

Estimating the Hidden Corporate Social Performance of Japanese Firms

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Abstract

As corporate social performance (CSP) is recognized as a key component in evaluating a firm's quality, the methodology for measuring CSP is an important area of corporate finance research. A commonly used method evaluates firms using the responses from a questionnaire survey on the firm's corporate social responsibility (CSR) and related activities. However, CSR analysts and researchers have difficulty in eliminating sample bias in survey data. In other words, nobody can evaluate the CSP of non-respondents. In this study, we implicitly assume that the decision to respond to the CSR survey depends on the firm's CSR consciousness and that managers sometimes "hide" their level of CSP from investors. The main purpose of this study is to estimate the "hidden CSP" of firms (CSP "hidden" by managers). We construct a statistical model to estimate the CSP of non-respondents using the relationship between CSP and a firm's observable financial characteristics and ownership structure. Our results suggest that there is a significant latent gap between the CSP of respondents and the hidden CSP of non-respondents due to differences in firm size, foreign dependency of business, and reputation and trust in the financial markets, rather than due to differences in financial performance. Insider-oriented ownership structures are negatively associated with CSP. Respondents tend to be relatively large-scale firms that are more conscious to CSR risks and less conscious to CSR costs compared to non-respondents. However, a significant number of CSR unconscious and low CSP firms do exist among the large-scale firms.

Keywords: corporate social performance, corporate social responsibilities, selection bias

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1. Introduction

Corporate social responsibility (CSR) is recognized as one of the most important components of corporate strategy for ensuring long-term value and the sustainable growth of a firm. The precise measurement of corporate social performance (CSP) is a prerequisite for investigating the impacts of CSR activities on value creation and business sustainability, and is important for both shareholders and corporate managers. However, CSR activities are multi-faceted, and the focus is not unilateral because stakeholder relationships can differ by business and social environment. Even in a stock market, investors must consider a wide range of firms, including public and private firms. Even if investors limit their investment universe to public firms, coverage would be limited by the number of available CSR analysts and their time. It is difficult for investors to obtain sufficient information regarding the CSR activities of public firms; this sample bias problem cannot be eliminated without the public disclosure of non-financial information.

Therefore, questionnaire-based surveys of firms have been widely used to uncover CSR-related information. However, surveys involve voluntary disclosure, and whether or not to answer the questions depends on the firms' decision makers. As the respondents to such surveys are usually representatives of public firms, there could be sample bias, so the conclusion(s) cannot be generalized to all relevant entities. In empirical analyses using survey data, the robustness of the results and the appropriateness of their implications are always questioned. The CSP of a questionnaire survey's non-respondents (or that of firms not covered by CSR analysts) is cause for both academic researchers and practitioners in capital markets.

This study attempts to estimate the missing CSP with the available information by simplifying corporate behavior under the assumption that CSP is related to the CSR consciousness of a firm in the Japanese context. If we can confirm that there are statistically significant relations between CSP and a set of variables, including corporate financial performance (CFP) and other firm-specific variables linked to CSR consciousness, we can generalize the results gained from the observed firms to the whole sample by estimating their CSP with available company data. We define two factors of CSR consciousness: firm attributes and ownership structure.

In this study, we presume that listed Japanese firms are roughly divided into two groups based on the difference in CSR consciousness; thus, the respondents to the CSR questionnaire survey were classified as the CSR conscious group, and the non-respondents were treated as the CSR disclosure unconscious group. We also presume that there are statistically significant correlations between CSP and firm CFP, and that the correlations are homogeneous within the listed firms. In other words, selection bias exists only due to CSR consciousness and related non-financial disclosures among Japanese firms. Based on these assumptions, we estimate the unobserved CSP of non-respondents using available firm-specific data and

the CSP indices of the respondents constructed from the questionnaire results. We use models to ensure the highest possible information value of the estimation for selecting both CFP and the set of firm-specific variables related to the firms' CSR consciousness..

Comparing the estimated CSP of respondents and non-respondents, we find some interesting results. First, we confirm that there are statistically significant differences in CSR consciousness variables between the two groups, as expected. Second, the estimated CSP of non-respondents is much lower than those of respondents. This suggests that non-respondents may have hidden their low CSP. Third, larger firms tend to have higher CSP; however, the CSP in the largest-scale firms is sharply dichotomized. This suggests that a significant number of large listed firms are not sufficiently attentive to CSR and non-financial disclosure. This study provides a simple device for estimating the unobserved CSP (called "hidden CSP" in this study) in order to obtain a picture of the CSP distribution of Japanese listed firms as a whole. It will also contribute toward motivating non-respondent firms to actively disclose non-financial information and toward encouraging CSR activities.

This paper is organized as follows. Section 2 discusses the analytical framework and the background to the study. Section 3 presents the preliminary analysis by comparing the firm attributes and financial performance of the respondents and non-respondents of the questionnaire survey. Section 4 constructs the estimation models of the hidden CSP of the omitted sample and compares the estimated CSP of the two groups. Section 5 discusses the implications of the biased behavior of non-respondents in the context of non-financial disclosure and corporate valuation in the Japanese market. We also suggest some directions for future research on CSR and corporate value.

2. Background and Approach

Since the 1980s, a number of studies have investigated the association between CSP and corporate financial performance (CFP). Some studies share the view of CSR practices as corporate strategies to adapt to social and environmental needs by exploring business opportunities and innovation, improving organizational efficiency, mitigating conflicts among stakeholders, and enhancing their reputation. A significant amount of studies examine the relationship between CSP and profitability, many of them find a positive relationship between CSP and accounting-based profit measures (Cochran and Wood, 1984; McGuire et al., 1988; Waddock and Graves, 1997; Griffin and Mahon, 1997). However, some studies find a negative relationship between CSP and market-based profit measures (Waddock and Graves, 1997; Johnson and Greening, 1999) or no significant association at all (McGuire et al., 1988). Orlitzky et al. (2003) performed a meta-analysis that suggests that CSP is more highly correlated with accounting-based measures of CFP than with market-based measures of CFP. Recently, a number of studies have indicated

a tendency to use complex research methods to reach the conclusions that do not refute earlier studies (Jiao, 2010; Schreck, 2011; Gao and Bansal, 2013).

Other studies focused on the relationship between CSP and risk. Early studies show that investors perceive socially responsible firms as a low risk for investment. CSR related disclosure can reduce investors' informational uncertainty in a financial market (Ullmann, 1985) and social reputation tends to reduce market risk (Orlitzky and Benjamin, 2001) McGuire et al. (1988) find a negative association between CSP and both accounting-based risk measures and beta (a measure of systematic risk). By contrast, Aupperle et al. (1985) find a negative relationship between various accounting-based risk measures and CSP, but report no significant results related to market-based risk measures.

More recently, research interest seems to have extended to managers' motivation to employ CSR to reduce risk premiums in financial markets. Boutin-Dufresne and Savaria (2004) focus on the relationship between CSR and the financial risk that firms face in the market and indicate that CSR could help reduce the overall risk managers must worry about. Some studies examine the impacts of CSR on capital and debt costs. El Ghouli et al. (2011) demonstrate CSR's effectiveness in reducing the cost of equity capital. Goss and Roberts (2011) and Menz (2010) examine the links between CSR and bank debt and bond markets, respectively; however, the results from these studies are inconclusive. These studies suggest that investors and creditors are conscious to the CSR policy and practices of a firm in evaluating risk.

Thus, previous research suggests that CSR-related information is relevant to company valuations in financial markets. However, as CSR is intangible and multi-faceted, most CSR-related information is disclosed on a voluntary basis in stand-alone CSR reports, in response to questionnaire surveys, analysts' interviews, and so on. According to Dhaliwal et al. (2011), a firm's voluntary disclosure demonstrates its special efforts and commitment to improving transparency about its long-term performance and risk management. Dhaliwal et al. (2011) examine the benefits of stand-alone CSR reports for business and find that voluntary disclosure leads to a reduction in the cost of equity capital. Dhaliwal et al. (2012) also examine the relationship between disclosure of non-financial information and analysts' forecast accuracy and demonstrate that the issuance of stand-alone CSR reports is associated with lower analyst forecast error. These results suggest that voluntary disclosure has information value for market participants and leads to moderate information asymmetry.

Voluntary disclosure can introduce two types of biases in the sample. One is a bias toward excessive CSR activities or the exaggeration of the CSP of firms that recognize the information value of CSP and respond to voluntary disclosure. In other words, these firms may excessively invest corporate resources into CSR activities or waste resources without adequate consideration of the expected results. In such cases, the observed sample may distort the association between CSP and CFP in terms of enhancing

profitability and risk reduction. The other is a selection bias caused by missing data, i.e., the non-respondents who do not recognize the information value of CSP or do not want to disclose unfavorable information. This bias is due to differences in firms' CSR consciousness. Respondents may be CSR-conscious while non-respondents may be CSR-unconscious or unconcerned. If this type of selection bias exists, the robustness of the empirical results with vermiculated data should be questioned. Researchers using survey data always face this type of selection bias.

In this study, we are interested in a method to find the missing data in the responses to a questionnaire survey rather than how to exclude selection bias. If we can assume a stable relation between CSP and firm-specific variables that link to CSR consciousness, it is possible to estimate the omitted observations of the CSR information for non-respondents using the available data. In our estimation, we assume that whether or not a firm responds to the questionnaire survey on CSR activities does not affect the firm's financial and social performance. Suppose that firms could improve their profitability and enhance their CSR by "simply responding to the CSR survey." In this case, there would be no reason for them not to respond to the survey because the cost of this effort would be marginal compared to the firms' cash flows. In other words, we assume that the treatment effects (as proposed in Heckman and Robb, 1985) caused by responding to the survey can be ignored; therefore, it is not necessary to employ a model that is designed to obtain a consistent estimator.

Our approach for estimating the CSP of non-respondents is similar to the approach developed by Ecker et al. (2006) for estimating the accruals quality of firms that lack the time series of financial statement data. If we can identify a certain relationship between financial variables and CSP, this relationship would help us understand the CSR aspects that non-respondents may wish to hide.

The study aims to describe the CSR of Japanese listed firms as a whole in the late 2000s by estimating the CSP of the omitted sample from the questionnaire survey. In the 2000s, Japanese firms were under pressure from international investors to restructure corporate governance and reshape stakeholder relationships in the context of increased cross-border business and the globalization of the ownership structure. By gradual institutional and legal extensions of non-financial disclosure since the mid-2000s,¹ many large companies began to issue CSR-related reports and strengthen investor relations. Despite these actions, Japanese firms' transparency remains insufficient from a global perspective, and they have been requested to extend disclosure (Stewart and Yermo, 2010; Asian Corporate Governance Association, 2008). There seems to be a significant gap in the attention to non-financial disclosure among Japanese companies even in the late 2000s. Firms' CSR consciousness is influenced by shareholder relations and

¹ From 2006, the Tokyo Stock Exchange required listed companies to issue a corporate governance report. From 2008, the Financial Instruments and Exchange Act required corporations to submit internal control reports to the Ministry of Finance.

other stakeholder relations, which differ by country and by region. Our estimation is a device for taking a snapshot of the distribution of the CSP of Japanese firms under a set of assumptions about firm behavior in a globalized business and ownership structure.

3. Measurements of Corporate Social Responsibility and Sample Bias

3.1. CSP –CFP Relationships, Firm Attributes, and Ownership Structure

Corporate Social Performance Indices:

What type of firm in Japan chooses not to answer a CSR questionnaire survey? This section investigates the differences in firm characteristics and financial performance of respondents and non-respondents to a questionnaire survey. Assuming that the two groups are distinguished by whether they disclose CSR activities or not and that there are significant relationships between CSP and firm-specific variables related to CSR conscious, it is possible to estimate the CSP of non-respondents with the available data. Before discussing the method to estimate the “hidden CSP” of non-respondents, we describe the CSP data and firm-specific data we use in this study.

First, we employ our original CSP indices based on the annual CSR questionnaire survey administered by Toyo Keizai. Toyo Keizai has conducted nine annual CSR surveys since 2005. The questionnaire is sent to all companies listed on the Tokyo Stock Exchange (TSE) and to the major listed companies on other exchanges in Japan. Table 1 divides the listed companies into three groups for the observed period 2007–2011: companies listed in the First Section of the Tokyo Stock Exchange (TSE), those listed on the Second Section of the TSE, and those listed on other stock exchanges. We exclude 2005 and 2006 as the question format changed significantly after 2006.

As shown in Table 1, the average response rate for 2007–2011 is 29.7% (3564/12003). About two-thirds of the listed companies are omitted from the sample, and about 70% of the respondents are in the TSE First Section. The response rate for the TSE First Section firms is 42%, and that of the other markets is about 16%.²

[Table 1 around here]

Toyo Keizai publishes the questionnaire results and the CSR ranking of Japanese firms based on this

² KLD STAT has been the most popular CSR rating database for US public firms since it started covering 650 firms in 1991. The coverage universe was expanded to the largest 1000 US companies by market capitalization in 2001, and the largest 3000 US companies by market capitalization in 2003 (Risk Metrics Group, 2010). Thus, the data covers a group of large publicly traded US companies.

relatively restricted and narrow data. Thus, there could be a selection bias influencing the robustness of the empirical results using this data, even if the survey's CSR measurements were appropriate. If the respondents are biased to large-scale and mature companies, the empirical results are limited to the group of best companies and should not be extended to the rest of the group.

Suto and Takehara (2013) define dimensions of CSR with a stakeholder approach and develop an original method to construct CSP indices with Toyo Keizai questionnaire results. They calculate five dimensional CSP indices according to stakeholder relationships: employee relations (EMP), social contributions (SC), security of the firm and product safety (SS), internal governance and risk management (IG), and environmental preservation (ENV), and consolidate these into a composite index. Human resource management is crucial for improving productivity and innovation among employees (Turban and Greening, 1997), while CSR initiatives in the consumer market can boost a firm's reputation (Schuler and Cording, 2006; Smith, 2008). Supply chain management is conclusively important for the success of a firm's cross-border business endeavors. Environmental preservation is a critical aspect of CSR in a society that has grown increasingly concerned about global climate change, and the environment is a central concern in most CSR activities. Firms must also choose an appropriate internal governance architecture and adopt strategies that fall within the existing regulatory framework. With these CSP indices, Suto and Takehara (2013) examine the relationship between CSP and CFP and reject the over-investment hypothesis of CSR in the Japanese context. Suto and Takehara (2014) find influence of increasing foreign ownership on enhancing CSP.

Corporate Financial Performance:

Many previous studies find a significant relationship between CSP and CFP, as discussed in Section 2. Firms with high corporate performance can conduct CSR activities more easily than those with low CFP, although high performing firms are not necessarily more CSR-conscious. The resource-based view of the firm as an extended stakeholder theory explains the bi-directional link between CSP and CFP mediated by intangible resources explored by stakeholder relationships, including innovation, human resources, reputation, and organizational culture (Surroca et al., 2010). In this study, we do not explicitly discuss mediators linking CSP and CFP and the mediators between them. However, we presume a stable link between CSP and CFP, given the bi-directional causality between CSP and CFP.

In this study, we employ profitability measures and risk measures as CFP variables. We employ return on equity (ROE) as a profitability measure which shareholders are concerned about. We define the ratio of cash flows from operations to total assets (CFOTA) as the slack of a firm. Cash flows from operations are less susceptible to adjustments by managers and account for future investment opportunities into

tangible and intangibles resources. We also gauge financial performance related to the profit potential of the firm and employ the growth rate of total assets (GTA). Since ROE, CFOTA, GTA fluctuate annually, we compute the average of these measures over the past five years as we have a long-term perspective of CSP and CFP relationships.³ Each of the risk measures corresponds to one of these profitability measures. We compute the standard deviations of these measures (ROESD, CFOSD, and GTASD) for the five-year period, which account for risks the firm face.

Firm Attributes and Ownership Structure:

We choose five firm attributes that correspond to CSR consciousness: firm size, corporate management style, credibility in debt markets, global business competition, and liquidity in the stock market. Large-scale firms are conscious to reputation and are active in establishing good stakeholder relationships. Larger firms also have more slack resources for CSR activities. With regard to firm strategies, growth-oriented corporate management may be less CSR conscious; on the other hand, value-oriented firms may be more concerned with CSR. Firms that are concerned about trust among financial institutions are conscious to the financial market's perception of comprehensive risk. Firms that are exposed to global business competition are more conscious to the CSR requirements in a global society and non-financial disclosure than domestic-oriented firms. Firms that are exposed to competitive transactions in the stock market may deprioritize CSR and focus instead on return on equity.

We employ the natural logarithm of market value ($\ln MV$) as a proxy for firm size; book-to-market stock value (B/M, in %) to identify investors' expectations of the management style (i.e., value and growth.); debt ratio (DR) as a proxy for credibility in the debt market, defined as the total debt divided by the total assets; foreign dependency ratio (FDR) as a proxy for foreign exposure of the business, defined as foreign sales divided by total sales; and turnover ratio (turnover), defined as the trading volume over market value, as a proxy for liquidity in the stock market.

Ownership structure matters for CSR activities. Shareholders vary by concerns about CSR activities and the effect of non-financial disclosure. Under information asymmetry among stakeholders, CSP disclosure can reduce agency cost and produce better financial performance. Foreign shareholders may be more conscious to non-financial disclosures because they face more serious information asymmetry than domestic shareholders. If managers (including executive managers and executive-directors) are inside-owners, they may be less concerned about CSR and non-financial disclosure than outside-owners. By

³ To compute ROE and CFOTA, we use the data drawn from the firms' financial statements over the past five years. To compute GTA, we use data from the past six years since an additional year is necessary to compute growth rate. We use this range because firms send their responses to the questionnaire back to Toyo Keizai Inc. at the end of September each year.

contrast, they may overinvest in CSR to enhance their personal reputation or for self-protection. With a dispersed ownership structure, CSP may be perceived as a sign of a good company for small investors; however, concentrated ownership may link to apathy for social issues.

We employ four ownership variables: shares of two major shareholder groups, domestic and foreign corporations (Domestic, Foreign in %); share of managers' shareholding (Management in %); and the Herfindahl-Hirschman Index (Herfindahl) as concentration of ownership.

3.2 Determinants of CSR Consciousness:

Differences in CSR consciousness between respondents and non-respondents:

In this study, we first confirm the difference in corporate financial performance (CFP) and firm-specific variables connected to CSR consciousness (firm attributes and ownership structure variables). Table 2 presents the results of the differences in the means and medians of the variables for respondents and non-respondents with a *t*-test and Wilcoxon test, respectively. There are significant gaps in the financial performance measures between the two groups. For profitability measures in Panel A, both the means and medians of all profit measures are higher for respondents than for non-respondents at the 1% significance level. On the other hand, risk measures are all negative and statistically significant at the 5% level, except GTASD. Non-respondent firms appear to be high-risk and low return compared to respondent firms.

Regarding the firm attributes in Panel B, there are remarkably large gaps between the two groups. Respondents tend to be larger scale, more growth-oriented, more exposed to international competition, have higher trust in the financial markets, and are more actively traded in the stock market than non-respondents. The average lnMV for respondents is 10.469 (¥35.2 billion), which is three times that of non-respondents (9.256; ¥10.5 billion). The gap in firm size is significantly large.

Panel C demonstrates that there are statistically significant differences in ownership structure between the two groups. Non-respondents are less held by corporations, both domestic and foreign, than respondents. Remarkably, the proportion of foreign-held shares is higher for respondents. On the other hand, managers' shareholding and concentration of ownership are higher for non-respondents. The ownership structure of non-respondents is characterized as less globalized, more insider-oriented, and more concentrated than for respondents.

The results of the difference tests (shown in Table 2) present a rough sketch of the classification of Japanese firms into two groups in terms of CSR consciousness. The respondents are large firms that have been exposed to global competition and/or have been involved in a global value-chain facing cross-border investment. On the other hand, non-respondents are relatively smaller, domestic business- and insider-

oriented firms that remain unconscious to the significance of CSR and non-financial disclosure, or those that cannot actually bear the cost of CSR activities. Thus, we confirmed that there are statistically significant gaps between the CSR consciousness variables of respondents and non-respondents.

[Table 2 around here]

4. Estimation of Hidden Corporate Social Performance

4.1. Relationship between CSP and Firm-specific Variables

As discussed in Section 3, if the decision whether to answer the questionnaire is significantly explained by a set of firm specific variables, then the problem arises as to how to estimate the non-respondents CSP information. The non-respondents' CSP, which is not observed, is termed the "hidden CSP." If we assume that significant and stable correlations exist between CSP and the firm-specific variables for the whole sample period, we can estimate the CSP for the non-respondents with estimated results from respondents. Next, we confirm the relations between CSP and firm-specific variables (CSP, firm attributes, and shareholder structure) for respondents.

We use the CSP indices constructed by Suto and Takehara (2013, 2014), which are also used in Ajward and Takehara (2014).⁴ The average response rate to the survey is about 33% in the observed period; there is no base information to calculate the CSP indices for non-respondents. Our sample for the CSP study covered only one-third of the listed companies.

In this study, we assume significant correlations between the CSP indices and the 15 explanatory variables when using the respondents' data discussed in Section 3. Table 3 presents the Pearson correlations between the CSP indices and the respondents' 15 firm-specific variables. Regarding financial performance, overall, the CSP indices have positive relationships with profitability measures and negative relationships with risk measures. Regarding firm attributes, the CSP indices have positive relationships with firm size, international business dependency, liquidity in the stock market, and credibility in the debt market; they also relate to high valuations in the stock market, as shown by the negative correlations with the book-to-market ratio. Regarding shareholder structure, all CSP indices have positive correlation with the both corporate ownership shares, domestic and foreign, and the coefficients of foreigners are much higher than the domestic ones. On the other hand, manager shareholding and concentration of ownership are negatively correlated with all CSP indices. We confirm that correlations between CSR indices and firm-specific variables are stable as a whole.

⁴ The questions adapted from the CSR Survey of the Toyo Keizai CSR Database, the calculation of the dimensional CSP indices, and the definition of composite CSP are summarized in Suto and Takehara (2014).

[Table 3 around here]

To examine the statistical relationship between CSP and the financial variables, we regress the CSP dimensional indices onto the 15 firm-specific variables and four-year dummy variables. Therefore, in the following regression model (1), the dependent variable y_{jt} is one of the CSP dimensional indices (EMP, ENV, SC, SS, or IG). For the estimation of equation (1), we explore the optimal model with a subset of explanatory variables at which adjusted R -squared is maximized.

$$\begin{aligned}
 y_{jt} = & \alpha + \beta_1 ROE_{jt} + \chi_2 CFOTA_{jt} + \beta_3 GTA_{jt} \\
 & + \beta_4 ROESD_{jt} + \beta_5 CFOTASD_{jt} + \beta_6 GTASD_{jt} \\
 & + \gamma_1 \ln MV_{jt} + \gamma_2 BM_{jt} + \gamma_3 DR_{jt} + \gamma_4 FDR_{jt} + \gamma_5 Turnover_{jt} \\
 & + \delta_1 Domestic_{jt} + \delta_2 Foreign_{jt} + \delta_3 Mng_{jt} + \delta_4 Herfindahl_{jt} + \varepsilon_{jt} .
 \end{aligned} \tag{1}$$

Table 4 presents the estimation results. A variable with no value specified in the table indicates that this particular explanatory variable is not included in the optimal model (i.e., the model with the highest adjusted R^2).

The analysis of the CSP dimensions returns interesting results. The models selected for employment policy (EMP), social contribution (SC), and security and safety (SS) present high adjusted R -squares: 0.424, 0.396, and 0.351 respectively. This suggests that the firm-specific variables could explain a significant degree of consciousness from the respondents regarding employment policies, social contribution issues, and security and quality of product. On the other hand, the R -squares of environment (ENV) and internal governance (IG) are much lower (0.187 and 0.131, respectively).

With regard to financial profitability measures, the coefficients of ROE are statistically significantly negative coefficients for CSP indices except ENV. GTA also has negative coefficients, except SS. Among the risk measures, all estimates except CFOTASD for IG present significantly negative results at about the 10% level. It indicates that there is trade-off between CSP levels and profit for equity, however, a higher CSP is associated with lower risk.

All firm attributes except turnover have statistically significant positive coefficients. After controlling correlations among explanatory variables, the coefficients of BPR are positive and indicate that dimensional CSPs can be associated with value enhancing corporate strategies rather than growth-oriented strategies. Regarding ownership structure, it is remarkable that managers' share has negative coefficients

at the 1% level of significance for all CSP indices. This indicates that firms with inside-owners are less concerned about CSR than outside-owners. In other words, with higher levels of inside-ownership, there exists a more serious information asymmetry between managers and the outside shareholders. It is also interesting that the concentration of ownership has a strongly negative coefficient for ENV, but positive coefficients for SS. Firms with dispersed ownership are more conscious to social concerns and employ environmentally friendly business strategies, however, the firms with concentrated ownership seem to prioritize product quality.

Among the five dimensional CSP indices, IG shows unique results. Its explanation level with the selected model is lowest, and further it is explained by CFP variables rather than CSR consciousness variables. Among the financial performance measures, IG has a strongly negative coefficient with ROE, but a positive coefficient with CFOTA. It suggests that high IG firms have a low return on equity but hold abundant cash flow, which can be used for future investment. There can be conflicts of interests between shareholders and other stakeholders for high IG firms.

[Table 4 around here]

To summarize the empirical results in Table 4, employment policy, social contribution, and product quality are perceived as the most important aspects of the dimensional CSR within Japanese listed firms. Among the firm attributes, firm size, exposure to international competition, and credibility in financial markets are especially important. CSR activities can reduce the risk that the firms face but increase costs that drive a lower return for shareholders in the short- and medium-term perspective. Information asymmetry between insiders and outsiders seems to restrain CSR activities. Insider-oriented corporate governance structures can make the firm unconscious to social and environmental issues and induce risk.

4.2. Estimating Hidden CSPs

Under the assumption that whether or not a firm responds to the CSR survey reveals its “social consciousness,” we expect the CSP of the non-respondents to be lower than that of the respondents. It is worth examining how the levels of CSP differ between respondents and non-respondents. We estimate the hidden CSP of non-respondents using the estimation results for model (2) and firm-specific variables that are available for both respondents and non-respondents.

Suto and Takehara (2013) compute the composite CSP index based on five dimensional CSP indices. Let $r(\cdot)$ denote the function that ranks the elements of the vector in ascending order and n_t denote the number of respondents in each year. Given this, the comprehensive measure of CSP in

each year is defined by equation (2):

$$CSP = \frac{r(r(EMP_R) + r(ENV_R) + r(SC_R) + r(SS_R) + r(IG_R)) - 1}{n_1 - 1} \times 6 - 3 \quad (2)$$

where $EMP_R, ENV_R, SC_R, SS_R,$ and IG_R are vectors of the CSP dimensional indices for the respondents. It is convenient for researchers if the range of the composite CSP measure is comparable to those of the CSP dimensional indices. Since the CSP dimensional indices approximately obey a standard normal distribution, equation (2) is designed such that the composite CSP is continuously and uniformly distributed and falls in the closed interval $[-3, 3]$.

Let $EMP_N, ENV_N, SC_N, SS_N,$ and IG_N denote vectors of the CSP dimensional indices for non-respondents; further, let n_2 denote the number of non-respondents in each year. The hidden CSP of the non-respondents can be estimated and CSP for respondents can be re-computed using equation (3).

$$CSP = \frac{r(r(EMP) + r(ENV) + r(SC) + r(SS) + r(IG)) - 1}{n_1 + n_2 - 1} \times 6 - 3$$

where $EMP = [EMP_R, EMP_N], ENV = [ENV_R, ENV_N], SC = [SC_R, SC_N],$ (3)
 $SS = [SS_R, SS_N], IG = [IG_R, IG_N].$

We have two options when using equation (3). For respondents, we can use both the original score of the CSP dimensional indices as well as the fitted value in regression model (3). However, in the following Tables 5 and 6, we used the fitted value to compute the hidden CSP.⁵ Table 5 summarizes the descriptive statistics of the hidden CSP of the non-respondents and the re-computed CSP of the respondents based on equation (1). Since the CSP dimensional indices approximately obey standard normal distribution, the negative value for hidden CSP means that the levels are less than the average.⁶

In the table, there are some sharp contrasts between the distribution of the estimated CSP of the respondents and that of the hidden CSP of the non-respondents. First, the means and medians for non-respondents are all negative, and the levels of the 75th percentile of dimensional CSP are located around zero. This suggests that the means and medians of non-respondents are less than those of respondents, and only 25% of the non-respondents have a higher CSP than the average level of respondents. Second, among the dimensional CSP indices, the differences in the means between respondents and non-respondents are

⁵ Comparable tables when we use the original CSP scores for respondents are available upon request.

⁶ Based on the survey data, Suto and Takehara (2014) rate the CSP of all listed firms, including those in the financial sector; the CSP ratings for the financial sector are not used in this study.

dispersed. The differences in the means of SS [0.225 = 0.112 - (-0.113)] and IG [0.164 = -0.021 - (-0.185)] are relatively small compared to those of EMP [0.362 = 0.114 - (-0.248)], ENV [0.396 = (0.114 - (-0.282)], and SC [0.385 = 0.051 - (-0.334)]. This indicates that corporate managers can conduct the last three dimensions of CSR activities with more discretion than they can in the case of SS and IG. The level of comprehensive CSR consciousness can be explained by the difference in the attitudes of the Japanese firms toward environment, social contribution, and employment.

[Table 5 around here]

4.3 Distribution of CSP within Firm-scale Classes

Firm size has strong explanatory power for CSR consciousness as shown in Table 4. We should investigate the distributions of the hidden CSP of different firm-scale domains. Therefore, we divide the two sample groups, respondents and non-respondents, into ten firm size classes and compare the hidden CSP of the non-respondents to the estimated CSP of the respondents within a size decile. The ten size classes, from MV1 as the largest to MV10 as the smallest, are defined by market value at the end of September of each year, $t=2007, \dots, 2011$. Table 6 summarizes the descriptive statistics of the size deciles. We confirm that the means and medians of the respondents are systematically higher than those of the hidden CSP of the non-respondents for all size deciles without exception.

A comparison of the means of the respondents' recomputed CSP and the non-respondents hidden CSP in each decile led to some interesting findings. First, within respondents, the level of the mean is highest for MV1 (0.923) and almost gradually decrease to MV6 (0.735), and a bump in CSP levels are observed from MV7 (0.942) to MV10 (0.888) around relatively small groups. Such dispersion over size deciles is not observed for hidden CSP. Second, the difference in the CSP between respondents and non-respondent is relatively high for large-cap firms: MV1 [1.260=0.923-(-0.337)] and MV2 [1.283 = 0.921 - (-0.362)]. Within relatively large firms, the difference in CSP between respondents and non-respondents is remarkable.

Integrating the results obtained so far, we have an interesting sketch of the CSR attitudes and consciousness of Japanese firms. While CSR consciousness is related to firm size as a whole, there are a significant number of CSR-conscious companies among the smaller firms. Remarkably, the largest firms are sharply dichotomized into CSR-conscious and CSR-unconscious firms, and there are a significant number of low CSP firms within largest firm classes.

[Table 6 around here]

Next, we describe a histogram for the frequency distribution of the composite CSP of the non-respondent firms. We introduce a uniform distribution of composite CSP in a closed interval $[-3, 3]$, since our CSP dimensional indices approximately obey a standard normal distribution. Figure 1 presents a histogram for the non-respondents under this assumption. As the density function is fixed by definition, the $CSP = 199$ line is the fixed level of frequency because of the sample size. Therefore, the distance between the line and height of a bar graph shows the frequency of non-respondents with CSP.

In Figure 1, the frequencies of the hidden CSP of non-respondents obviously decrease with the level of CSP. This suggests that firms with lower CSP have a lower tendency to respond to the survey. Among the non-respondents, we find firms with sufficiently high CSP. By contrast, Figure 1 shows that there are many respondents with low CSP.

[Figure 1 around here]

5. Conclusions

This study aimed to extend CSR information by estimating the CSP of the sample omitted from a questionnaire survey involving Japanese listed firms with the available firm-specific data under a set of assumptions. The empirical results are interesting. From the estimated CSP, only 25% of non-respondents have a higher than average CSP. Non-respondents are biased to relatively small firms that remain unconscious/unconcerned about non-financial disclosure or those that actually cannot bear the cost of CSR activities. Taken together, there is a significant latent gap between the CSP of respondents and the hidden CSP of non-respondents due to differences in firm-specific variables related to CSR consciousness rather than financial performance. However, even among large firms, there are a significant number of CSR-unconscious firms in Japan. They focus on enhancing shareholder value from a short-term perspective rather than on responding to social and environmental issues from a long-term perspective.

As discussed in many previous studies, CSR is a long-term investment for the use of corporate resources, but shareholders may have a negative attitude toward enhancing CSP because they believe CSR activities are accompanied by profit shifts. Many large listed firms do not understand the value of non-financial information, although others are conscious to the significance of social reputation and trust in the context of the business' sustainability. Among the CSP dimensions, Japanese firms tend to focus on employment, social contribution, and product quality. These require a firm's resources while the effects on firm's profits for equity capital are uncertain. Our estimations indicate that information asymmetry between inside owners and outside owners has negative associations with CSP. Corporate governance

structure matters for firms' CSR consciousness.

This study is the result of academic interest in examining the missing information of CSR activities in order to obtain a picture of the CSP distribution of listed Japanese firms as a whole. In practice, it can motivate non-respondent firms to actively disclose non-financial information and encourage CSR activities.

The method we use in this study depends on a set of assumptions about the firm behavior. We assume a stable relationship between CSP and firm-specific variables (such financial performance, firm attributes, and ownership structure); we also assume that whether or not a firm responds to the questionnaire survey on CSR activities relates only to CSR consciousness but does not affect financial and social performance directly. The estimation of the hidden CSP of the omitted samples gives us a snapshot of the CSP distribution of Japanese listed firms under these assumptions, during the observed period. Despite the research method's limitations, this study contributes an extension of the CSR research perspective.

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Table 1. Sample Firms and Response Rate

	Respondents			Nonrespondents		
	TSE First Section	TSE Second Section	Others	TSE First Section	TSE Second Section	Others
2007	490	58	111	748	292	646
2008	509	54	108	750	289	629
2009	534	55	126	740	294	643
2010	551	58	145	730	292	682
2011	558	61	150	741	288	697
All Sample	2,642	286	640	3,709	1,455	3,297
Response / Nonresponse Rate	41.6%	16.4%	16.3%	58.4%	83.6%	83.7%

Table 2. Differences in Financial Variables between Respondents and Non-respondents

ROE = Return on equity; CFOTA = Cash-flows from operations to total assets; GTA = Past 5 year average growth rate of total assets. ROESD, CFOSD, and GTASD denote past five year standard deviations of ROE, CFOTA, and GTA, respectively.

lnMV = Natural logarithm of market value of equity; B/M = Book-to-Market ratio (%); DR = Debt ratio (%); FDR = Foreign dependency ratio (%), Turnover = Turnover rate defined as number of shares traded in a month/number of shares issued (in %).

Domestic = % shares held by domestic corporations; Foreign = % shares held by foreign corporations, Management = % shares held by executives;

Herfindahl = Herfindahl-Hirschman Index.

Panel A. Profitability and Risk Measures

	Respondents				Nonrespondents				Diff. in Mean	Diff. in Median
	Mean	25%ile	Median	75%ile	Mean	25%ile	Median	75%ile	Student <i>t</i>	Wilcoxon
ROE	5.184	2.045	5.255	8.889	4.092	0.850	4.276	8.062	0.000	0.000
CFOTA	5.859	3.332	5.810	8.086	5.164	2.760	4.923	7.460	0.000	0.000
GTA	1.186	-1.729	0.944	4.129	0.844	-2.190	0.751	3.996	0.002	0.002
ROESD	7.008	2.145	4.112	8.256	7.890	2.064	4.323	9.476	0.000	0.031
CFOTASD	3.565	1.946	2.953	4.455	4.058	2.094	3.255	5.027	0.000	0.000
GTASD	8.728	4.721	7.328	10.871	9.066	4.598	7.179	11.064	0.006	0.858

Panel B. Characteristics of the Firm

	Respondents				Nonrespondents				Diff. in Mean	Diff. in Median
	Mean	25%ile	Median	75%ile	Mean	25%ile	Median	75%ile	Student <i>t</i>	Wilcoxon
lnMV	10.468	9.014	10.352	11.864	9.206	8.127	9.036	10.140	0.000	0.000
B/M	123.832	69.078	106.221	157.350	152.290	84.601	134.447	199.696	0.000	0.000
DR	51.541	37.042	52.788	66.686	50.033	33.426	50.556	66.277	0.000	0.000
FDR	18.023	0.000	3.052	33.170	11.165	0.000	0.000	17.229	0.000	0.000
Turnover	33.972	7.129	23.952	48.544	23.037	2.911	8.427	27.766	0.000	0.000

Panel C. Stock Ownership

	Respondents				Nonrespondents				Diff. in Mean	Diff in Median
	Mean	25%ile	Median	75%ile	Mean	25%ile	Median	75%ile	Student <i>t</i>	Wilcoxon
Domestic	50.690	40.223	51.369	61.581	47.588	35.554	48.807	60.234	0.000	0.000
Foreign	12.058	2.093	8.492	19.183	7.148	0.334	2.870	10.004	0.000	0.000
Management	3.456	0.122	0.426	2.902	6.747	0.372	1.806	9.281	0.000	0.000
Herfindahl	0.074	0.019	0.033	0.082	0.090	0.026	0.052	0.114	0.000	0.000

Table 3. Pearson Correlations between CSP and Financial Variables

CSP = Composite CSP; EMP = Employee relations; ENV = Environmental preservation; SC = Social contributions; SS = Security of the firm and product safeness; IG = Internal governance and risk management.

Definitions of variables other than CSP variables are the same as in previous tables.

	CSP	EMP	ENV	SC	SS	IG
ROE	0.169	0.148	0.153	0.147	0.038	0.017
CFOTA	0.222	0.148	0.193	0.170	0.152	0.049
GTA	0.119	0.089	0.096	0.133	0.012	0.002
ROESD	-0.117	-0.094	-0.133	-0.082	-0.081	-0.005
CFOTASD	-0.190	-0.160	-0.218	-0.157	-0.087	-0.013
GTASD	-0.103	-0.112	-0.101	-0.034	-0.086	-0.022
lnMV	0.612	0.383	0.579	0.558	0.296	0.209
BPR	-0.325	-0.215	-0.263	-0.265	-0.176	-0.112
DR	0.040	0.061	0.063	0.074	-0.046	0.010
FDR	0.323	0.236	0.290	0.239	0.211	0.077
Turn	0.276	0.183	0.263	0.217	0.148	0.101
Domestic	0.189	0.127	0.196	0.182	0.072	0.057
Foreign	0.430	0.268	0.393	0.390	0.213	0.145
Management	-0.315	-0.219	-0.302	-0.268	-0.180	-0.131
Herfindahl	-0.105	-0.127	-0.107	-0.030	-0.057	-0.004

Table 4. Regression Models for Estimating Hidden Corporate Social Performance

	EMP		ENV		SC		SS		IG	
	Coef.	<i>p</i> -value	Coef.	<i>p</i> -value	Coef.	<i>p</i> -value	Coef.	<i>p</i> -value	Coef.	<i>p</i> -value
Intercept	-5.690	0.000	-2.242	0.000	-3.376	0.000	-3.707	0.000	-1.239	0.000
ROE	-0.013	0.001			-0.006	0.005	-0.008	0.000	-0.015	0.000
CFOTA					0.006	0.153			0.022	0.000
GTA	-0.018	0.001	-0.008	0.035	-0.013	0.000			-0.016	0.000
ROESD	-0.006	0.090	-0.006	0.049	-0.008	0.000			-0.007	0.002
CFOTASD					-0.010	0.083	-0.007	0.194	0.018	0.011
GTASD	-0.020	0.000	-0.016	0.000	-0.005	0.015			-0.012	0.000
lnMV	0.501	0.000	0.183	0.000	0.277	0.000	0.304	0.000	0.125	0.000
BPR	0.001	0.000	0.000	0.181	0.002	0.000	0.002	0.000		
DR	0.005	0.000	0.005	0.000	0.004	0.000	0.005	0.000		
FDR	0.011	0.000	0.007	0.000	0.005	0.000	0.003	0.000	0.006	0.000
Turn					0.001	0.113	-0.001	0.014		
Domestic	0.007	0.000	0.006	0.000	0.004	0.000	0.003	0.010		
Foreign	0.004	0.169	0.003	0.260			0.003	0.104		
Management	-0.016	0.000	-0.010	0.002	-0.007	0.001	-0.006	0.007	-0.010	0.000
Herfindahl			-0.945	0.000			0.664	0.000		
Adjusted R^2	0.424		0.187		0.396		0.351		0.131	

Table 5. Differences of Composite CSP between Respondents and Non-respondents

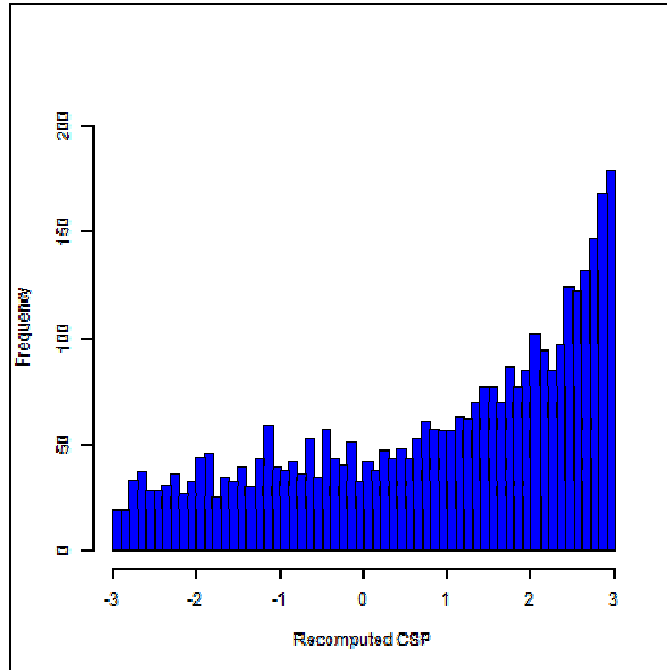
Recomputed CSP scores (fitted value) are used.

	Respondents				Nonrespondents				Diff. In Mean	Diff. in Median
	Mean	25%ile	Median	75%ile	Mean	25%ile	Median	75%ile	Student <i>t</i>	Wilcoxon
CSP	0.861	-0.490	1.312	2.384	-0.363	-1.748	-0.428	0.946	0.000	0.000
EMP	0.114	-0.275	0.104	0.522	-0.248	-0.522	-0.259	0.037	0.000	0.000
ENV	0.114	-0.316	0.091	0.536	-0.282	-0.576	-0.298	0.008	0.000	0.000
SC	0.051	-0.385	0.017	0.453	-0.334	-0.625	-0.358	-0.065	0.000	0.000
SS	0.112	-0.116	0.105	0.348	-0.113	-0.301	-0.109	0.075	0.000	0.000
IG	-0.021	-0.200	-0.024	0.153	-0.185	-0.320	-0.186	-0.047	0.000	0.000

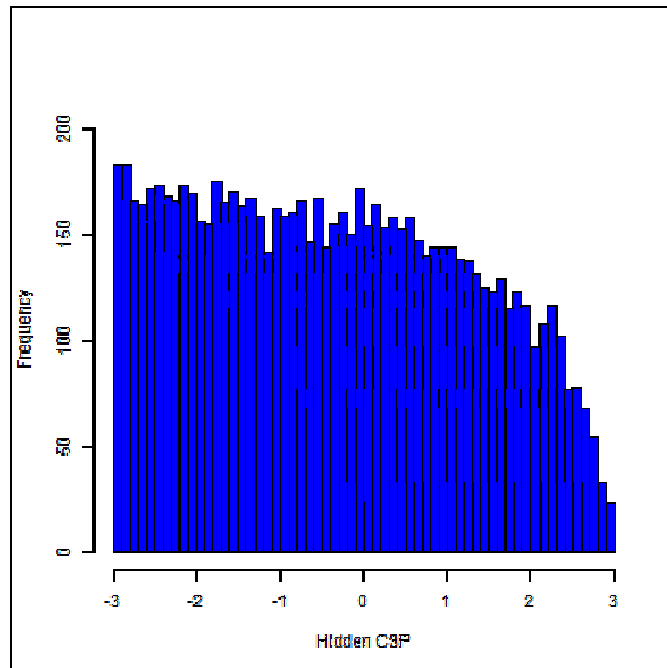
Table 6. Difference of Composite CSP among Size-ranked Decile Portfolios

Recomputed CSP scores are used

	Respondents					Nonrespondents					Diff. in Mean	Diff. in Median
	#Firms	Mean	25%ile	Median	75%ile	#Firms	Mean	25%ile	Median	75%ile	Student <i>t</i>	Wilcoxon
MV1	347	0.923	-0.422	1.399	2.403	838	-0.337	-1.707	-0.380	1.021	0.000	0.000
MV2	360	0.921	-0.430	1.469	2.460	852	-0.362	-1.657	-0.422	0.943	0.000	0.000
MV3	348	0.846	-0.457	1.244	2.309	856	-0.331	-1.718	-0.412	1.042	0.000	0.000
MV4	337	0.752	-0.750	1.010	2.255	872	-0.467	-1.861	-0.577	0.881	0.000	0.000
MV5	383	0.841	-0.493	1.231	2.372	820	-0.435	-1.808	-0.504	0.811	0.000	0.000
MV6	328	0.735	-0.647	0.979	2.336	872	-0.362	-1.817	-0.379	0.935	0.000	0.000
MV7	348	0.942	-0.326	1.363	2.443	848	-0.265	-1.739	-0.282	1.098	0.000	0.000
MV8	356	0.909	-0.499	1.310	2.415	849	-0.307	-1.711	-0.343	1.040	0.000	0.000
MV9	366	0.836	-0.685	1.470	2.434	838	-0.347	-1.673	-0.397	0.885	0.000	0.000
MV10	395	0.888	-0.344	1.320	2.370	816	-0.418	-1.769	-0.522	0.840	0.000	0.000



Panel A. Recomputed CSPs of Respondents



Panel B. Hidden CSPs of Non-respondents

Figure 1. Histogram for Composite CSPs