# The Effect of Corporate Social Responsibility on Gender Diversity in the Workplace: Econometric Evidence from Japan

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## Abstract

*Using panel data on corporate social responsibility (CSR) matched with corporate proxy statement data for a large and representative sample of 1,492 publicly traded firms in Japan over 2006–2014, we provide fixed effect estimates on the positive and significant effects on gender diversity of CSR. Such effects are, however, felt only after two to three years. The CSR effects are larger and more significant for firms that adhere more closely to the participatory Japanese management system. Our findings are robust to the inclusion of controls capturing the mediating effects of various work–life balance practices, pointing to the direct impact of CSR on gender diversity.*

## 1. Introduction

This article provides the first rigorous quantitative evidence on the effect of corporate social responsibility (CSR) on gender diversity in the workplace. In so doing, we fill an important gap in the vast and growing literature on CSR (for recent literature reviews, see, for instance, Aguinis and Glavas 2012; Garriga and Melé 2004; Orlitzky *et al.* 2003). Two strands of the literature are of particular relevance to our study. First, much of the literature from the perspective of 'instrumental theories' (Garriga and Melé 2004) is focused on the effects of CSR on corporate performance and other relevant outcome measures. For instance, Peloza (2009) conducts a meta-analysis of 128 studies and finds that a majority of studies report evidence pointing to a significant positive linkage between CSR and financial

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performance, while recognizing a number of potentially serious limitations of the existing literature. Other scholars focus on outcomes other than financial performance, such as productivity (Sánchez and Benito-Hernández 2015), better recruitment outcomes (Greening and Turban 2000) and investment by institutional investors (Graves and Waddock 1994). However, this strand of the literature has been largely silent on gender diversity in the workplace as a possible outcome of CSR, and there are only a limited number of qualitative studies addressing gender diversity as an outcome of CSR (see, for instance, Grosser and Moon 2005; Schultz 2007; Stropnik 2010). In short, the qualitative literature describes the potentially important role that CSR can play in enhancing gender diversity, elucidates a number of key challenges that need to be overcome if CSR is to yield positive outcomes in terms of gender diversity/equality and proposes some solutions to those challenges. Our quantitative study complements such qualitative studies by providing rigorous econometric evidence on the core hypothesis that CSR enhances gender diversity, and on the relevance of some mediating factors.

Second, although rigorous quantitative analysis of gender diversity in the workplace as an outcome of CSR is scarce, there is a rich body of scholarship on gender diversity at the highest level of corporate organizations (the board of directors) as a predictor (as opposed to an outcome) of CSR. Specifically there is an impressive body of evidence pointing to the significant role that female board members play in promoting CSR and improving corporate reputations (see, for instance, Bear *et al.* 2010; Hafsi and Turgut 2013; Mallin and Michelon 2011; Post *et al.* 2011; Webb 2004; Zhang *et al.* 2013).

In summary, the literature on the effects on outcomes of CSR tends to neglect gender diversity in the workplace as a possible outcome of CSR, while the literature on gender diversity as a predictor of CSR tends to focus on gender diversity at the top while neglecting it at other levels of corporate organizations. Our article can be viewed as an attempt to build a bridge between those two strands of the CSR literature by focusing on gender diversity at levels below board level and considering it as an outcome of CSR.

The data we use are from Japan. The use of Japanese data is of particular interest. First, in spite of an impressive growth of the literature on CSR, there is a dearth of rigorous studies of CSR in Japanese firms. This article fills this gap by using data on CSR of Japanese firms. Second, and perhaps more important, in Japan, the gender gaps in the labour market are considerable. According to the OECD, the gender gap in median earnings for full-time employees in Japan was approximately 29 per cent in 2012 (i.e. women earned 29 per cent less than men), which was almost twice as high as the OECD average. The persistently large gender pay gap in Japan is particularly troublesome for policy makers because gender gaps in educational attainment have narrowed considerably (Abe 2010). As the proportion of college-educated women has increased, the composition of the full-time workforce has changed dramatically. In particular, there has been a significant increase in the proportion of female university graduates among full-time workers. Further, the average tenure of full-time female workers rose from 6.2 years in 1981 to

8.9 years in 2010 (Basic Survey on Wage Structure, Japanese Ministry of Health, Labor and Welfare). However, despite these improvements in female education and tenure, significant gender wage gaps persist in Japan.

Presently, Japanese policy makers are considering narrowing these gender gaps as a top policy priority (see, for instance, Prime Minister Abe's ambitious policy goal of 'increasing the share of women in leadership positions to at least 30 per cent by 2020 in all fields in society'). The current policy focus on gender gaps in the labour market is in part motivated by Japan's rapidly aging population and the resultant shrinking labour force and diminishing economic dynamism. Greater labour force participation and career advancement of women are often advocated as the most promising 'solution' to Japan's demographic challenge (see, for instance, the IMF report 'Can Women Save Japan?' by Steinberg and Nakane 2012).

The empirical literature on gender gaps in the labour market in Japan tends to focus on assessing the efficacy of public policy instruments at the macro-level such as revisions of Japan's 'paternalistic' Labor Standard Law, parental leave legislation and increasing public day care facilities (see, for instance, Abe 2013; Asai 2015; Asai *et al.* 2015; Higuchi *et al.* 2007; Kato and Kodama 2014; Lee and Lee 2014). In contrast, there is a paucity of rigorous evidence on the efficacy of firm-level initiatives.[1] It is in this context that we explore the role of CSR in promoting gender diversity and career advancement for women in Japanese firms.

In sum, in this article we use unique firm-level panel data on CSR and provide novel econometric evidence on the effects of CSR on gender diversity. Specifically, we estimate the CSR effects on gender diversity outcomes. The longitudinal nature of the data allows us to estimate fixed effect models, and hence account for unobserved firm heterogeneity such as corporate culture, traditions and management quality, all of which affect both CSR and gender diversity. Furthermore, we test whether the CSR effects on gender diversity are mediated by various work–life balance (WLB) practices.

In Section 2, we provide an overview of CSR in Japan and the diffusion of key elements of CSR among Japan's listed firms over the last decade. In Section 3, we present a brief theoretical exploration of the possible effects of CSR on gender diversity while reviewing the relevant literature. Section 4 describes our data and empirical strategy. The results are presented in Section 5, and Section 6 concludes.

## 2. Corporate social responsibility in Japan

Defining and measuring CSR is an elusive enterprise (Jackson and Apostolakou 2010), and Japan is no exception. There is no consensus definition of CSR in Japan. However, there have been several attempts to organize data on various activities and institutions reported under the label of CSR in Japan. Perhaps the best known of these is a series of reports on CSR of Japanese firms by Keizai Doyukai (Japan Association of Corporate

Executives). Keizai Doyukai was established by a group of business leaders one year after the end of World War II with the reconstruction of the war-ravaged Japanese economy and society as its main mission. The current membership consists of about 1,400 top executives of some 950 firms. Keizai Doyukai is one of the two most influential employer associations in Japan, and plays a significant role in identifying and proposing solutions to key issues that Japan faces – issues that are not limited to Japanese corporations, but also encompass the Japanese economy and society (see, for instance, their most recent report, Keizai Doyukai 2014).

According to Keizai Doyukai's reports, that corporations are responsible not only for their shareholders but also for a variety of stakeholders, including the society at large, is not a new concept in Japan. Keizai Doyukai was advocating a broader mission for Japanese corporations as early as 1956. Since then, the nature and scope of the 'social responsibility' concept of corporations have changed, partly in response to shifting public interests (e.g. in the high growth era of the 1970s, Japan faced a serious pollution problem, and environmental protection started to play an increasingly important role in the concept of 'social responsibility' of corporations). In the 2000s, the framework (code) of CSR developed in North America was introduced to Japan, and many Japanese corporations began to incorporate the new framework of CSR into their traditional 'stakeholder' model.

The most comprehensive and reliable data on the CSR performance of Japanese firms have been collected by Toyo Keizai (a leading publishing company in Japan with a particular focus on business-related books, magazines and data) every year since 2006. The data were also collected for 2004. However, the survey instruments differed considerably between 2004 and 2006 and beyond, and we were only able to obtain consistent data for 2006 and beyond. The sample universe is all Japanese firms listed on Japan's stock exchanges. The response rates vary from year to year, but are consistently high for these types of firm-level surveys (for instance, the response rate for all listed firms was close to 50 per cent in 2012).

We obtained firm-level micro data for the entire period, 2006–2014. In this introductory section, drawing on Keizai Doyukai's CSR framework, we use the Toyo Keizai CSR data and describe the diffusion of CSR among listed firms in Japan during the period 2006–2014. Figure 1 shows the proportion of Japan's listed firms with dedicated CSR departments. In 2006, just over 60 per cent of Japan's listed firms had dedicated CSR departments, and a slightly smaller percentage had executives in charge of CSR. The use of official CSR mission statements was much less pervasive — only 35 per cent of Japan's listed firms reported having official CSR mission statements in 2006 (the question used in the survey is 'Does your firm have an official document describing the firm's fundamental attitude and policy toward CSR activities?'). Since then, the proportion of listed firms with CSR departments, executives in charge of CSR and CSR mission statements has been increasing steadily, and in 2014, 75 per cent of listed firms in Japan reported having dedicated CSR departments, almost 70 per cent reported having executives in charge of CSR and 60 per cent

FIGURE 1

Proportion of Listed Firms with CSR Departments, Executives in Charge of CSR and Official CSR Mission Statements: 2006–2014. [Colour figure can be viewed at wileyonlinelibrary.com]



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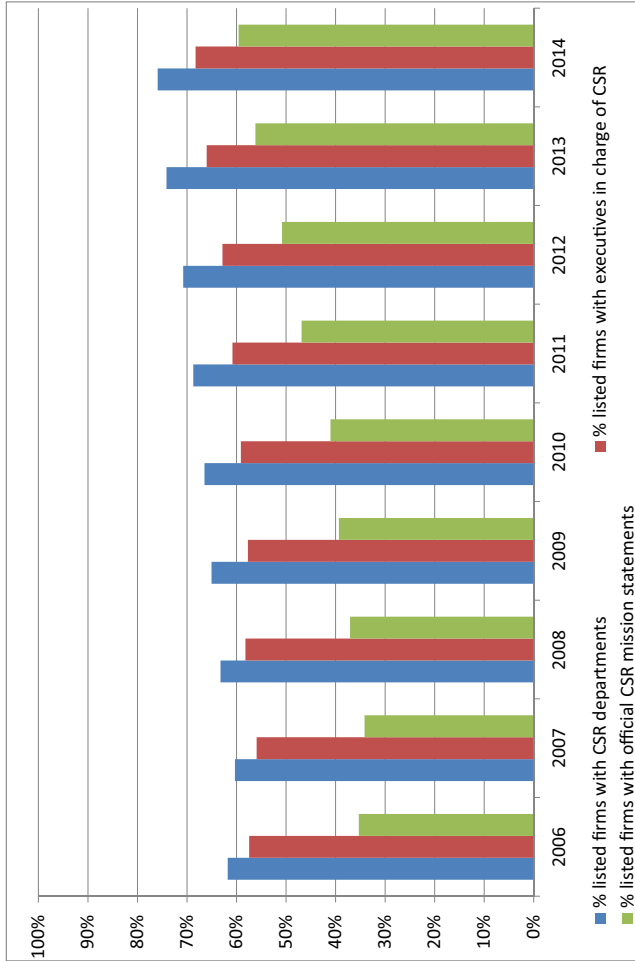
reported having official CSR mission statements. The development of official CSR mission statements has been particularly rapid.

In addition, 80 per cent of Japan's listed firms already had environmental protection departments in 2006, and this figure has remained stable. Similarly, around 70 per cent of listed firms in Japan have had executives in charge of environmental protection since 2006. The existence of a compliance department is a near-universal phenomenon among listed firms in Japan, while the adoption of official business ethics statements has been growing steadily among Japan's listed firms, from 55 per cent in 2005 to more than 70 per cent in 2014.

Furthermore, it has become quite common for Japan's listed firms to have a dedicated consumer protection department and a dedicated product/service safety department. Nearly 90 per cent of listed firms in Japan reported having such departments over the period 2006–2014. Finally, only one in four listed firms in Japan had volunteer leave policies in 2006, but the adoption of these policies has been steadily growing, and in 2014 just under 40 per cent of Japan's listed firms reported having such policies.

## 3. Theoretical explorations

In spite of the extensive and growing body of literature on CSR, the literature is relatively silent on the specific mechanisms through which CSR may affect outcomes in general and gender diversity in the workplace in particular. Below, we sketch three possible mechanisms. It is our hope that the article's new findings in relation to gender diversity in the workplace and CSR will help theorists to develop a richer theory of CSR with particular focus on CSR as a predictor of gender diversity in the workplace.

The first mechanism we consider is the mediating effects of WLB practices. CSR often includes workplace diversity as one of the objectives, and is often accompanied by WLB practices that are deemed particularly conducive to career development for women (e.g. onsite day care facilities, telecommuting, flextime and satellite offices). In the context of Japan, nearly all prior studies suggest that WLB practices help women to advance their careers (see, for instance, Kato and Kodama 2014; Kawaguchi 2013; Takeishi 2007; Yanadori and Kato 2009). Thus, it is possible that WLB practices may act as a mediator on the effects of CSR on gender diversity in Japan. In this article, we test whether the effect of CSR on gender diversity is fully mediated by WLB practices. If it turns out that the effect of CSR on gender diversity is not fully mediated by WLB practices, it is likely that other more direct mechanisms are in effect (according to a recent literature review by Aguinis and Glavas 2012, research on mediators is one of the most urgently needed areas of further research).

However, we are aware that the literature on the effects of WLB on gender diversity outside of Japan is less sanguine about the role of CSR in promoting gender diversity, in particular gender diversity in managerial occupations.

For instance, Gupta *et al.* (2008) and Mandel and Semyonov (2006) provide mixed evidence, that is, WLB practices help in raising female labour force participation, while hampering career advancement of women to higher positions by encouraging longer periods of maternity leave and hence more significant career interruptions for women (similar negative effects of WLB on gender diversity are also reported by Glass 2004 and Glass and Fodor 2011). The hypothesis that CSR helps to enhance gender diversity indirectly by promoting WLB might be less relevant to higher-level positions.

A second possible mechanism has been suggested by Greening and Turban (2000). We apply their signalling theory of CSR to the context of gender diversity. Thus, we posit that female workers consider strong CSR to be a credible signal that the firm is serious about ethical concerns in general and workplace fairness in particular, and that workplace diversity and gender equality are promoted wholeheartedly. As a result, CSR helps the firm to recruit and retain gifted women with career aspirations, resulting in increased gender diversity in the workplace. Such signalling effects may take a long time, say, a decade. However, it is plausible that the time lag may not necessarily be that long. Consider a gifted female employee with an infant child who is deliberating whether to continue to pursue her career goal of advancing to higher levels of management or to modify her career goal and shift her focus to childrearing. CSR could serve to nudge her towards the career-oriented goal. However, such signalling effects will be limited if the formal introduction of CSR such as the establishment of a CSR department is largely symbolic (Edelman 1992) and there is a significant gap between CSR symbolism and substantive 'on the ground' conditions (decoupling). However, as Bartley and Egels-Zandén (2016) argue, such decoupling can be shifted to recoupling at least to some extent over time. As the gap between CSR symbolism and substantive 'on the ground' conditions shrinks, CSR becomes a more credible signal.

The third possible mechanism we consider applies only to gender diversity at the director level (often called 'Bucho' in the Japanese workplace), such as directors of human resources (who are typically not members of the board of directors and hence still below the top management level). A firm establishing a formal CSR department may enhance gender diversity directly by appointing a woman to the head of the newly formed CSR department, thereby increasing the presence of women at the director level. As such, any evidence of positive and significant effects of CSR on gender diversity at the director level is consistent with this mechanism. However, if we find similar evidence for CSR effects on gender diversity at levels below the director level, other mechanisms through which CSR boosts gender diversity will be in operation.

Finally, the CSR literature suggests a variety of moderators for the CSR–outcome link, and stakeholder salience appears to be among the most often discussed possible moderators (see, for instance, Peloza and Papania 2008). The effects of CSR depend on the relative strength of the key stakeholders of the firm. The firm's CSR initiatives are less likely to be merely tokenism

and more likely to yield real changes when salient stakeholders with power, legitimacy and urgency have a strong interest in CSR and possess the capability to monitor the firm's implementation of CSR initiatives and to reward/punish the firm accordingly.

In the Japanese context, perhaps the most relevant and powerful stakeholders are the employees/unions, and stakeholder salience has much to do with the traditional Japanese management system (for the Japanese management system, see, for example, Aoki 2000; Itoh 1994; Koike 2005; Moriguchi and Ono 2004; Morita 2001, 2005; Rebick 2005). A firm operating under the traditional Japanese management system believes that the firm's fundamental source of competitiveness is the creativity, resourcefulness and discretionary effort of its employees. To tap into the inventiveness and discretionary effort of its employees, the firm adopts a complementary set of management practices. First, the practice that plays an anchoring role in the traditional Japanese management system is that of 'lifetime employment' (or implicit long-term employment guarantees)[2] and the associated reward system (e.g. a seniority wage system in which wages are detached from specific jobs and seniority plays a significant role in wage determination). Second, employees who enjoy job security under the practice of 'lifetime employment' are asked to take advantage of opportunities to exert discretionary effort, produce useful local knowledge and share it with their co-workers and higher-level engineers and managers. A variety of small group activities, such as QC circles, zero defects, kaizen, JK activities and cross-functional problem-solving teams as well as shop-floor committees are used to create such opportunities. Note that the practice of 'lifetime employment' encourages employees to participate in such programs wholeheartedly. The creation of productivity-enhancing local knowledge may well result in the elimination of jobs, and without the practice of 'lifetime employment', employees would be reluctant to fully explore performance-enhancing ideas because of their fear of job losses.

Third, a firm operating under the traditional Japanese management system utilizes financial participation programs or group incentive pay plans (e.g. employee stock ownership plans and profit sharing plans), which link individual employee's financial well-being to group performance rather than individual performance. Such financial participation programs motivate employees to participate wholeheartedly in the aforementioned collective problem-solving activities. In contrast, the traditional Japanese management system does not include pay practices inspired by the shareholder-value ideology such as performance pay and stock option for executives.

Fourth, extensive information-sharing mechanisms (often called joint labour–management committees) involving management and labour representatives are used to minimize information asymmetry and facilitate the alignment of labour and management interests. Finally, the system involves careful screening and extensive training aimed at increasing the employees' ability to effectively participate in employee involvement/problem-solving activities and information-sharing meetings.

In summary, the traditional Japanese management system represents an alternative management paradigm (employee stakeholder model) to the Anglo-American shareholder model. As compared to the Anglo-American shareholder model, in the Japanese employee stakeholder model, employees (unions) are more involved in decision making at the corporate level as well as at the grassroots level; there is less information asymmetry between management and labour; employee stake in the firm is higher through extensive firm-specific human capital investment and wide-spread employee stock ownership plans; and the firm and workers are more bound by implicit long-term contracts.

However, not all Japanese firms and workers operate under the traditional Japanese management system. While some firms strictly adhere to the system described above, others operate under a model that is closer to the Anglo-American shareholder model (see, for instance, Kambayashi and Kato 2016). We hypothesize that the CSR effects are greater in firms that adhere more strictly to the Japanese management system than in other firms, because CSR is likely to be more conducive to an environment in which stakeholders (employees) play a greater role in decision making at various levels of a firm that views continuous improvement, as opposed to discrete innovation, as a primary source of its long-run competitiveness, and thus taps into the discretionary effort, creativity and resourcefulness of its frontline workers.

In other words, in firms operating under the Japanese management system, the employees (and their enterprise union if they are unionized) are powerful stakeholders. Note that the Japanese model was more pervasive among large unionized firms (Kato 2003). As insiders, employees and unions are definitely capable of monitoring management's actions with regard to their CSR initiatives in general and their diversity management in particular. Furthermore, because the Japanese management system relies heavily on employees' discretionary efforts, resourcefulness, problem-solving abilities and creativity, employee stakeholders can reward and punish management by adjusting their discretionary efforts in relation to grassroots-level innovation and problem solving. Finally, employee stakeholders and unions in Japan are interested in fairness in general and fair, equitable and ethical treatment of employees in particular, with a caveat that only standard employees (who are termed 'seishain' in the workplace) are viewed as insider stakeholders, while non-standard employees (who are not termed 'seishain', but instead are called 'part-timers' or 'contract workers') are typically not considered stakeholders (see, for instance, Kambayashi and Kato 2016). The aforementioned theory of stakeholder salience predicts that the CSR–outcome link is stronger in firms that adhere to the traditional Japanese management system with employees and unions as powerful stakeholders.

Most recently a similar argument and supporting evidence for the moderating effects of employees and unions as powerful stakeholders are provided by Bartley and Egels-Zandén (2016). Bartley and Egels-Zandén (2016) conceptualize a dynamic view of decoupling and suggest with qualitative evidence from apparel/footwear factories in Indonesia that the

gap between CSR symbolism and actual conditions in the workplace can be reduced by resourceful unions, and that decoupling may be shifted to contingent coupling through leveraging by unions, implying that CSR seizes to be merely legitimizing symbols and starts having real impact on workplace conditions including gender diversity/equality.

Finally Jackson and Apostolakou (2010) and Jackson and Bartosch (2016) provide an important perspective on the inter-play between CSR and various national institutions including employment systems in different varieties of capitalism. For instance, Jackson and Bartosch (2016) analyse a large cross-national firm-level data encompassing 24 OECD countries, and find evidence that overall CSR scores are positively associated with several key labour market institutions (unions, collective bargaining, works council/joint labour market committees and employment protection), implying that the traditional Japanese management system with strong employee involvement through union, collective bargaining, joint labour–management committees (Japanese version of works council) and small group activities complements CSR.

## 4. Data and empirical strategy

Using unique firm identifiers (Shoken Codes), we merge the following two firm-level panel datasets: (i) CSR Data compiled by Toyo Keizai; and (ii) Corporate Proxy Statement Data compiled by Development Bank of Japan (DBJ; a major state-owned investment bank), which cover all listed firms.

The merged database consists of a large and representative sample of 1,492 publicly traded firms listed on Tokyo Stock Exchange in Japan over 2006–2014. The sample of firms in the final merged dataset represents close to 50 per cent of the population of publicly traded firms listed on Tokyo Stock Exchange. Since DBJ's corporate proxy statement data cover all publicly traded firms, the attrition of firms from our sample is caused only by non-response to the CSR survey conducted by Toyo Keizai, resulting in an unusually representative sample.

Importantly, the database provides longitudinal information on varying attributes of CSR for each firm as well as the incidence of the following six WLB practices: (i) flextime; (ii) temporary transitional part-time work; (iii) telecommuting; (iv) satellite office; (v) day care service assistance (e.g. onsite day care services and day care service allowances for those who use other day care services); and (vi) work sharing. In addition, the database allows us to use a number of key variables to gauge the degree of gender diversity in the workplace.

We first estimate a baseline model of the determinants of the degree of gender diversity of firm $i$ in year $t$, $Diversity_{it}$:

$$Diversity_{it} = \alpha + \beta CSR_{it-j} + \gamma Z_{it} + (firm\ fixed\ effects)$$
$$+ (year\ fixed\ effects) + u_{it} \tag{1}$$

where $Diversity_{it}$ is measured by four variables which gauge the degree of gender diversity at the different levels. First, at the overall firm level, we consider the number of female standard employees, $female\_employees_{it}$ (which is measured in natural log). Since we control for total number of standard employees including both men and women, $employees_{it}$ (measured in log), an increase (a decrease) in $female\_employee_{it}$ can be interpreted as an increase (a decrease) in the number of female standard employees as a share of total number of standard employees. In the context of the Japanese labour market with its pervasive duality between standard and non-standard employment, standard employees tend to enjoy higher wages and benefits; more opportunities for employee participation; greater job security; and greater possibilities for career advancement in the firm, as compared to non-standard employees (such as part-time workers, temporary workers, subcontract workers). The share of female standard employees will be a good indicator of the degree of overall gender diversity of the firm (see, for instance, Kambayashi and Kato 2013).

Second, the impact on gender diversity of CSR may be felt most immediately and acutely at the entry level hires, for it takes time for stock variables such as the total number of female standard employees including those who were hired in the past prior to the introduction of CSR to change, while flow variables such as the number of this year's female hires will change more promptly. As such, we consider $female\_hires_{it}$ (in log), which is defined as female college graduate hires in firm $i$ in year $t$ (again, we include the total number of college graduate hires as a control, and the estimated coefficient on CSR can be interpreted as changes in the number of female college graduate hires as a share of total college graduate hires).

Third, we consider a broader definition of career successes, $female\_managers_{it}$ (in log), which is defined as the number of female managers in firm $i$ in year $t$. As shown in Figure 2, managers include not only directors (Bucho) but also section chiefs (typically called 'Kacho' in the Japanese workplace) who are one level below directors.

Fourth, promotion to the director level (Bucho) is often viewed as a distinct career success in the Japanese workplace. To measure the degree of gender diversity in this distinct career success, we use $female\_directors_{it}$ (in log), which is defined as the number of female directors in firm $i$ in year $t$. Note that the director level is not the highest level in Japanese corporate hierarchy, and that beyond the director level, there are top managers (board members). Since there are very few female top managers, we do not consider gender diversity at this level as a dependent variable.

Considering gender diversity not only at the general employee level but also at the higher manager levels can provide potentially useful insights. For instance, as discussed in Section 3, CSR may enhance gender diversity at the director level simply because the firm may appoint a woman to the director of the newly created CSR department. By studying the CSR effects on gender diversity at levels lower than the director level, we can test if CSR may affect gender diversity beyond this rather simple mechanism.

FIGURE 2

Hierarchy within the Firm Excluding Top Management (Board Members). [Colour figure can be viewed at wileyonlinelibrary.com]
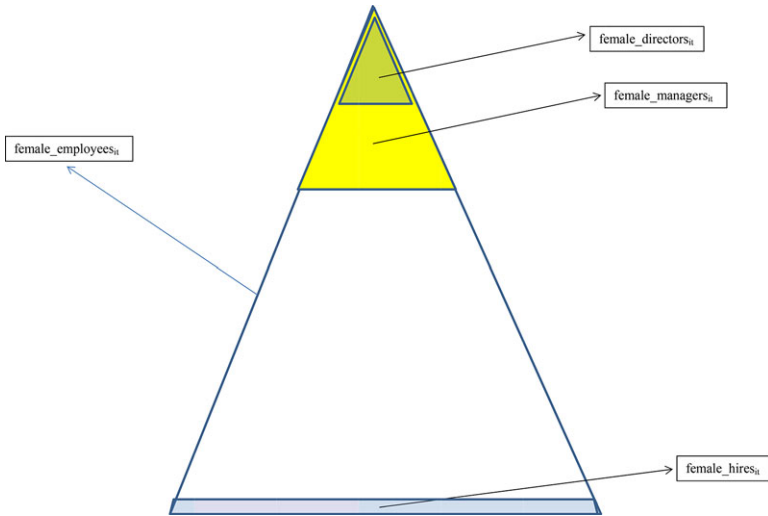


Furthermore, CSR is likely to influence gender diversity at the manager level or higher through affecting the behaviour of the firm towards its existing core employees and the behaviour of existing core employees, whereas CSR is likely to affect gender diversity among entry-level hires through changing the behaviour of the firm towards new recruits and the behaviour of new graduates.

Note that we measure all dependent variables in natural log in part to reduce the influence of extreme values. Furthermore, for $female\_hires_{it}$, $female\_managers_{it}$ and $female\_directors_{it}$, a significant number of firms have zeros. Hence, we apply a one-parameter version of the box-cox transformation and use $\ln(1 + female\_hires_{it})$, $\ln(1 + female\_managers_{it})$ and $\ln(1 + female\_directors_{it})$ as our dependent variables, respectively, and interpret the estimated coefficients accordingly.[3]

For $CSR_{it-j}$, we use data on three specific attributes of CSR and create a summary metrics. Specifically, we conduct a factor analysis of firm-level panel data on: (i) $CSRoffice_{it-j} = 1$ if firm $i$ has a formal CSR department in year $t - j$, 0 otherwise; (ii) $CSRdirector_{it-j} = 1$ if firm $i$ has an executive in charge of the CSR department in year $t - j$, 0 otherwise; and (iii) $CSRdocument_{it-j} = 1$ if firm $i$ has an official document describing the firm's fundamental attitude and policy towards CSR activities, 0 otherwise. The factor analysis indicates that we maintain only one factor with eigenvalue of 1.795 (all other factors have negative eigenvalues) which we use for our summary CSR variable, $CSR_{it-j}$. Since it may take time for CSR to yield changes in gender diversity in the workplace, we also consider lagged CSR variables (we are restricted to the use of up to three-year lags or $j = 0, 1, 2$ and 3 because of the relatively short

length of our panel data). In addition, as discussed in the next section, the use of lagged CSR can help us argue that the issue of reverse causality (gender diversity causing CSR rather than CSR affecting gender diversity) is less likely to be serious in our analysis.

An alternative approach to the factor analysis is to create three dummy variables indicating: (i) whether firm $i$ has a formal CSR department; (ii) whether firm $i$ has an executive in charge of CSR department; and (iii) whether firm $i$ has an official document, and include those three dummy variables as explanatory variables. Unfortunately, this approach proves to be infeasible, for those three variables are highly correlated with each other, causing serious multicollinearity/efficiency loss (see Table A1 in the Appendix) and making the estimated coefficients difficult to interpret.

We take advantage of the longitudinal structure of our data and control for individual firm fixed effects. The OLS estimates without controlling for firm fixed effects are subject to well-known endogeneity bias caused by unobserved firm characteristics that are correlated with CSR and gender diversity. For instance, it is possible that some firms inherit progressive and liberal corporate culture from the founder who was deeply committed to progressive and liberal causes. It is plausible that such a firm is likely to adopt CSR or strengthen existing CSR. At the same time, it is also conceivable that such a firm is more diverse in gender. As such, the OLS estimates on the coefficients on the CSR variables capture not only the effect on gender diversity of CSR but also the effect on gender diversity of inherent progressive corporate culture which is generally unobservable. A standard solution to the aforementioned endogeneity bias is to collect longitudinal data and estimate fixed effect models. In addition, firm-fixed effects can account for all other firm characteristics that are relatively stable over time. As such, the power of the HR department can be also accounted for by firm-fixed effects to the extent to which it is relatively stable over time.

For time-varying firm characteristics, $Z_{it}$, we consider total number of standard employees in log (depending on the level of gender diversity we study, we also include the total number of college graduate hires, the total number of managers and total number of directors in log) and account for firm-specific employment shocks. Furthermore, we control for $profit_{it}$, profit margin of firm $i$ in year $t$ (we also consider ROA of firm $i$ in year $t$ as an alternative profitability measure. Reassuringly we find no discernible change in our key results). Finally, we include year fixed effects to account for time-variant macro-shocks which affect gender diversity of ALL firms. For the disturbance term, $u_{it}$, we assume $u_{it} \sim \text{NID}(0, \sigma^2)$.

As discussed in Section 3, we expect the effects of CSR are greater for firms that adhere more strongly to the traditional Japanese management system. The foundation of the participatory management system is the long-term employment system, for without it employees may not wholeheartedly take advantage of various participatory programs, which tend to benefit

employees the most if remaining in the firm. As such, we construct $TURNOVER_i$ = the average probability of male college graduates leaving the firm within the first three years after joining firm $i$ over 2006–2014. We hypothesize that $TURNOVER_i$ gauges the salience of the practice of 'lifetime employment' (actually the lack of salience). We focus on male college graduates, for the practice of 'lifetime employment' tends to apply for male skilled workers (see, for instance, Koike 1977; Kambayashi and Kato 2017).[4]

Thus, we augment equation (1) by an interaction term involving $CSR_{it-j}$ and $TURNOVER_i$:

$$
\begin{aligned}
Diversity_{it} = {} & \alpha + \beta CSR_{it-j} + \delta TURNOVER_i^* CSR_{it-j} \\
& + \gamma Z_{it} + (firm\ fixed\ effects) \\
& + (year\ fixed\ effects) + u_{it}
\end{aligned} \tag{2}
$$

Based on the above discussion on the role of the traditional Japanese management system as a moderator of the CSR effects, we expect the estimated coefficient on $TURNOVER_i^*CSR_{it-j}$ to be negative — the positive CSR effect on gender diversity is smaller for firms with high TURNOVER (and thus less salient stakeholder/employee model).

Finally as discussed in the previous section, WLB practices may function as a mediator for the CSR effects — CSR may enhance gender diversity indirectly through promoting WLB practices that are often aimed at career advancement for women. To test the importance of WLB practices as a mediator for the CSR effects, we add additional controls gauging the possible effects on gender diversity of WLB practices to equation (2). Since the data allow us to consider six WLB practices, as explained earlier, in principle, we can produce six dummy variables indicating the presence of each practice and consider all six variables. However, as in the case of CSR, the significant correlations among the six dummy variables make it infeasible to include all six variables, which would cause multicollinearity and considerable efficiency loss (see Table A2 in the Appendix). As such, we carry out another factor analysis which suggests the use of two factors, $WLB1_{it}$ and $WLB2_{it}$. Thus, we estimate:

$$
\begin{aligned}
Diversity_{it} = {} & \alpha + \beta CSR_{it-j} + \delta TURNOVER_i^* CSR_{it-j} \\
& + \gamma Z_{it} + (firm\ fixed\ effects) \\
& + (year\ fixed\ effects) + WLB1_{it} + WLB2_{it} + u_{it}
\end{aligned} \tag{3}
$$

Note that $WLB1_{it}$ is mainly defined by telecommuting; satellite office; day care service assistance (e.g. onsite day care services and day care service

allowances for those who use other day care services); and work sharing, whereas $WLB2_{it}$ by flextime; and temporary transitional part time work.

## 5. Results

Table 1 shows summary statistics of the key variables used in our regression analysis. On average, our sample firms employ over 2,500 workers as standard employees. The summary statistics on gender diversity also confirms our earlier discussion on the lack of gender diversity in the Japanese workplace — women constitute only 20 per cent of the average firm's standard employment (555 out of 2,653); less than 5 per cent of managers are female; and less than 2 per cent of directors are female. Lastly, close to 70 per cent of Japanese firms have CSR department; 60 per cent have CSR Director; and 44 per cent have formal written document.

Table 2 presents the fixed effect estimates of equations (1)–(3) when we use *female_employees$_{it}$* (in natural log) as our gender diversity measure and the dependent variable. Overall, the coefficients on $CSR_{it-j}$ are not precisely estimated and hence no definitive conclusion ought to be drawn insofar as the stock of female standard labour force at large is concerned. That being said, there is some suggestive evidence pointing to the positive CSR effect on gender diversity at the stock of female labour force at large — the coefficients on $CSR_{it-3}$ are of expected sign (positive) and not too far from being statistically significant (in fact the coefficient on $CSR_{it-3}$ in (2d) is found to be statistically significant at the 10 per cent level).

As discussed above, it is possible that CSR's initial impact will be felt at the firm's entry level hiring while not at the firm's stock of female labour force as a whole. Table 3 presents the fixed effect estimates of the CSR impact on entry-level hires of college graduate women. When we consider $j = 3$ (three-year lag), the estimated coefficients on $CSR_{it-j}$ are positive and statistically significant at the 10 per cent level in the baseline model as in column (1d) as well as in the augmented model as in column (2d). When controls for WLB practices are added, the estimated coefficient on the $CSR_{it-3}$ is positive and significant at the 5 per cent level (column 3d). In contrast, for shorter lags ($j < 3$), the estimated coefficients on $CSR_{it-j}$ are never statistically significant even at the 10 per cent level.

In short, we find some evidence that CSR significantly boosts gender diversity at the entry-level hires of college graduates but the effect is felt only after three years. Furthermore, we find evidence for the positive and significant CSR effect on gender diversity at the entry level hires even after controlling for the possible mediating effect of CSR through WLB practices, pointing to the direct impact on gender diversity of CSR.

Regarding the moderating effect of $TURN_i$ as a proxy for the salient participatory management system, the estimated coefficients on the interaction term in the augmented model as shown in column (2d) are negative (of expected sign) yet not statistically significant even at the 10

TABLE 1
Summary Statistics

| | N | *Mean* | SD |
|---|---|---|---|
| **CSR variables** | | | |
| • *CSRoffice$_{it}$* | 8,594 | 0.67 | 0.47 |
| • *CSRexecutive$_{it}$* | 8,594 | 0.61 | 0.49 |
| • *CSRdocument$_{it}$* | 8,594 | 0.44 | 0.50 |
| • *CSR$_{it}$* | 8,594 | 0.05 | 0.89 |
| WLB pracrices | | | |
| • *Flex$_{it}$* | 8,355 | 0.51 | 0.50 |
| • *Shorttime$_{it}$* | 8,356 | 0.75 | 0.43 |
| • *Telcommute$_{it}$* | 8,320 | 0.11 | 0.31 |
| • *Satelite$_{it}$* | 8,313 | 0.06 | 0.23 |
| • *Daycare$_{it}$* | 8,103 | 0.17 | 0.37 |
| • *Workshare$_{it}$* | 8,312 | 0.03 | 0.16 |
| • *WLB1$_{it}$* | 8,066 | 0.02 | 0.67 |
| • *WLB2$_{it}$* | 8,066 | 0.01 | 0.49 |
| Gender diversity | | | |
| • *female_employees$_{it}$* | 7,072 | 555 | 2066 |
| • *female_hires$_{it}$* | 7,137 | 17.46 | 56.24 |
| • *female_managers$_{it}$* | 6,720 | 26.19 | 124.63 |
| • *female_directors$_{it}$* | 6,556 | 1.69 | 7.16 |
| Controls | | | |
| • *employees$_{it}$* | 8,589 | 2653 | 6309 |
| • *hires$_{it}$* | 7,137 | 56.48 | 112.92 |
| • *managers$_{it}$* | 6,720 | 705.25 | 1,582.92 |
| • *directors$_{it}$* | 6,556 | 123.95 | 282.94 |
| • *profit$_{it}$* | 7,803 | 0.036 | 0.891 |
| • *TURN$_i$* | 7,971 | 0.16 | 0.15 |

*Note:* All variables except for profit$_{it}$ are from Toyo Keizai's CSR data, *profit$_{it}$* is calculated by dividing gross operating profit divided by sales (both gross operating profit and sales are from DBJ's proxy statement data).
*Sources:* (i) CSR Data compiled annually by Toyo Keizai over 2006–2014; and (ii) Corporate Proxy Statement Data compiled annually by Development Bank of Japan over 1956–2014.

TABLE 2
The Fixed Effect Estimates of the Effect on Gender Diversity of CSR: Female Employees

| | (1a) | (1b) | (1c) | (1d) | (2a) | (2b) | (2c) | (2d) | (3a) | (3b) | (3c) | (3d) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $CSR_{it}$ | −0.007 [−0.697] | | | | −0.014 [−1.035] | | | | −0.015 [−1.053] | | | |
| $CSR_{it-1}$ | | −0.002 [−0.239] | | | | 0 [0.032] | | | | 0.000 [0.035] | | |
| $CSR_{it-2}$ | | | 0.002 [0.243] | | | | 0.021 [1.256] | | | | 0.021 [1.279] | |
| $CSR_{it-3}$ | | | | 0.013 [1.494] | | | | 0.025* [1.738] | | | | 0.024 [1.618] |
| $TURN_i^*$ | | | | | 0.034 [0.445] | −0.037 [−0.571] | −0.155 [−1.120] | −0.101 [−1.402] | 0.032 [0.411] | −0.043 [−0.640] | −0.155 [−1.127] | −0.099 [−1.350] |
| $CSR_{it-j}$ | | | | | | | | | 0.009 [1.018] | 0.001 [0.152] | −0.001 [−0.089] | 0.003 [0.256] |
| $WLB1_{it-j}$ | | | | | | | | | 0.016 [0.657] | 0.005 [0.189] | 0.02 [0.775] | 0.023 [0.863] |
| $WLB2_{it-j}$ | | | | | | | | | | | | |
| $R^2$ | 0.75 | 0.746 | 0.79 | 0.764 | 0.757 | 0.753 | 0.796 | 0.767 | 0.759 | 0.754 | 0.798 | 0.762 |
| $N$ | 6,407 | 5,083 | 4,449 | 3,573 | 6,104 | 4,880 | 4,294 | 3,464 | 5,907 | 4,702 | 4,132 | 3,324 |

*Notes*: All models include yearly time dummy variables and firm-fixed effects as well as ln($employ_{it}$) and $profit_{it}$. Absolute values of $t$ statistics based on cluster-robust standard errors are in parentheses.

*Sources*: (i) CSR Data compiled annually by Toyo Keizai over 2006–2014; and (ii) Corporate Proxy Statement Data compiled annually by Development Bank of Japan over 1956–2014.

**Statistically significant at the 1% level; **statistically significant at the 5% level; *statistically significant at the 10% level.

TABLE 3
The Fixed Effect Estimates of the Effect on Gender Diversity of CSR: Female Hires

| | (1a) | (1b) | (1c) | (1d) | (2a) | (2b) | (2c) | (2d) | (3a) | (3b) | (3c) | (3d) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $CSR_{it}$ | −0.014 [−0.614] | | | | −0.022 [−0.620] | | | | −0.022 [−0.627] | | | |
| $CSR_{it-1}$ | | 0.005 [0.198] | | | | 0.003 [0.073] | | | | 0.001 [0.032] | | |
| $CSR_{it-2}$ | | | 0.008 [0.353] | | | | 0.025 [0.801] | | | | 0.021 [0.668] | |
| $CSR_{it-3}$ | | | | 0.045* [1.879] | | | | 0.060* [1.900] | | | | 0.064** [2.010] |
| $TURN_i^*$ | | | | | 0.03 [0.179] | | | | 0.011 [0.065] | | | |
| $CSR_{it-j}$ | | | | | | −0.001 [−0.008] | −0.129 [−0.859] | −0.119 [−0.618] | | −0.013 [−0.070] | −0.104 [−0.678] | −0.116 [−0.603] |
| $WLB1_{it-j}$ | | | | | | | | | 0.03 [1.028] | 0.054 [1.639] | 0.012 [0.371] | 0.009 [0.247] |
| $WLB2_{it-j}$ | | | | | | | | | −0.016 [−0.327] | −0.022 [−0.419] | −0.016 [−0.321] | −0.046 [−0.868] |
| $R^2$ | 0.548 | 0.554 | 0.556 | 0.56 | 0.541 | 0.551 | 0.555 | 0.558 | 0.538 | 0.55 | 0.556 | 0.558 |
| $N$ | 6,483 | 5,139 | 4,495 | 3,614 | 6,224 | 4,968 | 4,362 | 3,524 | 6,029 | 4,784 | 4,193 | 3,377 |

*Notes*: All models include yearly time dummy variables and firm-fixed effects as well as $\ln(employ_{it})$, $\ln(1 + hires_{it})$ and $profit_{it}$. Absolute values of $t$ statistics based on cluster-robust standard errors are in parentheses.
*Sources*: (i) CSR Data compiled annually by Toyo Keizai over 2006–2014; and (ii) Corporate Proxy Statement Data compiled annually by Development Bank of Japan over 1956–2014.
***Statistically significant at the 1% level; **statistically significant at the 5% level; *statistically significant at the 10% level.

per cent level. As such we fail to find evidence for the moderating effect of $TURN_i$.

To assess the magnitude of the CSR effect, we use the estimated coefficients in the augmented model with WLB as added controls as in column (3d) and calculate the conditional increase in the number of hires of female college graduates, following one standard deviation (SD) increase in CSR. Since the total effect of CSR is captured by the sum of the estimated coefficient on $CSR_{it-j}$ and the estimated coefficient on $TURN_i*CSR_{it-j}$ multiplied by $TURN_i$, the CSR effect on $female\_hires_{it}$ depends on the value of $TURN_i$. To this end, we provide two estimates on the conditional increase in the number of female hires following one SD increase in CSR for the average firm with mean value for $TURN_i$ and the firm with salient participatory management with the 25th percentile for $TURN_i$.[5] For the average firm with mean for $TURN_i$, one SD increase in CSR is predicted to lead to 0.76 more entry-level female hires, conditional on all controls including the total number of entry-level hires. For the firm with salient participatory management with the 25th percentile for $TURN_i$, the same one SD increase in CSR is predicted to result in 0.95 more entry-level female hires. Considering the average number of entry-level female hires is 17.5, the predicted CSR effects are neither trivial nor implausibly large.

Turning to gender diversity at the higher level, Table 4 presents the fixed effect estimates of the CSR effects on female managers. The estimated coefficient on $CSR_{it-j}$ in the baseline model without the interaction term is positive and statistically significant only at the 10 per cent level when three-year lag is allowed for ($j = 3$), as shown in column (1d). However, the results from the augmented model with the interaction term are much more precisely estimated. Thus, the estimated coefficients on $CSR_{it-j}$ are positive and significant at the 5 per cent level for j = 2; and positive (and larger) and significant at the 1 per cent level for $j = 3$ (columns 2c and 2d).

The estimated coefficients on the interaction term, $TURN_i*CSR_{it-j}$ are negative and significant at the 5 per cent level when one-year and two-year lags are allowed for ($j = 1$ and 2); negative and significant at the 1 per cent with longer lags ($j = 3$ and 4). Thus, we find significant evidence for the role of the salient participatory management system (proxied by $TURN_i$) as a moderator for the CSR effect on gender diversity at the manager level.

The last four columns of Table 4 confirm that the positive and significant effect on gender diversity at the manager level of CSR is robust to the inclusion of WLB controls. It follows that there is a significant direct CSR effect on gender diversity at the manager level aside from the mediating effect through WLB practices.

As in the case of Table 3, we use the estimated coefficients in the augmented model with WLB as added controls as in column (3d) of Table 4, and calculate the conditional increases in the number of female managers, following one SD increase in CSR. Three years after CSR increases by one SD, the number of female managers will increase by 0.63 for the average firm and 1.65 for the participatory firm (remember that the total number of managers is controlled for, and therefore the conditional increase in the number of female managers

TABLE 4
The Fixed Effect Estimates of the Effect on Gender Diversity of CSR: Female Managers

| | (1a) | (1b) | (1c) | (1d) | (2a) | (2b) | (2c) | (2d) | (3a) | (3b) | (3c) | (3d) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $CSR_{it}$ | −0.017 | | | | 0.033 | | | | 0.027 | | | |
| | [−0.765] | | | | [1.067] | | | | [0.892] | | | |
| $CSR_{it-1}$ | | −0.013 | | | | 0.036 | | | | 0.033 | | |
| | | [−0.543] | | | | [1.103] | | | | [1.010] | | |
| $CSR_{it-2}$ | | | 0.017 | | | | 0.078** | | | | 0.074** | |
| | | | [0.727] | | | | [2.459] | | | | [2.275] | |
| $CSR_{it-3}$ | | | | 0.041* | | | | 0.095*** | | | | 0.091*** |
| | | | | [1.917] | | | | [3.084] | | | | [2.961] |
| $TURN_i^* \times CSR_{it-j}$ | | | | | −0.357** | −0.364** | −0.501*** | −0.448*** | −0.325** | −0.348** | −0.458** | −0.408** |
| | | | | | [−2.216] | [−2.094] | [−2.652] | [−2.636] | [−2.027] | [−2.004] | [−2.445] | [−2.431] |
| $WLB1_{it-j}$ | | | | | | | | | 0.126*** | 0.132*** | 0.107*** | 0.130*** |
| | | | | | | | | | [4.762] | [4.248] | [3.782] | [4.680] |
| $WLB2_{it-j}$ | | | | | | | | | 0.026 | −0.01 | 0.007 | −0.029 |
| | | | | | | | | | [0.488] | [−0.188] | [0.151] | [−0.564] |
| $R^2$ | 0.474 | 0.451 | 0.484 | 0.458 | 0.477 | 0.457 | 0.487 | 0.464 | 0.485 | 0.462 | 0.491 | 0.466 |
| N | 6,125 | 4,807 | 4,242 | 3,416 | 5,908 | 4,678 | 4,150 | 3,355 | 5,726 | 4,511 | 3,994 | 3,219 |

*Notes:* All models include yearly time dummy variables and firm-fixed effects as well as $\ln(employ_{it})$, $\ln(1 + managers_{it})$ and $profit_{it}$. Absolute values of $t$ statistics based on cluster-robust standard errors are in parentheses.
*Sources:* (i) CSR Data compiled annually by Toyo Keizai over 2006–2014; and (ii) Corporate Proxy Statement Data compiled annually by Development Bank of Japan over 1956–2014.
***Statistically significant at the 1% level; **statistically significant at the 5% level; *statistically significant at the 10% level.

means improved gender diversity at the manager level). On average, the firm has 26.2 female managers, and the estimated increases in the number of female managers following a SD increase in CSR are again neither meaningless nor implausibly large.

Table 5 shows the fixed effect estimates of equations (1)–(3) with focus on gender diversity at the director level (see Figure 2). The results are similar to those at the manager level. The estimated coefficient on $CSR_{it-j}$ in the baseline model is positive and statistically significant at the 5 per cent level when two-year lag and three-year lag are allowed ($j = 2, 3$), as shown in columns (1c) and (1d). When the baseline model is augmented by the interaction term involving $CSR_{it-j}$ and $TURN_i$, we find even more significant results — the estimated coefficients on $CSR_{it-j}$ are positive and significant at the 1 per cent level when two- and three-year lags are allowed, as shown in columns (2c) and (2d).

As in the case of gender diversity at the manager level, the estimated coefficients on $TURN_i*CSR_{it-j}$ in the augmented model are negative and significant at the 1 per cent level when we allow for two-year lag, pointing to the moderating effect of stakeholder/employee salience (the salient participatory management system in the Japanese context), while evidence for the moderating effect of stakeholder/employee salience is somewhat weakened when we allow for three-year lag (only significant at the 10 per cent level).

Finally, we again find that the results change little even if we account for WLB practices, as shown in columns (3a)–(3d), suggesting that CSR has direct impact on gender diversity at the director level aside from indirect impact through WLB practices as a mediator.

The magnitude of the CSR effect on gender diversity at the director level is again demonstrated by using the estimated coefficients of the augmented model with WLB included as additional controls, and calculating the conditional increase in the number of female directors, following one SD increase in CSR. For the average firm with mean value for $TURN_i$, one SD increase in CSR is predicted to result in 0.08 more female directors after three years, while for the participatory firm with 25th percentile of $TURN_i$, one SD increase in CSR is predicted to lead to 0.15 more female directors after three years. In light that the average number of female directors is only 1.69, the size of the CSR effect on gender diversity at the director level appears to be again neither meaningless nor implausible.

Finally, we address the issue of reverse causality. In principle, the positive and significant coefficients on $CSR_{it-j}$ can be consistent with reverse causality, that is, gender diversity causing CSR to become strong, rather than strong CSR causing gender diversity to increase. Nonetheless, the possibility of such reverse causality is less likely in our case, for the estimated coefficients on $CSR_{it-j}$ are found to be significant only when at least two years of lag are allowed (or $j = 2$ and 3). If the estimated coefficients on contemporaneous CSR, $CSR_{it-j}$ for $j = 0$ had been also significant, the possibility of reverse causality would have remained because lagged CSR may be correlated with contemporaneous CSR. In our regressions, the estimated coefficients

TABLE 5

The Fixed Effect Estimates of the Effect on Gender Diversity of CSR: Female Directors

| | (1a) | (1b) | (1c) | (1d) | (2a) | (2b) | (2c) | (2d) | (3a) | (3b) | (3c) | (3d) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $CSR_{it}$ | −0.002 [−0.104] | | | | 0.044 [1.381] | | | | 0.046 [1.446] | 0.04 [1.216] | | |
| $CSR_{it-1}$ | | 0.01 [0.519] | | | | 0.043 [1.290] | | | | | | |
| $CSR_{it-2}$ | | | 0.038** [1.968] | | | | 0.092*** [3.243] | | | | 0.087*** [3.093] | |
| $CSR_{it-3}$ | | | | 0.048** [2.441] | | | | 0.084*** [2.786] | | | | 0.080*** [2.643] |
| $TURN_i^*$ | | | | | −0.339** [−2.062] | −0.24 [−1.295] | −0.451*** [−3.255] | −0.311* [−1.680] | −0.321** [−1.990] | −0.21 [−1.152] | −0.430*** [−3.171] | −0.282 [−1.537] |
| $CSR_{it-j}$ | | | | | | | | | 0.139*** [4.102] | 0.106*** [3.165] | 0.092** [2.353] | 0.084*** [2.642] |
| $WLB1_{it-j}$ | | | | | | | | | −0.133*** [−3.159] | −0.075* [−1.690] | −0.068 [−1.627] | −0.009 [−0.219] |
| $WLB2_{it-j}$ | | | | | | | | | | | | |
| $R^2$ | 0.157 | 0.157 | 0.169 | 0.176 | 0.16 | 0.159 | 0.175 | 0.18 | 0.177 | 0.174 | 0.181 | 0.186 |
| $N$ | 5972 | 4698 | 4138 | 3344 | 5765 | 4575 | 4050 | 3284 | 5590 | 4416 | 3899 | 3154 |

*Notes*: All models include yearly time dummy variables and firm-fixed effects as well as ln(*employ*$_{it}$), ln(1 + *directors*$_{it}$) and *profit*$_{it}$. Absolute values of *t* statistics based on cluster-robust standard errors are in parentheses.

*Sources*: (i) CSR Data compiled annually by Toyo Keizai over 2006–2014; and (ii) Corporate Proxy Statement Data compiled annually by Development Bank of Japan over 1956–2014.

***Statistically significant at the 1% level; **statistically significant at the 5% level; *statistically significant at the 10% level.

on contemporaneous CSR are far from significant, suggesting that reverse causality is unlikely.

## 6. Conclusions

Using panel data on CSR matched with corporate proxy statement data for a large and representative sample of 1,492 publicly traded firms in Japan over 2006–2014, we have provided econometric evidence on the effects on gender diversity in the workplace of CSR. Accounting for unobserved firm heterogeneity by estimating fixed effect models, we have found evidence for the positive effects on gender diversity in the workplace of CSR. However, the effects have been found to be not immediate, and felt only after two to three years. We also have found that such CSR effects are larger and more significant for firms that adhere more closely to the traditional Japanese management system with employee stakeholder salience. The moderating effect of employee stakeholder salience is consistent with an influential theory of CSR — the theory of stakeholder salience.

Furthermore, the positive and significant effects on gender diversity of CSR have been found not only for the director level but also for the lower manager level, which does not support a simple story that CSR promotes gender diversity rather mechanically through appointing a woman as the director of the CSR department.

Finally, we have found that the positive and significant CSR effects on gender diversity are robust to the inclusion of controls capturing the possible effects on gender diversity of various WLB practices. In other words, CSR is likely to have a direct positive effect on gender diversity in the workplace apart from its indirect effects through WLB promoted by CSR. A plausible example of such a stand-alone effect of CSR is the signalling theory of CSR — female employees may consider strong CSR a credible signal that the firm is serious about ethical concerns in general and workplace fairness in particular, and that workplace diversity and gender equality are promoted wholeheartedly. It follows that CSR helps the firm recruit and retain talented women with career aspirations, resulting in increased gender diversity in the workplace. In sum, CSR may boost gender diversity through the signalling mechanism on top of any mediating effects of WLB promoted by CSR.

Unlike cross-sectional studies that are subject to omitted variable bias due to unobserved heterogeneity of firms, the panel structure of our data has allowed us to estimate fixed effect models and overcome such bias. As such, our evidence is not a simple correlation and can be considered causal. On our reading of the literature, our fixed effect estimates represent the first of such causal evidence on the positive effects on gender diversity in the workplace of CSR, lending some credence to those who argue that CSR is not mere symbolism and leads to some substantive changes. However, our evidence is still subject to omitted variable bias caused by time-variant

unobserved heterogeneity, and hence ought not to be considered definitive until confirmed by future research which accounts for the time-variant unobserved heterogeneity more fully. With this caveat in mind, we will conclude the article with possible policy implications.

In designing and revising various public policies to achieve their current key policy goal of advancement of women in the labour market, Japanese policy makers have been focusing on public policy instruments at the macro level such as revisions of Japan's 'paternalistic' Labor Standard Law, parental leave legislations and public investment in day care facilities. Most recently policy makers have begun paying particular attention to firm-level employment practices as a structural barrier to participation and advancement of female workers. Thus far, emphasis has been placed on work practices concerning hiring, (long) working hours, promotion, training and development and WLB (see, for instance, the enactment of the Act on Promotion of Women's Participation and Advancement in the Workplace in summer of 2015). The findings from this article lend credence to such recent focus of policy makers on employment practices at the firm level, and suggest that policy makers may also want to pay attention to a potentially important role that CSR plays in gender diversity in the workplace in general, and their considerable gestation period as well as the heterogeneity of the CSR effects (depending on whether the firm adheres closely to the Japanese employee participation model).

Finally, our findings can be of value to policy makers elsewhere who are also interested in policy instruments to promote gender diversity in the workplace. However, being a case study of Japan, our study lacks external validity. Similar studies using data from other countries are urgently needed.

## Acknowledgements

## Notes

1. Kawaguchi (2013), Wakisaka (2007), and Yanadori and Kato (2009) provide cross-sectional evidence that is subject to bias caused by unobserved firm heterogeneity. Despite the paucity of rigorous evidence on the impact of WLB practices in Japan on the advancement of women in the labor market, there is a growing body of evidence in other industrialized nations — for instance, Arthur and Cook (2004), Baxter and Chesters (2011), Berg et al. (2014), Bloom et al. (2009), Budd and Mumford (2004), and Gupta et al. (2008).

2. The term 'lifetime' is somewhat of a misnomer because, except for executives, Japanese workers have typically been subject to mandatory retirement at around age 60. A precise definition of the practice of lifetime employment is therefore implicit long-term employment contracts that end with mandatory retirement for employees, excluding contingent workers such as part-time, temporary, and subcontract workers. In addition, the practice of 'lifetime employment' does not necessarily mean that layoffs never happen in large Japanese firms. It has been documented that Japanese firms, even large ones, laid off some of their regular employees following the first oil crisis (see, for example, Chuma 2002; Koike 2005; Nakata and Takehiro 2003; Suruga 1998).

3. We also tried Tobit models. Unfortunately Tobit models often failed to converge.

4. It will be of significant value to consider additional and more direct indicators of other key elements of the traditional Japanese management system, such as joint labor management committees and unions, shop floor committees, small group activities, extensive training, financial participation programs, and late promotion. Unfortunately our data do not provide such information, and we hope to be able to expand our data to include such information and analyze the interplay between CSR and these additional and more direct indicators of various elements of the traditional Japanese model.

5. As explained in the previous section, we apply a one-parameter version of the box-cox transformation and use $\ln(1+ \text{female\_hires}_{it})$ as the dependent variable. As a result, the aforementioned conditional increase in the number of hires of female college graduates following one S.D. increase in CSR depends on the initial value for $\text{female\_hires}_{it}$. We use mean value as the initial value of $\text{female\_hires}_{it}$.

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# Appendix

TABLE A1
Correlation Matrix (CSR)

|  | *CSRoffice* | *CSRexecutive* | *CSRdocument* |
|---|---|---|---|
| CSRoffice | 1 | | |
| CSRexecutive | 0.723*** | 1 | |
| CSRdocument | 0.618*** | 0.556*** | 1 |

*Note:* ***significant at 1% level.

TABLE A2
Correlation Matrix (WLB)

|  | *Flex* | *Short time* | *Telcommute* | *Satellite* | *Day care* | *Work share* |
|---|---|---|---|---|---|---|
| Flex | 1 | | | | | |
| Short time | 0.262*** | 1 | | | | |
| Telcommuting | 0.180*** | 0.158*** | 1 | | | |
| Satellite office | 0.136*** | 0.096*** | 0.271*** | 1 | | |
| Day care | 0.239*** | 0.169*** | 0.325*** | 0.210*** | 1 | |
| Work share | 0.088*** | 0.058*** | 0.147*** | 0.094*** | 0.116*** | 1 |

*Note:* ***significant at 1% level.