activities in recent years. The involvement in CSR practices distracts firm resources, leads to lower market competitiveness, and undermines financial performance [28]. Therefore, the CSR for non-sensitive industries results in reduction of firm value.

Based on the reality that Chinese government value quantitatively leapt more than qualitative improvement a few years earlier, and the regulation is not in place for sensitive industries, we suppose that the firms with higher CSR performance may bear a lot of costs, which will have a negative effect on firm value. However, with the great changes in recent years, especially after 2015, the government pays more attention to quality and efficiency of economy development, stricter regulation comes into operation, and the value of firms with higher CSR performance appears. Therefore, we expect the following for the whole samples:

Hypothesis 3. *There are no significant performance differences for the impact of CSR on firm value between sensitive industries and non-sensitive industries.*

As Bassen et al. [19] note, CSR is a dynamic concept, and it depends on the theoretical paradigms, economic character, business-level, and the specific time periods. The research shows that the financial performance caused by CSR significantly changes over time as a result of the change of investors' expectation or the learning of investors [5,20,21]. Bebchuk et al. [20] report that the positive abnormal returns for SRI portfolios subsequently disappear due to the learning of investors on the basis of Investor Responsibility Research Center data during 1990–1999. Borgers et al. [21] found that the US SRI portfolios have a better performance during 1992–2004. However, the abnormal return diminishes considerably from 2005 to 2009 due to extensive attention for stakeholder issues. Mollet and Ziegler [5] found that the significant abnormal return for portfolios of MSCI non-sustainability leaders in Europe during 1998–2003 becomes less significant over the period of 2003–2009.

As mentioned above, the dynamic relationship between CSR and firm value has been conducted in developed countries. However, the literature about the dynamic relationship in developing countries is scarce. Additionally, to our knowledge, until now there was no literature about the dynamic relationship for China which is one of the fastest growing countries in CSR practices worldwide.

Next, we will divide the sample period into two sub-periods to explore the dynamic relationship between CSR practices and firm value in China. We will take 2015 as the division point. The reason for taking 2015 as the division point is that great changes took place in China around 2015 both in the economic environment, the awareness of the environment and CSR for government and firms, and the capital market. For economy, in December 2014 the Chinese Central Economic Working Conference firstly proposed that the Chinese economy has entered a new normal state which means that the growth rate of the Chinese economy is shifting from high-speed to medium-to-high-speed, and the

economic development model will pay more attention to quality and efficiency, and in October 2015 green development was identified as one of the five keywords (innovation, coordination, green, open, and sharing) of Chinese economic development in the next five years in the Fifth Plenary Session of the 18th CPC Central Committee. Besides, it is explicitly presented that the issue of emission structure in the supply side structural reform proposed in October 2015 which aims to alleviate the conflicts caused by the imbalance between supply and demand in the markets, and improve the quality and quantity of economic growth is one of the six structural problems that constrain China's economic development.

For policy, in 2015, the development conviction that clear waters and green mountains are as valuable as mountains of gold and silver was established, and also many laws with stricter regulations on the environment and CSR were promulgated. Specifically, in September 2015, the Integrated Reform Plan for Promoting Ecological Progress proposed by the Chinese government was formulated for putting systematic and complete systems for improving the ecosystem in place more quickly. Subsequently, several plans were issued, such as the Air Pollution Prevention and Control Action Plan, Water Pollution Prevention and Control Action Plan, Soil Pollution Prevention and Control Action Plan, and so on. For CSR, the guidelines for standard operation of listed companies on main board market, small and medium enterprise board, and growth enterprise market were proposed by Shenzhen Stock Exchange. The guidelines encourage the listed firms to actively take social responsibility into account and establish the system of environmental protection.

For capital market, since the stock connect which allows international and Mainland Chinese investors to trade securities in each other's markets through the trading and clearing facilities of their home exchange first launched in November 2014, the size of asset traded by the foreign investors which pay more attention on value investing increased significantly. In addition, this promotes the SRI in the Chinese stock market. As a result of these great changes, CSR practices in China were paid more attention, which will lead to positive impact on financial performance after 2015, especially for SOEs and sensitive industries. Given the changes taken after 2015, we suppose that the relationship between CSR and firm value during 2010–2014 is similar with that obtained by the whole samples. Therefore, the following hypotheses are put forward:

Hypothesis 4a. *During 2010–2014, the relationship between CSR and firm value is similar with that obtained by the whole samples.*

Hypothesis 4b. *During 2015–2017, the CSR practices of listed Chinese companies increase firm value.*

Hypothesis 4c. *During 2015–2017, compared to the weakening effect of non-SOEs' CSR on firm value, the CSR of SOEs alleviates this effect.*

Hypothesis 4d. *During 2015–2017, compared to the weakening effect of non-sensitive industries' CSR on firm value, the CSR of sensitive industries alleviates this effect.*

3. Data

3.1. Databases

In our study, we used data from Chinese listed companies of the Shanghai and Shenzhen Stock Exchanges for the years 2010–2017. The data stemmed from two sources. First, the financial data was collected from the WIND database, which is the primary source for financial data of Chinese public listed companies.

Second, for CSR data, we used Bloomberg's score of a firms' ESG disclosure as a proxy for measuring firms' CSR. By gathering approximately 300 environmental, social, and governance indicators from publicly available sources, Bloomberg constructs the score weighted by the indicators'

importance. The score varies from 0.1 to 100. Now, Bloomberg ESG database has been extensively used in academic study on CSR [6,8].

Bloomberg provides data for Chinese listed companies from 2006 onward. However, there are many missing scores from 2006 to 2009. Therefore, we covered the data period of 2010–2017. We excluded firms with a missing ESG score. Then we excluded listed firms of ST (special treatment) shares, because being marked as ST generally represents an abnormal financial situation of the company, and their price limits is limited to 5%, which is different with the 10% price limits of normal listed companies. Additionally, we excluded companies whose firm age was less than 1 to avoid their effect of dramatic fluctuation. Finally, we netted a total of 7284 firm-year observations for 1028 firms. We winsorized all variables at the 1% and 99% percentiles of their distribution to alleviate the effect of outliers.

3.2. Variables

In our study, the dependent variable is firm value, which was measured by Tobin Q. Tobin Q is a market-based measure, and reflects the forward-looking valuations of investors. Tobin Q is the market value of the firm divided by the book value of total assets [17,60]. The market value of the firm is calculated by the market value of equity plus the book value of debt, where the market value of equity is calculated by multiplying the price per share by the total equity.

The independent variable in our model is CSR, which was measured by Bloomberg's ESG score. We also constructed two new variables to examine the effect of firms' CSR on firm value for different ownership structure and industry. The first is ESG*SOE, which is the interaction of CSR with a dummy variable SOE that takes 1 if the firm is a SOE and 0 otherwise. The second is ESG*SI, which is the interaction of CSR with a dummy variable SI (sensitive industry) that takes 1 if the firm belongs to sensitive industry and 0 otherwise.

Consistent with the previous literature, we included control variables. We controlled for company size (Size) computed as the natural log of total assets, and return of equity (ROE). We also controlled for leverage (Leverage) measured as the total liabilities divided by the total assets. Firm age (Age) is the duration from initial public offering (IPO) to the sample year. The proportion of independent directors (Independence) is the ratio of the number of independent directors to the total number of directors on board. Dualclass (Dualclass) is a dummy variable that is equal to 1 if the chairman is also the general manager, and 0 otherwise. Finally, we controlled for the one year lagged Tobin Q (Lagged TQ). The definitions of the important concepts and variables in this study are shown in Table A1.

4. Empirical Results

4.1. Descriptive Analysis

Table 1 presents the descriptive statistics of variables. For the samples, the mean (median) value of Tobin Q is 2.361 (1.796), with a standard deviation of 1.637. The mean (median) value of CSR is 19.09 (19.42), with a standard deviation of 6.002.

Table 1. Descriptive statistics.

Variable	Obs	Mean	Std.	Min	Q1	Median	Q3	Max
Tobin Q	7284	2.361	1.637	0.879	1.274	1.796	2.808	9.636
CSR	7284	19.085	6.002	8.678	14.88	19.42	22.314	37.603
ROE	7269	0.082	0.108	−0.484	0.038	0.085	0.136	0.334
Leverage	7284	0.501	0.212	0.068	0.337	0.509	0.662	0.941
Age	7284	12.666	6.240	2	7	13	18	28
Size	7284	23.114	1.564	20.362	22.022	22.907	23.901	28.802
Lagged TQ	7284	2.450	1.688	0.881	1.316	1.874	2.939	9.809

Table 2 reports the annual average, ratio, and number of disclosures for CSR. The panel A in Table 2 reports the annual average of CSR according to the listing exchange (Shanghai Stock Exchange or Shenzhen Stock Exchange), ownership structure (SOE or non-SOE), and industry (SI or non-SI). As we can see, the ESG score increases from all the above dimensions, namely the CSR of Chinese listed companies performs better over time. In particular, the CSR of listed firms in Shanghai Stock Exchange performs better than in Shenzhen Stock Exchange, and the CSR of SOEs performs better than that of non-SOEs. Besides, after 2012 the CSR of sensitive industry performs better than that of non-sensitive industry. Additionally, the data in panel B and panel C show a similar result. Overall, the results in Table 2 show that CSR of Chinese listed companies performs better over time.

Table 2. The annual average, ratio, and number of disclosures for Corporate Social Responsibility (CSR).

Panel A: Annual Average							
Year	All	SH	SZ	SOE	Non-SOE	SI	Non-SI
2010	15.921	16.878	14.516	16.664	14.881	15.873	15.953
2011	16.196	17.312	14.802	17.248	14.928	15.924	16.357
2012	18.195	19.119	17.065	19.230	17.066	18.273	18.151
2013	19.396	20.483	18.094	20.437	18.255	19.667	19.243
2014	19.635	20.656	18.419	20.558	18.635	20.104	19.359
2015	19.946	20.965	18.736	20.947	18.894	20.587	19.578
2016	20.544	21.510	19.376	21.660	19.429	21.344	20.101
2017	20.827	21.741	19.706	21.940	19.741	21.686	20.355
Panel B: Ratio of Disclosure							
Year	All	SH	SZ	SOE	Non-SOE	SI	Non-SI
2010	0.333	0.456	0.238	0.431	0.251	0.404	0.298
2011	0.339	0.474	0.250	0.460	0.256	0.384	0.316
2012	0.340	0.490	0.248	0.463	0.263	0.385	0.319
2013	0.363	0.517	0.267	0.496	0.280	0.406	0.342
2014	0.376	0.537	0.277	0.531	0.286	0.434	0.348
2015	0.358	0.509	0.265	0.532	0.267	0.409	0.335
2016	0.354	0.499	0.261	0.541	0.263	0.392	0.335
2017	0.313	0.430	0.234	0.531	0.237	0.343	0.298
Panel C: Number of Disclosures							
Year	All	SH	SZ	SOE	Non-SOE	SI	Non-SI
2010	679	404	275	396	283	271	408
2011	785	436	349	429	356	292	493
2012	841	463	378	439	402	308	533
2013	897	489	408	469	428	324	573
2014	975	530	445	507	468	361	614
2015	1009	548	461	517	492	368	641
2016	1073	587	486	536	537	382	691
2017	1085	598	487	536	549	385	700

Note: All stands for all samples; SH stands for Shanghai Stock Exchange, and SZ for Shenzhen Stock Exchange. Number of disclosures is the sum of the firm with an ESG score in Bloomberg. Ratio of disclosure is the number of disclosures divided by all firms.

Table 3 reports the Pearson coefficients between variables. The CSR is negatively and significantly correlated with Tobin Q, which is consistent with Hypothesis 1.

Table 3. Correlation matrix.

	Tobin Q	ESG	ROE	Leverage	Age	Size	Lagged TQ
Tobin Q	1						
ESG	-0.275	1					
ROE	0.164	-0.0025	1				
Leverage	-0.491	0.194	-0.174	1			
Age	-0.211	0.123	-0.0505	0.214	1		
Size	-0.506	0.459	-0.0691	0.578	0.137	1	
Lagged TQ	0.780	-0.267	0.182	-0.485	-0.225	-0.464	1

Note: The bold correlations are significant at the level of 5%.

4.2. The Effect of CSR on Firm Value

Table 4 represents the empirical results. First, the overall effect of the CSR of Chinese listed companies on firm value was analyzed. In column (1), the result of univariate analysis shows that the coefficient of CSR is negative and statistically significant at the 1% level. In column (2), we included the control variables. The results show a statistically significant and negative relationship between the CSR and Tobin Q, namely the value of companies with higher CSR performance is lower. The results support Hypothesis 1. This is consistent with the overall situation that the Chinese government has strong powers, and the CSR practices are largely motivated by, and oriented to, governments. The situation directly leads to that CSR is motivated by non-profit purposes, such as serving society, and the increased expenditure of CSR reduces firm value.

Second, for the effect of CSR on firm value between SOEs and non-SOEs, the results are shown in column (3). To examine the effect, we included the interaction of CSR and the dummy variable SOE which takes 1 if the firm is a SOE and 0 otherwise. The coefficient of CSR is negative and statistically significant at the 10% level. Additionally, the coefficient of CSR*SOE is not significant. This indicates that although the CSR of Chinese listed companies reduces firm value, there is no significant difference for the effect of CSR on firm value between SOEs and non-SOEs.

Third, we examined the effect of CSR for firms classified by sensitive industry on firm value. For the sensitive industry, there is still no clear definition. In most literature, the sensitive industries are labeled with social taboos, moral debates, and harmful to society and the environment. For example, Baron et al. [58] and Cai et al. [59] included the following industries as the sensitive industries, such as tobacco, alcohol, weapons, gambling, adult entertainment, nuclear, oil, cement, and biotech. Additionally, in Garcia et al. [9] the sensitive industries include oil, gas, chemicals, paper and pulp, mining, and steel making. In our paper, the industry classification used is the SW level 1 industry, which was established by Shenwan Hongyuan Securities and extensively used in practice and research. There are 28 industries in the SW level 1 industry. According to the above literature, the sensitive industries in this paper include steel, mining, textile and garments, utilities, national defense and military, chemicals, construction materials, construction decoration, light industry manufacturing, and non-ferrous metals. In total, there are 2673 companies and 10 industries belonging to sensitive industry.

To examine the effect of CSR on firm value between sensitive industry and non-sensitive industry, we included the interaction of CSR and the dummy variable SI which takes 1 if the firm belongs to SI and 0 otherwise. The results in column (4) show that the coefficient of CSR is negative and statistically significant at the 10% level, and the coefficient of CSR*SI is not significant. This indicates that, compared to the impact of CSR for non-sensitive industry on firm value, the impact of CSR for sensitive industry is undifferentiated.

The above results support for Hypothesis 2 and Hypothesis 3, indicating that for the whole sample there is no significant difference for the impact of CSR on firm value whether classified by the ownership structure or sensitive industry. However, we cannot make the judgement that this is just the nature of the relationship or the result of a relatively long time period in which the relationship

changes because of the change of economy and policy. Next, we will divide the sample period into two sub-periods to explore whether the relationship changes over time.

Table 4. The estimation results for relationship between CSR and firm value.

	Tobin Q	Tobin Q	Tobin Q	Tobin Q
	(1)	(2)	(3)	(4)
ESG	−0.0158 *** (−4.41)	−0.0097 ** (−3.07)	−0.0094 * (−2.15)	−0.0084 * (−2.14)
ESG*SOE			−0.000556 (−0.10)	
ESG*SI				−0.00306 (−0.56)
ROE		1.223 *** (9.90)	1.223 *** (9.89)	1.224 *** (9.90)
Leverage		−0.625 *** (−4.93)	−0.625 *** (−4.93)	−0.624 *** (−4.92)
Age		−0.0112 (−1.46)	−0.0112 (−1.46)	−0.0110 (−1.44)
Size		−0.637 *** (−20.25)	−0.637 *** (−20.18)	−0.638 *** (−20.25)
Independence		0.238 (0.76)	0.237 (0.76)	0.233 (0.74)
Dualclass		0.123 ** (2.80)	0.123 ** (2.80)	0.123 ** (2.80)
Lagged TQ		0.294 *** (26.70)	0.294 *** (26.70)	0.293 *** (26.67)
_cons	3.24933 *** (49.09)	16.86 *** (25.24)	16.87 *** (25.15)	16.88 *** (25.23)
Year Control	YES	YES	YES	YES
R ²	0.1670	0.3440	0.3440	0.3441
N	7284	7261	7261	7261

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

4.3. The Effect of CSR on Firm Value for Different Time Periods

With the great changes in economic environment, awareness of the environment, and CSR for regulators, firms, and capital market especially after 2015, CSR practices develop rapidly in China. As shown in previous literature [5,19,20], the financial performance caused by CSR changes significantly over time. We suggest that the effect of CSR on firm value for Chinese listed firms also changes significantly over time. Table 5 reports the estimation results for the two sub-periods 2010–2014 and 2015–2017.

The results of columns (1), (2), and (3) report the relationship between CSR and firm value during 2010–2014, and the results are similar with that for the whole sample, which supports H4a.

The effects of CSR on firm value during 2015–2017 are presented in columns (4)–(6). As expected, the results are significantly different with those obtained during 2010–2014. Specifically speaking, though the coefficient of CSR in column (4) is still negative, the significant coefficient in the first sub-period becomes nonsignificant in the second sub-period, which does not support H4b. In column (5), the coefficient of CSR is negative and statistically significant at the 10% level, and the coefficient of CSR*SOE is positive and significant at the 10% level. This is totally different to the results for the period 2010–2014 in column (2). The results show that compared to the weakening effect of non-SOEs'

CSR on firm value, the CSR of SOEs alleviates this negative effect. Additionally, the effect of SOEs' CSR on firm value is positive ($-0.0288 + 0.0388 = 0.01$). What is more, the results in column (6) for sensitive industry are similar with those in column (5), which indicates that CSR of firms in sensitive industry alleviates the weakening effect of CSR on firm value for non-sensitive industry, and the effect of sensitive industries' CSR on firm value is positive ($-0.0348 + 0.0701 = 0.0353$).

Overall, the above different estimation results reveal that the relationship changes significantly over time, which is the result of the increasing importance attached by the government on sustainable development, the increasing emphasis of companies on CSR, and the increasing investors' awareness on sustainable development. With the improvement of consciousness on sustainable development and CSR for government, company, and investors, the positive effect of CSR on firm value appears. The above reported results support H4c and H4d.

Table 5. The estimation results for relationship between CSR and firm value for two sub-periods.

	Tobin Q		Tobin Q		Tobin Q	
	2010–2014			2015–2017		
	(1)	(2)	(3)	(4)	(5)	(6)
ESG	−0.0109 ** (−3.03)	−0.0136 ** (−2.76)	−0.0105 * (−2.33)	−0.00911 (−1.01)	−0.0288 * (−2.29)	−0.0348 ** (−3.13)
ESG*SOE		0.00506 (0.80)			0.0388 * (2.22)	
ESG*SI			−0.000989 (−0.16)			0.0701 *** (3.89)
ROE	1.760 *** (9.21)	1.769 *** (9.25)	1.758 *** (9.20)	0.293 (1.78)	0.281 (1.71)	0.282 (1.72)
Leverage	−0.631 *** (−3.57)	−0.625 *** (−3.53)	−0.630 *** (−3.56)	−1.888 *** (−6.69)	−1.879 *** (−6.66)	−1.884 *** (−6.69)
Age	−0.0490 *** (−3.97)	−0.0492 *** (−3.98)	−0.0490 *** (−3.97)	−0.256 *** (−12.22)	−0.258 *** (−12.32)	−0.259 *** (−12.38)
Size	−0.707 *** (−14.15)	−0.706 *** (−14.14)	−0.707 *** (−14.15)	−1.218 *** (−13.61)	−1.205 *** (−13.46)	−1.206 *** (−13.51)
Independence	0.343 (0.84)	0.346 (0.85)	0.341 (0.84)	−0.972 (−1.52)	−1.009 (−1.58)	−0.855 (−1.34)
Dualclass	0.151 ** (2.60)	0.148 * (2.55)	0.150 ** (2.59)	0.0828 (0.96)	0.0938 (1.08)	0.0837 (0.97)
Lagged TQ	0.171 *** (10.65)	0.170 *** (10.59)	0.171 *** (10.64)	−0.121 *** (−6.62)	−0.121 *** (−6.64)	−0.121 *** (−6.66)
_cons	18.97 *** (18.10)	18.96 *** (18.08)	18.97 *** (18.09)	36.38 *** (18.74)	36.11 *** (18.58)	36.08 *** (18.64)
Year Control	YES	YES	YES	YES	YES	YES
R ²	0.3697	0.3699	0.3697	0.3164	0.3181	0.3214
N	4112	4112	4112	3149	3149	3149

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

4.4. Robustness Analysis

To check the robustness of our findings, we ran the following additional analysis. First, we excluded the bank and insurance firms due to their strong differences in accounting rules and valuation by the investors [61–63]. Tables A2 and A3 show the estimation results, which are consistent with those in Tables 4 and 5.

Second, since there are several ways to calculate the Tobin Q, we used four different Tobin Q values (the definitions are shown in Table A4) calculated by CSMAR (China Stock Market and Accounting Research) as the independent variable. The CSMAR is also a primary source for financial

and non-financial data of Chinese listed companies and used in previous study [54,55,64]. The results shown in Tables A5–A7 are largely consistent with the main results.

Third, as there is always the problem of endogeneity in financial studies, we addressed this concern by controlling the firm fixed effects. Firm fixed effects can be used as an endogeneity control if there exists some unobservable variables correlated with both independent variables and dependent variables [65]. In Tables A8–A10, all variables except the dummy variables are industry-adjusted by subtracting the median value of the firm's industry. The results are largely consistent with the main results except the coefficients of ESG and ESG*SOE during the two sub-periods. During 2015–2017, the sign of the coefficients of ESG and ESG*SOE is consistent with the main results, and they are statistically significant at the 15% level. For the results from 2010 to 2014, the sign of the coefficients of ESG is consistent with the main results, but it is not significant. The sign and significance of the coefficients of ESG*SOE in firm fixed effects are both different with that in the main results.

5. Conclusions

Recently, CSR practices in developing countries have developed rapidly. However, the literature on CSR and firm value in developing countries, especially in China, has evolved slower than in practice. We analyzed the relationship between CSR and firm value from the perspective of whole sample, ownership structure (SOE or non-SOE), industry classification (sensitive industry or non-sensitive industry), and different time periods based on the ESG score of listed Chinese companies from 2010 to 2017. In this respect, our study is both timely and comprehensive to the research on CSR and firm value in developing countries.

Based on the estimation of whole sample, we found that the CSR of Chinese listed companies reduces firm value. Additionally, the effect of CSR for SOEs (sensitive industry) is undifferentiated compared to those for non-SOEs (non-sensitive industry).

Another main result of our paper is that the estimation results change significantly over the two sub-periods taking the year 2015 as the dividing point. More specifically, the negative and significant relationship between CSR and firm value in the first sub-period becomes non-significant in the second sub-period. There is no significant difference for the effect of CSR on firm value between SOEs and non-SOEs from 2010 to 2014. However, during the period 2015–2017, compared to the weakening effect of non-SOEs on firm value, CSR of SOEs alleviate the weakening effect, and the CSR of SOEs has a significant positive effect on firm value. For the sensitive industry and non-sensitive industry, the result is similar as those for SOEs and non-SOEs. During 2010–2014, the effect of CSR on firm value is undifferentiated between sensitive industry and non-sensitive industry. However, from 2015–2017, CSR for insensitive industry alleviates the weakening effect of CSR on firm value for non-sensitive industry, and the CSR for sensitive industry increases firm value. These results are the result of the great changes in economy environment, regulation policy, and capital market after 2015. To the best of our knowledge, this is the first time to report such a finding in developing countries, which enriches the research on the dynamic effect of CSR on firm value.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Definitions of important concepts and variables in this study.

Variables	Definition
Corporate Social Responsibility (CSR)	CSR is an evolving business practice that incorporates sustainable development into a company's business model. It has a positive impact on social, economic, and environmental factors. CSR is measured by ESG score provided by Bloomberg in this paper.
Firm value	Measured by Tobin Q.
Sensitive industries	The sensitive industries are labeled with social taboos, moral debates, and harmful to society and the environment, which include tobacco, alcohol, weapons, gambling, adult entertainment, nuclear, oil, cement, and biotech, gas, chemicals, paper and pulp, mining, and steel making.
Tobin Q	Market value of the firm divided by the book value of total assets.
Size	Natural log of total assets.
ROE	Ratio of net income to shareholder's equity.
Leverage	The total liabilities divided by the total assets.
Age	The duration from IPO to the sample year.
Independence	The ratio of the number of independent directors to the total number of directors on board.
Dualclass	A dummy variable that is equal to 1 if the chairman is also the general manager, and 0 otherwise.

Table A2. The relationship between CSR and firm value without bank and insurance firms. Robustness checks.

	Tobin Q (1)	Tobin Q (2)	Tobin Q (3)	Tobin Q (4)
ESG	-0.0157 *** (-4.27)	-0.00979 ** (-3.01)	-0.00888 * (-1.98)	-0.00839 * (-2.07)
ESG*SOE			-0.00165 (-0.29)	
ESG*SI				-0.00324 (-0.58)
ROE		1.215 *** (9.76)	1.214 *** (9.75)	1.215 *** (9.77)
Leverage		-0.622 *** (-4.82)	-0.623 *** (-4.83)	-0.621 *** (-4.81)
Age		-0.0119 (-1.52)	-0.0118 (-1.50)	-0.0118 (-1.50)
Size		-0.651 *** (-20.28)	-0.652 *** (-20.21)	-0.652 *** (-20.27)
Independence		0.215 (0.67)	0.214 (0.67)	0.211 (0.66)
Dualclass		0.125 ** (2.82)	0.126 ** (2.83)	0.125 ** (2.82)
Lagged TQ		0.294 *** (26.43)	0.294 *** (26.43)	0.294 *** (26.40)
_cons	3.289 *** (48.96)	17.13 *** (25.28)	17.15 *** (25.18)	17.16 *** (25.26)
Year Control	YES	YES	YES	YES
R ²	0.1695	0.3472	0.3472	0.3472
N	7125	7102	7102	7102

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A3. The relationship between CSR and firm value for two sub-periods without bank and insurance firms. Robustness checks.

	Tobin Q					
	2010–2014			2015–2017		
	(1)	(2)	(3)	(4)	(5)	(6)
ESG	−0.0106 ** (−2.87)	−0.0128 * (−2.55)	−0.0104 * (−2.25)	−0.00815 (−0.89)	−0.0283 * (−2.21)	−0.0342 ** (−3.01)
ESG*SOE		0.00422 (−0.66)			0.0397 * (−2.24)	
ESG*SI			−0.0003 (−0.05)			0.0703 *** (−3.85)
ROE	1.736 *** (−9.01)	1.744 *** (−9.03)	1.736 *** (−9)	0.29 (−1.81)	0.278 (−1.74)	0.279 (−1.75)
Leverage	−0.640 *** (−3.56)	−0.635 *** (−3.53)	−0.640 *** (−3.56)	−1.908 *** (−6.64)	−1.898 *** (−6.61)	−1.905 *** (−6.65)
Age	−0.0533 *** (−4.24)	−0.0535 *** (−4.25)	−0.0533 *** (−4.24)	−0.265 *** (−12.35)	−0.267 *** (−12.46)	−0.267 *** (−12.51)
Size	−0.713 *** (−14.11)	−0.712 *** (−14.09)	−0.713 *** (−14.10)	−1.225 *** (−13.48)	−1.212 *** (−13.32)	−1.212 *** (−13.37)
Independence	0.294 (−0.71)	0.297 (−0.71)	0.294 (−0.71)	−0.969 (−1.47)	−1.003 (−1.53)	−0.848 (−1.29)
Dualclass	0.154 ** (−2.62)	0.152 ** (−2.58)	0.154 ** (−2.62)	0.0871 (−0.98)	0.0986 (−1.11)	0.0878 (−1)
Lagged TQ	0.167 *** (−10.32)	0.166 *** (−10.28)	0.167 *** (−10.32)	−0.122 *** (−6.59)	−0.122 *** (−6.60)	−0.122 *** (−6.62)
_cons	19.12 *** (−18.13)	19.10 *** (−18.11)	19.12 *** (−18.13)	36.56 *** (−18.65)	36.28 *** (−18.48)	36.23 *** (−18.52)
Year Control	YES	YES	YES	YES	YES	YES
R ²	0.3728	0.3729	0.3728	0.3196	0.3213	0.3246
N	4020	4020	4020	3082	3082	3082

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A4. The definition of Tobin Q calculated by CSMAR (China Stock Market and Accounting Research).

Variable	Description
Market A	Number of A – (local) shares * the price of A – (local) shares + number of B – (foreign) shares * the price of B – (foreign) share converted at the exchange rate of the current day + (total share – number of A – (local) share – number of B – (foreign) share) * (total owners' equity/paid – in capital) + the book value of debt
Market B	(Total share–number of B – (foreign) shares) * the price of A – (local) shares + number of B – (foreign) shares * the price of B – (foreign) shares converted at the exchange rate of the current day + the book value of debt
Tobin Q A	Market A/the book value of total assets
Tobin Q B	Market A/(the book value of total assets– net bal of intangible assets – net goodwill)
Tobin Q C	Market B/the book value of total assets
Tobin Q D	Market B/(the book value of total assets – net bal of intangible assets– net goodwill)

Table A5. The relationship between CSR and firm value calculated by different methods. Robustness checks.

	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ESG	-0.01732 *** (-4.89)	-0.01855 *** (-4.59)	-0.01732 *** (-5.09)	-0.01858 *** (-4.67)	-0.0106 *** (-3.34)	-0.0113 ** (-3.08)	-0.0106 *** (-3.34)	-0.0110 ** (-3.00)	-0.00856 * (-1.96)	-0.00540 (-1.07)	-0.00847 * (-1.93)	-0.00491 (-0.97)	-0.00913 ** (-2.32)	-0.00864 * (-1.89)	-0.00915 ** (-2.32)	-0.00869 * (-1.90)
ESG*SOE									-0.00364 (-0.66)	-0.0107 * (-1.68)	-0.00383 (-0.70)	-0.0111 * (-1.74)				
ESG*SI													-0.00336 (-0.61)	-0.00621 (-0.98)	-0.00336 (-0.61)	-0.00550 (-0.86)
ROE					1.791 *** (14.24)	2.007 *** (13.76)	1.795 *** (14.24)	1.998 *** (13.67)	1.788 *** (14.20)	1.997 *** (13.68)	1.791 *** (14.20)	1.988 *** (13.60)	1.791 *** (14.24)	2.007 *** (13.76)	1.795 *** (14.24)	1.998 *** (13.67)
Leverage					-0.929 *** (-7.21)	-0.933 *** (-6.24)	0.0628 (0.49)	0.159 (1.06)	-0.931 *** (-7.23)	-0.939 *** (-6.28)	0.0606 (0.47)	0.153 (1.02)	-0.929 *** (-7.21)	-0.932 *** (-6.24)	0.0631 (0.49)	0.160 (1.07)
Age					-0.0264 *** (-3.45)	-0.0292 ** (-3.28)	-0.0262 *** (-3.42)	-0.0296 *** (-3.33)	-0.0261 *** (-3.41)	-0.0283 ** (-3.18)	-0.0259 *** (-3.37)	-0.0288 ** (-3.23)	-0.0262 *** (-3.42)	-0.0288 ** (-3.25)	-0.0260 *** (-3.39)	-0.0294 *** (-3.30)
Size					-0.786 *** (-24.64)	-0.799 *** (-21.61)	-0.787 *** (-24.61)	-0.780 *** (-21.05)	-0.788 *** (-24.60)	-0.805 *** (-21.67)	-0.789 *** (-24.57)	-0.786 *** (-21.13)	-0.787 *** (-24.63)	-0.801 *** (-21.63)	-0.788 *** (-24.60)	-0.782 *** (-21.07)
Independence					0.350 (1.12)	0.339 (0.93)	0.354 (1.13)	0.333 (0.91)	0.349 (1.11)	0.335 (0.92)	0.352 (1.12)	0.328 (0.90)	0.345 (1.10)	0.329 (0.90)	0.349 (1.11)	0.324 (0.89)
Dualclass					0.0896 * (2.04)	0.125 * (2.44)	0.0909 * (2.06)	0.123 * (2.40)	0.0905 * (2.06)	0.127 * (2.49)	0.0919 * (2.08)	0.126 * (2.46)	0.0895 * (2.03)	0.124 * (2.44)	0.0908 * (2.06)	0.123 * (2.40)
Lagged TQ					0.178 *** (16.11)	0.208 *** (16.30)	0.178 *** (16.14)	0.210 *** (16.37)	0.178 *** (16.12)	0.209 *** (16.34)	0.178 *** (16.15)	0.210 *** (16.41)	0.177 *** (16.09)	0.208 *** (16.26)	0.178 *** (16.11)	0.209 *** (16.33)
_cons					20.35 *** (30.09)	20.81 *** (26.52)	20.37 *** (30.05)	20.36 *** (25.91)	20.39 *** (30.02)	20.93 *** (26.57)	20.41 *** (29.98)	20.48 *** (25.96)	20.38 *** (30.08)	20.85 *** (26.54)	20.39 *** (30.03)	20.40 *** (25.92)
Year Control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R ²	0.1700	0.1602	0.1752	0.1642	0.3413	0.3127	0.3202	0.2906	0.3413	0.313	0.3203	0.291	0.3413	0.3128	0.3202	0.2907
N	7110	7110	7110	7110	7091	7091	7091	7091	7091	7091	7091	7091	7091	7091	7091	7091

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A6. The relationship between CSR and firm value calculated by different methods from 2010 to 2014. Robustness checks.

	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESG	-0.00796 *	-0.00810 *	-0.00790 *	-0.00795	-0.00884 *	-0.00633	-0.00879 *	-0.00571	-0.00673	-0.00494	-0.00665	-0.00487
	(-2.17)	(-2.00)	(-2.15)	(-1.94)	(-1.75)	(-1.13)	(-1.74)	(-1.01)	(-1.46)	(-0.97)	(-1.44)	(-0.94)
ESG*SOE					0.00162	-0.00328	0.00166	-0.00413				
					(0.25)	(-0.46)	(0.26)	(-0.57)				
ESG*SI									-0.00284	-0.00730	-0.00288	-0.00710
									(-0.44)	(-1.03)	(-0.45)	(-0.99)
ROE	2.384 ***	2.598 ***	2.387 ***	2.579 ***	2.388 ***	2.591 ***	2.390 ***	2.570 ***	2.380 ***	2.588 ***	2.383 ***	2.570 ***
	(12.10)	(11.90)	(12.09)	(11.67)	(12.09)	(11.84)	(12.08)	(11.60)	(12.07)	(11.85)	(12.06)	(11.61)
Leverage	-0.765 ***	-0.795 ***	0.227	0.246	-0.763 ***	-0.799 ***	0.229	0.240	-0.764 ***	-0.793 ***	0.228	0.248
	(-4.20)	(-3.94)	(1.24)	(1.20)	(-4.19)	(-3.96)	(1.25)	(1.18)	(-4.20)	(-3.93)	(1.25)	(1.21)
Age	-0.0390 **	-0.0404 **	-0.0385 **	-0.0398 **	-0.0390 **	-0.0403 **	-0.0385 **	-0.0397 **	-0.0390 **	-0.0405 **	-0.0385 **	-0.0398 **
	(-3.10)	(-2.90)	(-3.06)	(-2.82)	(-3.10)	(-2.90)	(-3.06)	(-2.81)	(-3.10)	(-2.91)	(-3.06)	(-2.83)
Size	-0.951 ***	-0.976 ***	-0.950 ***	-0.973 ***	-0.950 ***	-0.977 ***	-0.950 ***	-0.973 ***	-0.951 ***	-0.977 ***	-0.951 ***	-0.973 ***
	(-18.59)	(-17.24)	(-18.55)	(-16.95)	(-18.58)	(-17.24)	(-18.55)	(-16.95)	(-18.58)	(-17.24)	(-18.55)	(-16.95)
Independence	0.280	0.180	0.263	0.168	0.281	0.178	0.264	0.166	0.274	0.166	0.257	0.155
	(0.68)	(0.39)	(0.64)	(0.36)	(0.68)	(0.39)	(0.64)	(0.36)	(0.67)	(0.36)	(0.62)	(0.33)
Dualclass	0.137 *	0.126	0.138 *	0.123	0.136 *	0.128	0.137 *	0.126	0.136 *	0.124	0.137 *	0.121
	(2.29)	(1.90)	(2.31)	(1.84)	(2.28)	(1.93)	(2.29)	(1.87)	(2.28)	(1.87)	(2.29)	(1.81)
Lagged TQ	-0.00617	-0.00925	-0.00526	-0.00953	-0.00638	-0.00883	-0.00547	-0.00900	-0.00603	-0.00888	-0.00512	-0.00917
	(-0.38)	(-0.51)	(-0.32)	(-0.52)	(-0.39)	(-0.49)	(-0.33)	(-0.49)	(-0.37)	(-0.49)	(-0.31)	(-0.50)
_cons	24.45 ***	25.27 ***	24.45 ***	25.20 ***	24.45 ***	25.28 ***	24.45 ***	25.22 ***	24.45 ***	25.28 ***	24.45 ***	25.20 ***
	(22.82)	(21.29)	(22.78)	(20.96)	(22.81)	(21.30)	(22.77)	(20.97)	(22.81)	(21.30)	(22.78)	(20.96)
Year Control	YES											
R ²	0.3773	0.3574	0.3592	0.3348	0.3773	0.3574	0.3592	0.3349	0.3773	0.3576	0.3592	0.3351
N	4054	4054	4054	4054	4054	4054	4054	4054	4054	4054	4054	4054

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A7. The relationship between CSR and firm value calculated by different methods from 2015 to 2017. Robustness checks.

	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d	Tobin Q_a	Tobin Q_b	Tobin Q_c	Tobin Q_d
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESG	−0.00620 (−0.73)	−0.00358 (−0.36)	−0.00619 (−0.73)	−0.00341 (−0.34)	−0.0214 * (−1.79)	−0.0172 (−1.23)	−0.0214 * (−1.80)	−0.0171 (−1.22)	−0.0277 ** (−2.63)	−0.0298 * (−2.40)	−0.0279 ** (−2.65)	−0.0301 * (−2.42)
ESG*SOE					0.0304 * (1.83)	0.0273 (1.39)	0.0305 * (1.84)	0.0274 (1.40)				
ESG*SI									0.0598 *** (3.47)	0.0728 *** (3.60)	0.0604 *** (3.51)	0.0741 *** (3.65)
ROE	0.728 *** (4.61)	0.882 *** (4.74)	0.731 *** (4.64)	0.896 *** (4.80)	0.719 *** (4.56)	0.874 *** (4.70)	0.722 *** (4.58)	0.888 *** (4.76)	0.718 *** (4.56)	0.869 *** (4.69)	0.721 *** (4.58)	0.883 *** (4.75)
Leverage	−1.838 *** (−6.58)	−1.955 *** (−5.94)	−0.856 ** (−3.07)	−0.835 * (−2.53)	−1.831 *** (−6.56)	−1.948 *** (−5.92)	−0.849 ** (−3.04)	−0.829 * (−2.51)	−1.827 *** (−6.56)	−1.942 *** (−5.92)	−0.845 ** (−3.04)	−0.822 * (−2.50)
Age	−0.270 *** (−13.45)	−0.314 *** (−13.28)	−0.270 *** (−13.46)	−0.318 *** (−13.44)	−0.272 *** (−13.53)	−0.315 *** (−13.33)	−0.272 *** (−13.55)	−0.320 *** (−13.50)	−0.271 *** (−13.57)	−0.316 *** (−13.41)	−0.272 *** (−13.59)	−0.321 *** (−13.58)
Size	−1.189 *** (−13.42)	−1.224 *** (−11.73)	−1.187 *** (−13.41)	−1.172 *** (−11.19)	−1.177 *** (−13.27)	−1.214 *** (−11.60)	−1.176 *** (−13.25)	−1.161 *** (−11.07)	−1.181 *** (−13.37)	−1.215 *** (−11.67)	−1.179 *** (−13.36)	−1.162 *** (−11.14)
Independence	−0.300 (−0.49)	−0.414 (−0.58)	−0.283 (−0.46)	−0.361 (−0.50)	−0.332 (−0.55)	−0.443 (−0.62)	−0.316 (−0.52)	−0.390 (−0.54)	−0.192 (−0.32)	−0.283 (−0.39)	−0.175 (−0.29)	−0.228 (−0.32)
Dualclass	0.0166 (0.20)	0.0355 (0.36)	0.0189 (0.23)	0.0347 (0.35)	0.0260 (0.31)	0.0439 (0.45)	0.0283 (0.34)	0.0432 (0.44)	0.0185 (0.22)	0.0378 (0.39)	0.0208 (0.25)	0.0371 (0.38)
Lagged TQ	−0.112 *** (−6.38)	−0.137 *** (−6.62)	−0.112 *** (−6.36)	−0.141 *** (−6.79)	−0.113 *** (−6.40)	−0.138 *** (−6.63)	−0.112 *** (−6.37)	−0.141 *** (−6.80)	−0.112 *** (−6.39)	−0.137 *** (−6.63)	−0.112 *** (−6.36)	−0.141 *** (−6.80)
_cons	34.91 *** (18.17)	36.69 *** (16.20)	34.87 *** (18.16)	35.50 *** (15.63)	34.66 *** (18.00)	36.47 *** (16.07)	34.62 *** (17.99)	35.27 *** (15.50)	34.70 *** (18.10)	36.43 *** (16.13)	34.66 *** (18.09)	35.24 *** (15.56)
Year Control	YES											
R ²	0.3453	0.3148	0.331	0.2968	0.3465	0.3155	0.3321	0.2976	0.3494	0.3193	0.3352	0.3016
N	3037	3037	3037	3037	3037	3037	3037	3037	3037	3037	3037	3037

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A8. The relationship between CSR and firm value controlling for firm fixed effects for all samples. Variables (with the expectation of dummy variables) are industry-adjusted by subtracting the median value of the firm's industry. Robustness checks.

	Tobin Q	Tobin Q	Tobin Q	Tobin Q
	(1)	(2)	(3)	(4)
ESG	−0.0139 *** (−4.23)	−0.00872 ** (−2.99)	−0.00873 * (−2.02)	−0.0111 ** (−2.97)
ESG*SOE			0.0000257 (0.00)	
ESG*SI				0.00598 (1.02)
ROE		1.034 *** (8.41)	1.034 *** (8.41)	1.032 *** (8.40)
Leverage		−0.666 *** (−5.50)	−0.666 *** (−5.50)	−0.668 *** (−5.52)
Age		−0.0404 *** (−3.57)	−0.0404 *** (−3.56)	−0.0399 *** (−3.51)
Size		−0.630 *** (−20.51)	−0.630 *** (−20.50)	−0.629 *** (−20.49)
Independence		0.388 (1.31)	0.388 (1.31)	0.390 (1.31)
Dualclass		0.106 * (2.55)	0.106 * (2.55)	0.106 * (2.56)
Lagged TQ		0.283 *** (25.98)	0.283 *** (25.98)	0.284 *** (25.99)
_cons	0.528 *** (15.59)	0.146 (1.27)	0.146 (1.27)	0.144 (1.25)
Year Control	YES	YES	YES	YES
R ²	0.0144	0.2185	0.2185	0.2187
N	7284	7261	7261	7261

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A9. The relationship between CSR and firm value controlling for firm fixed effects from 2010 to 2014. Variables (with the expectation of dummy variables) are industry-adjusted by subtracting the median value of the firm's industry. Robustness checks.

	Tobin Q	Tobin Q	Tobin Q	Tobin Q
	(1)	(2)	(3)	(4)
ESG	−0.00930 ** (−2.66)	−0.00880 ** (−2.75)	−0.00315 (−0.67)	−0.00812 ** (−1.96)
ESG*SOE			−0.0104 * (−1.65)	
ESG*SI				−0.00166 (−0.26)
ROE		1.420 *** (7.77)	1.413 *** (7.74)	1.420 *** (7.77)
Leverage		−0.741 *** (−4.51)	−0.750 *** (−4.56)	−0.740 *** (−4.50)

Table A9. Cont.

	Tobin Q	Tobin Q	Tobin Q	Tobin Q
	(1)	(2)	(3)	(4)
Age		−0.0211 (−1.46)	−0.0200 (−1.38)	−0.0212 (−1.47)
Size		−0.656 *** (−14.31)	−0.655 *** (−14.29)	−0.656 *** (−14.31)
Independence		0.324 (0.86)	0.312 (0.83)	0.324 (0.86)
Dualclass		0.132 * (2.45)	0.135 * (2.51)	0.132 * (2.44)
Lagged TQ		0.169 *** (10.79)	0.168 *** (10.74)	0.169 *** (10.79)
_cons	0.449 *** (16.82)	0.210 (1.48)	0.220 (1.55)	0.211 (1.48)
Year Control	Yes	Yes	Yes	Yes
R ²	0.0125	0.1561	0.1568	0.1561
N	4126	4112	4112	4112

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

Table A10. The relationship between CSR and firm value controlling for firm fixed effects from 2015 to 2017. Variables (with the expectation of dummy variables) are industry-adjusted by subtracting the median value of the firm's industry. Robustness checks.

	Tobin Q	Tobin Q	Tobin Q	Tobin Q
	(1)	(2)	(3)	(4)
ESG	−0.0121 (−1.34)	−0.00582 (−0.70)	−0.0178 (−1.52)	−0.0260 ** (−2.50)
ESG*SOE			0.0241 (1.46)	
ESG*SI				0.0560 *** (3.25)
ROE		0.159 (0.95)	0.156 (0.93)	0.175 (1.05)
Leverage		−1.696 *** (−6.34)	−1.700 *** (−6.35)	−1.695 *** (−6.35)
Age		−0.0524 * (−2.03)	−0.0520 * (−2.02)	−0.0457 (−1.77)
Size		−0.967 *** (−11.89)	−0.963 *** (−11.84)	−0.965 *** (−11.90)
Independence		−0.315 (−0.52)	−0.342 (−0.57)	−0.234 (−0.39)
Dualclass		0.0734 (0.90)	0.0800 (0.98)	0.0747 (0.92)
Lagged TQ		−0.132 *** (−7.19)	−0.132 *** (−7.23)	−0.132 *** (−7.22)
_cons	0.543 *** (21.51)	0.751 *** (3.32)	0.750 *** (3.32)	0.720 ** (3.19)
Year Control	Yes	Yes	Yes	Yes
R ²	0.0259	0.1451	0.146	0.1495
N	3158	3149	3149	3149

Note: t-values are shown in parentheses. ***, **, * represent significant level at 1%, 5%, 10%, respectively. We consider the year fixed effect as a control for time trends in firm value.

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