

Internal and external corporate social responsibility activities and firm value: Evidence from the shared growth in the supply chain

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Abstract

Despite the long history of corporate social responsibility (CSR) research, few studies have focused on CSR activities related to business partners in supply chains. In this regard, we investigate whether internal (or backward) CSR enhances firm value. Using an index from the Korea Commission for Corporate Partnership, which indicates whether a firm shares its profits with business partner companies, we find that firm value increases as this backward CSR increases. Further, after controlling for internal CSR, firms engaged only in external CSR have lower firm value than non-CSR firms. Interestingly, we find that firms involved in both internal and external CSR have higher value. Overall, by showing that internal CSR is a core activity that enhances firm value, our study provides policy implications for the regulatory bodies of different countries. Copyright © 2021, Borsa İstanbul Anonim Şirketi. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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1. Introduction

This study investigates whether corporate social responsibility (CSR) practices related to both suppliers (internal CSR) and the community (external CSR) positively affect firm value. As prior research focuses primarily on the value of external CSR activities, we expand the literature by examining the effect of internal CSR and the convergence of internal and external CSR on firm value.

CSR research has a very long history. Prior research categorizes CSR into economic, legal, ethical, and discretionary responsibility (Carroll, 1979). CSR is the extent to which firms assume the four types of responsibilities toward the stakeholders in their society (Maignan, Ferrell, & Hult, 1999).

Previous CSR studies finding an association with firm value indicate that strategic CSR practices provide the firm with resources that induce positive behaviors among stakeholders, leading to higher market value. Prior research also argues that firms might gain competitive advantage by conducting social activities for external stakeholders (Porter, 1996), which helps increase their value. Therefore, prior studies suggest that external CSR enhances firm value (Harjoto & Jo, 2015; Cahan, De Villiers, Jeter, Naiker, & Van Staden, 2016). In contrast, other studies argue that external CSR is a burden that harms, or is not related to, firm value. The critiques are based on the view that firms use CSR only to create a positive image without substantially improving the firm (Marquis & Qian, 2014). From a similar perspective, recent empirical studies show a drop in the value of firms investing in external CSR (Lenz, Wetzel, & Hammerschmidt, 2017; Manchiraju & Rajgopal, 2017).

Regarding internal CSR, there is a lack of empirical evidence on how CSR activities targeting suppliers affect a firm's

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value. Strong relationships with suppliers can build mutually profitable business connections (Kwon & Suh, 2005). Despite the long history of CSR research, implementing CSR in supply chains is relatively uncommon. Prior research on this issue uses a small sample of observations focusing on a case study of a specific firm or industry (e.g., Lindgreen, Swaen, Maon, Andersen, & Skjoett-Larsen, 2009; Maloni & Brown, 2006). Therefore, we expand the literature by investigating the relationship between CSR in the supply chain and firm value.

Sharing firms' benefits with all suppliers in the supply chain has been one of the most important issues in Korean society in the last two decades. The Korean government expects mutual growth among business partners to be the key to overcome the country's stagnant growth and to move from a developing country to a developed one. Consequently, the Korea Commission for Corporate Partnership (KCCP) was founded in 2011. The KCCP evaluates firms with strong influence on society once a year. It computes and publishes its Win-Win Growth Index (WWGI) to promote partnerships between large and small companies in the same supply chain. The WWGI consists of the following subcategories: the level of fairness of the contract and trade made between business partners as an effort to build a system monitoring law violation; technical and human resource support for work conditions; and sharing visions and information. By regularly evaluating the shared growth level for each firm, the commission encourages firms to share the benefits with all suppliers by mutual growth. The WWGI has been published since 2011 based on the Act on the Promotion of Collaborative Cooperation between Large Enterprises and Small-Medium Enterprises. The evaluation and publication of the WWGI are under the supervision of the National Fair Trade Commission. We use a dichotomous variable indicating whether a firm is included in this index as a proxy for its internal CSR activities. We also use the internal CSR scores to identify the effectiveness of these activities.

Next, external CSR is proxied by the index from the Korea Economic Justice Institute (KEJI), which provides a detailed CSR scores of listed firms since 2000. The "Best Corporate Citizen Index" awards disclosed by KEJI include the scores of the top 200 firms with highest CSR scores. The index includes the following sub-indexes: soundness, fairness, social contribution, consumer protection, environmental management, and employee satisfaction. Many prior studies on CSR using South Korean firms adopt this index (e.g., Chang, Oh, Park, & Jang, 2017; Park & Ha, 2020).

The sample consists of firms listed in the Korean stock market from 2013 to 2018. Using the KCCP's internal CSR index and the KEJI's external CSR index, we first analyze the effects of internal and external CSR on firm value separately. The results of this within-sample analysis (examining each CSR index separately) show that increased internal CSR scores increase firm value as measured by Tobin's Q. We also find a positive relationship between external CSR and firm

value. The results are robust when using the current or one-year-ahead values of Tobin's Q or when using the industry mean-adjusted Tobin's Q. Furthermore, the results from the full sample analysis indicate that firms involved in both types of CSR or that invest in only internal CSR have higher value than do non-CSR firms. In contrast, firms engaged in only external CSR have lower value than non-CSR firms. Thus, social activity for internal suppliers is a key factor determining the effectiveness of CSR activities for firm value. Our results are robust when two-stage regressions or instrumental approaches are used to mitigate endogeneity concerns in CSR and firm value. Lastly, we find that the positive effect of internal CSR on firm value is robust after controlling for the promotional donation to suppliers.

Our study offers several contributions to the literature. First, there is limited empirical evidence on backward or internal CSR. By applying a fine-grained analysis using the KCCP's CSR data related to supply chain activities, this study contributes to the literature by highlighting supply chain implications. Our findings suggest that the positive effect of CSR activities related to suppliers on their innovation, which influences the firm's production differentiation, leads to an increase in firm value. Second, a major contribution of our study is the finding that the positive relation between CSR and firm value derives mainly from internal CSR activities. These results are valuable in explaining the specific path through which social activities increase firm value. By studying the internal supply chain, we provide clearer, more direct results indicating that social contributions are connected to firm value. Third, prior research on external CSR and firm value presents mixed evidence. Our findings suggest that it is important to consider internal CSR activities when testing the effect of CSR on firm outcomes.

Our study has important policy implications. Emerging countries with substantial development, such as Korea, have reached a state of constant low growth. To overcome this stagnation, the Korean government is making efforts to induce communal growth via profit sharing among the business partners in a supply chain. This is a new paradigm of social contribution and an activity directly affecting the growth and profits of firms. By showing that a firm's internal CSR activities increase its value, our study confirms that these social efforts are successful. Moreover, our results indicate that profit sharing can help an economy reach a socially desirable state, suggesting that regulators need to supplement these achievements through proper regulation. Thus, the results also have policy implications for the regulatory bodies of different countries. Lastly, we call for future research to investigate the ways to continue internal CSR activities and their effectiveness on other firm outcomes.

The remainder of the paper is organized as follows. Section 2 presents a review of the literature on CSR activities and develops the hypotheses. Section 3 describes the research design and sample. Section 4 reports the empirical results, and Section 5 concludes the study.

2. Literature review and hypotheses development

2.1. Effects of customer-facing CSR activities (external CSR) on firm value

Despite the long history of research on the effect of CSR on firm outcomes, it remains unclear empirically whether investing in CSR leads to a higher firm value. For instance, a large body of research based on stakeholder theory finds that the firm's characteristics affect the consequences of CSR activities. For instance, a stream of research insists that a good ownership structure, efficient corporate governance mechanisms, and strong legal enforcement affect the effectiveness of CSR on firm value (Cahan et al., 2016; Nekhili, Nagati, Chtioui, & Rebolledo, 2017; Buchanan, Cao, & Chen, 2018). Cahan et al. (2016) document evidence that firms in countries with strong legal enforcement to promote CSR disclosures show higher value than those in countries with relatively weak enforcement. Buchanan et al. (2018) demonstrate that the effectiveness of CSR on firm value varies with the level of influential institutional ownership. In particular, the authors find that the positive effect of institutional ownership is more pronounced during a financial crisis. Nekhili et al. (2017) suggest that as a part of the efforts to build trust with stakeholders, family firms are more prone to engage in CSR activities than non-family ones. Their study finds that this moderating role of family owners leads to higher market value among firms investing in CSR.

In contrast, some critiques based on stakeholder theory suggest that firms use CSR only to create a positive image without making practical improvements within the firm (Marquis & Qian, 2014) or that firms use CSR with the intent to reduce or divert attention away from the firm's misconduct (Du, 2015). These are the perspectives shared by critiques based on stewardship or agency theory. For instance, Bhardwaj, Chatterjee, Demir, and Turut (2018) find that investment in CSR that does not directly improve the production efficiency or the quality of a product, thereby cannot enhance a firm's operating performance. Moreover, Lenz et al. (2017) show that involvement in corporate social irresponsibility may decrease a firm's value. Manchiraju and Rajgopal (2017) report evidence that Indian firms that must spend a certain portion of their profits on CSR activities by law experience a drop in their value. Gallego-Álvarez, Prado-Lorenzo, and García-Sánchez (2011) explore the negative bidirectional relationship between CSR practices and the innovation within the firm, suggesting that not all CSR activities improve firm value. Similarly, Bhandari and Javakhadze (2017) show that investing in CSR reduces a firm's resources, therefore causing investment inefficiency. Overall, despite the theoretical support that CSR may positively affect firm value, the empirical evidence from previous studies vary depending on the theory, firm, country, and method of analysis.

2.2. CSR practices to backward suppliers (internal CSR) and firm value

This study focuses primarily on the backward (or internal) CSR activities, which are the CSR activities targeting the business partners within the supply chain. By engaging in CSR, firms will also engage in activities that benefit both backward and forward stakeholders, who contribute to the firm's productivity by supporting and endorsing them and developing enduring relationships (Bosse & Coughlan, 2016). The CSR activities do not have to be visible, but specifically benefit the backward stakeholders, such as suppliers. For instance, a financial capital company that invests heavily in CSR may voluntarily provide reports to reduce or remove agency costs and information asymmetry, and at more favorable terms, may use the resources from debtholders, institutional investors, and other financial capital providers (Cheng, Ioannou, & Serafeim, 2014). In the manufacturing industry, raw material suppliers profiting from a firm's CSR activities will also attempt to reciprocate by creating more productive and cooperative relationships with the firm. Similarly, adopting and conducting CSR activities targeting suppliers can help firms advance their existing innovation capabilities and create new ones.

The presence of substitutable or complementary innovation assets and the degree to which a firm absorbs the innovation capabilities will promote the implementation of CSR activities related to its assets. The relationships between absorptive capability, innovation, and firm value have been well explored (Tsai, 2001). However, these relationships were rarely explored in the context of firms' partnerships with suppliers. Unlike the long history of external CSR research, the investigation of CSR related to supply chain partners began only recently, in the early 2000s, and increased consistently in the last two decades (Feng, Zhu, & Lai, 2017). Most studies were published in the past five years. Therefore, research in this field is a recent trend in the CSR literature and is highly likely to be developed in the future. We summarize recent CSR studies on supply chains as follows.

First, an increasing number of studies report how firms conduct CSR in a specific industry for their supply chains. For instance, some studies report the consequences of CSR practices for firm performance in the food industry (Maloni & Brown, 2006) or in a specific company with a global supply chain (Lindgreen, Swaen, Maon, Andersen, & Skjoett-Larsen, 2009). Second, studies also examine the effect of CSR on supply chains for small and medium-sized enterprises (SMEs). The results generally indicate that SMEs are less engaged in CSR for their business partners. For instance, using survey data from Danish SMEs, Pedersen (2009) shows that relatively large SMEs and those with the ability to control and maintain CSR activities implement them in their supply chain. Similarly, Lee, Kwak, and Park (2017) demonstrate that SMEs tend to invest in external rather

than internal CSR. Collectively, studies on SMEs find that these firms focus more on CSR activities for external stakeholders to protect their image and promote their brand reputation among customers. Third, some studies investigate why firms invest in CSR for their internal business partners. Welford and Frost (2006) find that CSR activity reduces a business partner's costs, leading to the efficient use of raw materials and increase in an organization's productivity. Using a quantitative method, Hsueh (2014) reveals that it benefits both the manufacturer and the wholesale firm in the supply chain if the manufacturer invests in CSR activities and charges the costs to the wholesale firm's product price. Overall, existing research in this field is relatively insufficient and requires more empirical studies.

2.3. Hypotheses development

Profitable relationships are built mainly on the economic or financial aspects by which the transactions between the firm and suppliers are profitable to each other. Our main question is whether CSR activities related to suppliers increase a firm's value. The life cycle of a company's product starts from the raw materials delivered by the suppliers and continues to the manufacturing process before delivery to the consumer. The supply chain refers to the series of connected entities that encompass all suppliers and manufactures, and sometimes even consumers. We propose several reasons to predict that CSR activities for internal supply chains increase firm value based on the theory from prior research.

First, the suppliers' innovation, driven by the firm's CSR, can improve the products or services moving from the suppliers to the firm, which could affect product differentiation in a competitive market. CSR practices targeting suppliers can occur in the form of an investment to achieve product differentiation. Second, from the resource-based view of the firm, CSR practices targeting suppliers could create the greatest opportunity for success through improved or new products supplied to the company. Under this theory, the intangible resources and capabilities are most important to firm success (Castelo & Lima, 2006). Third, financial and technical support in human resources and for working conditions can build trust among business partners. For instance, prior research demonstrates that information sharing between business partners builds trust between them (Kwon & Suh, 2005). Overall, trust constructed from sharing knowledge and supportive resources should have a significant impact on firm value. Lastly, we propose that investment in the supply chain includes business partners' efforts to prevent violations of the law. Establishing a system that can post-monitor legal violations among the business partners would positively affect the relationship between suppliers and the firm. Additionally, fair contracts and trades would impact the product innovation capacity (Maloni & Brown, 2006).

All these voluntary efforts for the business partners within the supply chain may lead to improved innovation capacity,

which will in turn increase the firm's value. Based on the above discussion, we form our first hypothesis as follows.

H1. *Internal (backward) CSR for the supply chain is positively related to firm value.*

We also predict that firms engaged in forward CSR activities targeting external stakeholders, such as consumers, results in higher firm value. Beyond the CSR related to the functional material, parts, or services provided by the suppliers to the firm, CSR for external stakeholders will lead to an increase in the firm's equity value because strategic CSR practices provide resources that induce positive behaviors among stakeholders and thereby increase market value. In this regard, prior research presents evidence that increased CSR enhances firm value (Harjoto & Jo, 2015; Cahan et al., 2016). Therefore, we expect that CSR activities that are visible to stakeholders will increase the positive effects of CSR on firm value.

However, as aforementioned, there are opposing views on the role of external CSR on firm value. The critiques suggest that CSR delivers only a positive image to stakeholders without making material improvement in the core value of the firm (Marquis & Qian, 2014). In stewardship or agency theory, CSR is just one means to cover managers' opportunistic behavior (Du, 2015). Similarly, recent studies show that firms investing in external CSR experience a drop in their value (Gallego-Álvarez et al., 2011; Lenz et al., 2017; Manchiraju & Rajgopal, 2017).

To summarize, the previous findings are mixed and suggest that not all external CSR activities create firm value. The different evidences reported in prior studies vary across countries, firms, and regulatory environments. We therefore propose a second hypothesis to test whether external CSR is positively related to firm value in the Korean stock market. We propose the second hypothesis as follows.

H2. *External (forward) CSR is positively related to firm value.*

The first and second hypotheses lead to the discussion on the synergy effect of conducting both internal and external CSR on firm value. According to resource-based theory, both the final consumers and suppliers are resources that create firm success. However, these elements are different in terms of creating product differentiation. The suppliers play functional roles, producing goods or services by creating and providing the material, parts, or services to the firms; the objective quality of the companies' products or services can be determined by the quality of the products from the suppliers. In the final stage of the market, it is possible that consumers will subjectively evaluate the products or services based on their existing knowledge of them. This subjective perception may lead consumers to generate their own corporate product attributes based on their existing knowledge about the firm's external CSR activities. Product differentiation could be perceived by both the objective quality and the subjective perception. Therefore, we argue that involvement in both

internal and external CSR will enhance firm value. Our third hypothesis is as follows.

H3. *Firms engaged in both types (external and internal) of CSR have higher value than those engaged in only one type of CSR or not engaged in CSR at all.*

3. Research design

3.1. Proxy of internal CSR: the WWGI

Sharing the firm's profit with other business partners within a supply chain has been an important economic issue in the Korean society over the past two decades. This was one of the main economic policies of the Korean government to counter the country's lower growth rate. Consequently, the KCCP was founded in 2011 with the aim of identifying influential companies in terms of their accounting income and size and to encourage them to share their profits with their business partners. As one of the means to achieve this, strong companies in terms of profit shares are selected and announced every year with the aim of stimulating economic growth. The results of the assessment are published in the WWGI. Based on the WWGI score, the included firms are divided into five grades (Best, Excellent, Good, Normal, and Insufficient).¹ It is important to note that even companies with poor grades are expected to have better relationships with partners than those not included in the index.

The procedure to evaluate the total score consists of two parts. First, the National Fair Trade Commission (FTC) reviews the performance of large companies based on their submitted data and conducts on-site due diligence to check the relationship with business partners to create the scores. The other part of the score is evaluated by the KCCP itself. To calculate fair and accurate scores, the KCCP visits SMEs in person to collect the survey results. The survey contains suppliers' (who are in a weak position relative to the large firms) responses about the co-prosperity of large companies, specifically related to whether the larger firm uses a standard contract, applies the ratio of cash payment, establishes a system to prevent legal violations, provides financial, human resources, employment, and technical supports, and uses fair trade agreements among business partners. Based on the two scores evaluated by the FTC and the KCCP, the latter releases the WWGI, a result of the sum of the two scores. According to the evaluation, about 150–200 companies are included in the index every year.²

Among the top domestic companies regarding sales, companies with social interests and those with influence on society are selected in the evaluation process. Thus, inclusion in the

¹ However, the KCCP does not disclose the specific scores. Only a summary of data that classifies the companies into the five levels is released to the public.

² For instance, 189 companies were assessed in 2018. Among them, 31, 64, 68, 19, and 7 companies were classified as Best, Excellent, Good, Normal, and Insufficient, respectively.

evaluation indicates that the company is expected to contribute strongly to shared growth. To test H1, we generate a proxy of internal CSR ($CSR_{Internal}$) by assigning a value between 1 and 5 to firms classified as Insufficient to Best, respectively.³ A higher number indicates a stronger contribution to internal CSR activities. To test hypothesis 3, we construct a dichotomous variable indicating whether a firm is included in this index.

3.2. Proxy of external CSR: the KEJI index

Since 2000, the KEJI has provided a detailed CSR index of listed firms. Every year, the institute discloses the "Best Corporate Citizen Index" containing CSR scores. The evaluation method has improved over time. The KEJI started publishing CSR scores in six categories after 2010. The evaluated and disclosed firms are those ranked in the top 200 in terms of their CSR scores. CSR studies using South Korean data typically adopt this index (e.g., Chang et al., 2017; Park & Ha, 2020). Total scores consist of six CSR sub-indexes. Listed firms are evaluated based on soundness (25 points), fairness (20 points), social contribution (15 points), consumer protection (15 points), environmental management (10 points), and employee satisfaction (15 points) (see more detail at <http://ccej.or.kr>). We use the total CSR score (maximum of 100 points) as a proxy of external CSR ($CSR_{External}$). We also construct a dichotomous variable indicating whether a firm is included in this index to test hypothesis 3.

3.3. Research model

We set Eq. (1) to examine H1 and H2:

$$FirmValue = \alpha_0 + \alpha_1 CSR + \alpha_2 SIZE + \alpha_3 LEV + \alpha_4 CURR + \alpha_5 INVREC + \alpha_6 CF + \alpha_7 ROA + \alpha_8 LOSS + \alpha_9 SalesGRW + \alpha_{10} ISSUE + \alpha_{11} ABSPMDA + YearFE + IndustryFE \quad (1)$$

The dependent variable *FirmValue* is proxied by Tobin's Q, calculated as the sum of the market value of equity and book value of total liabilities, divided by the book value of total assets. Prior research uses Tobin's Q primarily to measure a firm's value (e.g., Cahan et al., 2016). To verify the robustness of the results, we use both Tobin's Q (*TobinQ*) and adjusted Tobin's Q (*ADJ_TobinQ*). We calculate the adjusted Tobin's Q by subtracting the mean Tobin's Q value of each industry-year from the Tobin's Q of each observation. To clarify the causal relationship and to exclude the results from the possible inverse relationship between CSR and firm value, we also use the one-year-ahead Tobin's Q ($TobinQ_{t+1}$, ADJ_TobinQ_{t+1}).

The variable of interest is *CSR*. We use both internal and external CSR ($CSR_{Internal}$, $CSR_{External}$) in the regression. As mentioned above, we use the WWGI index, which assigns a

³ Therefore, firms classified as "Good" receive a value of 3.

value of 1–5 based on the firms’ contribution to suppliers to proxy for internal CSR. We use the CSR score from the KEJI as a proxy of external CSR. If conducting CSR activities increases firm value, we expect a positive coefficient on CSR ($\alpha_j > 0$). We run the regression separately for each CSR activity because the CSR indexes are distributed by different institutions. Thus, we conduct within-sample analyses.

We add control variables based on prior research (Kalay & Shimrat, 1987; Harjoto & Jo, 2015). First, we include the natural logarithm of total assets (*SIZE*) to control for firm size. Financial structure also affects firm value; we therefore introduce the leverage ratio (*LEV*) of total liabilities to total assets to control for the financial structure. To control for liquidity, we add the current ratio (*CURR*), representing current assets divided by current liabilities. We use the sum of inventories and accounts receivables to total assets (*INVREC*) to control for the firm’s complexity. Firm performance is a direct determinant of firm value, so we control for operating cash flow divided by total assets (*CF*) and for operating performance (*ROA*), which we calculate as net income divided by total assets. We also include firms reporting losses (*LOSS*). Additionally, varying growth opportunities affect firm value, so we include sales growth (*SalesGRW*). A large stream of research documents a price drop after stock issues (Kalay & Shimrat, 1987). Hence, we add a dummy variable, *ISSUE*, equal to one if a firm issues a number of shares equal to or greater than 10 percent of its previous number of shares, and zero otherwise. Previous studies generally indicate that earnings management distorts capital market resource allocation, reducing firm value. We thereby include discretionary accruals, specifically the absolute value of performance-matched discretionary accruals (*ABSPMDA*), to control for the effect of earnings manipulation on firm value. Lastly, we include year (*Year FE*) and industry fixed effects (*Industry FE*) to control for the time-series changes and industry-specific characteristics of dependent variables. All t-values reported in the tables are clustered at the firm level.

Next, we apply Eq. (2) to test H3. Here, we integrate both indexes in one regression model to test the combined effect of internal and external CSR on firm value. We do this by constructing indicator variables for each CSR score if included in each index. For instance, in Eq. (2), $CSR_{Int\&Ext}$ indicates observations included in both indexes. CSR_{Int_Only} indicates firms included only in the WWGI index and CSR_{Ext_Only} indicates those included only in the KEJI index. As we construct these variables as dummy variables, the intercept captures the effect of no CSR engagement on firm value.

Table 1
Yearly distribution.

Year	2013	2014	2015	2016	2017	2018	Total
Full sample	1435	1495	1565	1640	1720	1806	9661
Internal CSR sample	64	71	84	94	113	119	545
External CSR sample	168	170	165	170	161	166	1000

$$FirmValue = \alpha_0 + \alpha_1 CSR_{Int\&Ext} + \alpha_2 CSR_{Ext_Only} + \alpha_3 CSR_{Int_Only} + Controls + YearFE + IndustryFE \tag{2}$$

In our interpretation, a firm investing in both types of CSR shows increased value if the coefficient of $CSR_{Int\&Ext}$ (α_1) is positively significant. The coefficients of CSR_{Ext_Only} and CSR_{Int_Only} indicate the influence on firm value for firms investing in external or internal CSR only, respectively. Eq. (2) contains the same controls as in Eq. (1) and the t-values are clustered at the firm level.

3.4. The sample

The sample consists of firms listed in the Korean stock market. Korea adopted IFRS in 2011 to align its accounting standard with the highest international standard. We restrict our sample to December year-end firms to maintain comparability of the financial data among firms. We also use firms operating in non-financial industries to reduce the effect of different types of financial statements. Finally, we use the firm-year observations that have data for all variables for each test, resulting in a final sample of 9661 observations.

Table 1 shows the sample distribution by year. Our sample starts in 2013, as it is the most recent year that uses the new evaluation method to generate the KEJI score. The year 2013 has 1435 observations based on the full sample criteria. Among the 1435 observations, 64 and 168 firms have a WWGI score (internal CSR index) and a KEJI score (external CSR index), respectively.⁴ There is an increasing trend in the internal CSR sample, while the external CSR sample is distributed within the range of 160–170. This distribution arises because the KEJI discloses 200 firms every year, but the number of companies included in the WWGI increases over time. We lose observations due to missing financial data. The total number of observations with WWGI and KEJI scores are 545 and 1000, respectively.

4. Empirical results

4.1. Descriptive statistics

Panels A and B of Table 2 present the descriptive statistics and Pearson correlations. In Panel A, the mean of $CSR_{Internal}$ is 3.618. This variable has a value from 1 to 5, which matches the assigned grades from lowest to highest. The mean value of 3.618 therefore shows that a relatively large number of firms are distributed in the higher grade. The mean of $CSR_{External}$ is 63.759. The mean values of $CSR_{Int\&Ext}$, CSR_{Ext_Only} , and CSR_{Int_Only} are 0.012, 0.092, and 0.044, respectively. The sum of the mean values of the three variables is 0.148, indicating that 14.8 percent of firms are involved in either internal, external, or

⁴ The internal and external CSR firms are not mutually exclusive samples; some firms appear in both indexes.

Table 2
Descriptive statistics and correlation matrix.

Panel A: Descriptive statistics							
Variables	Mean	SD	P1	Q1	Median	Q3	P99
<i>CSR_{Internal}</i>	3.618	0.970	1.000	1.000	3.000	4.000	5.000
<i>CSR_{External}</i>	63.759	2.027	59.330	62.405	63.535	64.970	69.325
<i>CSR_{Int&Ext}</i>	0.012	0.109	0.000	0.000	0.000	0.000	1.000
<i>CSR_{Ext_Only}</i>	0.092	0.288	0.000	0.000	0.000	0.000	1.000
<i>CSR_{Int_Only}</i>	0.044	0.206	0.000	0.000	0.000	0.000	1.000
<i>TobinQ</i>	1.497	1.114	0.489	0.868	1.132	1.663	7.289
<i>ADJ_TobinQ</i>	−0.031	0.988	−2.254	−0.503	−0.195	0.162	4.939
<i>TobinQ_{t+1}</i>	1.504	1.123	0.491	0.871	1.131	1.671	7.289
<i>ADJ_TobinQ_{t+1}</i>	−0.031	1.008	−2.191	−0.510	−0.205	0.162	5.065
<i>Asset_{2TW}</i>	0.061	0.240	0.000	0.000	0.000	0.000	1.000
<i>Group</i>	0.426	0.495	0.000	0.000	0.000	1.000	1.000
<i>Manufacturer</i>	0.671	0.470	0.000	0.000	1.000	1.000	1.000
<i>SIZE</i>	18.988	1.348	16.623	18.065	18.737	19.630	23.713
<i>LEV</i>	0.372	0.202	0.026	0.205	0.366	0.520	0.873
<i>CURR</i>	3.208	4.967	0.207	1.008	1.672	3.194	36.584
<i>INVREC</i>	0.249	0.158	0.000	0.130	0.231	0.345	0.712
<i>CF</i>	0.039	0.084	−0.250	−0.002	0.041	0.086	0.258
<i>ROA</i>	0.012	0.116	−0.479	−0.013	0.025	0.064	0.340
<i>LOSS</i>	0.290	0.454	0.000	0.000	0.000	1.000	1.000
<i>SalesGRW</i>	0.063	0.348	−0.677	−0.087	0.021	0.135	1.991
<i>ISSUE</i>	0.174	0.379	0.000	0.000	0.000	0.000	1.000
<i>ABSPMDA</i>	0.062	0.066	0.001	0.018	0.042	0.081	0.373

Panel B: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) <i>CSR_{Internal}</i>	1.000																		
(2) <i>CSR_{External}</i>	0.093	1.000																	
(3) <i>TobinQ</i>	0.144	0.188	1.000																
(4) <i>ADJ_TobinQ</i>	0.102	0.059	0.824	1.000															
(5) <i>TobinQ_{t+1}</i>	0.130	0.193	0.793	0.632	1.000														
(6) <i>ADJ_TobinQ_{t+1}</i>	0.079	0.027	0.624	0.746	0.834	1.000													
(7) <i>Asset_{2TW}</i>	0.483	0.080	−0.044	−0.007	−0.050	−0.016	1.000												
(8) <i>Group</i>	0.260	0.019	−0.082	−0.050	−0.083	−0.052	0.261	1.000											
(9) <i>Manufacturer</i>	−0.103	0.115	−0.095	−0.007	−0.092	−0.008	−0.063	−0.169	1.000										
(10) <i>SIZE</i>	0.595	0.164	−0.221	−0.135	−0.246	−0.159	0.669	0.410	−0.042	1.000									
(11) <i>LEV</i>	−0.153	−0.080	−0.108	−0.021	−0.089	−0.007	0.093	0.015	0.087	0.158	1.000								
(12) <i>CURR</i>	0.022	−0.014	0.153	0.063	0.130	0.051	−0.077	−0.053	−0.095	−0.134	−0.519	1.000							
(13) <i>INVREC</i>	−0.320	−0.031	−0.087	−0.048	−0.063	−0.037	−0.126	−0.157	0.310	−0.131	0.293	−0.213	1.000						
(14) <i>CF</i>	0.191	0.058	−0.072	−0.024	−0.077	−0.031	0.058	0.062	0.057	0.173	−0.143	−0.021	−0.058	1.000					
(15) <i>ROA</i>	0.196	0.132	−0.095	−0.048	−0.100	−0.059	0.048	0.083	0.039	0.207	−0.277	0.064	0.029	0.545	1.000				
(16) <i>LOSS</i>	−0.093	−0.015	0.105	0.059	0.118	0.077	−0.051	−0.084	−0.006	−0.197	0.253	−0.051	−0.036	−0.427	−0.690	1.000			
(17) <i>SalesGRW</i>	−0.013	0.126	0.150	0.108	0.100	0.067	0.005	0.014	−0.044	0.007	−0.001	0.011	0.026	0.081	0.180	−0.156	1.000		
(18) <i>ISSUE</i>	−0.050	−0.025	0.139	0.103	0.129	0.105	−0.060	−0.078	0.008	−0.168	0.058	0.020	−0.032	−0.181	−0.188	0.168	0.094	1.000	
(19) <i>ABSPMDA</i>	−0.016	0.010	0.187	0.135	0.148	0.127	−0.079	−0.071	−0.076	−0.168	0.055	0.014	0.027	−0.183	−0.160	0.153	0.059	0.198	1.000

Panel A: Descriptive statistics are based on 9661 observations except for *CSR_{Internal}* (545 observations), *CSR_{External}* (1000 observations), and *TobinQ_{t+1}*, *ADJ_TobinQ_{t+1}* (7839 observations).

Panel B: Bold indicates significant at 5% or higher level.

both internal and external CSR activities. The mean values of the four dependent variables are 1.497, -0.031 , 1.504, and -0.031 for $TobinQ$, ADJ_TobinQ , $TobinQ_{t+1}$, and ADJ_TobinQ_{t+1} , respectively. For the instrument variables, the mean value of $Asset_{2TW}$ is 0.061, indicating that 6.1 percent of companies report total assets of more than 2 trillion won. The mean of $Group$ is 0.426, showing that 42.6 percent of firms belong to a business group. The mean of $Manufacturer$ is 0.671, indicating that 67.1 percent of firms operate in manufacturing industries.

For the control variables, the mean values of $SIZE$, LEV , $CURR$, and $INVREC$ are 18.988, 0.372, 3.208, and 0.249, respectively. The mean values of CF , ROA , $LOSS$, and $SalesGRW$ are 0.039, 0.012, 0.290, and 0.063, respectively. Approximately 17.4 percent of the companies issued a number of stocks equal to or more than 10 percent of its previous outstanding shares ($ISSUE$). Lastly, the mean value of $ABSPMDA$ is 0.062. All the statistics are similar to the values reported in prior research using Korean listed firms.

Panel B of Table 2 reports the Pearson correlations for selected variables. $CSR_{Internal}$ is positively correlated with three out of the four proxies of firm value. $CSR_{External}$ is positively related with $TobinQ$ and $TobinQ_{t+1}$. Overall, this evidence suggests that CSR activities generally enhance firm value, at least in univariate correlations. The three instruments are significantly correlated with CSR variables, indicating that they explain the CSR activities adequately.

4.2. Test results of H1 and H2 (within-sample analyses)

Tables 3 and 4 show the results of the within-sample analyses. Since different institutions provide the two CSR indexes, we conduct the analyses using the sample of observations included in each CSR index.

First, Table 3 reports the within-sample analyses using the WWGI scores from the KCCP. It presents the test results of the multivariate regression analyses of H1. In model (1), we report the results using $TobinQ$ as the dependent variable. Consistent with H1, we find a positive coefficient of $CSR_{Internal}$, with a value of 0.180 and t-value of 2.14, significant at the 5 percent level. The coefficients of $CSR_{Internal}$ are significantly positive for the three other proxies of firm value. For instance, the coefficients of $CSR_{Internal}$ are 0.195, 0.173, and 0.179 for the ADJ_TobinQ , $TobinQ_{t+1}$, and ADJ_TobinQ_{t+1} models, respectively. To summarize, internal CSR activities for the business partners in a supply chain increase firm value. Particularly, the results are consistent when using the current and one-year-ahead proxies of firm value. The results are also significant for both Tobin's Q and industry-adjusted Tobin's Q.

The results for the control variables are similar to the ex-ante predictions. First, firm size ($SIZE$) is negatively related with Tobin's Q. Since Tobin's Q is the market value scaled by total assets, it is mechanically negatively related to total assets. CF and ROA show positive and significant coefficients, indicating high market values for firms reporting higher operating performance. $ISSUE$ has negative coefficients, consistent with the results of prior studies showing that the performance of firms issuing stocks declines afterwards.

Next, Table 4 reports the within-sample analyses using external CSR scores from the KEJI to test H2. Similar to Table 3, we report the results using $TobinQ$ as the dependent variable in model (1). Consistent with H2, we find a positive coefficient of $CSR_{External}$ (coefficient = 0.053, t-value = 3.44) significant at the 1 percent level. We also find that $CSR_{External}$ is positively significant using three other proxies of firm value. The coefficients of $CSR_{External}$ are 0.046, 0.057, and 0.051 for the ADJ_TobinQ , $TobinQ_{t+1}$, and ADJ_TobinQ_{t+1} models, respectively (t-values are 3.01, 3.75, and 3.26, respectively). In summary, the CSR activities for external stakeholders significantly enhance firm value.

Overall, the findings support H1 and H2, suggesting that CSR firms have higher firm value. Our test results expand the literature by demonstrating that CSR activities targeting not only external stakeholders but also internal suppliers contribute to firm value.

4.3. Test results of H3 (full sample analyses)

Our analyses in the previous tables are based on a within-sample regression because the CSR indexes are provided by two different institutions. Here, we integrate both indexes in one regression model by constructing indicator variables for each CSR type for firms that engage in both types of CSR activity. For instance, $CSR_{Int\&Ext}$ indicates observations that appear in both indexes. In contrast, CSR_{Int_Only} indicates firms included only in the WWGI, while CSR_{Ext_Only} indicates companies only in the KEJI index.

Table 5 presents the results. The coefficients of $CSR_{Int\&Ext}$ are positive and significant in all columns (coefficients = 0.517, 0.481, 0.640, 0.609, t-values = 4.54, 4.18, 4.43, 4.19, respectively). The coefficients of CSR_{Ext_Only} are negative and significant, while those of CSR_{Int_Only} are positive and significant. We interpret these findings as follows. First, firms conducting both CSR types have higher firm values. Second, companies conducting only external CSR have lower values than those that are not engaged in any CSR activities. Third, firms conducting only internal CSR have higher values. Fourth, to summarize these results, the positive relationship between CSR activity and firm value derives from internal CSR.

This is a new evidence in the related literature. One stream of previous studies reports that external CSR activities are beneficial to firm value, while other studies argue that these activities harm firm value. Our results show researchers should consider internal CSR as an additional factor affecting the relationship between CSR and firm value. Firms that lack appropriate social contribution activities for their internal suppliers within a supply chain cannot efficiently reflect their external CSR efforts on their value.

4.4. Additional analyses to mitigate selection bias and endogeneity

We can expect a possible endogenous relationship between CSR and firm value. Thus, it is essential to mitigate any endogeneity. The first concern is that the sample in each CSR

Table 3
Internal CSR and firm value.

Variables	Dependent variable =			
	(1) <i>TobinQ</i>	(2) <i>ADJ_TobinQ</i>	(3) <i>TobinQ_{t+1}</i>	(4) <i>ADJ_TobinQ_{t+1}</i>
	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)
<i>Intercept</i>	5.450*** (3.49)	4.194*** (2.63)	5.644*** (3.17)	4.227** (2.43)
<i>CSR_{Internal}</i>	0.180** (2.14)	0.195** (2.29)	0.173* (1.74)	0.179* (1.89)
<i>SIZE</i>	-0.247*** (-3.08)	-0.255*** (-3.12)	-0.252*** (-2.64)	-0.245*** (-2.65)
<i>LEV</i>	0.403 (1.01)	0.355 (0.85)	0.386 (0.76)	0.298 (0.60)
<i>CURR</i>	-0.035 (-0.38)	-0.036 (-0.38)	-0.024 (-0.28)	-0.031 (-0.35)
<i>INVREC</i>	-0.143 (-0.27)	-0.105 (-0.20)	-0.387 (-0.57)	-0.300 (-0.44)
<i>CF</i>	3.081*** (3.98)	3.283*** (4.08)	2.647*** (3.31)	2.668*** (3.27)
<i>ROA</i>	5.961*** (3.41)	5.662*** (3.16)	4.958*** (2.65)	4.515** (2.39)
<i>LOSS</i>	0.296** (2.34)	0.284** (2.17)	0.263** (2.01)	0.231* (1.76)
<i>SalesGRW</i>	-0.059 (-0.33)	-0.075 (-0.37)	0.030 (0.21)	0.044 (0.31)
<i>ISSUE</i>	-0.254** (-2.31)	-0.242** (-2.15)	-0.200* (-1.66)	-0.168 (-1.41)
<i>ABSPMDA</i>	-0.485 (-0.54)	-0.547 (-0.55)	0.324 (0.32)	0.375 (0.36)
<i>Year</i>	Included	Included	Included	Included
<i>Industry</i>	Included	Included	Included	Included
<i>ADJ. R²</i>	0.473	0.395	0.466	0.390
<i>N of obs.</i>	545	545	426	426

T-values are clustered at the firm-level. ***, **, and * denote significance at 1, 5, and 10% level, respectively. We lose 119 observations in model (3) and (4) as they use one-year-ahead firm value proxies. Bold indicates the variable of interest.

index might suffer a self-selection bias. The firms selected by each institution may have different characteristics than those not selected, and these characteristics may influence the results. To address this issue, we run traditional two-stage regressions. In Eq. (3), we generate the Inverse Mills Ratio (IMR), which we then include in Eq. (4). This kind of two-stage regression is widely used to mitigate existing bias in a self-selected sample.

$$\begin{aligned}
 CSR = & \beta_0 + \beta_1 SIZE + \beta_2 LEV + \beta_3 CURR + \beta_4 INVREC + \\
 & \beta_5 CF + \beta_6 ROA + \beta_7 LOSS + \beta_8 SalesGRW \\
 & + \beta_9 ISSUE + \beta_{10} ABSPMDA + YearFE \\
 & + IndustryFE
 \end{aligned} \tag{3}$$

$$\begin{aligned}
 Firm\ Value = & \alpha_0 + \alpha_1 CSR + Controls + IMR + YearFE + \\
 & IndustryFE
 \end{aligned} \tag{4}$$

We include the following determinants of CSR in Eq. (3).⁵ First, we add *SIZE* to control for the firm size effect and other omitted firm characteristics. We also use *LEV* to control the financial structure effect on CSR. *CURR*, *INVREC*, and *CF*

⁵ We include the same controls in Eq. (1) in the first-stage regression (Eq. (3)) to avoid model misspecification (Lennox, Francis, & Wang, 2012).

control for liquidity and a firm's operating complexity. McGuire, Sundgren, and Schneeweis (1988) find that accounting performance is associated with CSR activities; therefore, we also include *ROA* and *LOSS*. Because a firm's growth rate is related to CSR activities, we include *SalesGRW*. Further, to control for CSR activities in firms issuing new stocks, we include *ISSUE*. An increasing number of CSR studies investigate the relationship between accounting transparency and CSR. For instance, Kim, Park, and Wier (2012) show that firms involved in CSR are negatively associated with discretionary accruals. Thus, we include *ABSPMDA*.

Although untabulated, the results of the first-stage probit regression show that the *SIZE*, *INVREC*, and *CF* are positively related with the dependent variable of *WWGI*, where *WWGI* equals to one if a firm is included in the KCCP's disclosures. In contrast, *LEV*, *LOSS*, *SalesGRW*, *ISSUE*, and *ABSPMDA* are negatively related with *WWGI*. When *KEJI* is used as the dependent variable, which is equal to one if a firm is included in the *KEJI* index, the independent variables are qualitatively similar to those of *WWGI* model in their direction.

Panel A of Table 6 presents the second-stage regression results for internal and external CSR firms after including *IMR*. The coefficients of *CSR_{Internal}* are positive and significant in columns (1) and (2) (coefficients = 0.199, 0.188, t-

Table 4
External CSR and firm value.

Variables	Dependent variable =			
	(1) <i>TobinQ</i>	(2) <i>ADJ_TobinQ</i>	(3) <i>TobinQ_{t+1}</i>	(4) <i>ADJ_TobinQ_{t+1}</i>
	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)
<i>Intercept</i>	-1.515 (-1.38)	-2.312** (-2.09)	-1.370 (-1.20)	-2.519** (-2.14)
<i>CSR_{External}</i>	0.053*** (3.44)	0.046*** (3.01)	0.057*** (3.75)	0.051*** (3.26)
<i>SIZE</i>	-0.063** (-2.10)	-0.073** (-2.41)	-0.083*** (-2.82)	-0.084*** (-2.87)
<i>LEV</i>	0.728*** (3.33)	0.701*** (3.22)	0.515** (1.97)	0.462* (1.78)
<i>CURR</i>	-0.002 (-0.37)	-0.002 (-0.39)	-0.007 (-1.10)	-0.007 (-1.05)
<i>INVREC</i>	-0.571* (-1.69)	-0.715** (-2.11)	-0.680** (-2.11)	-0.732** (-2.25)
<i>CF</i>	2.215*** (3.45)	2.153*** (3.44)	2.473*** (3.09)	2.432*** (2.82)
<i>ROA</i>	2.812*** (2.64)	2.810*** (2.66)	2.539* (1.77)	2.445* (1.65)
<i>LOSS</i>	0.093 (0.88)	0.072 (0.67)	0.039 (0.32)	0.030 (0.24)
<i>SalesGRW</i>	0.278** (2.20)	0.321*** (2.62)	0.285 (1.36)	0.335 (1.57)
<i>ISSUE</i>	0.189* (1.91)	0.161 (1.55)	0.326*** (2.66)	0.345*** (2.70)
<i>ABSPMDA</i>	0.682 (0.79)	0.490 (0.57)	1.726 (1.56)	2.033* (1.72)
<i>Year</i>	Included	Included	Included	Included
<i>Industry</i>	Included	Included	Included	Included
<i>ADJ. R²</i>	0.258	0.326	0.244	0.308
<i>N of obs.</i>	1000	1000	832	832

T-values are clustered at the firm-level. ***, **, and * denote significance at 1, 5, and 10% level, respectively. We lose 168 observations in model (3) and (4) as they use one-year-ahead firm value proxies. Bold indicates the variable of interest.

value = 2.27, 1.91, respectively). Columns (3) and (4) show the second-stage regressions results for external CSR firms. After controlling for *IMR*, all models show that external CSR activities increase firm value.⁶ Overall, the two-stage regression test results confirm that our results are robust when including *IMR*.

Our next tests aim to address the concern that the results might suffer from a potential endogenous relationship between CSR and firm value. In contrast with the previous self-selection bias, this does not originate from the different CSR indexes, but from the inherent characteristics of CSR and firm value. We mitigate this concern by using an instrumental variables approach.

In the first-stage regression, we use three instrument variables systematically related with CSR activities. First, the *Asset_{2TW}* variable equals one if a firm's total asset value is greater than 2 trillion Korean won,⁷ as firms reporting more than 2 trillion won of total assets are subject to different

regulations than companies in a lower category. For example, these large firms are required to hire at least three outside directors, and the ratio of the number of outside directors to the total number of directors should exceed 50 percent. Furthermore, they must have an audit committee in their boards. These characteristics indicate that these firms may have completely different corporate governance mechanisms as do small firms, which might affect the firms' CSR activities. Since this stronger regulation of large firms is an exogenous variable, and is thus not necessarily related to firm value, prior research using the Korean stock market generally uses this 2 trillion won restriction as an instrument variable (e.g., Black, Jang, & Kim, 2006). Second, we use the *Group* variable, which equals one if a firm belongs to a business group. Generally, such companies are highly likely to be linked to secondary and tertiary suppliers in their supply chains because a business group is a conglomerate entity consisting of several related firms. Therefore, firms that belong to such groups will pay more attention to their relationship with suppliers compared with stand-alone firms. In particular, the KCCP publishes WWGI scores for firms in business groups with a great social impact. Third, we include *Manufacturer* variable, which equals one for manufacturing

⁶ Although untabulated for brevity, we find positive and significant coefficients of CSR variables in the *TobinQ* and *TobinQ_{t+1}* models when we run the analyses using the same independent variables shown in Table 6.

⁷ The equivalent of 2 trillion Korean won is about 1.7 billion US dollars.

Table 5
Internal and external CSR and firm value.

Variables	Dependent variable =			
	(1) <i>TobinQ</i>	(2) <i>ADJ_TobinQ</i>	(3) <i>TobinQ_{t+1}</i>	(4) <i>ADJ_TobinQ_{t+1}</i>
	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)
<i>Intercept</i>	4.923*** (12.41)	2.335*** (5.77)	5.612*** (12.92)	2.902*** (6.57)
<i>CSR_{Int&Ext}</i>	0.517*** (4.54)	0.481*** (4.18)	0.640*** (4.43)	0.609*** (4.19)
<i>CSR_{Ext_Only}</i>	-0.114** (-2.34)	-0.130*** (-2.65)	-0.110** (-2.04)	-0.131** (-2.40)
<i>CSR_{Int_Only}</i>	0.469*** (5.04)	0.471*** (5.06)	0.537*** (5.61)	0.512*** (5.32)
<i>SIZE</i>	-0.152*** (-7.81)	-0.151*** (-7.68)	-0.189*** (-8.78)	-0.181*** (-8.29)
<i>LEV</i>	0.094 (0.86)	0.041 (0.38)	0.176 (1.45)	0.137 (1.11)
<i>CURR</i>	0.017** (2.39)	0.010 (1.44)	0.014* (1.67)	0.009 (1.05)
<i>INVREC</i>	-0.424*** (-2.88)	-0.415*** (-2.81)	-0.391** (-2.43)	-0.381** (-2.35)
<i>CF</i>	0.240 (1.13)	0.444** (2.17)	0.221 (1.01)	0.441** (2.06)
<i>ROA</i>	-0.174 (-0.73)	-0.033 (-0.14)	-0.041 (-0.17)	0.072 (0.31)
<i>LOSS</i>	0.092** (2.34)	0.083** (2.25)	0.131*** (3.01)	0.119*** (2.86)
<i>SalesGRW</i>	0.381*** (9.55)	0.317*** (7.75)	0.249*** (6.18)	0.203*** (4.78)
<i>ISSUE</i>	0.135*** (4.26)	0.133*** (4.14)	0.139*** (4.13)	0.145*** (4.28)
<i>ABSPMDA</i>	1.769*** (7.84)	1.639*** (7.34)	1.294*** (5.04)	1.399*** (5.40)
<i>Year</i>	Included	Included	Included	Included
<i>Industry</i>	Included	Included	Included	Included
<i>ADJ. R²</i>	0.262	0.072	0.249	0.069
<i>N of obs.</i>	9661	9661	7839	7839

T-values are clustered at the firm-level. ***, **, and * denote significance at 1, 5, and 10% level, respectively. We lose 1822 observations in model (3) and (4) as they use one-year-ahead firm value proxies. Bold indicates the variable of interest.

firms because the relationship between a manufacturing company and its partners is more important than that in other industries. We use *CSR_{Int&Ext}* as a dependent variable and include the three abovementioned instruments and control variables as independent variables. We then estimate the fitted value of the dependent variable (*Pred_CSR_{Int&Ext}*).

In Panel B of Table 6, the column (1) shows that *Asset_{2TW}* and *Manufacturer* are positive and significant among the three instruments. Although untabulated, we find significant statistics for the weak instrument test, suggesting that our instrument variables are not weakly identified. Columns (2) and (3) present the results using the fitted value of CSR on *ADJ_TobinQ* and *ADJ_TobinQ_{t+1}*, respectively. The coefficients of *Pred_CSR_{Int&Ext}* are 6.078 and 6.204 (t-values = 8.53, 8.37), respectively. Thus, our results are robust when using an instrumental approach, suggesting that an endogenous relationship does not drive our findings.

4.5. Additional tests

We next examine whether promotional activities related to business partners within a supply chain influence our results. A donation to suppliers and customers in a supply chain may speed up the conversion of inventory assets into cash. For instance, firms can donate to their business partner to shorten the manufacturing, delivery, and payment time. These effects are indicated by accounting-based numbers such as inventory days (the days it takes to sell the inventory) and accounts receivable days (the days it takes to clear the accounts receivable). A decrease in both of these areas indicates the timeliness of the operating cycle (Lo, Yeung, & Cheng, 2009). Therefore, the promotion provided to business partners in the supply chain will speed up the firm's cash conversion rate, which can be proxied by these indicators. We therefore use the internal CSR indicator as a dependent

Table 6
Applying two-stage regressions and instrumental approach to mitigate endogeneity.

Panel A. Two-stage regressions				
Variables	Dependent variable =			
	(1) <i>ADJ_TobinQ</i>	(2) <i>ADJ_TobinQ_{t+1}</i>	(3) <i>ADJ_TobinQ</i>	(4) <i>ADJ_TobinQ_{t+1}</i>
	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)
<i>Intercept</i>	3.219* (1.79)	2.261 (1.23)	-2.119 (-0.73)	-5.526* (-1.89)
<i>CSR_{Internal}</i>	0.199** (2.27)	0.188* (1.91)		
<i>CSR_{External}</i>			0.046*** (3.01)	0.051*** (3.27)
<i>IMR</i>	0.143 (0.62)	0.285 (1.01)	-0.035 (-0.07)	0.541 (1.13)
<i>Controls&Year&Industry</i>	Included	Included	Included	Included
<i>ADJ. R²</i>	0.395	0.394	0.325	0.309
<i>N of obs.</i>	545	426	1000	832
Panel B. Instrumental approach				
Variables	1st stage	2nd stage		
	(1) Dep = <i>CSR_{Int&Ext}</i>	(2) Dep = <i>ADJ_TobinQ</i>	(3) Dep = <i>ADJ_TobinQ_{t+1}</i>	
	Coefficient (T-Value)	Coefficient (T-Value)	Coefficient (T-Value)	
<i>Intercept</i>	-0.169*** (-7.35)	3.525*** (11.21)	4.007*** (11.87)	
<i>Asset_{2TW}</i>	0.085*** (14.09)			
<i>Manufacturer</i>	0.014*** (5.79)			
<i>Group</i>	-0.002 (-0.86)			
<i>Pred_CSR_{Int&Ext}</i>		6.078*** (8.53)	6.204*** (8.37)	
<i>Controls&Year</i>	Included	Included	Included	
<i>ADJ. R²</i>	0.078	0.043	0.043	
<i>N of obs.</i>	9661	9661	7839	

Control variables are included but omitted for brevity. In Panel B, industry fixed effects are not included due to possible collinearity with *Manufacturer* variable. T-values are clustered at the firm-level. ***, **, and * denote significance at 1, 5, and 10% level, respectively. Bold indicates the variable of interest.

variable and inventory days, account receivable days, and other controls as independent variables and estimate the residual value from the model. We use the residuals as a proxy for internal CSR activity after controlling for promotional donations to business partners within the supply chain. We then test whether the residuals are positively related to firm value. Untabulated results show that the coefficients of the residuals are positive and significant at the 5 percent level or above. Overall, after controlling for the promotional activities from internal CSR, the remaining internal CSR still improves firm value.

Lastly, the purpose of disclosing the KEJI index is to induce sustainable development of social enterprises and establish social contribution activities. As the index is provided by an institute, its users have less discretion when selecting the activities and points. In the score, 15 points are allocated to the social contribution subcategory. We re-test our hypothesis by regenerating the points of this subcategory, increasing them from 15 to 30, to give this category the largest weight. Thus, the regenerated external CSR score consists of six categories

with 115 points in total. We then rerun the analysis reported in Table 4 using the new score. Although untabulated, we find a positive coefficient of *CSR_{External}* for all four different *TobinQ* proxies. Thus, we find that our results are robust in different scoring methods.

5. Conclusion

This study investigates whether CSR practices related to suppliers, which affect the objective quality of the product, and those targeting external stakeholders, which shape subjective perceptions, will positively affect a firm's value. By dividing CSR into internal and external activities, we aim to broaden the scope of CSR-related research.

We analyze firms listed in the Korean stock market using an internal CSR index from the KCCP and an external one from the KEJI and find that both types of CSR lead to higher firm value. Furthermore, a core contribution of our study is the finding that the positive relation between CSR and firm value derives mainly from internal CSR activities. The

results show that firms involved in both types of CSR have higher values, while those engaged only in external CSR have lower values than non-CSR firms. Interestingly, we find that firms investing only in internal CSR also show higher values than non-CSR firms, indicating that social activity for internal suppliers is a core CSR aspect that determines firm value.

These findings are meaningful because they provide a specific path indicating how social activities increase firm value, offering clearer, more direct results than merely claiming that external social contributions are vaguely related to a firm's value. Also, existing research provides limited analysis of whether CSR activities targeting suppliers have positive effects on a firm's value. The literature contains limited empirical evidence using few observations. Our study contributes to the literature by expanding the concept of CSR to a broader scale.

Our study also has several caveats. First, the two CSR proxies are published by different institutions. Therefore, there are inherent differences in the calculation of each index. Second, our findings are based on the Korean market, and thus are not generalizable to other jurisdictions. Future research may report further evidence from other emerging or developed markets. Finally, we acknowledge that although we apply several methods to the analyses to mitigate endogeneity concerns, we cannot argue that the model completely controlled for them. Therefore, it is necessary to be cautious with the interpretation of our results.

Declaration of competing interest

None.

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