

Does CSR Really Enhance Sustainability?: A Perspective of Business Cycle*

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Abstract

Purpose - The purpose of this study is to investigate the effect of macroeconomic conditions on the relationship between CSR and firm value.

Design/methodology/approach - Employing KEJI index as a proxy for a firm's CSR activities, we investigate whether investors discount the value of CSR activity during the economic recession when a firm's bankruptcy risk is high and thus its future sustainability is suspected.

Findings - Our empirical result represents that the value of a firm with high CSR score is undervalued during recession, reflecting investors doubt the sustainability of a firm whose CSR score is high when overall economy is exposed to high downside risk.

Research implications or Originality - It implies that investors may not regard the CSR activities as an indicator of corporate sustainability. Also, the result represents that stable macroeconomic condition can be one of the important factors to make the CSR activity increase a firm's value.

Keywords: Corporate Social Responsibility, Firm Value, Macroeconomic Conditions

JEL Classifications: E32, M40

I. Introduction

Research on corporate social responsibility (hereafter, CSR) is getting more popular in business academia as the importance of economic and environmental sustainability is emphasized for a firm management. Corporate managers also pay attention to the importance of CSR for sustainable growth. In 2018 global sustainability forum, for instance, Tae-won Choi (CEO of SK Corporation in Korea) said, "In future, the social value will be a more important determinant of investors' decision-making rather than the financial aspect of a firm." In addition, global management consulting firms such as McKinsey and Accenture document decreasing trend of a firm's life span. Thus, establishing a sustainable business strategy can serve as a key factor for a firm's growth.

In academia, a firm's sustainability is captured by its CSR activities and the majority of previous studies document a positive relationship between CSR and firm value (Dhaliwal et al., 2011; Malik, 2015; Waddock and Graves, 1997). Even though a firm's CSR activities tend to

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increase its value, previous studies do not examine whether CSR really reflect a firm's sustainability. In this study, we fill this void by investigating whether CSR is differently valued from investors across the change in macroeconomic conditions.

The effect of macroeconomic condition on the positive relationship between CSR and firm value may vary depending on whether CSR activities really reflect a firm's sustainability. During the financial crisis when a majority of firms are exposed to higher bankruptcy risk, a firm's sustainability is supposed to be an essential factor for investment decisions. If CSR activity is closely related to a firm level sustainability as documented in previous studies (Dhaliwal et al., 2011; Dhaliwal et al., 2012), investors will pay more attention to the firm's CSR activity if the macroeconomic condition is unstable. Thus, a firm with high CSR score may be expected to be highly evaluated under recession. By contrast, if CSR activities may sacrifice a firm's current profitability and decrease the likelihood of the firm's survival, investors may discount the value of CSR activities under economic recession. As previous studies regard CSR as an useful indicator of a firm's sustainability, it is worth examining whether macroeconomic shock intensifies the relationship between CSR and firm value. In this study, we aim to verify it through empirical analysis.

Employing "Best Corporate Citizen Index" from the Korea Economic Justice Institute (KEJI) as a proxy for a firm's CSR activities (hereafter, KEJI index), we find the positive relationship between KEJI index and firm value is less strong under recession. The result implies that investors discount the value of CSR activities if the macroeconomic condition is unstable and that CSR may not reflect a firm's sustainability.

The contribution of this study is as follows. To our knowledge, this is the first research that investigates the effectiveness of CSR as an indicator of a firm's sustainability adopting the change in macroeconomic condition. Thus, our study may provide a useful milestone for the future studies that examine the macroeconomic effect on the value of CSR. In addition, the empirical result shows that CSR is undervalued under economic recession. Thus, this study provides useful policy implication that stable macroeconomic condition is important to make a firm's CSR activities fairly evaluated.

This paper is organized as follows: we review prior literature and establish hypothesis in Section 2. In Section 3, we present our research methodology. Section 4 shows empirical results. Finally, Section 5 summarizes and concludes the paper.

II. Prior literature and hypothesis development

1. Prior Literature

CSR has become a widely used concept in academia since the roles of a firm are emphasized in the economy (Carroll, 2008). Previous studies regard CSR activities as a firm's competitive power and key requirement for the firm's survival as corporations' influence over entire society increases (Carroll, 1979; Donaldson and Preston, 1995; Hart, 1995; Jones, 1995; McWilliams and Siegel, 2001; McWilliams et al., 2002). This opinion is based on the idea that a firm is sharing interests with a variety of stakeholders: shareholders, creditors, customers, employees, regulators, and the press, etc. Thus, if a firm does not satisfy the stakeholders' demands for corporate responsibility, it may not attain sustainable growth in the long run (Freeman, 1984). Based on this argument, previous studies present that CSR activities improve not only a firm's

non-financial aspect but also its financial performance through various links. For instance, a firm's CSR activities increase customers' satisfaction and lead to sales growth (Brown and Dacin, 1997; Lev et al., 2010) or increase employees' satisfaction, future firm performance, and shareholders' wealth (Banker and Mashruwala, 2007; Edmans, 2011; Waddock and Graves, 1997). In addition, a firm actively involving in CSR activities can decrease cost of capital (Dhaliwal et al., 2011) and improve credit rating (Attig et al., 2013; Goss and Roberts, 2011). A firm with high CSR activities has long lasting firm performance and more persistent earnings (Roberts and Dowling, 2002). Following this line of studies, CSR is believed to have the same meaning as sustainability (Dhaliwal et al., 2011).

2. Hypothesis Development

Recently, CSR attracts more attention than ever. In 2014, the European Union (EU) has made it mandatory for companies with 500 employees and more to disclose CSR-oriented non-financial performance in their annual reports. This regulation has been in force since 2018. In Korea, similar to EU, Financial Supervisor Service (FSS) is also preparing CSR disclosure regulation that induces voluntary disclosure. Despite the concern that this CSR disclosure may intervene management discretion, it is considered necessary to extend the life span of firms and attain sustainable growth.

To check whether CSR really reflects a firm's sustainability, this study investigates whether the positive relationship between CSR and firm value changes according to the macroeconomic conditions. Macroeconomic condition can be a useful setting because under economic recession when overall firms are exposed to high bankruptcy risk, a firm's survival may be relatively more important. Thus, if investors recognize that a firm's CSR activities act as a signal reflecting its sustainability, the CSR activities may be more appreciated and the relationship between a firm's CSR activities and firm value may become stronger under recession. By contrast, investors may regard CSR activities as "luxury goods" that can be invested only when a firm can afford it. If investors think that current CSR expenditure increases the likelihood of bankruptcy risk, the positive relationship between a firm's CSR activities and firm value may become less strong under recession. Under the premise that both directions are possible, we establish the following null hypothesis.

H: The relationship between CSR activities and firm value does not change regardless of the macroeconomic business cycle (or financial distress).

III. Methodology

1. Estimation of Key Variables

Based on prior studies, we employ KEJI index as the proxy of CSR activities. Korea Economic Justice Institute is an affiliated organization of Citizen's Coalition for Economic Justice (CCEJ) in Korea and announces KEJI index annually by compiling a variety of aspects of firms which are expected to be related to their social responsibility. Thus, a firm's KEJI index has been widely used to measure its CSR performance in previous studies (Choi et al., 2010; Chung et al., 2018; Oh et al., 2011).

We estimate macroeconomic condition based on the composite economic index and reference circulation date that Statistics Korea (KOSTAT)¹⁾ issues. The KOSTAT announces the bottom and peak points of the Korean economy and duration of the expansion (recession) periods. The expansion period is defined from the bottom point to the peak point. Similarly, the recession period covers from the bottom point to the peak point. If the recession period occupies 6 months or more in a calendar year, the year is classified as a recession (CON = 1); otherwise, the year is classified as an expansion (CON = 0) (Jenkins et al., 2009). And we collect the other accounting and financial data from KISVALUE, a Korean financial database.

2. Model Establishment

This study aims to examine whether the relationship between CSR activities and firm value varies depending on economic conditions. To test the hypothesis, we establish the following empirical model.

$$TQ_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 CON_{i,t} + \beta_3 CSR * CON_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 FOREN_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 CFO_{i,t} + \beta_9 GRWTH_{i,t} + \beta_{10} IFRS_{i,t} + \beta_{11} ROA_{i,t} + IND + YD + \epsilon \quad (1)$$

Where,

- TQ = Tobin's q, estimated as sum of market value of equity and liability divided by book value of total assets;
- CSR = Standardized value of KEJI index, defined as a firm's actual KEJI score divided by the full score;
- CON = Dummy variable indicating business cycle, measured as 1 under recession and 0 otherwise;
- SIZE = Firm size, estimated as natural logarithm of total assets;
- LEV = Leverage, measured as total liability divided by total assets;
- FOREN = Foreign investors' ownership;
- R&D = R&D expenditure divided by sales;
- CFO = Cash flow from operation divided by total assets;
- GRWTH = Sales growth rate;
- IFRS = Dummy variable indicating IFRS implementation, 1 if the financial statements are prepared following IFRS, and 0 otherwise;
- ROA = Return on assets, defined as net income to total assets;
- IND = Industry dummies;
- YD = Year dummies.

If the relationship between CSR activities and firm value does not change regardless of the macroeconomic business cycle, the coefficient β_3 will be insignificant. However, a significant sign of β_3 implies macroeconomic condition affects the relationship between CSR activities and firm value.

1) Statistics Korea (KOSTAT) is compatible with US Census Bureau.

3. Sample Selection

We collect our sample with listed firms on the Korean Stock Exchange over the period of 2002 through 2016.²⁾ We present our sample selection process as follows:

- (1) Firms with the KEJI score
- (2) Non-financial firms
- (3) Firms whose fiscal year ends are December
- (4) Firms whose financial data available from KISVALUE

To estimate the effect of CSR, we limit our sample to the firms with KEJI scores that Korea Economic Justice Institute (KEJI) issues. Financial firms are excluded because the structure of the financial statements is different from that of other industries. To exclude the potential effects originating from the different fiscal end month, we limit our sample to firms whose fiscal year-ends are December. For massive data collection, we use KISVALUE, a Korean financial database. <Table 1> reports the sample used in this study. After adopting the filtering criteria above, we construct 4,341 firm-year observations.

TABLE 1. Sample Selection Procedure

| Sample selection criteria | No. of firms | No. of firm-years |
|--|--------------|-------------------|
| Financial data over the period of 2002 to 2016 retrieved from KISVALUE | 852 | 9,767 |
| Less: | | |
| No CSR ratings (KEJI Index) | (142) | (5,145) |
| Non-December year-ends | (21) | (239) |
| Stock price data unavailable | (10) | (24) |
| Control variables unavailable | (4) | (18) |
| Final sample firms and firm-years | 675 | 4,341 |

IV. Empirical results

1. Descriptive Statistics and Correlation Matrix

<Table 2> reports descriptive statistics and correlation matrix. First, Panel A shows descriptive statistics. The average value of Tobin's q (TQ) is 1.021 and the median value is 0.889. Corporate social responsibility (CSR) has mean value of 0.609 and median value of 0.610.

Panel B presents correlation matrix among the key variables. Our main variable, CSR is positively related to TQ (0.301). Meanwhile, another interest variable, CON have a negative coefficient (-0.175). These results are supportive of the argument that firm value increases with CSR and decreases under the economic recession.

²⁾ We exclude firm-year data of 2010 because KEJI do not provide CSR index for the year.

TABLE 2. Descriptive Statistics and Correlation Matrix

Panel A. Descriptive Statistics

| Variable | N | Mean | Std. | Min. | 25% | Median | 75% | Max. |
|----------|-------|--------|-------|--------|--------|--------|--------|--------|
| TQ | 4,341 | 1.021 | 0.499 | 0.392 | 0.718 | 0.889 | 1.150 | 3.359 |
| CSR | 4,341 | 0.609 | 0.041 | 0.506 | 0.583 | 0.610 | 0.637 | 0.705 |
| CON | 4,341 | 0.299 | 0.458 | 0 | 0 | 0 | 1 | 1 |
| SIZE | 4,341 | 19.683 | 1.368 | 17.295 | 18.708 | 19.454 | 20.397 | 23.846 |
| LEV | 4,341 | 0.403 | 0.181 | 0.038 | 0.259 | 0.404 | 0.545 | 0.796 |
| FOREN | 4,341 | 0.113 | 0.148 | 0.000 | 0.008 | 0.046 | 0.162 | 0.658 |
| R&D | 4,341 | 0.007 | 0.016 | 0.000 | 0.000 | 0.000 | 0.006 | 0.101 |
| CFO | 4,341 | 0.064 | 0.068 | -0.122 | 0.024 | 0.061 | 0.102 | 0.272 |
| GRWTH | 4,341 | 0.077 | 0.185 | -0.377 | -0.021 | 0.057 | 0.143 | 0.903 |
| IFRS | 4,341 | 0.455 | 0.498 | 0 | 0 | 0 | 1 | 1 |
| ROA | 4,341 | 0.055 | 0.047 | -0.064 | 0.023 | 0.046 | 0.079 | 0.220 |

Panel B. Correlation Matrix

| Var. | TQ | CSR | CON | SIZE | LEV | FOREN | R&D | CFO | GRWTH | IFRS |
|-------|----------------------------|----------------------------|----------------------------|---------------------------|----------------------------|----------------------------|---------------------------|---------------------------|----------------------------|----------------------------|
| CSR | 0.301 <i><.0001</i> | | | | | | | | | |
| CON | -0.175 <i><.0001</i> | -0.039 <i>0.011</i> | | | | | | | | |
| SIZE | 0.212 <i><.0001</i> | 0.344 <i><.0001</i> | -0.018 <i>0.230</i> | | | | | | | |
| LEV | 0.055 <i>0.000</i> | -0.185 <i><.0001</i> | 0.057 <i>0.000</i> | 0.209 <i><.0001</i> | | | | | | |
| FOREN | 0.313 <i><.0001</i> | 0.332 <i><.0001</i> | 0.012 <i>0.419</i> | 0.483 <i><.0001</i> | -0.109 <i><.0001</i> | | | | | |
| R&D | 0.252 <i><.0001</i> | 0.282 <i><.0001</i> | -0.051 <i>0.001</i> | 0.070 <i><.0001</i> | -0.105 <i><.0001</i> | 0.077 <i><.0001</i> | | | | |
| CFO | 0.234 <i><.0001</i> | 0.213 <i><.0001</i> | -0.035 <i>0.020</i> | 0.097 <i><.0001</i> | -0.147 <i><.0001</i> | 0.230 <i><.0001</i> | 0.082 <i><.0001</i> | | | |
| GRWTH | 0.107 <i><.0001</i> | 0.008 <i>0.610</i> | 0.123 <i><.0001</i> | 0.025 <i>0.101</i> | 0.159 <i><.0001</i> | -0.009 <i>0.551</i> | -0.007 <i>0.649</i> | -0.008 <i>0.593</i> | | |
| IFRS | 0.172 <i><.0001</i> | 0.247 <i><.0001</i> | -0.236 <i><.0001</i> | 0.067 <i><.0001</i> | -0.110 <i><.0001</i> | -0.093 <i><.0001</i> | 0.074 <i><.0001</i> | -0.046 <i>0.003</i> | -0.136 <i><.0001</i> | |
| ROA | 0.336 <i><.0001</i> | 0.221 <i><.0001</i> | -0.008 <i>0.603</i> | 0.060 <i><.0001</i> | -0.258 <i><.0001</i> | 0.302 <i><.0001</i> | 0.063 <i><.0001</i> | 0.415 <i><.0001</i> | 0.198 <i><.0001</i> | -0.132 <i><.0001</i> |

P-values are shown in italics.

Definitions of Variables:

- TQ = Tobin's q;
- CSR = Corporate Social Responsibility;
- CON = Contraction period;
- SIZE = Firm size;
- LEV = Firm leverage;
- FOREN = Foreign investors' ownership;
- R&D = Research and Development;
- CFO = Cash flows from operations;
- GRWTH = Sales growth;
- IFRS = IFRS Dummy;
- ROA = Return on Assets.

2. Empirical evidence

2.1. Market valuation for CSR activities during economic recession

(Table 3) reveals the relationship between CSR and firm value. The coefficient of CSR has a significantly positive coefficient (1.598), which suggests that CSR activities are generally believed to increase firm value captured by Tobin's q (TQ). The result is consistent to previous studies documenting a positive relationship between CSR and firm value. However, the coefficient of interaction term, CSR*CON is significantly negatively related to TQ. The result indicates that the positive effect of CSR on firm value decreases during economic recession.

This result implies that during economic recession when a majority of firms are exposed to bankruptcy risk, CSR activities are not so helpful to increase a firm's value. In addition, the result supports the argument that CSR activities should be encouraged only when firms secure plenty of economic resources. Thus, the result represents that the investors believes CSR is less related to a firm's sustainability even though it is useful to increase firm value.

TABLE 3. The Regression Result of Market Valuation for CSR Activities during Economic Recession.

$$TQ_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 CON_{i,t} + \beta_3 CSR*CON_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 FOREN_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 CFO_{i,t} + \beta_9 GRWTH_{i,t} + \beta_{10} IFRS_{i,t} + \beta_{11} ROA_{i,t} + IND + YD + \epsilon$$

| Independent Variable | Dependent Variable = TQ | | | |
|----------------------|-------------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -0.496 | *** | -3.14 |
| CSR | + | 1.598 | *** | 7.60 |
| CON | | 0.573 | | 1.32 |
| CSR*CON | +/- | -0.649 | ** | -2.04 |
| SIZE | | -0.014 | ** | -2.56 |
| LEV | | 0.702 | *** | 18.01 |
| FOREN | | 0.694 | *** | 13.80 |
| R&D | | 5.763 | *** | 14.73 |
| CFO | | 0.511 | *** | 5.16 |
| GRWTH | | 0.207 | *** | 6.01 |
| IFRS | | 0.102 | | 0.26 |
| ROA | | 2.868 | *** | 18.91 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.4027 | |
| F-Value | | | 82.30 (<.001) | |
| Obs. | | | 4,341 | |

1) ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests.

2) Please see <Table 2> for definitions of variables.

(Table 4) presents a supporting evidence that the effect of CSR on firm value vary across a firm’s financial distress. To examine whether the effect of CSR varies according to a firm’s financial condition, we distinguish our sample into three subsamples by Altman’s zones of discrimination: Safe, Grey, and Distress Zones.³⁾

Panel A shows the result of “Safe” Zone which is comprised of firm-years with good financial strength. The coefficient of CSR*DEFAULT is positively related to TQ (coefficient=2,578, t-value=8.77). The result implies that when a firm’s default risk is low and is believed to be safe, the CSR activities are highly valued from investors. Panel B shows the result of “Grey” Zone which is comprised of firm-years with average financial strength. In this case, the coefficient of CSR*DEFAULT is negatively related to TQ (coefficient=-2,021, t-value=-6.73). The negative sign indicates that CSR activities do not increase a firm’s value if a firm is not safe. Thus, it implies CSR does not act as an indicator of a firm’s sustainability. Panel C shows the result of “Distress” Zone which is comprised of firm-years with bad financial strength, the coefficient of CSR*DEFAULT is negatively related to TQ (coefficient=-2,635, t-value=-7.27). The result is qualitatively similar to “Grey” Zone case. However, the negative relationship becomes stronger. Comprehensively, they show that only firms in the “Safe” Zone enjoy the benefits of CSR investments in terms of firm value. By contrast, “Grey” or “Distress” Zone relative to the other groups is negatively related to firm value.

TABLE 4. The Regression Result of Market Valuation for CSR Activities of Firms Across Financial Strength

$$TQ_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 DEFAULT_{i,t} + \beta_3 CSR*DEFAULT_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 FOREN_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 CFO_{i,t} + \beta_9 GRWTH_{i,t} + \beta_{10} IFRS_{i,t} + \beta_{11} ROA_{i,t} + IND + YD + \epsilon$$

Panel A. “Safe” Zone

| Independent Variable | DEFAULT = Safe Zone | | |
|----------------------|---------------------|----------|-----------|
| | Pred. sign | Estimate | t-value |
| Intercept | | -0.049 | -0.33 |
| CSR | + | 0.014 | 0.07 |
| DEFAULT | | -1.240 | *** -6.86 |
| CSR*DEFAULT | +/- | 2.578 | *** 8.77 |
| SIZE | | 0.003 | 0.59 |
| LEV | | 1.090 | *** 26.46 |
| FOREN | | 0.570 | *** 11.98 |
| R&D | | 5.125 | *** 13.35 |
| CFO | | 0.391 | *** 4.21 |
| GRWTH | | 0.176 | *** 5.41 |
| IFRS | | 0.068 | 0.19 |
| ROA | | 1.738 | *** 11.57 |
| Industry Dummy | | | Included |

3) Altman (1968)’s original Z-score is widely used as a measure of default risk or financial distress in academic studies. According the Z-score, firms fall into one of the three zones: $Z > 2,99$ - “Safe” Zone, $1,81 < Z < 2,99$ - “Grey” Zone, and $Z < 1,81$ - “Distress” Zone. We follows the same discrimination.

| | |
|------------|----------------|
| Year Dummy | Included |
| Adj. R2 | 0.4942 |
| F-Value | 109.15 (<.001) |
| Obs. | 3,986 |

Panel B. "Grey" Zone

| Independent Variable | DEFAULT = Grey Zone | | | |
|----------------------|---------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -0.860 | *** | -5.43 |
| CSR | + | 2.065 | *** | 9.86 |
| DEFAULT | | 1.067 | *** | 5.87 |
| CSR*DEFAULT | - | -2.021 | *** | -6.73 |
| SIZE | | -0.007 | | -1.24 |
| LEV | | 0.793 | *** | 20.24 |
| FOREN | | 0.660 | *** | 13.36 |
| R&D | | 5.625 | *** | 14.10 |
| CFO | | 0.442 | *** | 4.56 |
| GRWTH | | 0.192 | *** | 5.67 |
| IFRS | | 0.018 | | 0.05 |
| ROA | | 2.549 | *** | 16.95 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.4491 | |
| F-Value | | | 91.24 (<.001) | |
| Obs. | | | 3,986 | |

Panel C. "Distress" Zone

| Independent Variable | DEFAULT = Distress Zone | | | |
|----------------------|-------------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -0.804 | *** | -5.25 |
| CSR | + | 1.776 | *** | 9.16 |
| DEFAULT | | 1.455 | *** | 6.77 |
| CSR*DEFAULT | - | -2.635 | *** | -7.27 |
| SIZE | | -0.004 | | -0.70 |
| LEV | | 0.809 | *** | 19.60 |
| FOREN | | 0.678 | *** | 13.55 |
| R&D | | 5.552 | *** | 13.70 |
| CFO | | 0.486 | *** | 4.95 |
| GRWTH | | 0.208 | *** | 6.04 |
| IFRS | | 0.137 | | 0.37 |
| ROA | | 2.518 | *** | 16.11 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.4344 | |
| F-Value | | | 86.02 (<.001) | |
| Obs. | | | 3,986 | |

1) ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests.

2) Please see <Table 2> for definitions of variables.

2.2. Further test

The empirical results in (Table 4) might be misunderstood as if CSR activities decrease a firm's value under recession. However, (Table 4) does not present the value decreasing effect of CSR activities during economic downturn but shows the relative effects of CSR activities that may vary according to macroeconomic conditions. To clarify it, we empirically test whether CSR activities are helpful to increase firm value but the effect varies depending on the financial strength of the firms in the additional analysis.

Panel A of (Table 5) shows the positive relationship between "Safe" firms' CSR activities and Tobin's q (coefficient=2.136, t-value=5.84). Panel B also presents the positive relationship between CSR activities of "Grey" firms and Tobin's q (coefficient=0.652, t-value=4.30). Lastly, the result of "Distress" firms and Tobin's q in Panel C is consistent with the results of Panel A and B (coefficient=0.453, t-value=2.84). Even though there are some differences among subsamples, it seems obvious that CSR activities are helpful in increasing firm value regardless of firms' financial strength. (Table 5) shows that the benefit of CSR may be maximized when a firm has affluent economic resources. The results suggest that managers need to ease investors' concerns if they think that CSR activities can decrease firm value under a particular situation.

TABLE 5. The Regression Result of Market Valuation for CSR Activities of Firms by Subsamples

$$TQ_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 FOREN_{i,t} + \beta_5 R\&D_{i,t} + \beta_6 CFO_{i,t} + \beta_7 GRWTH_{i,t} + \beta_8 IFRS_{i,t} + \beta_9 ROA_{i,t} + IND + YD + \epsilon$$

Panel A. Subsample of "Safe" Zone

| Independent Variable | Dependent Variable = TQt | | | |
|----------------------|--------------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -1.341 | *** | -4.27 |
| CSR | + | 2.136 | *** | 5.84 |
| SIZE | | 0.005 | | 0.43 |
| LEV | | 1.275 | *** | 14.43 |
| FOREN | | 0.785 | *** | 8.89 |
| R&D | | 5.781 | *** | 8.81 |
| CFO | | 0.561 | *** | 2.85 |
| GRWTH | | 0.277 | *** | 4.07 |
| IFRS | | 0.595 | *** | 7.36 |
| ROA | | 2.115 | *** | 7.24 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.4293 | |
| F-Value | | | 40.76 (<.001) | |
| Obs. | | | 1,692 | |

Panel B. Subsample of “Grey” Zone

| Independent Variable | Dependent Variable = TQt | | | |
|----------------------|--------------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -0.261 | ** | -2.13 |
| CSR | + | 0.652 | *** | 4.30 |
| SIZE | | 0.010 | * | 1.94 |
| LEV | | 1.048 | *** | 26.48 |
| FOREN | | 0.273 | *** | 5.75 |
| R&D | | 4.473 | *** | 10.54 |
| CFO | | 0.151 | * | 1.79 |
| GRWTH | | 0.073 | ** | 2.23 |
| IFRS | | 0.213 | *** | 6.77 |
| ROA | | 0.796 | *** | 5.12 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.5192 | |
| F-Value | | | 54.09 (<.001) | |
| Obs. | | | 1,476 | |

Panel C. Subsample of “Distress” Zone

| Independent Variable | Dependent Variable = TQt | | | |
|----------------------|--------------------------|----------|---------------|---------|
| | Pred. sign | Estimate | | t-value |
| Intercept | | -0.023 | | -0.21 |
| CSR | + | 0.453 | *** | 2.84 |
| SIZE | | -0.001 | | -0.28 |
| LEV | | 0.932 | *** | 23.05 |
| FOREN | | 0.190 | *** | 3.42 |
| R&D | | 2.758 | *** | 5.34 |
| CFO | | 0.166 | * | 1.96 |
| GRWTH | | 0.059 | ** | 2.27 |
| IFRS | | -0.001 | | -0.01 |
| ROA | | 0.319 | * | 1.90 |
| Industry Dummy | | | Included | |
| Year Dummy | | | Included | |
| Adj. R2 | | | 0.5784 | |
| F-Value | | | 39.65 (<.001) | |
| Obs. | | | 818 | |

1) ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests.

2) Please see <Table 2> for definitions of variables.

V. Conclusion

For academics and practitioners, a firm's CSR activities have been considered as an essential factor for its sustainable development. As the consideration for a firm's sustainability may vary according to the firm's bankruptcy risk, the effect of CSR activity on a firm's value may depend on overall macroeconomic conditions that change a firm's exposure to the bankruptcy risk. In this study, we address this issue. If a firm's CSR reflects its sustainability as documented in the previous studies, the value of a firm with a high CSR score should be higher under recession. By contrast, if a firm's CSR activity is merely a "luxury goods" that can be invested only when a firm can afford it, CSR activity may undermine a firm's value under recession. Our empirical result supports the latter by representing that a firm's CSR activity is less valued under recession.

To our knowledge, this is the first study examining the effect of macroeconomic condition on the effectiveness of CSR. Thus, our study provides a useful milestone for the following studies. Also, the result shows that stable macroeconomic condition may be important to make a firm's CSR be fairly valued in the capital market.

Despite its contributions, we admit several limitations of this study. First, our study used an indicator variable which is one if the period falls into recession. Thus, our study does not estimate the specific effect of macroeconomic fluctuation on the value of CSR. Second, even though we find that CSR is undervalued under recession, our study does not provide specific reasons sufficiently at this stage. Thus, promising areas for future research include examining the specific factors that make CSR activities undervalued. Also, the variation of the discount of CSR value according to investors' types (e.g., dedicated investors vs. transient investors) may provide helpful insight from the perspective of the capital market.

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