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KATO Takao
Colgate University

KODAMA Naomi
RIETI

RIETI
Research Institute of Economy, Trade & Industry, IAA

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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 rigorous econometric evidence on the effects of CSR on gender diversity in the workplace. Our fixed effect estimates point to positive and significant effects on gender diversity of CSR, yet the effects are felt only after two to three years. Such CSR effects are found to be larger and more significant for firms that adhere more closely to the traditional Japanese management model with employee stakeholder salience, which is mostly consistent with an influential theory of CSR—the theory of stakeholder salience. The magnitude of the effects is neither trivial nor implausibly large. For those firms that adhere closely to the participatory model, one standard deviation increase in our summary CSR score, after three years, will result in 0.8 more female college graduate hires from its mean of 17.5; 1.7 more female managers from its mean of 26.2; and 0.16 more female directors from its mean of 1.69. Finally, the positive and significant CSR effects on gender diversity are found to be robust to the inclusion of controls capturing the possible effects of various work-life balance (WLB) practices on gender diversity, pointing to the direct impact of CSR on gender diversity rather than the CSR effects mediated by WLB. In designing and revising various public policies to achieve their current key policy goal of advancement of women in the labor market, Japanese policy makers may want to pay more attention to a potentially important role that CSR plays in gender diversity in the workplace in general and the heterogeneity of the CSR effects and their considerable gestation period in particular.

JEL codes: J16, J7, M14
Keywords: Gender diversity, Corporate social responsibility, Human resource management, Japan

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** Kato is W.S. Schupf Professor of Economics and Far Eastern Studies, Colgate University; Research Fellow, IZA-Bonn; Faculty Fellow and Mentor, School of Management and Labor Relations, Rutgers University; Research Fellow, TCER-Tokyo; Research Associate, CJEP (Columbia Business School) and CCP (Copenhagen Business School and Aarhus University); and Senior Fellow, ETLA (Helsinki). email; tkato@colgate.edu. Naomi Kodama is Associate Professor, Graduate school of Economics, Hitotsubashi University and Consulting Fellow of Research Institute of Economy, Trade and Industry. email: kodama.naomi@r.hit-u.ac.jp.

1. Introduction

Corporate Social Responsibility (CSR) has been one of the most prominent additions to the corporate governance literature and the business literature in recent years (Brammer, Jackson, and Matten, 2012, Jackson and Apostolakou, 2010). In spite of an impressive growth of the literature on CSR in general, there is a dearth of rigorous study of CSR of Japanese firms, which is rather surprising in light that corporate governance in Japan is often considered a prominent example of the stakeholder model as opposed to the Anglo-American shareholder model.[1] In this paper we hope to be able to begin filling this important gap in the literature.

In so doing, we focus on gender diversity in the workplace as potentially important outcome of CSR. In the CSR literature, gender diversity in the workplace is not the most often focused subject and nearly all studies focusing on interplay between gender diversity and CSR are qualitative (see, for instance, Grosser, and Moon, 2005, Schultz, 2007 and Stropnik, 2010). We complement such qualitative studies by providing quantitative evidence on interplay between gender diversity and CSR.

Our focus on gender diversity in the context of CSR is in part motivated by Japan's current public policy emphasis on the promotion of female employment and gender equality in career advancement. In Japan gender gaps in the labor market are considerable. According to the OECD, the gender gap in median earnings for full-time employees in Japan was approximately 29% in 2012 (or women earn 29% less than men), almost twice as high as the OECD average. The persistently large gender pay gap in Japan is particularly troublesome for policy makers since gender gaps in educational attainment narrowed considerably in Japan (Abe, 2010). As the proportion of college-educated women has increased, the worker composition of full-time workers has changed dramatically. In particular, there has been a significant increase in the

[1] There are a few notable exceptions (see, for instance, Amann , Jaussaud , and Martinez, 2012)

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 (the Basic Survey on Wage Structure, Japanese Ministry of Health, Labor and Welfare). Despite these improvements in female education and tenure, however, significant gender wage gaps persist in Japan.

Presently Japanese policy makers consider narrowing such gender gaps 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% by 2020 in all fields in society"). The current policy focus on gender gaps in the labor market is in part motivated by Japan's rapidly aging population and the resultant shrinking labor force and diminishing economic dynamism. Greater labor force participation and career advancement of women are often advocated as the most promising "solution" to Japan's demographic challenge (see, for instance, a recent IMF report "Can Women Save Japan?" by Steinberg and Nakane, 2012).

The empirical literature on gender gaps in the labor 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 legislations, and increasing public daycare facilities (see, for instance, Kato and Kodama, 2014, Asai, 2015, Kato, et al., 2014, Asai, Kambayashi, and Yamaguchi, 2014, Higuchi, Matsuura, and Sato, 2008, Abe, 2013, and Lee and Lee, 2014). In contrast, there is a paucity of rigorous evidence on the efficacy of firm-level initiatives.[2] It is in this context that we explore the role of CSR in promoting gender diversity and

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

advancement of careers of women in Japanese firms.

In sum, in this paper we take advantage of our recently granted access to unique firm-level panel data on CSR and provide econometric evidence on the effects on gender diversity of CSR. Specifically we estimate the CSR effects on actual gender diversity outcomes (such as female standard employees as a share of total number of standard employees, and female managers as a share of total number of managers). We begin with traditional cross-sectional analysis, and then proceed to estimate fixed effect models which allow us to account for unobserved firm heterogeneity such as corporate culture, traditions, and underlining management quality which affect both CSR and gender diversity.

To explore possible mechanisms through which CSR affects gender diversity in the workplace, we further estimate the CSR effects on human resource management practices and institutions that are in part designed to promote gender diversity (e.g., various work-life balance practices).

In the next section, 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, reviewing the relevant literature, we present a brief theoretical exploration on the possible effects on gender diversity of CSR. Section 4 describes our data and empirical strategy. The results are provided in section 5, followed by the concluding section.

2. Corporate Social Responsibility in Japan

Defining and measuring Corporate Social Responsibility is an elusive enterprise (Jackson and Apostolakou, 2010). Japan is no exception. There is no consensus definition of CSR in Japan. There are, however, a number of useful attempts to organize dissipate data on various activities

and institutions reported under the label of CSR in Japan. Perhaps most well-known are a series of reports on CSR of Japanese firms by Keizai Doyukai (Japan Association of Corporate Executives), which, along with Keidanren (Japan Business Federation), represent Japan's employer associations (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 advocated such broader missions of Japanese corporations already in 1956. Since then the nature and scope of the "social responsibility" concept of corporations have changed in part in response to the shifting public interests (e.g., in the high growth era of 1970s, Japan faced a serious challenge of pollution, and environmental protection started to play an increasingly important role in the concept of "social responsibility" of corporations). In 2000s, the framework of CSR developed in the U.S. and Western Europe 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 CSR of Japanese firms have been collected by Toyo Keizai every year since 2006. The data were also collected for 2004. However, the survey instruments differ considerably between 2004 and 2006 and onward, and we can get consistent data only for 2006 and onward. The sample universe is all Japanese firms listed on Japan's stock exchanges.[3] The response rates vary from year to year yet are consistently high for these types of firm-level surveys (for instance, the response rate for all listed firms was close to 50% in 2012).

We obtained their firm-level micro data for the entire period, 2006-2014. In this

[3] The number of firms listed on the first- and second-section of the Tokyo Stock Exchange was 2206 in 2006, and 2399 in 2014.

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 over 2006-2014. Figure 1 shows the proportion of Japan's listed firms that have standing CSR departments. In 2006, a little over 60 percent of Japan's listed firms had standing CSR departments and a slightly fewer percentages of them had executives in charge of CSR. The use of official CSR mission statements was much less pervasive—only 35 percent of Japan's listed firms reported to have official CSR mission statements in 2006.[4] 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% of listed firms in Japan reported to have standing CSR departments; close to 70% reported to have executives in charge of CSR; and 60% reported to have official CSR mission statements. The diffusion of the official CSR mission statements has been particularly rapid.

Figure 2 focuses on an important element of CSR, environmental protection and sustainability. The proportion of Japan's listed firms with environmental protection departments was already 80% in 2006, and has been stable around the same level. Likewise, the proportion of listed firms in Japan with executives in charge of environmental protection has been around at the 70% level since 2006.

The use of compliance department is a near universal phenomenon among listed firms in Japan, as shown in Figure 3. The use of official business ethics statements has been diffusing steadily among Japan's listed firms—from 55% in 2005 to over 70% in 2014.

Finally, having a standing consumer protection department and a standing product/service safety department has been quite common among Japan's listed firms. Thus,

[4] The exact language used in the survey is "does your firm have an official document describing the firm's fundamental attitude and policy toward CSR activities."

close to 90 percent of listed firms in Japan have been reported to have such departments over 2006-2014. Only one in four listed firms in Japan had volunteer leave policies in 2006. Yet such polices have been diffusing steadily, and in 2014 a little less than 40% of Japan's listed firms reported to have such polices.

3. The Literature and Theoretical Explorations

The literature on CSR is vast, and includes contributions from diverse disciplines. A number of excellent literature review articles have been already written (see, for instance, Garriga and Melé, 2004; Aguinis and Glavas, 2012; and Orlitzky, Schmidt, and Rynes, 2003). In this section, we will review briefly some of the relevant literature and present a theoretical exploration on a possible interplay between CSR and gender diversity.

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 naturally interested in 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 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). As we mentioned earlier, only a few consider gender diversity in the workplace as an outcome of CSR and they are all qualitative (see, for instance, Grosser, and Moon, 2005, Schultz, 2007 and Stropnik, 2010).

Second, though 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 organization (members of board of directors) as a predictor of CSR. Specifically there is an impressive body of evidence pointing to a significant role that female board members play in promoting CSR and improving corporate reputation (see, for instance, Bear, Rahman, and Post, 2010; Hafsi and Turgut, 2012; Mallin and Michelon, 2011; Post, Rahman, and Rubow, 2011; Webb, 2004; and Zhang, Zhu, and Ding, 2013).

In short, 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 level and neglect gender diversity at the other levels of corporate organizations. Our paper can be viewed as an attempt to build a bridge between those two stands of the CSR literature by focusing on gender diversity at the levels below the board level and considering it as an outcome of CSR.

As explained above, in spite of the vast and growing literature on CSR, the literature is relatively quiet about 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 paper's new findings on gender diversity in the workplace and CSR will help theorists develop a rich theory of CSR with particular focus on CSR as a predictor of gender diversity in the workplace.

The first of such possible mechanisms we consider is the mediating effects of Work-Life Balance (WLB) practices. CSR often includes workplace diversity as one of the objectives and accompany various human resource management policies that are particularly conducive to career development of women (e.g., onsite day care facilities, telecommuting, flextime, satellite

office). Female employees take advantage of such policies, and advance their careers. In short, WLB practices may work as a powerful mediator for the effect on gender diversity in the workplace of CSR. In this paper, we will test whether the effect on gender diversity of CSR is fully mediated by WLB practices. If it turns out that the CSR effect on gender diversity is not fully mediated by WLB practices, there ought to be other more direct mechanisms.[5]

The second possible mechanism has been suggested by Greening and Turban (2000). We apply their signaling theory of CSR to the context of gender diversity. Thus we posit that female workers 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. As a result, CSR helps the firm recruit and retain gifted women with career aspirations, resulting in increased gender diversity in the workplace. Such signaling effects may take long time, say a decade. However, it is plausible that time-lag may not 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 modify her career goal and shift her focus to childrearing. She is on the fence. CSR could work as a nudge to push her to the career side.

The third and last possible mechanism we consider applies only to gender diversity at the director-level such as directors of human resources (who are typically not members of the board of directors). The firm establishing a formal department of CSR may enhance gender diversity directly by appointing a woman to the head of the newly formed CSR department and thereby increasing the presence of women at the director level which is still below the top management level (the level of members of the board of directors). If we find evidence for the positive and

[5] 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.

significant effects of CSR on gender diversity at the levels below the director level, there ought to be other mechanisms in operation through which CSR boosts gender diversity.

Finally the CSR literature suggests a variety of moderators for the CSR-outcome linkage, 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 key stakeholders of the firm. The firm's CSR initiatives are less likely to be tokenism, and more likely to yield real changes when salient stakeholders with power, legitimacy, and urgency are strongly interested in CSR, and possess capabilities of monitoring the firm's implementation of CSR initiatives and rewarding/punishing the firm accordingly.

In the Japanese context, perhaps the most relevant and powerful stakeholder is employees, and stakeholder salience has much to do with the traditional Japanese management system. The firm under the traditional Japanese management regime believes that the firm's fundamental source of competitiveness is the creativity, resourcefulness and discretional effort of its own employees. To tap into such inventiveness and discretionally effort of employees, the firm adopts a complementary set of management practices. First, the management practice that plays a role of anchor for the traditional Japanese management system is the practice of "lifetime employment" (or implicit long-term employment guarantees)[6] and the reward system which fosters lifetime employment (e.g., seniority wage system in which wage is detached from specific job and seniority plays a significant role in wage determination). Second, such

[6]The term "lifetime" is somewhat of a misnomer since except for executives, Japanese workers have been typically subject to mandatory retirement that occurs around age 60. A precise definition of the practice of lifetime employment is therefore implicit long-term employment contracts that end at 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, did lay off some of their regular employees, following the first oil crisis (see, for example, Koike, 2005, Suruga, 1998, Nakata and Takehiro, 2003, Chuma, 2002).

employees enjoying job security under the practice of "lifetime employment" are then 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 Defect; Kaizen; JK activities; and cross-functional problem solving teams as well as Shopfloor Committees (SFCs) are used to create such opportunities. Note that the practice of "lifetime employment" helps employees participate in such programs wholeheartedly. The production of some productivity-enhancing local knowledge may well result in an elimination of jobs. Without the practice of "lifetime employment" employees would be reluctant to explore performance-enhancing ideas fully due to their fear of job losses.

Third, to ensure continued participation of employees in the aforementioned employee involvement programs, the firm under the traditional Japanese management system utilizes incentive schemes, such as employee ownership and profit sharing, which align the interest between workers and the firm, and hence reward them for their wholehearted participation in such employee involvement programs.

Fourth, extensive information sharing mechanisms (often called Joint Labor-Management Committees, JLMCs) involving management and labor representatives are used to minimize information asymmetry and facilitate the alignment of interest between labor and management. Finally, the system requires careful screening and extensive training aimed at increasing worker ability to effectively participate in employee involvement/problem solving activities and information sharing meetings.[7]

In sum, the traditional Japanese management system represents an alternative

[7]Scholars somewhat differ in the relative importance of each practice (see for example, Koike, 2005, Aoki, 2000, Itoh, 1994, Morita, 2001; 2005, Moriguchi and Ono, 2004 and Rebick, 2005).

management paradigm (stakeholder/employee model) to the Ango-American shareholder model. However, not all Japanese firms and workers operate under the same stakeholder/employee model. Some firms and workers adhere rather strictly to the traditional Japanese management model as described above yet some are closer to the Ango-American shareholder model (see, for instance, Kambayashi and Kato, 2016b). We hypothesize that the CSR effects are greater for those firms that adhere more strictly to the stakeholder/employee model than other firms, for CSR is likely to be more congruous to an environment in which stakeholders (employees) play a greater role in decision making at various levels of the firm who views continuous improvement as opposed to discrete innovation as a primary source of its long-run competitiveness and tap into the discretionary effort, creativity, and resourcefulness of front-line workers.

In other words, for firms with the salient Japanese management system, employees (excluding non-standard employees) and their enterprise union if unionized are powerful stakeholders of the firm.[8] As insiders, employee stakeholders 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, since the Japanese management system relies heavily on employees' discretionally efforts, resourcefulness, problem solving abilities, and creativity, employee stakeholders can reward and punish management by adjusting their discretionally efforts in their 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 non-standard employees (part-time, temporary, and subcontract workers) are typically not considered stakeholders (see, for instance, Kambayashi and Kato, 2016b). The aforementioned theory of stakeholder salience predicts that the CSR-outcome linkage is stronger for firms that adhere strongly to the traditional

[8] The Japanese system was more pervasive among large unionized firms in Japan (Kato, 2003).

Japanese management model.

4. Data and Empirical Strategy

Using unique firm identifiers, we merge the following two firm-level panel datasets: (i) CSR Data compiled by Toyo Keizai;[9] and (ii) Corporate Proxy Statement Data compiled by Development Bank of Japan, which cover all listed firms.

The merged database consists of a large and representative sample of 1,492 publicly-traded firms in Japan over 2006-2014. 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) daycare service assistance (e.g., onsite daycare services and daycare service allowances for those who use other daycare services); and (vi) worksharing. 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, $Diversity_{it}$:

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

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

[9] This data was provided by the Research Institute of Economy, Trade and Industry (RIETI).

the context of the Japanese labor 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. 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. Managers include not only directors but also section chiefs (typically called “kacho” in the Japanese workplace) who are one level below Directors.

Fourth, to measure the degree of gender diversity at the executive level, we use $female\_directors_{it}$ (in log), which is defined as the number of female directors in firm i in year t, who are often called “bucho” in the Japanese workplace, and typically in charge of a specific functional department such as Directors of Human Resource Management. Promotion to directorship is often viewed as a distinct career success in the Japanese workplace.

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.[10]

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 toward CSR activities, 0 otherwise.[11] 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 (since our panel is relatively short, we are restricted to the use of up to three-year lags or j=0, 1, 2, and 3.

Alternatively we can 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 appendix) and making the estimated coefficients difficult to interpret.

For Z_{it}, we consider total number of standard employees in log (depending on the level of

[10] We also tried Tobit models. Unfortunately Tobit models often failed to converge.

[11] In addition, the data contain one continuous variable, $CSRbudget_{it}$ which is the size of the CSR budget. However, we decided not to use this information due to rather apparent endogeneity of such yearly budget variable and possible measurement errors (what is considered an item in CSR budget may vary significantly between firms).

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.[12] For the disturbance term, u_{it}, we assume $u_{it} \sim$ NID $(0, \sigma^2)$.

We control for individual firm fixed effects and year 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 plausible that the firm with progressive corporate culture is likely to adopt CSR or strengthen existing CSR. At the same time, it is also plausible 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 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. Fortunately we have such longitudinal data which enable us to estimate such fixed effect models to account for time-invariant unobserved firm heterogeneity. In addition, we include year fixed effects to account for time-variant macro shocks which affect gender diversity of ALL firms.

As discussed in the previous section, we expect the effects of CSR are greater for firms that adhere more strongly to the traditional Japanese management model. 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 2006-14. We hypothesize that $TURNOVER_i$ gauges the salience of the practice of

[12] We also consider ROA of firm i in year t as an additional control for firm-specific shocks. Reassuringly we find no discernible change in our key results.

"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 and Kambayashi and Kato, 2016a).

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

(2) $Diversity_{it} = \alpha + \beta CSR_{it-j} + \delta TURNOVER_i * CSR_{it-j}$

$+ \gamma Z_{it}$ + (firm fixed effects) + (year fixed effects) + u_{it}

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 Eq. (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 causes multicollinearity and considerable efficiency loss (see Table A2 in appendix). As such, we carry out another factor analysis which suggests the use of two factors, $WLB1_{it}$ and $WLB2_{it}$. Thus, we estimate:

(3) $Diversity_{it} = \alpha + \beta CSR_{it-j} + \delta TURNOVER_i * CSR_{it-j}$

$$+ \gamma Z_{it} + (\text{firm fixed effects}) + (\text{year fixed effects}) + WLB1_{it} + WLB2_{it} + u_{it}$$

Note that $WLB1_{it}$ is mainly defined telecommuting; satellite office; daycare service assistance (e.g., onsite daycare services and daycare service allowances for those who use other daycare services); and worksharing, whereas $WLB2_{it}$ by flextime; and temporary transitional part time work.

5. Results

Table 1 shows summary statistics of our 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 percent of the average firm's standard employment (555 out of 2653); less than 5 percent of managers are female; and less than 2 percent of directors are female. Lastly, close to 70 percent of Japanese firms have the CSR Department; 60 percent have the CSR Director; and 44 percent have formal written document.

Table 2 presents the fixed effect estimates of Eqs. (1), (2) and (3) when we use $female\_employees_{it}$ (in natural log) as our gender diversity measure and the dependent variable. The estimated coefficients on CSR_{it-j} are not statistically significant even at the 10 percent level with only one exception of the baseline model of Eq. (1) with CSR_{it-3} in column (1d) that it is positive and significant at the 10 percent level. Insofar as the stock of female standard employees is concerned, we fail to find evidence for the CSR effect on gender diversity.

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 labor 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 percent level in the baseline model as in column (1d) and in the augmented model as in column (2d), while for shorter lags (j<3), the estimated coefficients on CSR_{it-j} are not statistically significant even at the 10 percent level. 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 percent level. As such we fail to find evidence for the moderating effect of $TURN_i$. Finally, as shown in columns (3d), interestingly the estimate coefficient on CSR_{it-3} is positive and still significant at the 5 percent level when we add controls for WLB practices.

In sum, we find 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.

To assess the magnitude of the CSR effect, we use the estimated coefficients in the augmented model as in column (2d) and calculate the conditional increase in the number of hires of female college graduates, following one S.D. 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 S.D. 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 $TURN_i$.[13] For the average firm with mean for $TURN_i$, one S.D. increase in CSR is predicted to lead to 0.60 more entry-level female hires, conditional on all controls including the total number of entry-level hires. For the firm with salient participatory management, the same one S.D. increase in CSR is predicted to result in 0.80 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 at the 5 percent level when three-year lag is allowed for (j=3). The results from the augmented model with the interaction term show that the estimated coefficients on CSR_{it-j} are positive and significant at the 5 percent level for j=2; and positive (and larger) and significant at the 1 percent level for j=3.

The estimated coefficients on the interaction term, $TURN_i$* CSR_{it-j} are negative and significant at least at the 5 percent level when one-year lag is allowed for (j=1); negative and significant at the 1 percent with two-year lag; and negative and significant at the 5 percent level with three-year lag. Thus, we find 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.

Following the same methodology, we calculate the conditional increases in the number of

[13]As explained in the previous section, we apply a one-parameter version of the box-cox transformation and use $\ln(1+ female\_hires_{it})$ 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 $female\_hires_{it}$. We use mean value as the initial value of $female\_hires_{it}$.

female managers, following one S.D. increase in CSR. Three years after CSR increases by one S.D., the number of female managers will increase by 0.65 for the average firm and 1.66 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 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 S.D. increase in CSR are again neither meaningless nor implausibly large.

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.

Table 5 shows the fixed effect estimates of Eq. (1) – Eq.(3) with focus on gender diversity at the director level (a level higher than the manager level). 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 percent level when two-year lag is allowed (j=2); and positive and significant at the 1 percent level when three-year lag is allowed (j=3). 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 percent level when two-, and three-year lags are allowed.

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 percent level when we allow for two- and three-year lags, pointing to the moderating effect of stakeholder/employee salience (the salient participatory management system in the Japanese context).

The magnitude of the CSR effect on gender diversity at the director level is again demonstrated by calculating the conditional increase in the number of female directors, following one S.D. increase in CSR. For the average firm with mean value for $TURN_i$, one S.D. increase in CSR is predicted to result in 0.09 more female directors after three years, while for the participatory firm with 25^{th} percentile of $TURN_i$, one S.D. increase in CSR is predicted to lead to 0.16 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 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.

6. Conclusions

Using panel data on CSR (Corporate Social Responsibility) 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.

Moreover, we have found that such CSR effects are larger and more significant for firms that adhere more closely to the traditional Japanese management model with employee stakeholder salience. The moderating effect of employee stakeholder salience is consistent with

an influential theory of CSR---the theory of stakeholder salience.

The magnitude of the effects has been found to be neither trivial nor implausibly large. For firms that adhere closely to the Japanese employee stakeholder model, one standard deviation increase in our summary CSR score is predicted to, after three years, result in 0.8 more female college graduate hires from its mean of 17.5; 1.7 more female manager from its mean of 26.2; and 0.16 more female director from its mean of 1.69.

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 Work-Life Balance (WLB) practices. In other words, the positive and significant effects on gender diversity of CSR are not mediated by WLB practices, favoring the signaling theory of CSR over the mediating effect of WLB. Female workers 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. Note that CSR boosts gender diversity through the signaling mechanism on top of any mediating effects of WLB promoted by CSR.

We have also discussed a simple possibility that the firm establishing a formal department of CSR may enhance gender diversity directly by appointing a woman to the head of the newly formed CSR department and thereby increasing the presence of women at the director level (department head level). We have found evidence against this story---the positive and significant effects on gender diversity of CSR have been found not only for the director level but also for the other lower levels.

In designing and revising various public policies to achieve their current key policy goal

of advancement of women in the labor 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 daycare 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 passing of the Act on Promotion of Women's Participation and Advancement in the Workplace in summer of 2015). The findings from this paper 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.

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Table 1 Summary Statistics

	N	mean	SD
CSR variables			
CSRoffice$_{it}$	8594	0.67	0.47
CSRexecutive$_{it}$	8594	0.61	0.49
CSRdocument$_{it}$	8594	0.44	0.50
CSR$_{it}$	8594	0.05	0.89
WLB Pracrices			
Flex$_{it}$	8355	0.51	0.50
Shorttime$_{it}$	8356	0.75	0.43
Telcommute$_{it}$	8320	0.11	0.31
Satelite$_{it}$	8313	0.06	0.23
Daycare$_{it}$	8103	0.17	0.37
Workshare$_{it}$	8312	0.03	0.16
WLB1$_{it}$	8066	0.02	0.67
WLB2$_{it}$	8066	0.01	0.49
Gender Diversity			
female_employees$_{it}$	7072	555	2066
female_hires$_{it}$	7137	17.46	56.24
female_managers$_{it}$	6720	26.19	124.63
female_directors$_{it}$	6556	1.69	7.16
Controls			
employees$_{it}$	8589	2653	6309
hires$_{it}$	7137	56.48	112.92
managers$_{it}$	6720	705.25	1582.92
directors$_{it}$	6556	123.95	282.94
TURN$_{i}$	7971	0.16	0.15

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}	0.000				-0.008				-0.009			
	[-0.029]				[-0.628]				[-0.680]			
CSR_{it-1}		0.003				0.002				0.003		
		[0.347]				[0.150]				[0.256]		
CSR_{it-2}			0.007				0.023				0.023	
			[0.769]				[1.487]				[1.456]	
CSR_{it-3}				0.015*				0.023*				0.021
				[1.851]				[1.687]				[1.526]
$TURN_i$*					0.037	-0.004	-0.141	-0.069	0.037	-0.024	-0.146	-0.069
CSR_{it-j}					[0.519]	[-0.051]	[-1.072]	[-0.991]	[0.488]	[-0.375]	[-1.103]	[-0.980]
$WLB1_{it-j}$									0.012	0.006	0.002	0.007
									[1.379]	[0.649]	[0.252]	[0.549]
$WLB2_{it-j}$									0.023	0.01	0.028	0.029
									[0.998]	[0.432]	[1.216]	[1.209]
R^2	0.762	0.752	0.792	0.767	0.768	0.758	0.797	0.77	0.77	0.761	0.801	0.767
N	7068	5613	4934	3971	6699	5365	4740	3834	6479	5168	4562	3683

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.

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

***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}	-0.005				-0.015				-0.014			
	[-0.249]				[-0.471]				[-0.449]			
CSR_{it-1}		0.015				0.01				0.01		
		[0.702]				[0.298]				[0.294]		
CSR_{it-2}			0.003				0.016				0.013	
			[0.128]				[0.571]				[0.436]	
CSR_{it-3}				0.039*				0.055*				0.060**
				[1.802]				[1.838]				[1.988]
$TURN_i$*					0.049	0.02	-0.104	-0.116	0.026	0.006	-0.082	-0.115
CSR_{it-j}					[0.324]	[0.115]	[-0.713]	[-0.633]	[0.166]	[0.034]	[-0.554]	[-0.629]
$WLB1_{it-j}$									0.033	0.053*	0.01	0.007
									[1.194]	[1.748]	[0.327]	[0.198]
$WLB2_{it-j}$									-0.018	-0.017	-0.017	-0.054
									[-0.396]	[-0.364]	[-0.364]	[-1.077]
R^2	0.56	0.566	0.569	0.571	0.552	0.562	0.568	0.57	0.549	0.562	0.569	0.571
N	7136	5670	4982	4022	6825	5464	4818	3907	6604	5256	4627	3742

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.

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

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

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}	-0.006				0.033				0.029			
	[-0.290]				[1.099]				[1.000]			
CSR_{it-1}		-0.006				0.039				0.037		
		[-0.271]				[1.268]				[1.203]		
CSR_{it-2}			0.012				0.079**				0.074**	
			[0.579]				[2.578]				[2.391]	
CSR_{it-3}				0.042**				0.091***				0.088***
				[2.062]				[3.091]				[2.974]
$TURN_i$*					-0.275*	-0.328*	-0.534***	-0.404**	-0.251	-0.329**	-0.495***	-0.373**
CSR_{it-j}					[-1.667]	[-1.935]	[-2.848]	[-2.466]	[-1.558]	[-2.018]	[-2.649]	[-2.297]
$WLB1_{it-j}$									0.139***	0.128***	0.101***	0.109***
									[5.307]	[4.427]	[3.687]	[3.966]
$WLB2_{it-j}$									-0.014	-0.034	-0.01	-0.02
									[-0.246]	[-0.648]	[-0.219]	[-0.407]
R^2	0.491	0.473	0.5	0.477	0.493	0.479	0.503	0.481	0.5	0.484	0.505	0.481
N	6719	5280	4677	3777	6456	5122	4559	3695	6253	4936	4386	3549

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.

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

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

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}	0.003				0.035				0.036			
	[0.158]				[1.081]				[1.119]			
CSR_{it-1}		0.028				0.052				0.051		
		[1.344]				[1.519]				[1.492]		
CSR_{it-2}			0.046**				0.093***				0.088***	
			[2.381]				[3.297]				[3.150]	
CSR_{it-3}				0.049***				0.085***				0.080***
				[2.627]				[2.953]				[2.770]
$TURN_i$*					-0.233	-0.174	-0.388***	-0.308*	-0.221	-0.166	-0.372***	-0.281
CSR_{it-j}					[-1.408]	[-0.981]	[-2.739]	[-1.753]	[-1.366]	[-0.946]	[-2.678]	[-1.604]
$WLB1_{it-j}$									0.142***	0.110***	0.092**	0.073**
									[4.385]	[3.427]	[2.514]	[2.398]
$WLB2_{it-j}$									-0.115***	-0.046	-0.037	0.011
									[-2.757]	[-1.021]	[-0.852]	[0.283]
R^2	0.162	0.166	0.181	0.184	0.163	0.167	0.185	0.187	0.18	0.184	0.191	0.193
N	6555	5162	4564	3697	6303	5010	4450	3616	6107	4833	4283	3476

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.

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

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

Figure 1 Proportion of listed firms with CSR Departments, executives in charge of CSR, and official CSR mission statements: 2006-2014

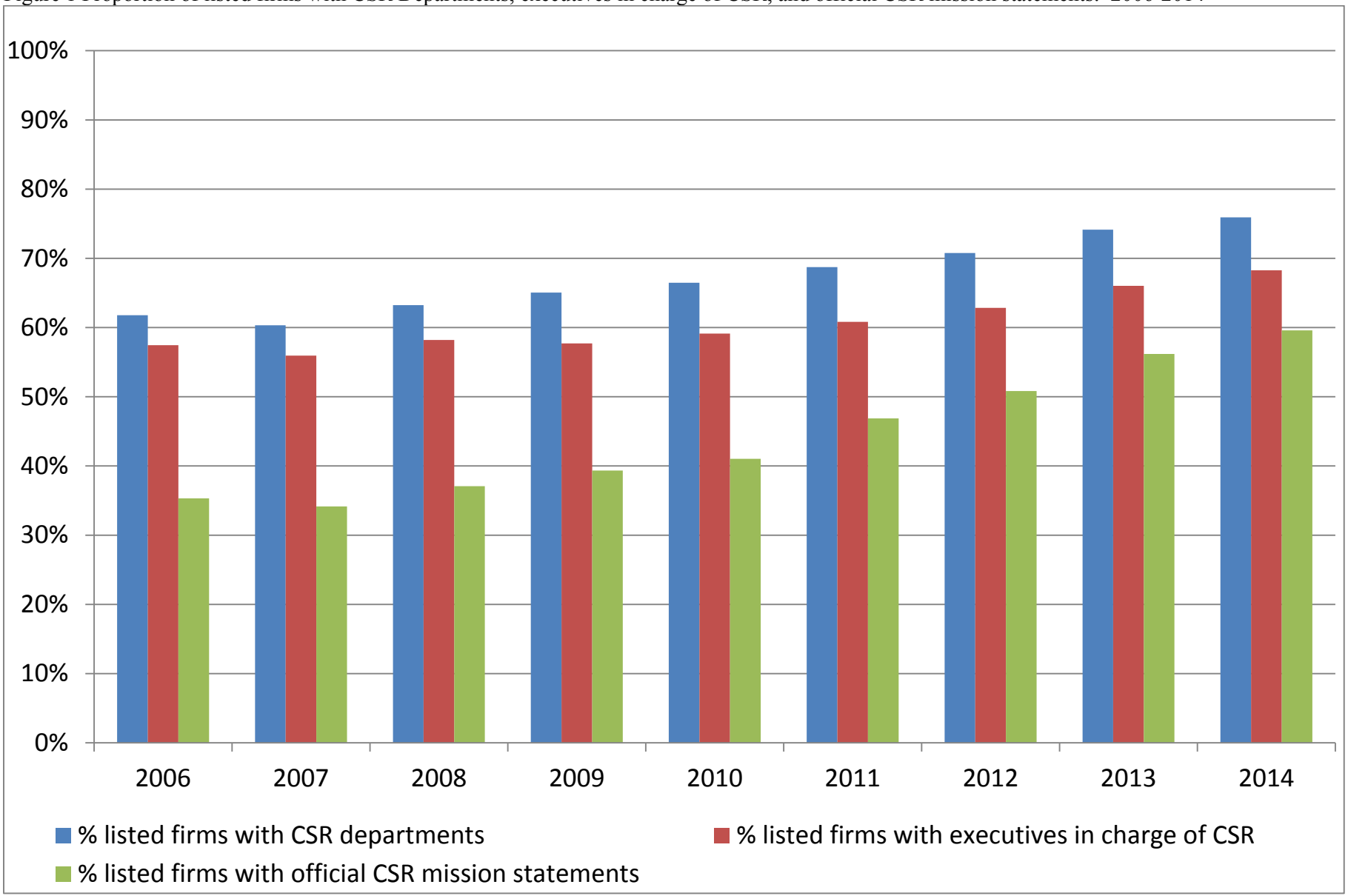


Figure 2 Proportion of listed firms with environmental protection departments and executives in charge of environmental protection: 2006-2012

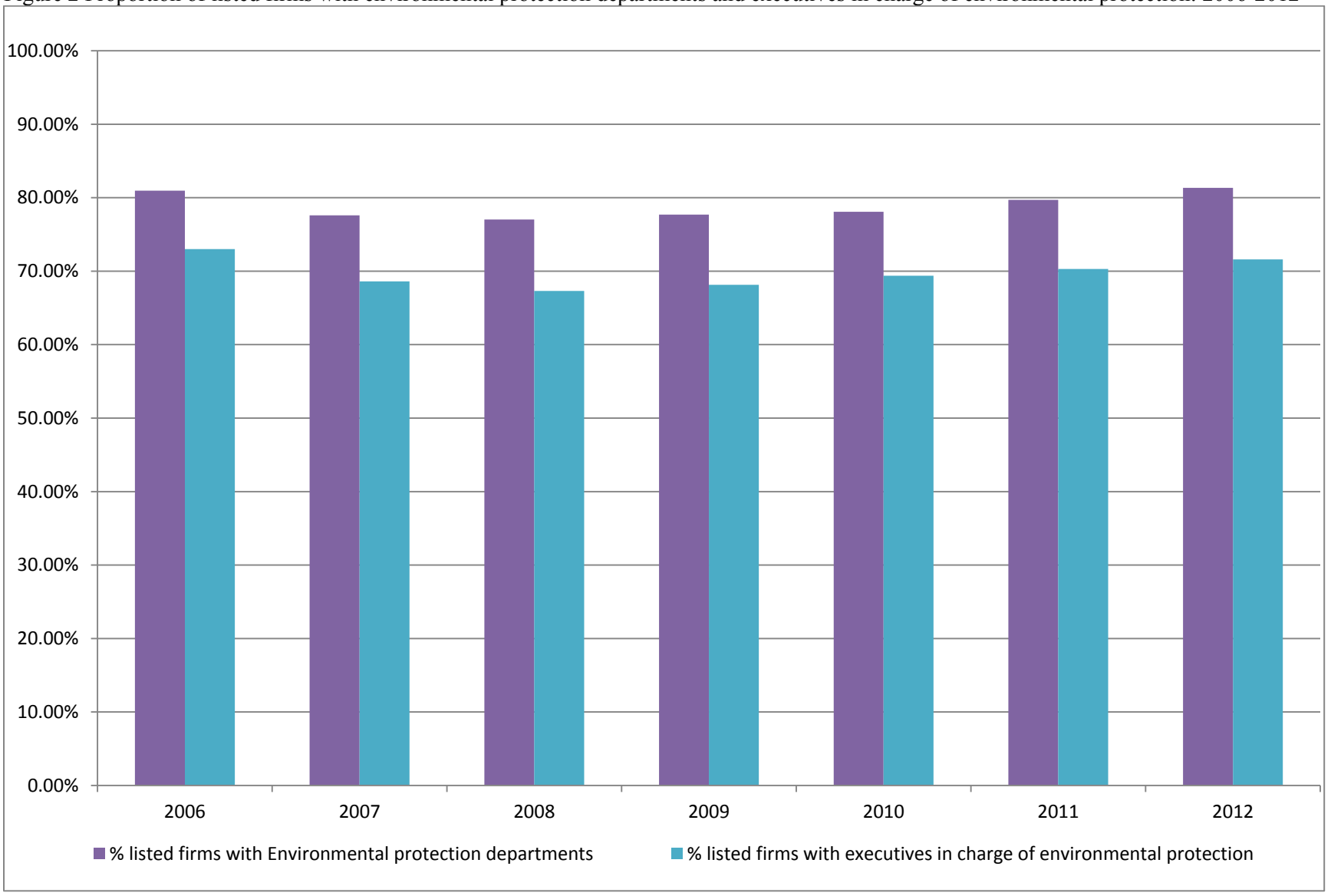


Figure 3 Proportion of listed firms with compliance departments and an official business ethics statements: 2006-2014

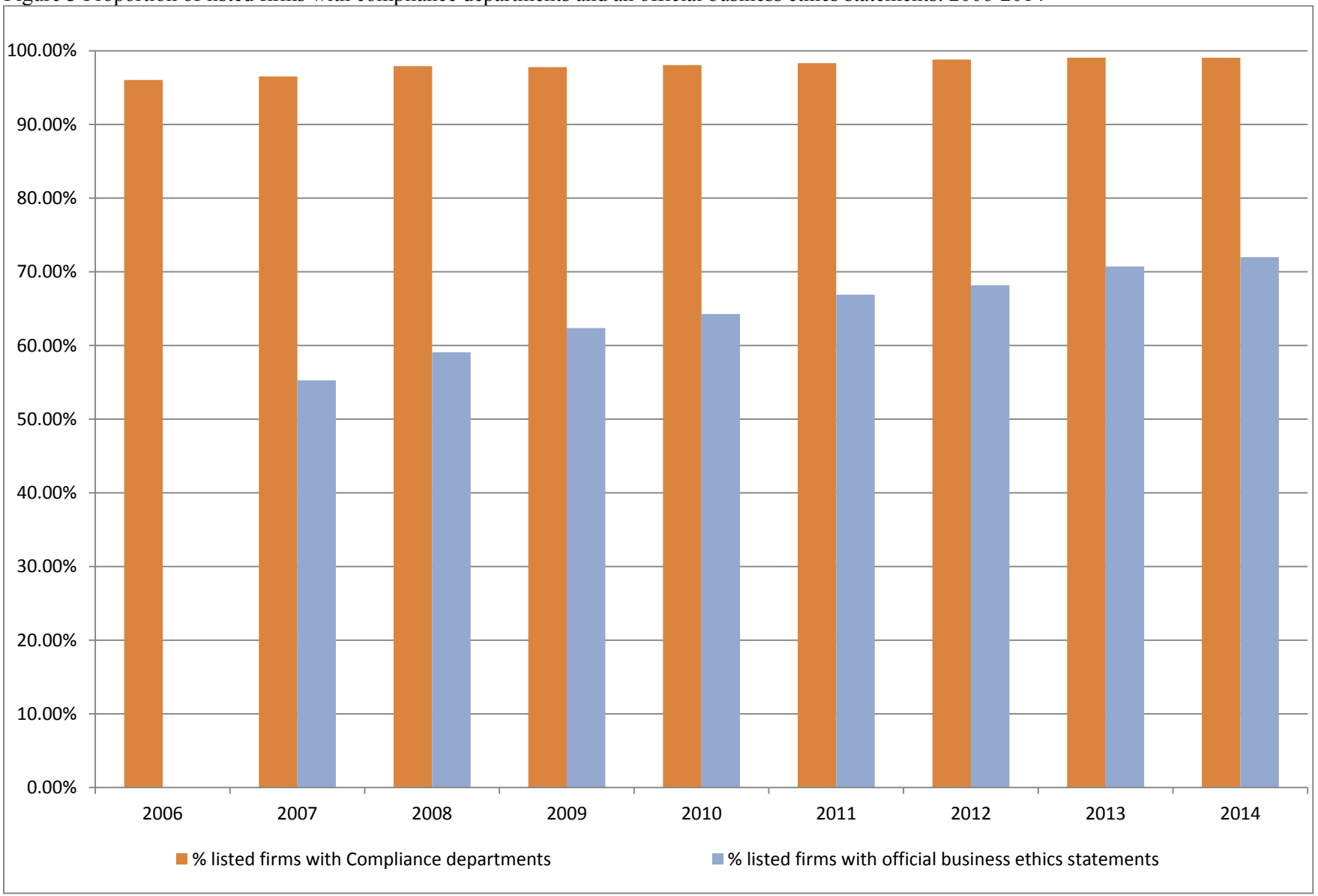
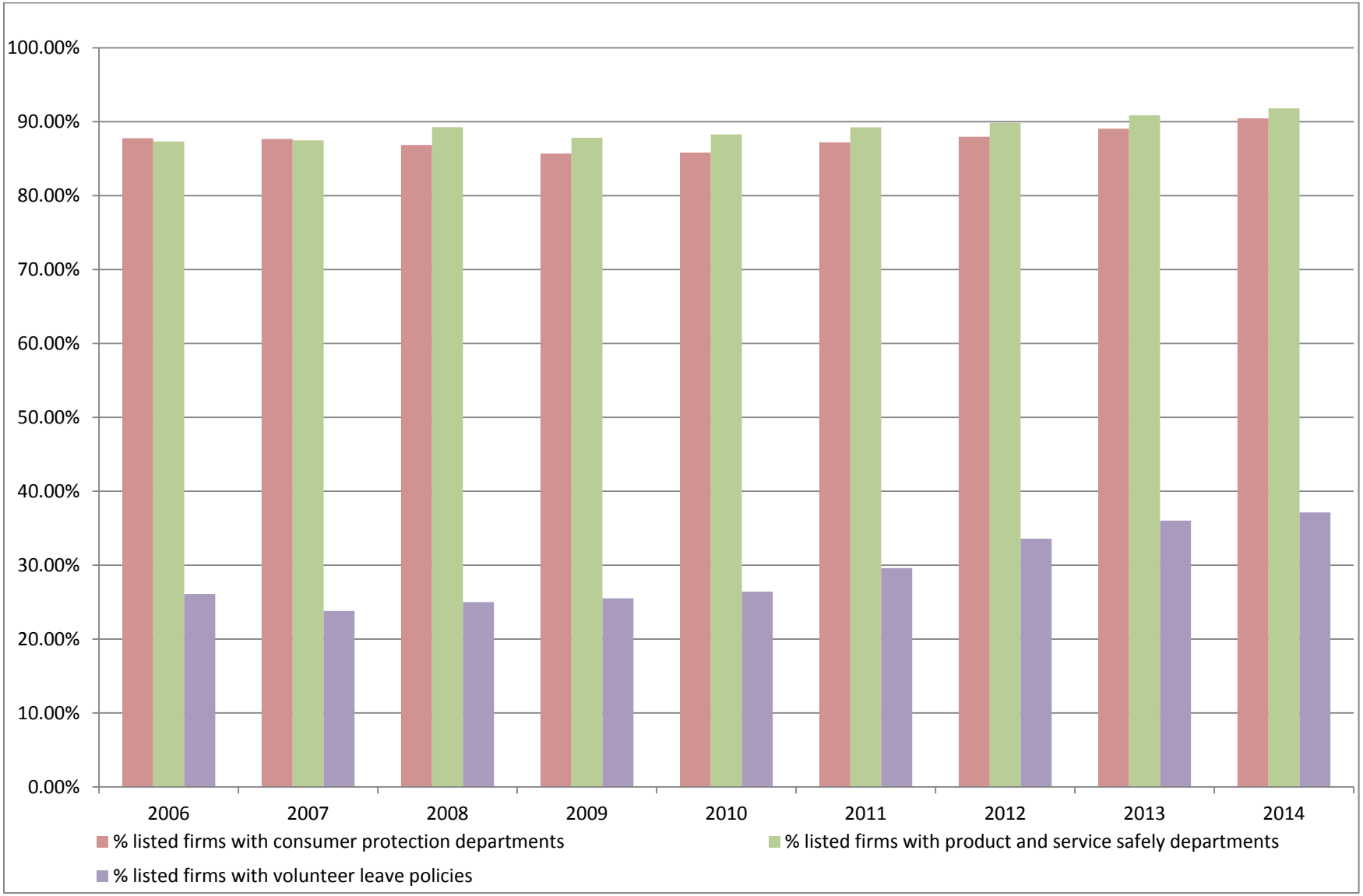


Figure 4 Proportion of listed firms with consumer protection departments, product/service safety departments, and volunteer leave policies: 2006-2014



Appendix Table A1. Corelation matrix (CSR)

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

Note: *** significant at 1% level.

Appendix Table A2. Corelation matrix (WLB)

	Flex	Shorttime	Telcommute	Satellite	Daycare	Workshare
Flex	1					
Shorttime	0.262***	1				
Telcommuting	0.180***	0.158***	1			
Satelliteoffice	0.136***	0.096***	0.271***	1		
Daycare	0.239***	0.169***	0.325***	0.210***	1	
Workshare	0.088***	0.058***	0.147***	0.094***	0.116***	1

Note: *** significant at 1% level.