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Megumi Suto

Hitoshi Takehara

早稲田大学ファイナンス総合研究所

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The Impact of Corporate Social Performance on Financial Performance: Evidence from Japan[†]

Megumi Suto[‡]
Waseda University

Hitoshi Takehara
Waseda University

Abstract

Since the globalisation of stock ownership in the 2000s, Japanese firms' relationships with shareholders as well as their policies related to corporate social responsibility (CSR) have significantly changed. To promote an understanding of these changes, this study adopts a stakeholder relationship approach to (a) identify the dimensions of CSR practices in Japanese firms in the late 2000s and (b) investigate the mechanisms that link corporate social performance (CSP) and corporate financial performance (CFP). Through a principal component analysis, we construct a normalised CSP composite index and five dimensional measures for our investigation using both ordinary and two-stage least square regressions. Results strongly support the CSR risk-reduction hypothesis and partially support the CSR competitive advantage hypothesis. In contrast, results did not provide support for the overinvestment hypothesis. With respect to the attributes of CSR, investors are shown to be interested in reducing corporate risk through employment policy, social contributions and the environment, but are less concerned with the competitive advantages related to safety and security and internal governance. Through our analyses, this paper suggests that information asymmetry related to the dimensions of CSR may bias market perceptions of CSR practices. This, in turn, reveals the degree to which Japanese firms' non-financial disclosures are insufficient.

Keywords: Corporate social responsibility; corporate social performance; corporate financial performance; stakeholder relations; information asymmetry

JEL Classifications: M14, G34, G32

[†] The authors acknowledge financial support from the Health Labour Sciences Research Grant (Research on Policy Planning and Evaluation).
[‡] The address for corresponding is Megumi Suto, Graduate School of Finance, Accounting and Law, Waseda University, 1-4-1 Nihombashi, Chuo-ku, Tokyo, 103-0027, Japan.

1. Introduction

Corporate social responsibility (CSR) has become a core concept in corporate management, particularly in companies for which globalisation and growing institutional ownership affect operations. The proposition that corporations have some responsibility for promoting societal health and the preservation of the natural environment is widely accepted. Activities related to CSR can be narrow in scope (i.e. developing CSR-friendly corporate strategies); but the broad management of social issues serves as the true cornerstone of CSR.

Given the importance and ubiquity of CSR, the chief purpose of this study is to use the stakeholder relationship approach to explore the association between Japanese business firms' corporate social performance and their financial performance. The investigation will focus on Japanese firms in the late 2000s because of the degree to which the globalised nature of business and ownership structures accelerated in Japan at that time. Foreign investors became key shareholders of Japanese firms, and cross-shareholdings among business corporations and financial intermediaries gradually dissolved. These changing dynamics led Japanese firms to adjust their relationships with other stakeholders, as well as re-align their perceptions about shareholders and ownership in general. Given these changes, foreign investors were key drivers of CSR in Japan in the late 2000s (Suto and Takehara, 2012).

To explore the relationship between CSR practices and financial performance, we focus on corporate managers' motivations to implement and sustain CSR-related practices in their firms. We construct five CSR attribute variables (e.g., employee relations, social contributions, product quality, internal governance, and environmental preservation), which are then used to develop a comprehensive CSR index. Both the five attribute variables and the CSR index are based on results from a questionnaire derived from Toyo Keizai's CSR Database. By using these variables to examine a sample of Japanese business firms in the late 2000s, we tested three hypotheses related to the effects of CSR practices on a firm's economic outcomes (i.e. the competitive advantage hypothesis, the risk reduction hypothesis, and the overinvestment hypothesis) to reveal the interdependence of CSR and CFP.

Our empirical results partially support the competitive advantage hypothesis and strongly support the risk-reduction hypothesis. However, there is no evidence to support the overinvestment hypothesis. Among the results related to the CSR attributes, it is notable that investors associate reduced risk with employment policies, social contributions, and environmental preservation, but appear less concerned with security and safety, and internal governance. Given these findings, investors should be interested in the CSR practices of their firms as they can promote competitive advantage and profitability within a given market.

The rest of the paper will proceed as follows: Section 2 will survey extant research on the relationships between CSP and CFP and emphasise recent work that has shed light on mechanisms

that link them. Section 3 will present research objectives and propose testable hypotheses. Section 4 will explain the methods employed for data construction and model estimation, as well as present the results of our analyses. Finally, in Section 5, we will discuss implications for the development of CSR practices in Japanese firms and provide some avenues for future research in this area.

2. Background and Literature Review

2.1. Linkage between CSP and CFP

To ensure their long-term survival in a competitive business environment, many firms have increasingly allocated their resources to CSR practices in response to stakeholder requests. Academics and business professionals have engaged in debates on the relationship between corporate financial performance (CFP) and corporate social performance (CSP) since the 1970s (see Cochran and Wood, 1984; McGuire, Sundgren and Schneeweis, 1988; Waddock and Graves, 1997; McGuire and Siegel, 2000, 2001). For businesses, the influence of CSP on CFP is critically important, as it affects their ability to fulfil responsibilities to their shareholders. However, firms that are small or unstable face greater difficulty in using corporate resources to engage in socially responsible activities. As a result, the determinants and interdependence of CFP and CSP are critical considerations for corporate managers. More specifically, issues related to CFP and CSP help managers' decisions related to resource allocation and aid in developing corporate strategies that simultaneously achieve social and economic goals or coordinate them (Jensen, 2001).

CSR relates to a wide range of business activities, processes, and outcomes. Thus, costs and benefits of activities related to CSR are diverse and multi-dimensional. Illustrating the complexity associated with implementing CSR activities in firms, there are often conflicts between shareholders and other stakeholders regarding the ways in which CSR is operationalized. For example, even if managers perceive CSR activities as useful for achieving societal good and corporate sustainability, those activities require corporate resources. Similarly, managers can face inconsistency among stakeholders regarding what CSR activities to employ. In addition to the complexities of satisfying multiple firm stakeholders, there are also intricacies associated with the timeliness with which CSR activities are implemented. If firms seek to engage in responsible social behaviour in the long-term, they must nonetheless make CSR-investment decisions in the short-term. Thus, firms may face difficulty in achieving immediate positive social and environmental outcomes.

Strategically, the management of CSR affects the degree to which businesses, communities, and organizations mutually and tangibly benefit from a firm's socially-responsible activities and practices (Carroll and Shabana, 2010). The interplay of the various entities that treat the implementation of CSR as a business decision has been a key avenue of research in this field for decades.

Since the 1970s, the amount of empirical research that explores the link between CFP and CSP has been extensive, but inconclusive. Some studies describe CSR practices as profit-driven corporate strategies used to adapt to changing social and environmental demands. These studies argue that through the development and implementation of CSR activities, firms explore business opportunities, improve organizational efficiency, and are rewarded for meeting the expectations of shareholders. Other studies highlight the ways in which CSR practices reduce investors' perceptions of a firm's inherent risk.

Managerial decisions that are made without consideration for stakeholder concerns may increase business risk by damaging the employees' motivation, the firm's reputation, or the clients' trust. Failure to incorporate stakeholder input into the development of CSR practices may also amplify financial risks if investors perceive a firm's socially-irresponsible behaviour to be an indicator of greater uncertainty in its future.

In addition to those mentioned above, many studies identify 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, on market-based profit measures, some research suggests that a negative relation exists between CSP and market-based profit measures (Waddock and Grave, 1997; Johnson and Greening, 1999) or that no significant association exists at all (McGuire et al. 1998). In an attempt to summarise the literature on the topic, Orlizky et al. (2003) performed a meta-analysis that suggests that CSP is more highly correlated with accounting-based measures of CFP than market-based measures of CFP.

Other research in this area has focused on the relationship between risk and CSR practices. Early studies show that investors perceive socially-responsible firms as a low risk for investment. Spicer (1978), for example, finds a negative association between CSR and market-based risk. Similarly, Ullman's (1985) work suggests that social disclosure reduces investors' informational uncertainty. Research by McGuire et al. (1988) shows a negative association between CSR and both accounting-based risk measures and beta. In contrast, Aupperle et al. (1985) demonstrate a negative relationship between various accounting-based risk measures and CSR but find no significant results related to market-based risk measures.

In more recent work, researchers have shifted their collective focus towards the association between market perceptions of a firm's CSR-related activities and financial risk management. For example, Boutin-Dufresne and Savaria (2004) illustrate a negative relationship between CSP and financial risk. In addition, by estimating the correlation between idiosyncratic risk and CSP and comparing the respective CSP levels of socially responsible and irresponsible groups, the authors demonstrate an association between CSP and idiosyncratic risk. These results suggest that CSR may contribute to a reduction of the financial risk that firms face in the capital market.

Other recent research highlights the influence of CSR on capital cost. Results of this research

are also mixed. Ghoul et al. (2011) demonstrate a negative relationship between a firm's CSR level and the cost of equity capital. In contrast, CSR has yet to be incorporated into the pricing of Euro corporate bonds according to empirical work by Menz (2010). Through a focus on bank debt and information asymmetry, research by Goss and Roberts (2011) reveals a modest positive influence of CSR on risk premiums for low quality borrowers.

Given the inconclusive nature of the studies outlined above, the relationship between CSR and risk management represents an interesting research topic for academics and corporate financial researchers alike.

2.2. Mechanisms and Channels to link CSP and CFP

Prior research has suggested that CSP is linked with the long-term corporate value in some manner. However, the case for engaging in activities related to CSR to achieve business-related goals remains a topic of great debate. As such, key questions associated with the relationship between CSP and CFP remain salient. One reason for the continued debate relates to the variety of ways in which CSR is defined and operationalized. Whereas CFP is easily gauged with accounting-based and market-based metrics, CSP is a multi-faceted concept that incorporates stakeholder management, social issues management, and environmental preservation. As a result, CSP measures are traditionally multi-dimensional and less definitive. To illustrate, Orlitzky (2008) argues that there are a number of different measures designed to respectively evaluate the social and environmental effects of a firm's business activities.

Another reason for the continued confusion surrounding the relationship between CSP and CFP is the lack of research related to the *mechanisms* that link CSR activities with financial performance. Operationally, stakeholder management is largely based on these mechanisms. Although firm stakeholders absorb the costs and risks associated with a firm's attempts to generate corporate value, distribution of the benefits derived from those activities can be largely enjoyed by those same stakeholders. Those benefits are deeply rooted in the mechanisms by which CSP and CFP are linked. In this way, strategic stakeholder management is a vital component for the efficient creation of long-term value for a firm (Jensen,2001)) . Thus, it is strongly related to the degree to which a firm can compete in the long run.

Related to this, Perrini et al. (2011) provide a stakeholder-based organizing framework to identify antecedents and outcomes of the CSP-CFP relationship. The stakeholder approach extricates the precipitants of the CSP-CFP relationship and the channels through which CSR and financial performance are linked. The approach induces responsible behaviours by managers by highlighting the motivations of different stakeholders and channels.

Of the various CSR-related organizational drivers, human resource management is most important for inciting productivity and innovation among employees (Turban and Greening, 1997).

CSR initiatives in the consumer market can boost a firm's reputation (Schuler and Cording, 2006; Smith,2008). Disclosure of CSR-related information affects corporate value through brand positioning, and supply-chain management is critical for the success of a firm's cross-boundary business endeavours. Establishing a positive reputation and trust in a given region is closely related to a firm's sustainability there. Thus, the social and environmental aspects of management have grown to become increasingly important channels for CSR practices.

In addition to the studies that have explored human resource management and customer relation management, many recent studies focus on market perceptions of CSR as mentioned above. Ghoul et al. (2011) assert 'the cost of capital could be the channel through which capital markets encourage firms to be more socially responsible' (p. 2389). In this context, investors and debtors would function as key drivers of CSR.

Goss and Roberts (2011) and Menz (2010) concentrate on mechanisms that promote CSR in private debt markets. Specifically, Goss and Roberts (2011) examine whether banks judge high-CSR firms more favourably in terms of their borrowing potential than low-CSR firms. Similarly, Menz (2010) explores the role of creditors in the transmission of CSR to the valuation of Euro corporate bonds.

2.3. Sustainability and Interdependency

Although the relationship between CSP and CFP has been studied from a wide range of perspectives, management sustainability has not been explicitly considered in these investigations. CSR is multi-dimensional and thus, the degree to which a business can sustain itself is the chief result of interdependence between a firm's CSP and CFP.

Although investment in CSR practices improves a firm's CSP in the long run, it requires significant financial investment (and thus, an increase in costs) in the short-run. As a result, poor-performing or underdeveloped companies may be limited in their ability to implement CSR, even if doing so can provide them with competitive advantages or reduce risks in the market. Some small firms nonetheless overinvest in CSR in the short-run to attain the positive reputation or higher market valuation bestowed upon their larger or more successful counterparts (Goss and Roberts, 2011; Ghoul et al. 2011). Large and mature firms, by contrast, are more sensitive to market evaluations and seek only to avoid damaging the reputation or trust that has been afforded to them.

Godfrey et al. (2009) extend the risk management model by theorizing that some CSR activities provide an insurance-like effect to firms who seek to maintain their successful business ventures. Their investigation suggests that CSR activities can provide a mechanism for *preserving* rather than *generating* CFP. Based on the extent to which CSP and CFP are multi-faceted and interrelated, Kurcz et al. (2008) argue for the development of integrative models that incorporate economic, ethical, and other variables that relate to the implementation of CSR activities to achieve

business-related outcomes.

Recently, business firms have increasingly claimed to be ethically good members of society. Firms that fail to engage in socially responsible activities would face financial uncertainty and be forced to leave the market in which they operate. Despite the importance of developing and implementing CSR-related activities, it is difficult for firms to sustain themselves if they overinvest.

Given this conundrum, a long-term perspective suggests that a business's sustainability results from integrated CSR practices and the efficient management of stakeholders and risk.

3. Research Objectives and Hypotheses Development

3.1. Research Objective

Given the above review on previous research concerning responsible management, it is clear that CSR has various attributes that relate to the motivation of various stakeholders and thus, financial performance. A firm's engagement in CSR-related activities produces trust among investors and customers, which facilitates a business's continued operation. In this way, an effective long-term CSR policy results in a firm's sustainability. The development of effective CSR policies, however, is contingent upon the extent to which managers are motivated to implement them (Goss and Roberts, 2011). Therefore, boosting managers' motivations for developing and operationalizing CSP is critical for gaining market-based competitive advantages for profit-making, seeking opportunities for growth, mitigating risk, developing the firm's reputation, and building the firm's brand.

Some perceive that typical Japanese corporations exercise ethically-questionable self-regulation and succession practices in an insider-oriented system. However, it has been also widely known that traditional Japanese firms have engaged in several socially responsible activities (e.g. developing high-quality products, making social contributions, and securing employment for communities) to sustain their businesses for a long time. By performing these activities, Japan has more companies whose age exceeds one hundred years than any other country in the world.[1] The maintenance of trust among customers to sustain public confidence is a common characteristic among these firms. The most well-known policy for gaining and keeping that trust originated several centuries ago and is called 'Sanpou-yoshi' (i.e. three-stakeholder-benefits). Sanpou-yoshi relates to the coordination of interests for three types of stakeholders: suppliers or sellers, customers or buyers, and the community or society at large. By considering the interests of the

[1] According to research produced by Teikoku Databank Ltd., over 24,000 Japanese companies (1.7% of all Japanese companies) are over one hundred years old as of September 2012. These older companies represent 3.7% of all firms in the retail industry and 3.5% of all firms in the manufacturing industry. The average age of all Japanese companies is 35.6 years. Kongo-gumi, which specialises in temple and shrine construction, was established in 578 A.D., making it the oldest company in Japan.

different stakeholders, firms become sustainable and gain various competitive advantages within the market.

In light of the above, the primary purpose of our research is to explore the effects of CSR practices on economic outcomes within Japanese firms, using a sample from the late 2000s. In the investigation, we explicitly consider the interdependence of CSR and CFP. To perform this analysis, we employ two interrelated methodologies. First, because (a) CSR activities and practices are multi-dimensional and (b) the link between CSP and CFP is realised through a variety of channels, we construct and utilise both dimensional CSP indices and a composite CSP index as explanatory variables. To construct the CSP indices, we use the results of a questionnaire derived from the Toyo Keizai Database to identify channels through which stakeholders associate CSR with financial and economic outcomes.

To empirically examine the interdependence between CSP and CFP, we conduct an ordinary least-squares regression as well as a two-stage least-squares regression analysis. The two-stage least-squares regression model incorporates covariates that control for the effects of age and company quality. As a instrument variable, the age of a firm serves as a proxy for business succession, which could significantly relate to CSR-related activities in a given firm. In addition, a dummy variable which equals to 1 if a firm is not listed on the Tokyo Stock Exchange First Section serves as a inverse measure for that firm's ability to garner confidence among members of the firm's surrounding community. Whether a company is listed or not may relate to reputation and brand perceptions in Japan. Given these reasons, the inclusion of the above-mentioned instrument variables mitigates potential bias resulting from endogeneity or omitted variables.

3.2. Hypotheses Development

To examine the association between CSP and CFP, we propose three hypotheses.

3.2.1. Competitive Advantage Hypothesis

From the perspective of competitive advantage, CSR practices incentivise employees, improve the quality of products and increase their demand, promote exploration for new business opportunities that meet social demands, and conserve energy and resources in the production process. Given this, a composite CSP index would positively affect CFP and long-term corporate growth. In addition, each individual dimension of the index may positively influence a firm's financial performance. However, the respective channels through which CSP is associated with profits may differ.

Hypothesis 1: *There exists a positive relationship between CSP and a firm's profitability.*

3.2.2. Risk Management Hypothesis

Goss and Roberts (2011) reference two conflicting perspectives related to information asymmetry and corporate management: the *risk mitigation view* and the *overinvestment view*. In the risk mitigation view, managers treat CSR practices as tools for managing corporate risk. Given this operational usage of CSR practices, the composite CSP index would negatively affect perceptions of accounting-based risks and reduce uncertainty about future business development. The composite CSP index would also negatively influence market-based risk premiums by promoting greater degrees of trust within the market. With respect to the individual CSR attributes, the CSP of various corporate divisions may reduce uncertainty associated with stakeholder behaviour, and thus, reduce risks associated with conducting business. However, the risk structure may vary as a function of a firm's industry or developmental stage. As such, the respective relationships between the individual CSP attributes and CFP may likewise vary, even if CSR-related activities affect CFP cumulatively.

Hypothesis 2: *There exists a negative relationship between CSP and risk.*

3.2.3. Overinvestment Hypothesis

As discussed above, CSR practices require significant financial resources in the short run, but produce positive results in the long run. In other words, CSR practices are long-term corporate investments. Due to information asymmetry, a manager may overinvest in CSR activities to garner a positive reputation. Similarly, they may overinvest in CSR to establish trust from lenders in an effort to facilitate fundraising. Thus, if the degree of information asymmetry between managers and other stakeholders is significant, managerial decision-making could be biased, thus inducing conflicts between managers and shareholders. Excess investment in CSR practices may therefore damage corporate value or sustainability by unnecessarily increasing agency costs and risks. It is objection against competitive advantage and risk reduction.

Hypothesis 3: *There exists a positive relationship between CSP and risk and there does not exist a positive relationship between CSP and profitability.*

4. Data Construction and Estimation

4.1. Measures of Corporate Social Performance

To measure CSP, we use indices constructed by Suto and Takehara (2012). A stakeholder-focused approach to corporate governance posits that CSR-related activities is related to a number of different stakeholder relations (e.g. employees, communities, customers, suppliers, the environment) and that firms must choose the appropriate internal governance architecture and

adopt strategies within the existing regulatory framework. Given these stakeholder relationships, Suto and Takehara (2012) identify the following five attributes of corporate social performance: 1) employee relations, 2) social contributions, 3) security for organization and product safety (i.e. product quality), 4) internal governance and risk management, and 5) environmental preservation.[2]

The first attribute, employee relations (EMP), relates to organizational working conditions, appropriate working hours and salary, the employment of minorities, job stability, and opportunities for employees' personal and vocational development. Effective management of employee relations can thus increase employee motivation and improve the quality of their output.

The second attribute, social contributions (SC), relates to a firm's policies for and response to social demands. Positive relationships and effective coordination with the community in which the firm operates can reduce costs associated with local conflicts, attract effective human resources, and enhance the firm's reputation. In contrast, negative relationships with the surrounding community can restrict opportunities for conducting business and increase the costs and risks associated with established business operations.

The third attribute, firm security and product safety (SS), is related to the quality of a firm's products and the sustainability of its business. Therefore, the promotion of SS can provide a firm with long-term competitive advantages. Security and safety is related to supply chain management as well as the firm's own activities, and ultimately influences a firm's relationship with its customers.

The fourth attribute, internal governance and risk management (IG), concerns the demonstrable quality of a firm's disclosure, compliance, internal auditing, and self-discipline. The fifth attribute, environmental preservation (ENV), is a critical aspect of CSR in a society that has grown increasingly concerned with global climate change. As such, many perceive environmental preservation to be firms' principal social responsibility. Suto and Takehara (2012) also provide a Composite CSP (CSP) measure as a comprehensive index of the five attributes outlined above (i.e. EMP, SC, SS, IG and ENV).[3]

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[2] Suto and Takehara constructed the CSP indices using questionnaire results from Toyo Keizai CSR Database as primary data source. From 51 questions items we carefully selected 17 questions about employee relations, 21 questions about CSR in general, and 18 questions about environmental preservation. Then, based on the responses to the questions we selected, we kept 13 scores regarding (1) employee relations (EMP), 5 scores regarding (2) social contributions (SC), 5 scores regarding (3) security of the firm and product safeness (SS), 6 scores regarding (4) internal governance and risk management (IG), and 5 scores regarding (5) environmental preservation (ENV). Questions items and their related factor weights are shown in Table A1.

[3] Each CSP dimensional index is calculated based on ranking by the first component. It was demeaned and scaled by its standard deviation so that it approximately obeyed a standard normal distribution. The comprehensive CSP index was computed as a weighted average of the above constructed five dimensional indices. Since our CSP dimensional indices approximately obey a standard normal distribution, the comprehensive measure of CSP is uniformly distributed. See about the detail in Suto and Takehara (2012).

4.2. Measures of Corporate Financial Performance

Most previous research in this domain has examined the relationship between CSP and profitability metrics that are based in accounting (e.g. return on equity). Although wide-ranging analyses of financial performance should be the norm, conventional measures for profitability capture only one part of a firm's financial performance. To redress this shortcoming in the literature, we employ three types of profitability metrics in this study. The first of these types is the traditional method for gauging financial performance—accounting-based figures. These measures for profitability include return on sales (ROS), return on equity (ROE) and return on assets (ROA). In addition to ROS, ROE, and ROA, we also use the ratio of cash-flows from operations to total assets (CFOTA) to account for the possibility that managers adjust figures related to net income (a numerator of the ROS, ROE and ROA ratios). Cash-flows from operations are less susceptible to manager adjustments.

The second type of metric we use to gauge financial performance relates to the growth potential of the firm. These measures include the growth rate of sales (GSLS) and the growth rate of total assets (GTA).

The third type of measure related to financial performance is computed on the basis of realised stock returns. Specifically, we compute the historical return (HRET) and Jensen's alpha (Alpha) using Fama and French's (1993) three-factor model:

$$r_{jt} - r_{ft} = \alpha_j + \beta_j^{VW}(r_{mt} - r_{ft}) + \beta_j^{SMB} SMB_t + \beta_j^{HML} HML_t + \varepsilon_{jt.} \quad (1)$$

In equation (1), r_{jt} represents a return of j-th stock in month t, r_{ft} is a risk-free rate in month t, r_{mt} is a market value weighted return of stocks listed in the Tokyo Stock Exchange First and Second sections, and SMB_t and HML_t are the Small-Minus-Big and High-Minus-Low factors respectively. We use this model because standard capital asset pricing models (CAPM) cannot account for cross-sectional variation in Japanese stocks.[4]

Because ROS, ROE, ROA, CFOTA, GSLS, GTA, HRET and Alpha fluctuate annually, we compute the average of these measures over the past five years to examine the relationship between CSP and CFP in the long term.[5]

[4] Fama and French (1992) show that standard CAPMs cannot explain cross-sectional variation in returns for U.S. stocks. This trend was supported with Japanese data as well, as Jagannathan et al. (1998) report that standard CAPM poorly estimates cross-sectional variation in stock returns and that conventional beta is sometimes negatively related to excess return on Japanese stocks. Given these findings, we do not use standard CAPM as a benchmark pricing model in this study.

[5] To compute ROS, ROE, ROA and CFOTA, we use data drawn from firms' financial statements in the past five years. To compute GSLS and GTA, we use data from the past six years since an additional year is necessary to compute growth rate. To compute HRET and Alpha, we use stock returns from the 60-month range between in October of year t-5 and September of year t. We use this range because firms sent their questionnaires back to Toyo Keizai Inc. at the end of September.

Extant literature on the relationship between CSP and CFP often lacks a consideration of the ways in which CSP affects corporate risks. However, we expect that effective CSP will reduce a firm's risks. Therefore, in addition to the measures for profitability, we incorporate metrics for risk into our models. Each of these measures corresponds to one of the profitability measures outlined above. To examine the relationship between CSP and the risks faced by a firm, we compute the standard deviations of for ROS, ROE, ROA CFO, GSLS and GTA. We also compute the five-year historical volatility of stock returns (HVOL) and the HML beta derived from stock returns over the previous five years (BHML). These two risk measures correspond to HRET and Alpha.[6]

4.3. Control Variables and Instrument Variables

In addition to the predictor variables we incorporate into our estimation models, we also use the three variables as controls. First, many studies have found a positive association between a firm's CSP and its size. As such, we use the natural logarithm of total asset value (in millions of JPY), lnTA, as a proxy variable for firm size. Because the association between CSP and size is not linear, however, we utilize two dummy variables: Size2 and Size3. The other two control variables are firms' debt ratio (DR), which is defined as total debt divided by total assets and a foreign dependency ratio (FDR), which is defined as foreign sales divided by total sales. Both of debt holders and consumers in foreign countries are important stakeholders in Japanese firms. Effective CSP will alleviate the agency conflicts between debt holders and other stakeholders. In addition, managers must ensure high quality customer service, a task facilitated by superior CSP.

In addition to the control variables, we also incorporate two instrument variables into our analyses: Age and NOTSE1. Age is the number of years that have passed since the foundation of the firm. NOTSE1 is a dummy variable that equals 1 if the firm is not listed in the Tokyo Stock Exchange First Section.[7] The purpose of these variables is to mitigate issues related to variable endogeneity resulting from the potential for reverse causality among our primary variables (CFP and CSP).

4.4. Samples

Data in the CSP Dimensional Indices constructed by Suto and Takehara (2012) ranges from 2007 through 2010. These data include all the Japanese firms that responded to the survey administered by Toyo Keizai Inc. Because Toyo Keizai Inc. sent the questionnaires to the firms in the beginning of July and the firms provided their answers by the end of September, we use the

[6] If the HML factor in Fama and French (1993) is a proxy measure for the distress risk factor, β^{HML}, sensitivity to the factor could be an indicator of a firm's distress risk as evaluated by market participants. Further, Kubota and Takehara (2010) show that HML is consistently and strongly significant in their GMM test results on Japanese stocks.

[7] On January 1st, 2013, the Osaka and Tokyo Stock Exchanges will merge into one stock exchange. Both stock exchanges have first and second sections.

most recent consolidated financial statement data and market attributed data that were available at the end of September. All financial firms are excluded from our sample. The primary source for financial statement data is the NIKKEI NEEDS Database. Market-attributed data are taken from the FDS-NPM Database. As a result, total number of firm-years sample is 2,671.

Table 1 summarises the sample of firms used for this study, delineated by year and corporate sector.[8] About 70% of the sampled firms are listed in the First Section of the Tokyo Stock Exchange (TSE); about 10% of the firms are listed in the Second Section of the TSE; and roughly 20% of firms are listed in exchanges other than the First or Second Sections of the TSE. The investment goods sector was the most heavily represented among sample firms (40%), and over 75% of them of them are listed in the First Section of the TSE.

[Table 1 about here]

4.5. Research Methodology

To explore the degree to which CSP influences CFP, we first utilise the portfolio formation method. At the end of September of each year (t=2007,…,2010), we split the sample into quintiles by ranking the composite CSP scores and the CSP dimensional indices. Following this, we test for differences in CSP between the higher and lower quintiles of each CSP level.

Next, we conduct a regression analysis to confirm the results derived from the portfolio formation method. To verify the robustness of our findings, we employed the following regression model after controlling for firms' individual characteristics:

$$y_{i,j} = \alpha + \beta x_{i,j} + \gamma_1 DR_{i,j} + \gamma_2 FDR_{i,j} + \sum_{i=2}^{3} \delta_i DSize_{i,j} + \sum_{i=2}^{6} \lambda_i DSector_{i,j} + \sum_{t=2007}^{2009} DYear_{t,j} + \varepsilon_j . \quad (2)$$

In model (2), $x_{i,j}$ represents a composite measure for CSP or one of five CSP dimensional indices. Explained variable $y_{i,j}$ represents either the profitability or risk measures for the firm. $DSize_{i,j}$ is a dummy variable which equals 1 if the sample j belongs to the i-th size ranked portfolio and 0 otherwise.[9] $DSector_{i,j}$ is a dummy variable that equals 1 if the sample j belongs to the i-th sector and 0 otherwise. Finally, the $DYear_{i,j}$ are the dummy variables for each year (i.e. t = 2007, … , 2009).

[8] We use the definition of sectors proposed and used in Kubota and Takehara (2007).
[9] Definition of sectors are same as in Table 1.

The possibility exists that the explanatory variables in regression model (2) are correlated with the error term through the omission of variables (Wooldridge, 2010) or reverse causality (i.e. financial performance may actually determine the degree to which firms engage in CSP of the firms). To avoid the endogeneity problem that would result from these issues, we employ a two-stage least square regression model. With this approach, we add two instrument variables (Age and NOTSE1) in the first stage, which we expect to be less correlated with the error terms of the dependent variables in the original regression equations. The results of the two-stage least square regression will be presented in Section 5.4.

5. Results and Implications

5.1. Correlations between CSP and CFP

Before the portfolio formation and regression analysis, we simply examine the bivariate correlations among the CSP measures and CFP measures. Table 2 shows the Spearman rank correlations and corresponding statistical significances. As we can see in Table 2, composite CSP (CSP), employee relations (EMP), social contribution (SC) and environment (ENV) are positively correlated with eight measures for profitability ($p < .01$). Similarly, the correlations between security of the firm and product safety (SS) and the various profitability measures are positive and significant ($p < .01$) in most cases. Although internal governance and risk management (IG) is positively associated with multiple metrics for profitability, it is not significantly correlated with market-based profitability measures (HRET and Alpha). These findings provide confirmatory evidence for the competitive advantage hypothesis (H1).

In contrast to their relationships with measures for profitability, most CSP dimensional indices are significantly and negatively correlated with the measures for corporate risk. For example, CSP, SS and ENV are negatively correlated with all risk measures ($p < .10$). Correlations between EMP and the risk measures are similarly negative. Contrary to our expectation, however, the correlations between internal governance and risk management (IG) and accounting-based risk metrics are positive, though not significant. However, IG is negatively correlated with market-based risk measures HVOL and BHML.

These results do not discredit the risk management hypothesis (H2), but do refute the overinvestment hypothesis (H3). Therefore, a firm's engagement in effective CSP may reduce the risk it faces.

[Table 2 about here]

5.2. Differences in Financial Performance: High and Low CSP Portfolios

Table 3 displays the sample split into quintiles in terms of their Composite CSP measures to

test differences in CFP between the higher and lower quintiles. For each year, we rank the sample firms based on their composite CSP scores and construct five portfolios where P1 is a portfolio which contains firms whose CSP score is in the top 20% of the overall sample and P5 is a portfolio which contains firms whose CSP score is in the bottom 20% of the overall sample. The column labelled 'Diff' reports the average CSP difference between P1 and P5, and the column labelled '*p*-value' denotes the corresponding probability values from Welch's two-sample *t*-test.

[Table 3 about here]

The profitability measures seem to increase as a function of CSP, and the differences between the average of profitability measures for firms in P1 and P5 are significantly different ($p < .01$). In contrast, the risk measures tend to decrease as a function of composite CSP. Differences between firms in P1 and P5 are also significant ($p < .01$). In sum, the results reported in Table 3 support the competitive advantage hypothesis (H1) and risk management hypothesis (H2), but refute the overinvestment hypothesis (H3).

5.3. Results from Pooling Regressions

Tables 4 and 5 report results from regression models that include two control variables (DR and FDR), two size dummies, five sector dummies, and three year dummies to evaluate the role of CSP on CFP. To conserve space, we do not include the coefficients associated with the dummies. Table 4 presents the results of a regression equation in which profitability and growth measures served as the explained variables; Table 5 presents the results of equivalent analyses that utilise accounting- and market-based risk measures as the dependent variables.[10]

[Table 4 about here]

As shown in Table 4, results of the analyses designed to ascertain the effect of Composite CSP on profitability are mixed. Composite CSP is not significantly related to any profitability measures except cash flow (CFOTA). Further complicating the results, Composite CSP is negatively associated with return on sales (ROS). Whereas cash flows from operations indicate profitability before accruals based earning management, profit on sales is sensitive to cyclical fluctuations. In the long run, CFOTA is a more stable measure of profitability than ROS. Other accounting-based measures (i.e. ROE and ROA) and market-based measures (i.e. five-year historical return on stocks and Jensen's alpha) are not related to composite CSP. These findings are somewhat inconclusive, and thus do not provide definitive support for the competitive advantage hypothesis (H1).

[10] Standard errors are corrected by the methods proposed by White (1980).

In contrast to the profit measures, all measures for risk are significantly and negatively associated with Composite CSP (see Table 5). This suggests that CSR practices are closely related with risk-reduction, thus supporting Hypothesis 2.

[Table 5 about here]

In addition to our results related to competitive advantage and risk reduction, our analyses reveal interesting results related to corporate growth rates and volatility. As demonstrated in Table 4, the composite index for CSP is significantly and negatively related to both sales growth (GSLS) and growth in total assets (GTA). These results suggest that there is a trade-off between the extent to which a firm engages in CSR practices and its ability to grow. That said, market and firm volatility are also negatively related to both measures for firm growth ($p < .01$; see Table 5). These results suggest that CSR practices require corporate resources (both financial and logistic) to secure future opportunities for growth. However, the short-term costs associated with investment in CSR-related activities could be gradually mitigated by corporate profitability and growth in the long run.

In addition to analysing the effect of the composite CSP index on various CFP measures, we also explored the respective effects of the index's individual components. All the components, with the exception of internal governance (IG), are negatively related with risk measures. This indicates a general tendency for there to be a negative relationship between CSP and perceptions of firm risk.

Analogous results on profitability are more inconclusive and require more detailed synopses to explain the respective influences of CSP components. It is to those synopses that we now turn.

First, employee relation (EMP) is positively related to all profitability measures except GSLS. EMP is significantly related to only two accounting-based measures (ROE and CFOTA); but is significantly related to both of historical return (HRET) and Jensen's alpha ($p < .05$). Furthermore, EMP is significantly and negatively associated with all risk-related measures ($p < .05$). Given these findings, investors may look to employee relations as an indicator of risk associated with a given firm.

Second, in contrast to EMP, social contribution (SC), and internal governance (IG) are largely negatively related to market-based profitability measures. In addition, neither SC nor IG is significantly associated with accounting-based measures, with the exception of ROS. Analyses of the effect of firm security and product safety (SS) on that firm's accounting-based profitability show mixed results, but similar analyses on market-based profitability measures reveal a number of significantly negative relationships. In light of these findings, the market may perceive the implementation of practices related to SC, SS, and IG as cost-spending activities designed to induce profitability in the long run.

Third, environmental activities (ENV) are strongly associated with risk measures. Specifically, the coefficients associated with the risk measures are more pronounced in models that account for ENV. However, results from analyses on ENV's influence on profitability are not consistent. We interpret these results to mean that social reputation and market perceptions are heavily contingent on a firm's environmental preservation policies. As such, it is vitally important for firms to engage in sound environmental preservation practices to promote sustainability of the company, regardless of the short-term costs.

Finally, some of our control variables are significantly associated with CFP measures. As shown in Tables 4 and 5, debt ratio (DR) is negatively related with the profitability measures and largely positively related with risk measures. As expected, the foreign dependency ratio (FDR) is positively associated with both profits and risks.

5.4. Results from Two-Stage Least Square Regressions

The regressions described above are designed to test the influence of CSP on CFP while not controlling for the potential for endogeneity among the variables. To control endogeneity, we use two instrumental variables—age of the company (Age) and the company's presence/absence on First Section of the Tokyo Stock Exchange (NOTSE1). These variables were chosen as instruments because they are highly visible characteristics of our sample firms. Thus, they can be used to evaluate sustainability and quality of the firm, and may be confused with exogenous predictors in the observed period. Table 6 presents results of two stage-least square regressions that incorporated the instrumental variables. After controlling endogeneity, the results are significantly different.

[Table 6 about here]

Column 1 of Table 6 depicts the positive relationships between Composite CSP and the three accounting-based profit measures and historical return of stocks, as well as the negative relationships with all risk measures except HML beta (BHML). These results support both the competitive advantage hypothesis (H1) and the risk-reduction hypothesis (H2).

Regarding CSR attributes, Columns 2, 3, and 6 respectively show that employment (EMP), social contribution (SC) and environment (ENV) are not as clearly related with profitability as determined by accounting-based metrics, but are significantly and positively associated with market-based profits, even after controlling for endogeneity by employing the aforementioned instrumental variables. These results suggest that in addition to engaging in socially responsible activities related to EMP and ENV, engaging in activities related to SC can facilitate the achievement of a competitive advantage in the market.

EMP, SC, and ENV are strongly and negatively related to all risk measures except BHML. The

coefficients associated with these activities are so pronounced that these components of CSR may be useful tools for risk management. As such, both H1 and H2 are supported.

In contrast, Columns 4 and 5 show that although security and safety (SS) and internal governance (IG) are significantly and positively related to accounting-based profit measures, they are negatively related to market-based measures for profitability. Further, SS is significantly and positively associated with corporate growth. These results imply that SS and IG are not only determinants of profitability but also growth. The respective influences of SS and IG on risk are less obvious. Given these findings, it seems as though the implementation of activities associated with both SS and IG may provide a competitive advantage for producing profits, but they also represent critical costs that companies must incur to effectively manage risk.

Finally, as shown in Table 6, BHML is positively related to Composite CSP and CSP dimensional indices. In contrast, various components of CSP are negatively associated with historical return volatility (HVOL). Petkova and Zhang (2005) point out that previous studies have failed to identify a positive relationship between HML beta and expected market risk premiums because they gauge aggregate economic conditions using *realised* market excess returns.

In sum, after controlling for the potential influence of endogeneity, the results support both the competitive advantage hypothesis (H1) and the risk-reduction hypothesis (H2). So they refute overinvestment hypothesis (H3). Our results suggest that investors tend to focus on EMP, SC, and ENV to determine the risk of investing in a given firm. However, our results further suggest that investors should also consider SS and IG as they may provide firms with competitive advantages in the market.

6. Concluding Remarks

This research represents a first attempt to examine the mechanisms by which CSP is associated with CFP in Japanese corporations. We found CSP impacts on CFP in terms of both profitability and risk of Japanese firms in the late 2000s. Through the regression analysis, we confirmed that CSP is positively associated with profitability (i.e. the competitive advantage hypothesis) and negatively associated with risk (i.e. the risk reduction hypothesis).

Among the various CSR attributes, investors focus on employment, social contributions, and environmental protection as valid indicators of limited risk. However, the competitive advantages offered by implementing security and safety and effective internal governance may also be useful. It suggests each dimension of CSR influences on CFP through different channels related to stakeholder relationships.

We also found that limited information availability for the various CSR dimensions may bias market perceptions of a firm's CSR practices. In this way, strategic stakeholder management is a

key determinant of efficient value creation for a corporation. Information related to the various aspects of non-financial information on stakeholder relations is critical for identifying channels and mechanisms that link CSP with CFP. Because this information is largely unavailable for investors, our research reveals insufficiencies in corporate disclosure among Japanese firms.

Ultimately, the results of this study suggest that managers who seek to fulfil their social responsibilities have reduced perceptions of long-term risk in their firms. In contrast, firms that are less conscious about long-run stakeholder management may fail to effectively manage perceptions of risk. Therefore, firm managers in an increasingly globalised world must emphasise, develop, and implement successful CSR-related practices. Further non-financial disclosure and accountability are required.

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Table 1. Number of Sample Firms

Sector	2007	2008	2009	2010	TSE1	TSE2	Others	Total
Consumption Goods	158	161	168	184	164	22	34	220
Investment Goods	246	267	284	294	266	33	55	352
Services	148	151	194	214	155	29	79	259
Transportation	19	20	19	21	19	2	4	25
Utility	10	11	11	12	12	0	0	12
Real Estate	18	23	18	20	20	4	5	29
All Sectors	599	633	694	745	636	90	177	897

Number of firms listed on Tokyo Stock Exchange 1st Section (TSE1), on Tokyo Stock Exchange Second Section (TSE2), and other stock exchanges in Japan (Others) are reported here. Firms listed in the four right-most columns are not duplicated, and a single firm can be counted a maximum of four times in our sample period.

Table 2. Spearman Rank Correlation between CSP and CFP Variables

	CSP		EMP		SC		SS		IG		ENV	
ROS	0.148	***	0.103	***	0.107	***	0.115	***	0.055	***	0.120	***
ROE	0.189	***	0.153	***	0.165	***	0.094	***	0.075	***	0.157	***
ROA	0.160	***	0.102	***	0.120	***	0.116	***	0.073	***	0.127	***
CFOTA	0.225	***	0.136	***	0.160	***	0.205	***	0.080	***	0.190	***
GSLS	0.092	***	0.066	***	0.123	***	0.011		0.038	**	0.085	***
GTA	0.112	***	0.071	***	0.132	***	0.053	***	0.051	***	0.083	***
HRET	0.080	***	0.098	***	0.057	***	0.058	***	0.006		0.087	***
Alpha	0.132	***	0.135	***	0.100	***	0.071	***	0.016		0.130	***
ROSSD	-0.075	***	-0.055	***	-0.070	***	-0.032	*	0.011		-0.109	***
ROESD	-0.054	***	-0.022		-0.030		-0.068	***	0.012		-0.072	***
ROASD	-0.072	***	-0.053	***	-0.059	***	-0.038	**	0.016		-0.111	***
CFOSD	-0.150	***	-0.133	***	-0.136	***	-0.077	***	0.004		-0.172	***
GSLSSD	-0.054	***	-0.040	**	-0.015		-0.090	***	0.017		-0.060	***
GTASD	-0.037	*	-0.049	**	0.006		-0.063	***	0.015		-0.039	**
HVOL	-0.095	***	-0.031		-0.089	***	-0.095	***	-0.029		-0.080	***
BHML	-0.184	***	-0.133	***	-0.161	***	-0.087	***	-0.084	***	-0.160	***
lnTA	0.619	***	0.388	***	0.569	***	0.320	***	0.228	***	0.609	***
DR	0.039	**	0.058	***	0.070	***	-0.051	***	0.006		0.057	***
FDR	0.328	***	0.260	***	0.237	***	0.258	***	0.073	***	0.316	***
Age	0.244	***	0.248	***	0.199	***	0.123	***	0.004		0.275	***

CSP = Composite CSP; EMP = Employee relations; SC = Social contributions; SS = Security of the firm and product safeness; IG = Internal governance and risk management; ENV = Environmental preservation; ROS = Return on sales; ROE = Return on equity; ROA = Return on assets; CFOTA = Cash-flows from operations to total assets; GSLS = Past five year average growth rate of sales revenue; GTA = Past 5 year average growth rate of total assets; HRET = past 60 months average stock returns; Alpha = Jensen's alpha estimated based on past 60 months stock returns; ROSSD, ROESD, ROASD, CFOSD, GSLSSD and GTASD denote past five year standard deviations of ROS, ROE, ROA CFOTA, GSLS and GTA, respectively; HVOL = Past 60 months historical volatility of stock returns; Beta = Historical beta estimated from past 60 months stock returns; lnTA = Natural logarithm of total assets; DR = Debt ratio; FDR = Foreign dependency ratio; Age = Number of years in business.

Table 3. Corporate Financial Performance of Composite CSP ranked Portfolios

	P1	P2	P3	P4	P5	Diff.	*p* -value
ROS	2.995	2.658	2.130	2.422	1.234	1.761	0.000
ROE	7.233	6.837	5.230	5.705	3.016	4.217	0.000
ROA	3.152	2.757	2.295	2.387	1.564	1.587	0.000
CFOTA	7.163	6.429	5.704	5.458	4.589	2.575	0.000
GSLS	3.555	3.229	2.805	2.774	2.335	1.220	0.002
GTA	2.725	2.207	1.675	1.604	0.963	1.761	0.000
HRET	0.542	0.541	0.411	0.522	0.301	0.241	0.001
Alpha	0.414	0.299	0.133	0.211	0.014	0.400	0.000
ROSSD	2.075	2.096	2.841	2.484	3.859	-1.784	0.000
ROESD	6.602	6.121	7.092	7.069	8.985	-2.383	0.001
ROASD	2.162	2.045	2.548	2.327	3.149	-0.988	0.000
CFOSD	2.991	2.874	3.818	3.467	4.722	-1.731	0.000
GSLSSD	8.646	8.798	9.943	9.565	10.713	-2.067	0.000
GTASD	8.286	8.487	8.513	8.673	10.125	-1.839	0.000
HVOL	9.074	8.858	9.889	9.900	10.317	-1.243	0.000
BHML	0.054	0.233	0.385	0.416	0.433	-0.379	0.000

In each year, sample firms are ranked and divided into five groups (P1, P2, … , P5) based on their Composite CSP scores. Numbers in the table are the average CFP values for firms in each of the five portfolios.

Table 4. Regressing Firms' Profitability Measures onto CSP Measures

	ROS		ROE		ROA		CFOTA		GSLS		GTA		HRET		Alpha	
Intercept	7.722	***	6.419	***	5.795	***	9.566	***	1.088	**	3.243	***	-0.188	***	0.365	***
CSP	-0.109	*	0.050		-0.001		0.148	**	-0.429	***	-0.278	***	-0.017		-0.004	
DR	-0.098	***	-0.055	***	-0.074	***	-0.075	***	-0.009		-0.043	***	-0.003	***	-0.005	***
FDR	0.016	***	0.062	***	0.025	***	0.040	***	0.042	***	0.048	***	0.005	***	0.010	***
Adjusted R^2	0.271		0.131		0.279		0.236		0.182		0.129		0.378		0.089	
	ROS		ROE		ROA		CFO		GSLS		GTA		HRET		Alpha	
Intercept	7.559	***	6.387	***	5.777	***	9.727	***	0.576		2.904	***	-0.221	***	0.349	***
EMP	0.046		0.355	***	0.058		0.148	**	-0.269	***	-0.145		0.031	**	0.036	**
DR	-0.097	***	-0.056	***	-0.074	***	-0.075	***	-0.007		-0.042	***	-0.003	***	-0.005	***
FDR	0.014	***	0.059	***	0.024	***	0.041	***	0.039	***	0.046	***	0.005	***	0.010	***
Adjusted R^2	0.270		0.133		0.279		0.235		0.176		0.125		0.378		0.091	
	ROS		ROE		ROA		CFO		GSLS		GTA		HRET		Alpha	
Intercept	7.740	***	6.506	***	5.827	***	9.745	***	0.566		2.855	***	-0.184	***	0.378	***
SC	-0.261	***	-0.027		-0.052		0.037		-0.103		0.012		-0.043	**	-0.030	
DR	-0.097	***	-0.055	***	-0.074	***	-0.075	***	-0.008		-0.043	***	-0.003	***	-0.005	***
FDR	0.016	***	0.062	***	0.025	***	0.042	***	0.038	***	0.045	***	0.005	***	0.010	***
Adjusted R^2	0.272		0.131		0.279		0.234		0.174		0.125		0.378		0.090	

***p < .01; **p < .05; *p < .10.

Table 4. (Continued)

	ROS		ROE		ROA		CFOTA		GSLS		GTA		HRET		Alpha	
Intercept	7.727	***	6.712	***	5.857	***	9.654	***	1.000	**	3.212	***	-0.179	***	0.384	***
SS	-0.227	***	-0.328	*	-0.094		0.169	*	-0.734	***	-0.513	***	-0.049	**	-0.037	*
DR	-0.098	***	-0.056	***	-0.074	***	-0.074	***	-0.010		-0.044	***	-0.003	***	-0.005	***
FDR	0.015	***	0.063	***	0.025	***	0.042	***	0.039	***	0.046	***	0.005	***	0.010	***
Adjusted R^2	0.272		0.132		0.280		0.235		0.185		0.131		0.379		0.090	
	ROS		ROE		ROA		CFO		GSLS		GTA		HRET		Alpha	
Intercept	7.584	***	6.509	***	5.810	***	9.775	***	0.559		2.932	***	-0.202	***	0.369	***
IG	-0.042		-0.074		-0.060		-0.022		-0.223	*	-0.257	**	-0.038	**	-0.036	*
DR	-0.097	***	-0.055	***	-0.074	***	-0.075	***	-0.008		-0.043	***	-0.003	***	-0.005	***
FDR	0.015	***	0.062	***	0.025	***	0.042	***	0.037	***	0.045	***	0.005	***	0.010	***
Adjusted R^2	0.270		0.131		0.279		0.234		0.175		0.127		0.379		0.090	
	ROS		ROE		ROA		CFO		GSLS		GTA		HRET		Alpha	
Intercept	7.690	***	6.611	***	5.831	***	9.634	***	0.995	**	3.251	***	-0.202	***	0.362	***
ENV	-0.182	*	-0.189		-0.059		0.210	**	-0.770	***	-0.602	***	-0.017		-0.005	
DR	-0.098	***	-0.055	***	-0.074	***	-0.075	***	-0.008		-0.043	***	-0.003	***	-0.005	***
FDR	0.016	***	0.063	***	0.025	***	0.041	***	0.041	***	0.048	***	0.005	***	0.010	***
Adjusted R^2	0.271		0.131		0.279		0.235		0.182		0.130		0.378		0.089	

***p < .01; **p < .05; *p < .10.

Table 5. Regressing Firms' Risk Measures onto CSP Measures

	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.492	***	-4.668	***	1.660	***	2.821	***	9.893	***	8.148	***	6.170	***	0.238	***
CSP	-0.279	***	-0.379	***	-0.140	***	-0.196	***	-0.607	***	-0.574	***	-0.339	***	-0.037	***
DR	0.009	*	0.196	***	0.011	***	0.008	*	0.009		0.033	***	0.048	***	0.004	***
FDR	0.023	***	0.064	***	0.023	***	0.009	***	0.084	***	0.047	***	0.047	***	-0.008	***
Adjusted R^2	0.092		0.171		0.123		0.093		0.157		0.088		0.232		0.115	
	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.208	***	-5.031	***	1.529	***	2.630	***	9.230	***	7.543	***	5.791	***	0.196	***
EMP	-0.346	***	-0.553	***	-0.213	***	-0.271	***	-0.595	***	-0.637	***	-0.300	***	-0.028	**
DR	0.010	*	0.198	***	0.012	***	0.009	**	0.012		0.036	***	0.049	***	0.004	***
FDR	0.023	***	0.064	***	0.023	***	0.009	***	0.081	***	0.045	***	0.045	***	-0.008	***
Adjusted R^2	0.093		0.172		0.126		0.095		0.154		0.087		0.226		0.113	
	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.238	***	-4.846	***	1.522	***	2.621	***	9.162	***	7.374	***	5.980	***	0.218	***
SC	-0.200	**	-0.533	**	-0.084		-0.106	*	-0.159		-0.020		-0.427	***	-0.048	***
DR	0.010	*	0.197	***	0.011	***	0.009	**	0.011		0.035	***	0.049	***	0.004	***
FDR	0.021	***	0.062	***	0.022	***	0.008	***	0.077	***	0.040	***	0.045	***	-0.008	***
Adjusted R^2	0.086		0.170		0.118		0.088		0.148		0.077		0.226		0.114	

***p < .01; **p < .05; *p < .10.

Table 5. (Continued)

	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.313	***	-4.932	***	1.531	***	2.617	***	9.658	***	7.813	***	5.940	***	0.192	***
SS	-0.298	***	-0.377	*	-0.092	*	-0.094		-0.876	***	-0.663	***	-0.345	***	-0.006	
DR	0.009		0.196	***	0.011	***	0.008	**	0.008		0.033	***	0.048	***	0.004	***
FDR	0.021	***	0.061	***	0.022	***	0.007	***	0.079	***	0.042	***	0.043	***	-0.008	***
Adjusted R^2	0.089		0.170		0.118		0.088		0.157		0.084		0.225		0.111	
	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.122	***	-5.224	***	1.465	***	2.562	***	9.062	***	7.418	***	5.731	***	0.190	***
IG	-0.048		0.132		0.011		-0.032		-0.007		-0.211		-0.097		-0.010	
DR	0.010	*	0.197	***	0.011	***	0.009	**	0.011		0.035	***	0.049	***	0.004	***
FDR	0.020	***	0.059	***	0.022	***	0.007	***	0.076	***	0.041	***	0.043	***	-0.008	***
Adjusted R^2	0.085		0.169		0.117		0.087		0.148		0.078		0.218		0.111	
	ROSSD		ROESD		ROASD		CFOSD		GSLSSD		GTASD		HVOL		BHML	
Intercept	2.441	***	-4.572	***	1.678	***	2.836	***	9.775	***	7.997	***	6.027	***	0.221	***
ENV	-0.515	***	-0.958	***	-0.326	***	-0.439	***	-1.109	***	-0.986	***	-0.500	***	-0.051	***
DR	0.009	*	0.196	***	0.011	***	0.008	**	0.010		0.034	***	0.048	***	0.004	***
FDR	0.023	***	0.065	***	0.023	***	0.009	***	0.083	***	0.046	***	0.045	***	-0.008	***
Adjusted R^2	0.092		0.173		0.126		0.096		0.157		0.087		0.227		0.113	

***p < .01; **p < .05; *p < .10.

Table 6. Results of Two-Stage Least Square Regressions

	CSP		EMP		SC		SS		IG		ENV	
ROS	1.555	***	0.506		2.987	**	4.131	***	5.619	***	1.987	***
ROE	1.726	**	0.631		3.463		4.388	**	6.010	**	2.271	
ROA	0.917	***	-0.149		0.821		3.700	***	4.768	***	0.750	
CFOTA	-0.325		-2.722	***	-6.125	***	6.532	***	7.340	***	-2.878	***
GSLS	-2.262	***	-3.677	***	-10.529	***	2.307	*	1.400		-5.658	***
GTA	-1.846	***	-2.945	***	-8.475	***	1.725		0.961		-4.565	***
HRET	0.201	**	0.382	***	1.051	***	-0.358	*	-0.301		0.555	***
Alpha	-0.097		0.142		0.178		-0.750	***	-0.918	**	0.039	
ROSSD	-1.565	***	-1.665	***	-5.438	***	-0.889		-1.893		-3.088	***
ROESD	-1.997	**	-2.943	***	-8.659	**	1.180		0.250		-4.710	***
ROASD	-1.050	***	-1.731	***	-4.939	***	1.140	**	0.730		-2.649	***
CFOSD	-1.790	***	-2.117	***	-6.665	***	-0.415		-1.472		-3.731	***
GSLSSD	-3.208	***	-3.878	***	-12.124	***	-0.509		-2.368		-6.767	***
GTASD	-3.200	***	-3.275	***	-10.845	***	-2.181		-4.288	*	-6.191	***
HVOL	-0.772	**	-1.077	***	-3.219	***	0.282		-0.105		-1.764	***
BHML	0.373	***	0.320	***	1.133	***	0.430	**	0.702	**	0.663	***

*** p < .01; ** p < .05; * p < .10.

Table A1. Adopted Questions from CSR Survey of Toyo Keizai CSR Database

	Evaluation Point	Weights
Employee Relations (EMP)		**29.478**
1	Ratio of female employees to total employees	-0.192
2	Ratio of female managers to total managers	-0.304
3	Ratio of phisically handicapped employees to total employees	-0.282
4	Ratio of old employees (60 years old and over) to total employees	-0.252
5	Average years of continuous employment	-0.162
6	Labor turnover rate	-0.349
7	Average salary for a 30 years old	-0.312
8	Overtime hours	-0.328
9	Overtime wage per hour	-0.341
10	Rate of paid holidays taken	-0.344
11	Frequency rates of industrial injuries	-0.223
12	Flexible work arrangement (flex-time, short-time working, on-site child care, etc.)	-0.219
13	Incentive program (internal venture, bonus plan, education program etc.)	-0.208
Social Contribution (SC)		**51.736**
1	Comprehensive evaluation (CSR department, director in charge, CSR document etc.)	-0.438
2	Corporate ethics (guidelines, business ethics document, etc.)	-0.263
3	Department of social actions	-0.703
4	Social expenditure per employee	-0.430
5	Matching gift and voluntier grant programs	-0.243

Numbers in the column named ‘Weights’ are the contribution rate (in %) of CSP dimensional indices and loadings of first principal component as of September 2010.

Table A1. (Continued)

	Evaluation Point	Weights
Security of the Firm and Product Safeness (SS)		**45.279**
1	Specialty divisions on investor relations, consumer affairs, cooperation with NPO.	-0.268
2	Whisle-blower policy	-0.111
3	Specialty department for managing quality and safety of products and services	-0.910
4	Ratio of domestic business offices with ISO9000 certification	-0.212
5	Ratio of foreign business offices with ISO9000 certification	-0.206
Internal Governance and Risk Management (IG)		**35.766**
1	Comprehensive evalusation (whisle-blower protection, CSR manual, complaint DB, etc.)	-0.151
2	Existence/nonexistence of compliance department	-0.436
3	Existence/nonexistence of CIO	-0.594
4	Existence/nonexistence of CFO	-0.620
5	Information systems (security policy, internal/external auditiing etc.)	-0.204
6	Comprehensive evaluation (fair trade, compliance, closedown in the past 3 years, etc.)	-0.093
Environment Preservations (ENV)		**49.216**
1	Environmental planning department, director in charge of environmental affairs, etc.	-0.496
2	Environmental accounting, disclosure and auditiing.	-0.587
3	Ratio of environment related business to total revenue	-0.427
4	Promotion of procurement of eco-friendly goods and services	-0.466
5	Ecolabelling (ISO14020 series etc.)	-0.036
6	Environment related compliance (environmental disasters, law violation, etc.)	-0.090

Table A2. Definition of Profitability/Risk Measures

Variable Name	Firms' Profitability Measures and Their Difinitions		Data Period
ROS	Return on Sales	$=(Net\ Income_t)/(Sales_t)$	Past 5 years Average
ROE	Return on Equity	$=(Net\ Income_t)/(Book\ Value_{t-1})$	Past 5 years Average
ROA	Return on Asset	$=(Net\ Income_t)/(Total\ Asset_{t-1})$	Past 5 years Average
CFOTA	Cash-flow to Total Asset	$=(Cash\text{-}flow\ from\ Operations_t)/(Total\ Asset_{t-1})$	Past 5 years Average
GSLS	Growth rate of Sales	$=(Sales_t)/(Sales_{t-1})-1$	Past 5 years Average
GTA	Growth rate of Total Asset	$=(Total\ Asset_t)/(Total\ Asset_{t-1})-1$	Past 5 years Average
HRET	Historical stock return	Historical average of realized monthly return	Past 60 months data
Alpha	Jensen's alpha	Computed based on Fama and French (1993)	Past 60 months data
Variable Name	Firms' Risk Measures and Their Definition		
ROSSD	Past 5 year standard deviation of Return on Sales (ROS)		
ROESD	Past 5 year Standard deviation of Return on Equity (ROS)		
ROASD	Past 5 year Standard deviation of Return on Asset (ROA)		
CFOSD	Past 5 year Standard deviation of Cash-flow to Total Asset (CFOTA)		
GSLSSD	Past 5 year Standard deviation of Growth rate of Sales (GSLS)		
GTASD	Past 5 year Standard deviation of Growth rate of Total Asset (GTA)		
HVOL	Past 60 months historical volatility		
BHML	Past 60 months HML beta computed based on Fama and French 3 factor model.		