CSR As Insurance: The Case of Japanese Automobile Manufacturers[†]

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Abstract

We combine firm-level data on CSR activity with product recall data in the Japanese automobile manufacturing industry to test whether the stock price of firms who engage in CSR activities is hurt less when recalls are announced than firms who do not engage in CSR activity. Using an event study framework, we find that firms that do engage in CSR activity enjoy a 2.5%-3% abnormal return on their stock price when recalls are announced, suggesting that CSR functions as insurance for a firm's reputation.

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1 Introduction

The practice of CSR (Corporate Social Responsibility) is well-established and widespread. It has become commonplace for companies to spend liberally on CSR activities and to advertise such expenditures. However, numerous studies over the past thirty years have failed to find significant economic benefits from CSR. Margolis et al. (2007) conducted a meta-analysis of the relationship between doing good and doing well and concluded, on the basis of 192 studies, that there is a mildly positive relationship between CSR activities and corporate performance, but that the most likely direction of causation is from firm performance to CSR rather than the other way around. These findings were consistent with earlier meta-analyses by Orlitzky et al. (2003) and Allouche and Laroche (2005).

If this is the case, then why do firms spend valuable resources on CSR? There are two common explanations. The first is that CSR generates benefits or reduces costs. Benefits can be realized by boosting employee morale (and hence output) or gaining access to previously closed-markets (such as supplying NPOs). This is the argument of Waddock and Graves (1997), Freeman (2010), Fisman et al. (2006) and Kanter (2015). On the other hand costs can be reduced by employing more efficient technologies or reducing opportunism, allowing the firm to cut down on inputs used. This is the argument put forward by Jones (1995).

The second common motivation given for CSR is that it will attract customers, workers or investors who consider the firm's CSR activities to be important and allow the firm to generate higher returns in this way. Fombrun and Shanley (1990) argue that in an environment of incomplete information, stakeholders will use CSR as a reputation signal. On the other hand Greening and Turban (2000) suggest that CSR can be used to attract higher quality employees.

Empirical studies have however, failed to find a strong causal effect of CSR activity on firms' operating performance. Waddock and Graves (1997), Berman et al. (1999), Hillman and Keim (2001) and Barnett and Salomon (2006) all investigated the rela-

tionship between CSR activity and measures of financial performance such as ROA and concluded that either no correlation or a negative correlation between CSR activity and financial performance existed.

While it is difficult to obtain firm-level measures of CSR in Japan, Suto et al. (2006) measured the ROA, ROE and Tobin's q of firms included in the Ethibel Sustainability Index (ESI) and those not included in the index. Their results show a statistically significant difference between the two sets of firms only for Tobin's q. Masutani (2007) investigated the relationship between the CSR evaluations of economic and financial periodicals and firm performance, but found that those firms that are most committed to CSR tend to exhibit poor performance.

Suto and Takehara (2008) found that firms in the equipment industry and public sector are particularly active in CSR initiatives. They also found that large firms and older firms tend to invest more in CSR activities. While they do not investigate the effect of investment in CSR and subsequent firm performance, they report that firms with good performance tend to invest more in CSR subsequently.

If, as the studies cited earlier concluded, empirical studies fail to find that CSR improves corporate performance, then why do firms engage in CSR activities? One possible reason is implicitly suggested by Jensen (1986). Managers have an incentive to keep free cash flow within the firm rather than return it to shareholders and CSR provides one way of spending slack resources. Empirical support for this hypothesis was found by Preston and O'Bannon (1997).

While the traditional economic motivations suggested above have not produced strong empirical support, another possible explanation is offered by McGuire et al. (1988), Peloza (2006), Minor (2011) and Minor and Morgan (2011). These studies raise the possibility that CSR reduces risk to the firm. In particular, CSR acts as insurance for the firm's reputation. In normal times the firm will pay the cost of CSR activities without any obvious benefit. But, should the firm misbehave in some way or disappoint its customers with poor quality products, stakeholders such as regulators, customers

and employees may look more forgivingly upon the firm and not punish it as harshly as they would a firm that did not engage in CSR activities.

This paper empirically investigates the possibility of firms using CSR activities as reputation insurance by focusing on product recalls in the Japanese automobile manufacturing industry. We combine firm level data on CSR activities with corporate and stock price data to investigate whether or not the stock prices of firms that engage in CSR activities fall less upon the announcement of product recalls than the stock prices of firms that do not engage in CSR activities. Our results suggest that firms actively engaged in CSR activities enjoy a 2.5%-3% abnormal return over a 3-day period when a product recall is announced, providing support in favor of the hypothesis that CSR acts as insurance for firms' reputations.

The remainder of the paper is organized as follows. Section 2 describes the data used in this study. Section 3 explains our estimation strategy, while Section 4 presents the estimation results. Section 5 presents robustness checks for the estimation results. Finally, Section 6 provides a discussion of the results and Section 8 concludes the study.

2 The Data

This study combines four sources of data to perform the analysis. Data on CSR activity are taken from the Toyo Keizai Corporate Social Responsibility Database. This is an annual survey of more than 1000 listed and unlisted firms in Japan. The survey is comprised of three main parts - General, Environment and Employment. We use the general segment of the dataset which covers items such as Basic CSR, Governance, Customers and Social Contribution. The survey was first conducted in 2006 when 749 firms were surveyed. Since then, each subsequent survey has included more firms and the 2014 survey covers 1210 firms. Nevertheless, the survey changed substantially after 2006, so we use the 2008-2014 surveys in this study.[1] Although some firms leave the

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[1]The data collected in each survey correspond to the previous year. For example, the data collected for the 2014 survey correspond to the firm's activities during 2013. We make this adjustment and use the year to which the data apply rather than the survey year when referring to the data.

database, many remain for each survey creating an unbalanced panel with a maximum of seven observations for each firm.

Financial data are from the Nikkei NEEDS Financial Quest Database. This is a firm-level financial dataset of more than 3000 listed companies in Japan covering more than 40 years worth of data. Daily stock price data are also taken from the NEEDS Financial Quest Database.

Finally, we used the Nikkei Telecom Database, a database of newspaper articles from the Nikkei Shimbun newspaper, to collect data on recalls. Our method consisted of searching the database for all articles from 2007 onwards that included the names of any of the listed Japanese automobile manufacturers and the word "recall." We searched both the morning and evening editions of the newspaper to ensure that we captured the point in time when the recall was first reported on. We then read through each individual article to assess whether or not it indeed contained information about a recall at a particular company. If the article was found to be relevant and contained the required information, we recorded the date of the article, the name of the firm and, if available, the size of the recall.

Among the variables from the Toyo Keizai CSR database that are of central interest to this study are the answers to questions regarding companies' CSR activities. The first of these questions asked firms if they had a department dedicated to CSR activities. Firms could select from the following options: 1) has a dedicated CSR department; 2) has a non-dedicated CSR department; 3) does not have a CSR department; or 4) other. The responses for the firms used in this study are presented in Table 1. Nissan, Toyota, Mitsubishi Motors, Mazda and Honda had dedicated CSR departments throughout the 2007-2013 period. On the other hand, Isuzu had no CSR department until 2009, but created a dedicated CSR department in 2010. Similarly, Daihatsu instituted a non-dedicated CSR department only in 2012.

In contrast to this, Suzuki, Yamaha and Fuji Heavy Industries previously had dedicated CSR departments, but converted these into non-dedicated CSR departments in

later years, while Hino moved in the opposite direction, converting a non-dedicated CSR department into a dedicated CSR department in 2011.

Firms were also asked whether or not they had executives in charge of CSR activities. Similarly to the question regarding whether or not they had a department dedicated to CSR activities, firms could select: 1) has an executive dedicated to CSR; 2) has an executive in charge of CSR as well as other activities; 3) does not have an executive in charge of CSR activities; or 4) other. The responses to this question are presented in Table 2. In most cases firms have an executive who is in charge of CSR in addition to other activities. Mitsubishi Motors had an executive whose sole responsibility was CSR activities until 2009, but then expanded that role to include other responsibilities from 2010 onwards. On the other hand, Isuzu and Daihatsu originally did not have an executive in charge of CSR, but later instituted an executive to oversee CSR as well as other activities. In comparison to Table 1, Table 2 displays much less variation among firms and over time.

Finally, one other variable that is useful in measuring firms' commitment to CSR activities is what proportion of the executive in charge of CSR's work is related to CSR activities. Firms could select: 1) 100%; 2) more than half; or 3) less than half. The responses to this question are presented in Table 3. In most cases, executives in charge of CSR activities spend less than half of their work on CSR activities. Only for Toyota, Mitsubishi Motors, Mazda and, beginning in 2013, Isuzu do the executives in charge of CSR spend more than half of their work on CSR activities.

To examine whether or not these three measures capture the same information, we calculate the Spearman rank correlations among them and present the results in Table 4. Before calculating the Spearman rank correlation we need to account for the fact that the missing data for Isuzu and Daihatsu in Table 3 are due to the fact that since they do not have executives responsible for CSR, by definition those executives cannot have spent any time at all on CSR activities. We thus code the response to what proportion of the executive in charge of CSR's work is related to CSR activities as "4" for these

cases and calculate the Spearman rank correlations using this adjusted variable.

Table 4 reveals that the three measures of CSR activity are highly correlated and this should give us greater confidence that the pattern in Tables 1 through 3 are really capturing variation in CSR activity across firms and over time.

3   Estimation Strategy

In this section we describe our empirical strategy for identifying the effect of CSR activity on stock price reactions to recall announcements. As pointed out by Hartman (1987) and Davidson III and Worrell (1992), the product market offers a sensible setting in which to examine the effect of exogenous shocks on stock prices. The source of the effect can be either a direct shock to the value of the firm, but it can also be a signal of the quality of the firm's management and process control. Minor (2011) argues that a firm's CSR reputation is built up through costly investments in marketing and distribution and while higher prices is one manner in which the firm can earn a return on this investment, another is through stakeholders' forgiveness for transgressions.

By focusing on a homogeneous type of transgression (product recalls) for a particular industry, we can avoid the difficult issue that different types of transgressions convey different information about the nature of management or the firm's future. For example, product recalls overwhelmingly reflect poor quality and process control, issues that, while potentially serious, are unlikely to put the firm's future in jeopardy. Issues of fraud or criminal investigations at financial firms, on the other hand, are a different matter.

Our empirical strategy is essentially a financial event study of the type reviewed in MacKinlay (1997) and proceeds as follows. Firstly, we use the market model to estimate the expected return for each security.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{1}$$

where R_{it} and R_{mt} are the day t returns of firm i and the market respectively and

ε_{it} is a zero-mean disturbance term.[2]

The parameters of the model (α_i, β_i and $\sigma^2_{\varepsilon_i i} = var(\varepsilon_{it})$) are estimated on data up until 30 days before the recall announcement. In the baseline case we begin the estimation period 60 days before the recall announcement so that we use 30 days' data to estimate the parameters. Later, as a robustness check, we also use data over the 250 days ending one month before the announcement to estimate the model in Equation (1). Since the parameters are estimated separately for each recall announcement, we allow the parameters to reflect changes to investors' perceptions of the risk of each company as recalls are announced.

We then use the parameters estimated from the model in Equation (1) to estimate what one would expect to have happened to each company's stock price in the absence of any recall announcement given what happened to the Topix index. We subtract this expected return from the actual return of the stock price to calculate the *abnormal return* of the stock.

$$AR_{it} = R_{it} - E\left[R_{it}\right] = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{2}$$

Finally, we sum the abnormal return over continuous days to calculate the *cumulative abnormal return* (CAR) over a specified window of time.[3]

$$CAR_i = \sum_{s=t-\tau}^{t+\tau} AR_{is} \tag{3}$$

In conducting our analysis, we exclude all recalls that occurred within 30 days of another recall in order to avoid cases where the effects on the CAR of a second recall would interfere with the effects of the first recall. Our analysis of newspaper articles identified a total of 128 recalls that meet our criteria.[4] Figure 1 summarizes the number of recalls for each manufacturer used in our analysis. Toyota and Nissan have the largest

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[2]We use the Topix index to calculate the market return.

[3]A window of time is defined as a period of time spanning an equal number of days before and after the recall announcement.

[4]We exclude all recalls after 2012 in order to avoid the recalls caused by the Takata airbag scandal.

number of recalls while Fuji Heavy Industries and Mazda have the fewest.

Figure 2 plots the kernel density estimate of CARs as calculated in Equations 1 through 3 over a 5-day window, beginning 2 days before the recall and ending 2 days after the recall, as well as the Normal distribution for comparison purposes. One can observe that the empirical distribution is more peaked and has a fatter left tail than the Normal distribution. It is also skewed to the left.

Figure 3 plots the average cumulative abnormal return over time separately for the three levels of CSR activity described in Table 1. Time "0" is the date on which the recall is announced. The graph shows that in the days following the announcement of a recall the CAR of firms with a non-dedicated CSR department rises, while the CAR of firms with a dedicated CSR department remains around zero. Finally, those firms without a CSR department experience a negative CAR in the days following the announcement of a recall.

We begin our formal analysis of the effect of CSR activity on the the CAR of a firm following the announcement of a recall by focusing on the three day window comprising the day before the recall announcement, the day of the recall announcement and the day after the recall announcement. While very short, this window should be enough time for markets to digest the news of the recall and adjust the stock price accordingly. It is also short enough that it is highly unlikely that other important events are driving the stock price fluctuations observed during the estimation period.

We use the CAR as calculated above as the dependent variable in a regression framework. The main independent variables of interest are the degree of CSR activity, proxied by dummy variables created from the data in Table 1. We specify "No CSR Department" as the base category and include dummy variables for "Dedicated CSR Department" and "Non-Dedicated CSR Department" as the explanatory variables. We also assign a value of 1 to the "Dedicated CSR Department" dummy variable when the firm has a non-dedicated CSR department. This means that one should interpret the coefficient on the "Dedicated CSR Department" dummy variable as the differential effect of having

a dedicated CSR department above and beyond having a non-dedicated CSR department. In the baseline model we regress the CAR on the two CSR department dummy variables only. In the second model we add year and firm dummy variables. Finally, in the third model we include operating margin, firm size, defined as the natural logarithm of total assets, and a normalized measure of the size of the recall to control for financial performance. We normalize the size of the recall by dividing the number of vehicles recalled by the firm's total assets. The full (i.e. third) model is specified in the following equation:

$$CAR_i = \alpha + \boldsymbol{\beta_1 CSR_i} + \boldsymbol{\beta_2 Year_i} + \boldsymbol{\beta_3 Firm_i} + \beta_4 OpInc_i + \beta_5 Size_i + \beta_6 RecallSize_i + \varepsilon_i$$

(4)

where $\boldsymbol{CSR_i}$ is a vector of dummy variables indicating the firm's commitment to CSR activities (i.e. the "Dedicated CSR Department" and "Non-Dedicated CSR Department" dummy variables), $\boldsymbol{Year_i}$ is a vector of year dummy variables, $\boldsymbol{Firm_i}$ is a vector of firm dummy variables, $OpInc_i$ is the firm's operating income margin, $Size_i$ is the natural logarithm of the firm's total assets and $RecallSize_i$ is the normalized size of the recall.

4 Estimation Results

The results of estimating the model in Equation 4 are reported in columns (1)-(3) of Table 5. In all versions of the model standard errors are clustered at the firm level. The estimated coefficient on the "Non-Dedicated CSR Department" dummy variable is statistically significant at the 1% level. In other words, the results suggest that having a non-dedicated CSR department has a positive effect on the firm's stock price when a recall is announced. This does not mean that the stock price of the firm goes up when the recall is announced. Rather, it implies that the stock price falls less. The size of this effect is estimated to be more than 2%.

The estimated coefficients on the "Dedicated CSR Department" dummy variable are small and not statistically significant. This does not mean that having a dedicated CSR department has no effect on the CAR. Rather, it suggests that having a dedicated CSR department does not have an additional effect *above and beyond* the effect of having a non-dedicated CSR department.

On the other hand, one can also measure the firm's commitment to CSR by using the share of CSR activity in the executive in charge of CSR's work. Using the data from Table 3, we construct two dummy variables indicating whether the share of time spent is greater than 50% or less than 50%.[5] Here too, we assign a value of 1 to both the "less than 50%" and "greater than 50%" dummy variables if the share of the executive's time spent is greater than 50% so that one should interpret the coefficient on the "greater than 50%" dummy variable as a differential effect of having an executive spend more than 50% of his time on CSR activities above and beyond the effect of spending between 0% and 50% of his time on CSR activities.

The results, reported in columns (4)-(6) of Table 5 are consistent with those in columns (1)-(3). They suggest that having an executive in charge of CSR activities has a positive effect on the CAR when a recall is announced, but this result is statistically significant at the 5% level only in the baseline model. While controlling for other relevant variables increases the size of the estimated coefficient, it also increased the size of the standard error. Interestingly, however, the size of the estimated coefficient is very close to the size of the effect of having a non-dedicated CSR department.

Finally, in columns (7)-(9) we include all the CSR variables in estimating the model. The estimated size of the coefficients are similar to those in columns (1)-(6). Both having a non-dedicated CSR department and having an executive who spends at least half his time on CSR increase the CAR when a recall occurs by slightly over 2%.

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[5]There are only two observations where the share of the executive's work is 100%, so we include these with the "more than half" category in Table 3 to create a "greater than 50%" category.

5   Robustness Checks

In this section we take three approaches to testing the robustness of the results reported in Table 5. Firstly, we re-estimate the regressions of Table 5 using parameters calculated from data over the 250 days ending one month before the announcement rather than only the 30 days ending one month before the announcement. On the one hand, using more data improves the efficiency of the estimated parameters in Model 1. On the other hand, including older data may contaminate the estimated parameters with data that are less relevant for assessing the riskiness of the firm. The results are reported in Table 6.

Although the estimated coefficients on the non-dedicated CSR department dummy variable of Table 6 are smaller than those estimated in Table 5, they are of similar magnitude and share the same signs. However, they are no longer significant. The estimated coefficients on the "CSR Share > 50%" dummy variable of Table 6, however, are the same size as those in Table 5 and are statistically significant.

Next, we estimate the model of Equation 4 using different window lengths to calculate the CAR. While the results of Table 5 used a three day window, Figures 4 and 5 display the estimated coefficients and 95% confidence intervals of each of our measures of CSR activity across various windows of time.

Figure 4 shows that having a non-dedicated CSR department has a positive effect across window lengths, as shown in the right-hand column of graphs, although the estimated effect is often not statistically significant at the 5% level. Furthermore, the size of the estimated coefficient levels off at approximately 5% for window lengths greater than 10 days.

On the other hand, we find that the estimated effect of the "Dedicated CSR Department" dummy is generally negative, implying that having a non-dedicated CSR department has a larger effect than having a dedicated CSR department, even though the effect of having a dedicated CSR department (given by adding the coefficients on the dedicated and non-dedicated CSR department dummy variables together) is posi-

tive. In fact, the size of the estimated coefficient suggests that having a dedicated CSR department has no positive effect at all. The estimated coefficients are, however, often not statistically significant at the 5% level.

It may seem puzzling that having a non-dedicated CSR department has a larger effect than having a dedicated CSR department, but this is true only if we assume that having a dedicated department signals greater dedication to CSR than having a non-dedicated department does. This might not be the case. One possibility is that a non-dedicated CSR department might signal a commitment to stakeholders beyond the bare minimum of obligatory CSR and include other activities *in addition to* conventional CSR activities.

The results of Figure 5 suggest that having an executive who spends more than 50% of their time on CSR activities has a statistically significantly positive effect on the CAR of a firm when a recall is announced. The size of the effect increases with the length of the window and levels off at approximately 10% after 16 days. On the other hand, having an executive that spends more than no time but less than half of their time on CSR activities has an estimated effect of approximately zero and is never statistically significant. It appears as though the market clearly differentiates firms who are committed to CSR activities from those who are not.

A third robustness check consists of investigating whether or not the CSR effects measured above are not simply proxies for other types of activities that are correlated with CSR activities. It may be that firms that are highly committed to CSR are also highly involved in other activities and it is their involvement in those other non-CSR activities that are driving the results in above. To check this, we use the model of Equation 4 to check if having a department that is dedicated to legal compliance or a department that is dedicated to social contribution issues has any impact on the stock price when recalls are announced. In both cases, all firms have departments for legal compliance and social contribution, so the estimated effects should be interpreted as the differential effect of having a dedicated department compared to having a non-dedicated

department. The results of adding the "Dedicated Social Contribution Department" and "Dedicated Legal Compliance Department" dummy variables to the model of Equation 4 are summarized in Table 7.

Columns (1)-(3) of Table 7 estimate the model including a dummy variable indicating whether the firm has a department that is dedicated to social contribution issues or not. The estimated coefficient on the "Dedicated Social Contribution Dept." dummy variable suggests that having a dedicated department increases the CAR when a recall is announced by 3% compared to having a non-dedicated department. The estimated coefficients on the CSR department and share of time spent by the CSR executive dummy variables are similar in size to those reported in Table 5 and are statically significant, suggesting that all of these factors have differential effects on CAR when a recall is announced.

Columns (4)-(6) of Table 7 estimate the model including a dummy variable indicating whether the firm has a department that is dedicated to compliance issues or not. The estimated coefficient on the "Dedicated Social Contribution Dept." dummy variable suggests that having a dedicated department has no additional effect on CAR when a recall is announced compared to having a non-dedicated department. The estimated coefficients on the CSR department and share of time spent by the CSR executive dummy variables are similar in size to those reported in columns (1)-(3) and are generally statically significant, suggesting that while having a dedicated compliance department does not have an additional effect on CAR compared to having a non-dedicated CSR department or an executive spend at least half of their time on CSR issues has a positive differential effect of 2%-3% when a recall is announced

Finally, columns (7)-(9) estimate the model including dummy variables for both having a dedicated social issues department and a dedicated compliance department. Including both dummy variables does not change the estimated coefficients to any significant degree. The results imply that having a non-dedicated CSR department, an executive who spends at least half of their time on CSR issues, or a dedicated social

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contribution department has a positive differential effect of 2.5%-3% when a recall is announced, but that having a dedicated compliance department has no effect above and beyond having a non-dedicated compliance department. The results for the main variables of interest are similar to those of Table 5, suggesting that the results are robust and not being driven by other underlying factors.

While Table 7 reported the results of estimating the effect of CSR activity on the firm's CAR when a recall is announced over a 3 day window, Figures 6 through 9 plot the estimated coefficients and 95% confidence intervals for windows of various lengths for all of the variables of interest in Table 7. The graphs essentially report results of column (9) in Table 7 for different window lengths.

As can be observed, the estimated coefficients of Figures 6 and 7 are very similar to those of Figures 4 and 5, suggesting that the results are not sensitive to controlling for a dedicated compliance department or a dedicated social contribution department. CSR activity has a separate effect on CAR. Figure 8 shows that having a dedicated social contribution department has a positive effect on CAR when a recall is announced that is above and beyond the effect of CSR activity and is of similar magnitude. Figure 9, on the other hand, shows that having a department that is dedicated to compliance has no additional effect on CAR above and beyond that of having a non-dedicated department, even when we lengthen the window of estimation.

6 Discussion

The results presented above suggest that, while it may not be observable in traditional financial metrics such as gross margins or revenue growth, investment in CSR activities may very well have positive returns. These returns are observed in the stock market reaction when the auto manufacturers need to recall products. The initial cost, which all recalling firms must face, is the cost of replacing faulty products. But there is a secondary cost - the expected cost of lost customer loyalty, legal liability or regulatory fines - that is estimated by the stock market. Our results suggest that these estimated

costs are lower for firms with a greater commitment to CSR activities, perhaps because such activities preserve stakeholder goodwill.

The size of the benefit that is created by this goodwill is large. For example, the effects for the three day window estimated in Table 5 suggest that having a non-dedicated CSR department or an executive who spends at least 50% of his time on CSR activities has a 2.5 to 3 percentage point differential effect on the cumulative abnormal return. For a firm like Toyota with a market capitalization of $200 billion, that amounts to a difference in abnormal value of between $250 million and $300 million in the case of a fairly large recall that results in a 5% cumulative abnormal return. While we do not know how much a firm like Toyota spends on CSR activities, we can be confident that it is significantly less that this amount, suggesting a very high rate of return to investment in CSR. Interestingly, the estimated coefficients are similar to those estimated by Minor (2011), even though that study contained only U.S. firms and used a different measure of CSR activity.

Taken at face value, the estimation results suggest that while there is a large benefit to engaging in an certain degree of CSR activity, a greater amount of activity has less or even no value at all. But, as suggested earlier in this study, having a non-dedicated CSR department or executive might suggest involvement in a wider range of reputation-building activity rather than a lower commitment to CSR. CSR would then be the most visible of a number of activities that describe the company's social contribution and helps to build goodwill which protects the firm when it inevitably runs into a problem. The fact that having a separate department that is dedicated to social contribution activity has an effect of very similar magnitude to having a non-dedicated CSR department suggests that this may indeed be the case.

7   Conclusion

In this study we combined firm-level data on CSR activity with product recall data in the Japanese automobile manufacturing industry to test whether or not the stock price

of firms that engage in CSR activities is hurt less when recalls are announced than firms that do not engage in CSR activity. Using an event study framework, we found that the stock price of firms that do engage in CSR activity enjoys a 2.5%-3% abnormal return over a 3-day window, suggesting that CSR functions as insurance for a firm's reputation. Those firms who have built up stakeholder goodwill through CSR activities are punished less when problems arise.

The results presented in this paper, which are consistent with earlier studies, suggest that CSR activity may indeed have an economic rationale that helps to explain the long-lasting puzzle of firm investment in CSR activities.

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8 Figures
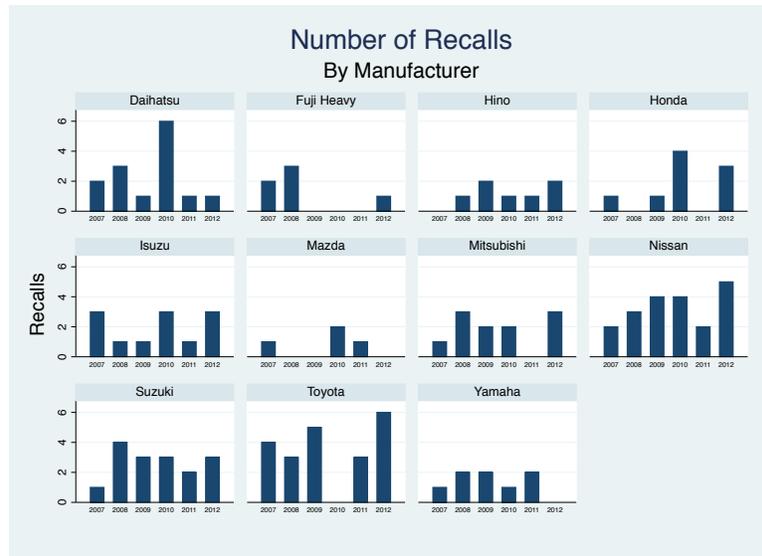
Figure 1: Recalls By Manufacturer Over Time
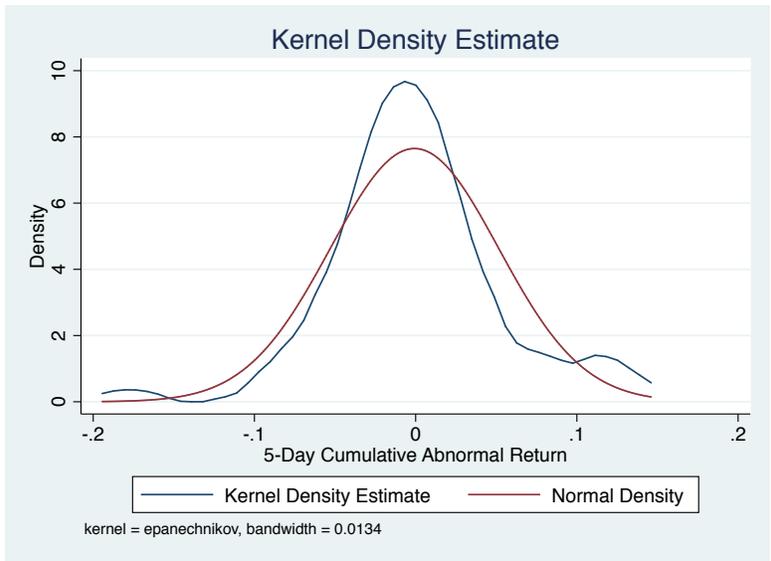
Figure 2: Kernel Density Estimate of CAR
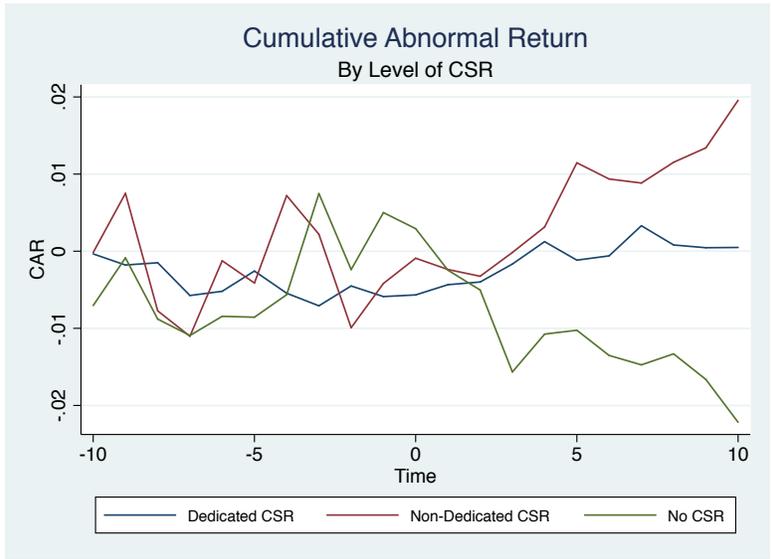
Figure 3: Average CAR by Level of CSR
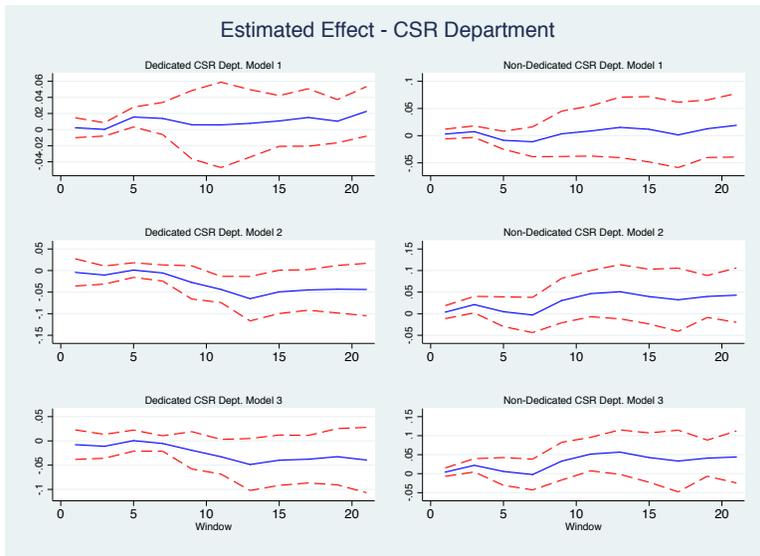
Figure 4: Dedicated CSR Dept.
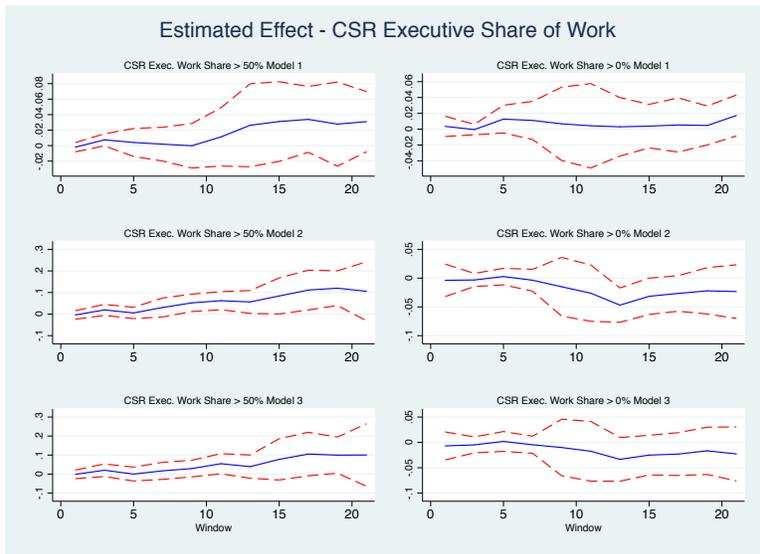
Figure 5: CSR Exec. Work Share

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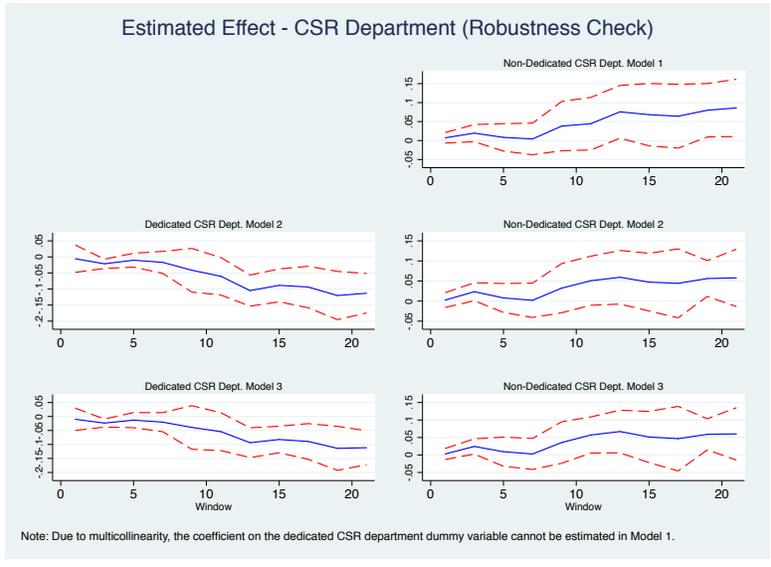
Figure 6: Dedicated CSR Dept.
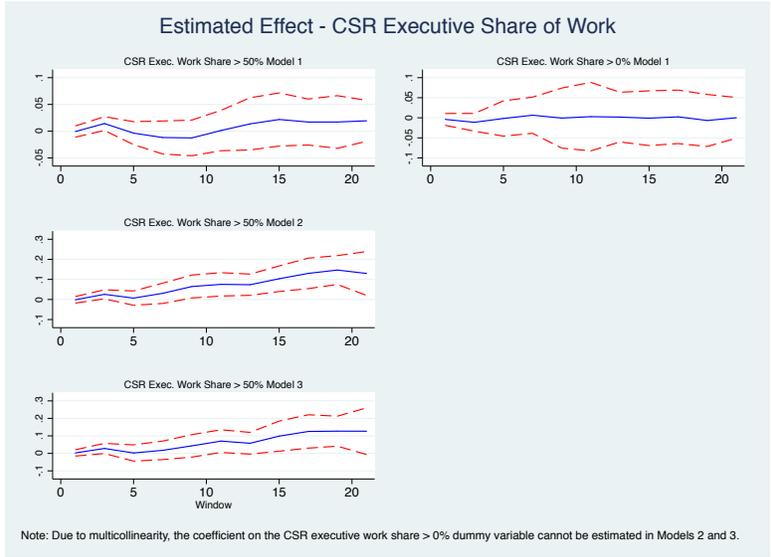
Figure 7: CSR Exec. Work Share
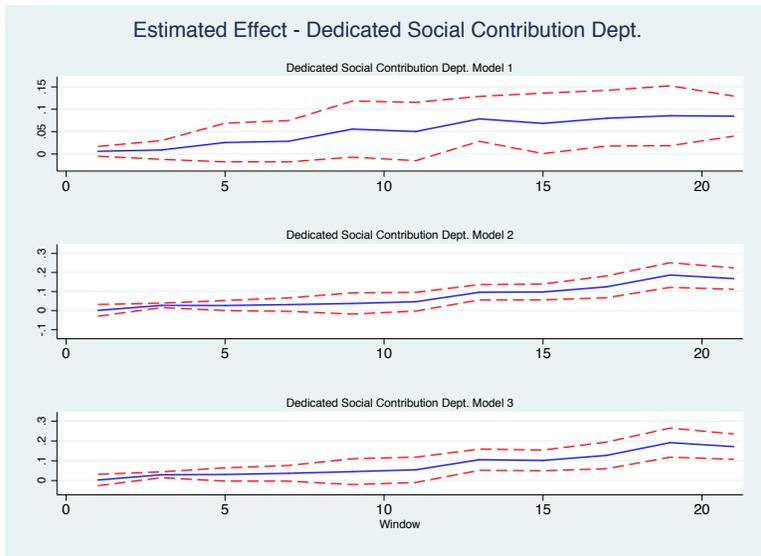
Figure 8: Dedicated Social Contribution Dept.
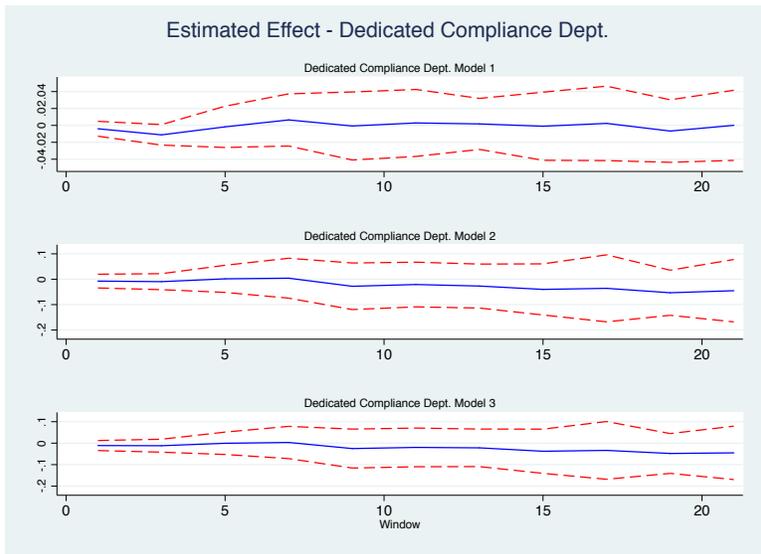
Figure 9: Dedicated Compliance Dept.

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Table 1: Firm Has Dedicated CSR Department

	2007	2008	2009	2010	2011	2012	2013
Nissan	1	1	1	1	1	1	1
Isuzu	3	3	3	1	1	1	1
Toyota	1	1	1	1	1	1	1
Mitsubishi Motors	-	1	1	1	1	1	1
Mazda	1	1	1	1	1	1	1
Daihatsu	3	3	3	3	3	2	2
Honda	1	1	1	1	1	1	1
Suzuki	1	1	2	2	2	2	2
Fuji Heavy Industries	1	1	1	1	1	2	2
Hino	-	-	2	2	1	1	1
Yamaha	1	1	1	1	2	2	2

Table 2: Firm Has Executive Dedicated To CSR Activities

	2007	2008	2009	2010	2011	2012	2013
Nissan	2	2	2	2	2	2	2
Isuzu	3	3	3	2	2	2	2
Toyota	2	2	2	2	2	2	2
Mitsubishi Motors	-	1	1	2	2	2	2
Mazda	2	2	2	2	2	2	2
Daihatsu	3	3	3	3	3	2	2
Honda	2	2	2	2	2	2	2
Suzuki	2	2	2	2	2	2	2
Fuji Heavy Industries	2	2	2	2	2	2	2
Hino	-	-	2	2	2	2	2
Yamaha	2	2	2	2	2	2	2

9   Tables

Table 3: Share Of CSR Executive's Work Spent on CSR Activities

	2007	2008	2009	2010	2011	2012	2013
Nissan	3	3	3	3	3	3	3
Isuzu	-	-	-	3	3	3	2
Toyota	3	2	2	2	2	2	2
Mitsubishi Motors	-	1	1	2	2	2	2
Mazda	3	3	2	2	2	2	2
Daihatsu	-	-	-	-	-	3	3
Honda	3	3	3	3	3	3	3
Suzuki	3	3	3	3	3	3	3
Fuji Heavy Industries	3	3	3	3	3	3	3
Hino	-	-	3	3	3	3	3
Yamaha	3	3	3	3	3	3	3

Table 4: Spearman Rank Correlation of CSR Activity Measures

	Dedicated CSR Dept.	Dedicated CSR Exec.	Share Of CSR Exec.'s Work
Dedicated CSR Dept.	1.000		
Dedicated CSR Exec.	0.6991	1.000	
Share Of CSR Exec.'s Work	0.6451	0.7209	1.000

Table 5: CSR and CAR (1 Month Beta)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dedicated CSR Dept.	0.000	-0.010	-0.011				-0.004	-0.009	-0.010
	(0.004)	(0.009)	(0.011)				(0.005)	(0.010)	(0.012)
Non-Dedicated CSR Dept.	0.007	0.021**	0.022**				0.011*	0.022**	0.023**
	(0.005)	(0.009)	(0.008)				(0.006)	(0.009)	(0.008)
CSR Share > 50%				0.007*	0.019	0.020	0.011*	0.022*	0.024
				(0.003)	(0.011)	(0.015)	(0.005)	(0.010)	(0.014)
CSR Share > 0%				-0.001	-0.003	-0.005	.	.	.
				(0.003)	(0.005)	(0.007)	.	.	.
Operating Margin			-0.102			-0.047			-0.060
			(0.074)			(0.127)			(0.090)
Ln(Assets)			-0.045			-0.046			-0.057
			(0.069)			(0.073)			(0.073)
Normalized Recall Size			-0.053**			-0.055**			-0.053**
			(0.017)			(0.018)			(0.017)
Isuzu		-0.008*	-0.107		-0.005**	-0.107		-0.007*	-0.136
		(0.004)	(0.155)		(0.002)	(0.164)		(0.004)	(0.163)
Toyota		0.004***	0.049		-0.014	0.032		-0.016	0.040
		(0.001)	(0.070)		(0.011)	(0.068)		(0.010)	(0.067)
Hino		-0.021***	-0.141		-0.009***	-0.130		-0.021***	-0.174
		(0.005)	(0.183)		(0.001)	(0.192)		(0.005)	(0.192)
Mitsubishi		0.011***	-0.075		-0.007	-0.095		-0.011	-0.124
		(0.001)	(0.145)		(0.012)	(0.161)		(0.010)	(0.161)
Mazda		-0.013***	-0.092		-0.029**	-0.108		-0.030***	-0.131
		(0.002)	(0.122)		(0.009)	(0.135)		(0.009)	(0.135)
Daihatsu		-0.007	-0.101		0.003	-0.094		-0.005	-0.129
		(0.008)	(0.155)		(0.005)	(0.165)		(0.009)	(0.162)
Honda		0.013***	0.016**		0.013***	0.015**		0.013***	0.017**
		(0.002)	(0.006)		(0.002)	(0.006)		(0.002)	(0.006)
Suzuki		-0.020**	-0.090		-0.004***	-0.074		-0.020**	-0.110
		(0.007)	(0.109)		(0.001)	(0.114)		(0.007)	(0.115)
Fuji Heavy		0.023***	-0.075		0.028***	-0.071		0.022***	-0.103
		(0.002)	(0.152)		(0.003)	(0.161)		(0.002)	(0.160)
Yamaha		-0.016***	-0.117		-0.008***	-0.110		-0.016***	-0.146
		(0.004)	(0.161)		(0.001)	(0.169)		(0.004)	(0.169)
Constant	-0.000	0.003	0.737	-0.000	-0.003	0.743	-0.000	0.005	0.943
	(0.002)	(0.007)	(1.126)	(0.002)	(0.005)	(1.191)	(0.002)	(0.008)	(1.185)
Year Dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	128	128	128	128	128	128	128	128	128
R^2	0.006	0.133	0.165	0.008	0.117	0.148	0.020	0.139	0.172
RMSE	0.037	0.036	0.036	0.037	0.037	0.037	0.037	0.037	0.036

Standard errors clustered at firm level in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: CSR and CAR (7 Month Beta)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dedicated CSR Dept.	0.001	0.006	0.005				-0.005	0.008	0.006
	(0.007)	(0.008)	(0.010)				(0.009)	(0.009)	(0.012)
Non-Dedicated CSR Dept.	0.006	0.012	0.012				0.010	0.013	0.014
	(0.008)	(0.013)	(0.012)				(0.009)	(0.013)	(0.012)
CSR Share > 50%				0.009**	0.021***	0.023**	0.011**	0.023***	0.025**
				(0.003)	(0.007)	(0.010)	(0.005)	(0.006)	(0.010)
CSR Share > 0%				-0.002	0.011**	0.009	.	.	.
				(0.007)	(0.005)	(0.008)	.	.	.
Operating Margin			-0.057			-0.001			-0.009
			(0.113)			(0.135)			(0.118)
Ln(Assets)			-0.042			-0.050			-0.057
			(0.045)			(0.049)			(0.049)
Normalized Recall Size			-0.046**			-0.048**			-0.046**
			(0.020)			(0.020)			(0.019)
Isuzu		0.002	-0.092		0.004*	-0.108		0.002	-0.125
		(0.002)	(0.100)		(0.002)	(0.109)		(0.003)	(0.109)
Toyota		0.009***	0.052		-0.011	0.037		-0.013*	0.043
		(0.002)	(0.046)		(0.007)	(0.045)		(0.007)	(0.045)
Hino		-0.021**	-0.133		-0.014***	-0.145		-0.021**	-0.171
		(0.007)	(0.119)		(0.001)	(0.127)		(0.007)	(0.128)
Mitsubishi		0.015***	-0.067		-0.008	-0.106		-0.010	-0.123
		(0.001)	(0.096)		(0.007)	(0.108)		(0.006)	(0.110)
Mazda		-0.001	-0.075		-0.019**	-0.106		-0.020**	-0.120
		(0.003)	(0.081)		(0.007)	(0.092)		(0.007)	(0.093)
Daihatsu		0.017**	-0.074		0.023***	-0.085		0.018**	-0.106
		(0.006)	(0.100)		(0.003)	(0.109)		(0.007)	(0.108)
Honda		0.013***	0.016***		0.013***	0.016***		0.013***	0.016***
		(0.002)	(0.003)		(0.002)	(0.004)		(0.002)	(0.004)
Suzuki		-0.005	-0.071		0.004***	-0.073		-0.006	-0.094
		(0.009)	(0.071)		(0.001)	(0.076)		(0.009)	(0.077)
Fuji Heavy		0.033***	-0.060		0.035***	-0.072		0.031***	-0.091
		(0.004)	(0.100)		(0.003)	(0.108)		(0.004)	(0.109)
Yamaha		-0.017***	-0.112		-0.012***	-0.124		-0.017***	-0.146
		(0.005)	(0.104)		(0.001)	(0.112)		(0.005)	(0.113)
Constant	0.001	-0.019**	0.730	0.001	-0.022	0.831	0.001	-0.017*	0.953
	(0.006)	(0.007)	(0.753)	(0.006)	(0.006)	(0.808)	(0.006)	(0.008)	(0.810)
Year Dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	128	128	128	128	128	128	128	128	128
R^2	0.004	0.166	0.193	0.014	0.166	0.193	0.024	0.174	0.202
RMSE	0.034	0.033	0.033	0.034	0.033	0.033	0.034	0.033	0.033

Standard errors clustered at firm level in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: CSR and CAR (1 Month Beta) - Robustness Check

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dedicated CSR Dept.	.	-0.021***	-0.023***	-0.001	-0.009	-0.011	.	-0.021***	-0.024***
	.	(0.007)	(0.007)	(0.005)	(0.010)	(0.012)	.	(0.006)	(0.006)
Non-Dedicated CSR Dept.	0.018	0.025**	0.026**	0.014	0.020*	0.021**	0.020*	0.023**	0.024**
	(0.010)	(0.009)	(0.009)	(0.008)	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)
CSR Share > 50%	0.008	0.023**	0.025*	0.017**	0.025**	0.027*	0.014**	0.026**	0.028*
	(0.005)	(0.010)	(0.013)	(0.006)	(0.010)	(0.013)	(0.006)	(0.010)	(0.013)
CSR Share > 0%	-0.011	.	.	.	.	.	-0.008	.	.
	(0.012)	.	.	.	.	.	(0.010)	.	.
Dedicated Social Contribution Dept.	0.010	0.028***	0.031***				0.009	0.027***	0.029***
	(0.011)	(0.005)	(0.006)				(0.009)	(0.005)	(0.007)
Dedicated Compliance Dept.				-0.012**	-0.011	-0.014	-0.011*	-0.010	-0.012
				(0.005)	(0.013)	(0.012)	(0.005)	(0.014)	(0.014)
Operating Margin			-0.073			-0.048			-0.061
			(0.095)			(0.098)			(0.101)
Ln(Assets)			-0.060			-0.061			-0.064
			(0.076)			(0.071)			(0.074)
Normalized Recall Size			-0.053**			-0.054***			-0.054**
			(0.018)			(0.017)			(0.018)
Isuzu		0.004	-0.130		0.003	-0.132		0.012	-0.126
		(0.003)	(0.170)		(0.013)	(0.158)		(0.015)	(0.166)
Toyota		-0.017	0.042		-0.008	0.054		-0.010	0.054
		(0.010)	(0.070)		(0.010)	(0.066)		(0.011)	(0.069)
Hino		0.006	-0.152		-0.016*	-0.177		0.009	-0.156
		(0.004)	(0.198)		(0.007)	(0.186)		(0.006)	(0.193)
Mitsubishi		-0.012	-0.131		-0.002	-0.122		-0.005	-0.129
		(0.010)	(0.168)		(0.011)	(0.156)		(0.011)	(0.163)
Mazda		-0.032***	-0.137		-0.024**	-0.130		-0.026**	-0.136
		(0.009)	(0.140)		(0.009)	(0.130)		(0.010)	(0.137)
Daihatsu		0.011*	-0.117		-0.005	-0.138		0.010*	-0.126
		(0.006)	(0.170)		(0.009)	(0.158)		(0.005)	(0.166)
Honda		0.013***	0.017**		0.021**	0.026**		0.020*	0.025*
		(0.002)	(0.006)		(0.009)	(0.011)		(0.010)	(0.011)
Suzuki		0.006	-0.086		-0.008	-0.101		0.015	-0.079
		(0.004)	(0.118)		(0.014)	(0.111)		(0.014)	(0.115)
Fuji Heavy		0.049***	-0.080		0.024***	-0.108		0.050***	-0.085
		(0.004)	(0.165)		(0.003)	(0.156)		(0.005)	(0.161)
Yamaha		-0.018***	-0.154		-0.004	-0.140		-0.007	-0.148
		(0.004)	(0.176)		(0.013)	(0.164)		(0.014)	(0.172)
Constant	-0.000	-0.009*	0.973	0.003	0.005	1.008	0.003	-0.008	1.028
	(0.002)	(0.005)	(1.237)	(0.002)	(0.008)	(1.156)	(0.002)	(0.005)	(1.209)
Year Dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	128	128	128	128	128	128	128	128	128
R^2	0.028	0.148	0.182	0.038	0.142	0.176	0.044	0.150	0.186
RMSE	0.037	0.036	0.036	0.036	0.037	0.036	0.036	0.037	0.036

Standard errors clustered at firm level in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$