Fixed asset impairment accounting and employee negotiations:

Evidence from Japan

Abstract: The literature suggests that—given the long-term relationship between firms and employees—managers enhance informativeness of accounting numbers in anticipation of employee negotiations to inform their employees of the firms' underlying economics. This study complements and extends the existing literature by investigating whether fixed asset impairment losses play a signaling role in downsizing negotiations and whether a variation in employee influence in firms leads to different impairment accounting practices. Specifically, in the investigation of Japanese firms operating in a society where collective dismissals are difficult to implement, I find that fixed asset impairment loss recognition mitigates the negative relationship between employee influences and downsizing, which suggests that impairment losses signal firms' future negative outlooks. In addition, the results suggest that impairment recognition is costly for managers and impairment losses reflect economic losses, consistent with the informative accounting practice hypothesis. I also find that downsizing firms with strong employee influence recognize fixed asset impairment losses earlier than those with weak employee influence, suggesting that such an accounting practice by downsizing firms with strong employee influence elicits concessions from employees. Overall, the findings of this study suggest that firms with strong employee influence make use of informative impairment accounting.

Keywords: Labor negotiation, Fixed asset impairment, Employee ownership, Downsizing

JEL: G34, J54, M41

1. Introduction

The purpose of this study is to investigate the signaling role of fixed asset impairments in employee negotiations. Specifically, I examine whether the recognition of fixed asset impairment losses mitigates the negative relationship between employee influences and employee downsizing, using data from Japanese firms. I also examine whether firms with strong employees are more likely to record impairment losses before/during a downsizing period than those with weak employees.

In the face of labor pressure and/or negotiations, managers use financial devices such as cash holding and debt-equity positions to strengthen their bargaining power in relation to their employees (Klasa et al. 2009; Matsa 2010). Managers also increase information asymmetry when facing strong labor unions (Hilary 2006; Chung et al. 2016; Ji and Tan 2016).

Another way for managers to enhance their bargaining power may be to manage earnings downwards in order to provide artificially negative outlooks for their firms, resulting in agreements that decrease employees' wealth or reduced employee pressure (earnings management hypothesis). While prior research provides some evidence of employee influences on accounting practices (D'Souza et al. 2000; Bova 2013; Hamm et al. 2017), it provides mixed results regarding accounting practices in the face of labor negotiations (e.g., Liberty and Zimmerman 1986; DeAngelo and DeAngelo 1991).[1]

[1] I use the words "accounting practice" instead of accounting choice to include fair value estimation practice in its definition.

On the other hand, Osma et al. (2015) hypothesize that given long-term, and hence cooperative, relationships between firms and their employees, managers do not opportunistically manage earnings downward to deceive their employees and enhance their bargaining power, but inform their employees of real condition of their firms (informative accounting practice hypothesis). They show that negotiation firms report more conservative earnings than non-negotiation firms, consistent with the informative accounting practice hypothesis. Therefore, the literature discusses the two competing hypotheses regarding accounting practices in the face of labor negotiations.

This study aims to add new evidence in line with this debate by focusing on Japanese firms and closely looking at the effect of fixed asset impairment loss recognition on employee downsizing. Japan provides a unique setting to investigate employee influences, as a society in which collective dismissals for reorganizational purposes are difficult due to its social norms and judicially created doctrines.[2] These norms and doctrines are assumed to force managers of Japanese firms to convince their employees that downsizing is necessary. In addition, prior research on both fixed asset and goodwill impairment losses reports that firms tend to reform their businesses around impairment loss recognition (Riedl 2004; Hayn and Hughes 2006), which is consistent with the fact that firms with impairment recognition operate poorly at least at a cash-generating-unit level. Moreover, it also demonstrates that managers exercise their discretion to choose the time to record impairment losses, indicating that managers have intentions regarding impairment recognition (Riedl 2004; Ramanna and Watts 2012; Fujiyama 2014). Therefore, the

[2] For example, World Economic Forum (2014) points out that the second most crucial obstacle to the competitiveness of the Japanese economy is a difficulty with dismissals. Japan is ranked 133 out of 144 countries in the dismissal difficulty index.

Japanese impairment setting is a unique context in which to explore an accounting role in labor negotiations.

In the first test of this study, I examine whether the recognition of fixed asset impairment losses mitigates the negative influences of employees on employee downsizing. While Atanassov and Kim (2009) show that firms in countries with strong labor regulations are less likely to reduce their workforce in the face of deteriorating firm performance, if fixed asset impairment has a signaling role in informing employees of firms' real economic conditions, it is predicted and found that it alleviates the negative relationship between employee downsizing and employee shareholdings, which are a proxy for employee influences. The result also reveals that firms are more likely to downsize their employees when shareholders make a concession, i.e., dividend omission. In addition, to reduce a possibility of cheap talks by managers (earnings management hypothesis), I also examine whether managers of impairment firms incur costs. One of the costs management bears is presidential resignation. I find that impairment firms are more likely to experience president turnovers. Therefore, these results suggest that fixed asset impairment signals firms' deteriorating performance, resulting in cooperative concessions from employees. In the third test, I investigate the timeliness of fixed asset impairment losses. The result suggests that fixed asset impairment losses recorded by firms with high employee shareholdings incorporate economic losses that arise one and two years before its recognition to a greater extent, while a relationship between fixed asset impairment losses and current period economic losses is not observed for full sample and both high and low employee ownership

samples. The findings are consistent with the informative accounting practice hypothesis and further support the signaling role of fixed asset impairment losses.

Finally, I analyze the timing of fixed asset impairment loss recognition compared with downsizing implementation, using a sample of firms with both impairment losses and downsizing. Specifically, the impairment timing is ordered as one if downsizing is implemented in year $t + 1$, two in year t (impairment recognition), and three in year $t - 1$. Then, I run ordered logistic regressions and find that downsizing timing is negatively associated with the degree of employee shareholdings. The result suggests that in the face of strong employee bargaining power, managers record impairment losses before and/or during downsizing.

This study makes several contributions to the existing literature. First, it extends prior research on accounting practices around employee negotiations by showing the influence of employees on fixed asset impairment practice. Although prior research shows employee influences on accounting practices (e.g., Bova 2013), it is an open question how managers make accounting choices and judgments in anticipation of employee negotiations. DeAngelo and DeAngelo (1991) and Osma et al. (2015) provide some evidence consistent with the informative accounting practice hypothesis in labor negotiation settings. However, their samples are limited to the steel industry in the US, which has strong labor unions, and US firms with labor unions, which are organized disproportionately across industries (Bova 2013). Thus, variation in accounting practices among firms with different employee influences is unclear. This study is designed to examine the accounting practice difference between negotiation firms with and without strong employee influences. It suggests that negotiation firms with strong employee influences use accounting

figures to convince employees that the firms' actions are necessary. In other words, for negotiation firms with weak employee influences, a priori accounting numbers are less important in negotiating with their employees.

Second, the findings of this study contribute to the literature on the incentives of impairment recognition. Previous studies suggest agency-based non-impairment incentives such as management compensation and reputation (Beatty and Weber 2006; Ramanna and Watts 2012), management changes (Riedl 2004), insider trading (Muller et al. 2012), and debt covenant violation (Riedl 2004; Beatty and Weber 2006; Ramanna and Watts 2012). This study extends the literature by providing evidence suggesting influences of another stakeholder group, that is, employees. In addition, the result reveals that impairment recognition causes management turnovers, which provides underlying support to agency-based non-impairment incentives relating to managers' wealth.

Finally, the findings of this study also have implications for financial statement users. The results reveal that under strong bargaining power of employees, managers choose the timing of recording losses. Impairment loss recognition, in itself, exposes management's failure of investments. Managers can face trade-offs between accounting communication with investors and employees. Therefore, for financial statement users in countries or industries with inflexible employment or wage systems, it is useful to take labor considerations into account, especially in case of large information asymmetry, i.e., dispersed ownership.

The remainder of this paper is organized as follows. Section 2 describes prior research and the institutional background, and develops my hypotheses. Section 3 documents the research design. Section 4 presents empirical results. Section 5 concludes the paper.

2. Background and hypothesis development

Prior research

Legal protection for employees and firing flexibility substantially vary across countries (Botero, Djankov, La Porta, Lopez-de-Silanes and Shleifer 2004; World Economic Forum 2014). Atanassov and Kim (2009) hypothesize and show that managers ally with employees in countries with strong union laws and protect employees' job security. However, they find that poorly performing firms engage in layoffs when their leverage is high even in countries with strong union laws. Therefore, while firms with strong employee influences face difficulty in implementing collective dismissals, accounting numbers can play a role in gaining concessions from employees, i.e., collective dismissals.

In accounting literature, studies have explored how labor consideration shapes financial statements. Liberty and Zimmerman (1986) hypothesize that managers manage earnings downward in anticipation of negotiations with employees (earnings management hypothesis). However, most studies fail to find evidence of such accounting practices. Liberty and Zimmerman (1986), using several unexpected earnings measures,[3] provide no evidence of earnings management during negotiation periods, but show negative cumulative abnormal returns (CAR)

[3] Specifically, they use three measures of expected earnings: annual earnings in previous years, one obtained from running regressions with forty quarters' earnings data, quarterly earnings in the same quarter of the previous year (i.e., $q - 4$).

for negotiation firms in a certain period. One of their interpretations is that managers do not manage earnings downwards during negotiations because of firms' poor real operating performance.[4] Subsequent studies also fail to detect earnings management during labor negotiations (Mautz and Richardson 1992; Cullinan and Knoblett 1994). Mautz and Richardson (1992) argue that conservative accounting rather than income-decreasing accounting choices play a role in the negotiation process.

Two studies, however, provide evidence suggesting that managers make income-decreasing accounting choices in the face of labor pressure. D'Souza et al. (2000) investigate accounting choices in the Statement of Financial Accounting Standards (SFAS) No. 106, *Employer's Accounting for Postretirement Benefits Other Than Pensions*, and find that more highly unionized firms are likely to use the immediate recognition method, which is expected to reduce labor renegotiation costs. They also find that this practice is not the case among firms with higher debt covenant violation costs, suggesting that firms in financial distress have less incentive to manage earnings downward. Bova (2013) shows that unionized firms are more likely to miss analysts' earnings expectations, generally by small margins, partly by managing earnings downwards. However, he does not provide evidence that suggests an increased likelihood of expectation-missing practices during negotiation periods. Therefore, while prior research suggests labor consideration affects accounting choices, it does not support the earnings management hypothesis in negotiation periods.

[4] Two other interpretations are that unions' ability to undo the effects of earnings management prevents managers from implementing such strategies; and that their research methods are insufficient to detect earnings management at the time of union negotiations.

On the other hand, Osma et al. (2015) propose an alternative hypothesis, the informative accounting practice hypothesis, which states that managers exercise their discretion to inform employees of their firms' real economic conditions. Based on repeated game theory (Espinosa and Rhee 1989; Kahn 1993; Sestini 1999), they argue that firms negotiate with their employees repeatedly, for example, every three years in the case of wage negotiations in the US, and thus the fact that earnings management gradually becomes manifest ex post prevents managers to manage earnings for the purpose of their enhanced bargaining power. The study shows that negotiation firms exhibit lower (more negative) total accruals, indicating income-decreasing behavior in the face of labor negotiations. The accruals, however, result from conditional conservative accounting rather than accrual and/or real earnings management. Overall, their results are consistent with the view that during labor (or union) negotiations, managers time losses to inform employees of the firms' real conditions, which convince their employees that renegotiation is needed. Similarly, DeAngelo and DeAngelo (1991) demonstrate that steel companies in the United States reported lower net income during union negotiations than during non-negotiation periods. Such lower reported earnings resulted from one-time special charges, especially restructuring charges, which managers could discretionally time to gain concessions from unions.[5]

Previous studies are limited in three ways. First, evidence consistent with informative accounting practice hypothesis is provided by studies with limited samples. That is, Osma et al. (2015) investigate 75 wage negotiations and DeAngelo and DeAngelo (1991) focus on steal

[5] Some may argue that those losses are opportunistic. However, those losses economically occurred at the time of their recognition, as explained by DeAngelo and DeAngelo (1991, 18): "For our sample, unusual items often include one-time special charges that reflect the real restructuring decisions made by sample managers."

industry in the US. This study uses a larger set of data from broader industries. Second, the above two studies focus only on industries with strong employees. Bova (2013) shows that industry determines whether a firm has a unionized employee base in the US. Thus, differences in accounting practice around labor negotiations among firms with different employee influences are unclear in the literature. Third, little is known about accounting practices around employee downsizing, partly because prior research focuses on wage negotiations in the US, where employment at will norm prevails.

The Japanese employment system

In a Japanese setting, regardless of employee influences, firms face harder negotiations than their US counterparts when they implement downsizing. Japanese industrial relations are characterized by lifetime employment, seniority wage systems, and union-management consultation, or enterprise labor unions, although these traditional practices have recently become less common (e.g., Yamaji 1999; Hamaaki et al. 2012).[6] Lifetime employment, at the core of these practices, is defined as a long-term commitment between employers and employees (Ono 2010) and provides employees with the implicit right to be hired until a certain age stipulated by the firm. It gradually formed as a social norm in response to the critical labor shortage during the rapid economic growth of the 1950s and 1960s (Abegglen 1958), and the norm helped to establish the doctrine of the abuse of rights of dismissal as case law (Moriguchi and Ono 2004).

[6] A seniority-based wage system is one that determines employees' wages and promotions based on age and tenure in the company. Under a union-management consultation system, managers hold talks with their unions before making important corporate decisions.

The favorable aspects of lifetime employment are that it promotes employees' cooperation and investment in firm-specific skills and enhances employee loyalty to firms (Aoki 1988). Employees' investments in firm-specific skills, however, result in risks for them. For example, if a firm's performance deteriorates, they are forced to transfer to another section, for which the necessary skills are different from the ones they previously acquired, and to learn new skills, which is costly for them. Therefore, employees seek to be influential in their firms' decision making, which is the case in Japan (Milgrom and Roberts 1992, chapter 10; Aguilera and Jackson 2003). In addition to the increased influence of employees, firms depending on firm-specific skills to a greater extent are expected to avoid breaking the implicit contract of lifetime employment; because it is implicit, this contract is not protected by laws and is costly to reestablish if broken.

Therefore, under this social norm and doctrine, Japanese firms have faced difficulty in collective dismissals for reorganizational purposes during unfavorable economic conditions. This difficulty is reflected in the ranking of inflexible employment practices published by the World Economic Forum (2014). Thus, if firms attempt collective dismissals, they need to negotiate with their employees regardless of the extent of the employees' influence. In other words, while managers of US firms are supposed to have discretion in employment—but not wages—if they make an initial wage contract with unions, and then face wage (re-)negotiations when they perform poorly (DeAngelo and DeAngelo 1991; Osma et al. 2015), managers of Japanese firms are implicitly supposed to have less discretion in employment, because of the nation's lifetime

employment norm and strong anti-dismissal doctrines;[7] and to face employment negotiations even with employees with weak bargaining power, which results in conflict between firms and employees to a greater or lesser extent.

Downsizing by Japanese firms, however, has been increasingly common since the late 1990s. Because economic downturns in the 1970s and 1980s were short, Japanese firms could overcome them without downsizing their employees on a large scale. At that time, Japanese firms avoided downsizing employees by transferring them to other sections or affiliated companies (Moriguchi and Ono 2004). After the collapse of the bubble economy in the early 1990s, firms have been forced to reduce personnel due to their fundamentally poor financial health, resulting from the prolonged recession in Japan (Ahmadjian and Robinson 2001; Ahmadjian and Robbins 2005). In addition, the necessity of downsizing was accelerated by the reduced function of the main banks and increased ownership by foreign investors, which is characterized as market-based or short-term interested parties compared with the main banks (Noda 2013).

Currently, Japanese firms operate in two contradictory conditions: higher demand for collective dismissals and severe difficulties in implementing them. Under reduced capability to protect job security and increased pressure from shareholders, the incidence of downsizing can be affected by the bargaining power of employees, and accounting figures can be a means to adjust stakeholders' interests in this case. Therefore, I focus on Japanese firms to explore the influence of employees on accounting practices around negotiations between firms and their employees.

[7] The doctrines require managers to demonstrate the necessity of collective dismissals and explain the necessity, timing, size and method of collective dismissals. Although collective dismissals rarely result in lawsuits, the doctrines can be viewed as a guideline and followed by managers to avoid such lawsuits.

Japanese standard for fixed asset impairment

Accounting for fixed asset impairment in Japan, mandatorily effective from the fiscal year ending in March of 2006,[8] was introduced in the context of the global convergence of accounting standards for two purposes: setting a standard for fixed asset impairment harmonious with US GAAP and International Accounting Standards (IAS) issued by International Accounting Standards Committee; and providing investors with adequate information about fixed assets, especially those that have been impaired to a great extent since the collapse of the bubble economy in the early 1990s (Business Accounting Council, 2002). The standard covers all fixed assets such as property, plant and equipment, and goodwill, with the exception of investment securities, shares and paid-in capital in affiliates, prepaid pension expenses, deferred tax assets, and revaluation amounts of deferred tax assets. Its recognition criteria are "probability" criteria, which are employed by the US standard, and its measurement criteria are recoverable amounts—value in use or net selling price—which are employed by the IAS.

As with the US standards for long-lived assets and goodwill impairment (Riedl 2004; Li et al. 2011; Ramanna and Watts 2012), the Japanese standard permits managers to exercise their discretion (Fujiyama 2014).[9] Therefore, certain intentions of managers can be observed by investigating the recognition and timing of impairment losses. In addition, impairment loss recognition involves changes in corporate strategy (Riedl 2004). Because the Japanese standard employs "probability" criteria, but not "economic" criteria, it is recognized when impairment indications such as records of operating losses in two consecutive years are observed and book

[8] Early voluntary adoption of the standard is allowed from the fiscal year ending on March 31, 2004.
[9] See Fujiyama (2014) for further previous studies written in Japanese; they show similar results.

values of fixed assets exceed estimated future cash flows. In such cases, financial performance and/or position, at least at a cash-generating-unit or corporate level, is viewed as substantially deteriorating. If managers are rational, they are more likely to consider downsizing regardless of whether they implement it.

Hypothesis development

When renegotiating with employees as in the case of wage renegotiations in the US, managers need to persuade employees to gain their concessions. Under the lifetime employment norm amplified by severe employment case laws, regular employees (*seishain*) are seen as having an implicit right to work at a company. Thus, firms' proposal of employment termination has a nature of renegotiation, resulting in the necessity of convincing explanations by managers. Given that job security is a primary concern to employees, such necessity is stronger for managers facing stronger employee bargaining power. In addition, repeated game theory on industrial relations assumes a long-term relationship between firms and employees and suggests that key stakeholders make concessions to achieve cooperative and efficient outcomes. Therefore, based on informative accounting practice hypothesis, convincing and informative accounting numbers can play a role in downsizing negotiations.

A fixed asset impairment loss is recorded when a carrying amount of an asset or group of assets exceeds its recoverable amount. Since a recoverable amount is measured as net realizable value or value in use (i.e. sum of discounted future cash flows) according to the Japanese standard, fixed asset impairment recognition indicates deterioration in performance of a firm or

cash-generating unit and signals its negative future outlooks. As managers with strong employees are less likely to downsize their employees (Atanassov and Kim 2009), if fixed asset impairment losses have a signaling role, it mitigates the negative relationship between employee influences and downsizing. I propose the following hypothesis:

Hypothesis 1a: Fixed asset impairment loss recognition mitigates the negative effect of employee influences on downsizing.

However, it might be possible that managers record fixed asset impairment losses as cheap talk to deceive employees (earnings management hypothesis). Based on signaling theory, a sender of information needs to incur costs to make his information credible (Spence 1973). Prior research suggests that accounting conservatism play a signaling role in debt contracting. Zhang (2008) finds that more conservative firms are more likely to violate debt covenants and enjoy lower interest rates. Callen et al. (2016) show that the combined use of accounting conservatism and tighter performance covenants is associated with lower interest rates in a high information asymmetry regime. Thus, accounting numbers can play a signaling role when firms incur costs.

One of the costs a management team incurs is president turnover when firm performance is deteriorating and restructuring is necessary.[10][11] Thus, if fixed asset impairment loss is a costly

[10] President (shacho) is the top executive of a firm.

[11] Another concession from managers is compensation reduction. However, disclosure of management compensation is insufficient in Japan. That is, only a total amount of management compensation paid to board directors is disclosed and the effect of changes in board directors on their compensation cannot be adjusted. In addition, a management team often reduces its future compensation and the relationship between current changes in management compensation and fixed asset impairment loss recognition or employee downsizing is unclear. Therefore, I focus on president turnover here.

signal of a firm's negative future outlook, firms with such losses are more likely to experience president turnovers.

Hypothesis 1b: Fixed asset impairment loss recognition is positively associated with president turnovers.

Informative accounting practice hypothesis predicts that accounting practices around employee negotiations are not only credible but also informative (Osma et al. 2015). In the case of fixed asset impairment, what is recognized is an existing economic loss that has not been realized. If a firm is more likely to signal its negative future outlook by recording fixed asset impairment losses when its employees have strong bargaining power, such losses are expected to incorporate economic losses that have arisen before their recognition.

Hypothesis 1c: Fixed asset impairment losses recorded by firms with strong employee influences reflect economic losses that have arisen before their recognition to a greater extent.

If fixed asset impairment recognition has a signaling effect, do managers with strong employees record such losses in a timing different from those with weak employees compared to downsizing implementation? Firms with weak employees, which are expected to downsize their employees more easily, may hesitate to record fixed asset impairment losses before downsizing

implementation. Large loss recognition worsens firms' financial position and may negatively impact on other contracts as in the case of behaviors avoiding debt covenants violations in impairment literature (Riedl 2004; Beatty and Weber 2006; Ramanna and Watts 2012) as well as management turnovers discussed above. In addition, it exposes management failure of investments, which affects shareholders' evaluation. On the other hand, for firms with strong employees, how they (re-)negotiate with employees is one of the top priorities. Therefore, firms with strong employees are expected to record fixed asset impairment losses before/during downsizing implementation, while firms with weak employees are expected to more likely downsize their employees regardless of such losses. This discussion leads to the following hypothesis:

Hypothesis 2: Impairment firms facing employees with strong bargaining power will record impairment losses earlier than those facing employees with weak bargaining power, compared to the implementation of employee downsizing.

Osma et al. (2015) argue that publicly disclosed financial statements are a main source of financial information for labor unions in the US. However, one may raise two related questions: Is this the case in Japan, where managers and employees have a closer relationship than in the US? Why is impairment recognition in a downsizing period important, in other words, why do impairment recognition and downsizing happen during a same period? The nature of information is a spectrum between soft and hard information (Ijiri 1975; Bertomeu and marinovic 2016). Soft information is easily pushed in one direction or another; hard information is subjected to a

verification after which it is difficult to disagree and leaves little room for manipulation. Stocken (2000) argues that given a repeated game, soft information is useful when hard information is subsequently disclosed. Therefore, impairment recognition in financial statements plays a role even under a close relationship between managers and employees and hence private information. In addition, with private information during downsizing negotiations, impairment losses recorded after downsizing implementation are also helpful to maintain firm-employee relationships and it is possible that impairment losses are recorded just after downsizing implementation.

3. Research design

Employee influence

To proxy for employee influence in a firm, the percentage shareholding of non-executive employee shareholding associations (jugyoin mochikabukai), $EmployeeOwn_{ik}$, is employed. k donates year $t - 2$ or $t - 1$. In their investigation of US firms, Ben-Ner et al. (2000) suggest that employees own their firm's shares when their tenure is longer, the links with their tasks are stronger, and the skills they acquire are firm specific. Thus, firms with larger employee ownership establish closer relationship with their employees, and employees in such firms suffer losses from downsizing because of their investment in firm-specific skills. In addition, previous studies indicate that firms with relatively large non-executive employee ownership deviate from maximizing shareholder value (Faleye et al. 2006; Kim and Ouimet 2014). In Japan, executives as well as part-time and temporary employees are usually ineligible for membership in jugyoin mochikabukai (Jones and Kato 1995). Thus, the members of employee shareholding associations

are full-time employees, who are protected by the Japanese social norm and doctrines. Chizema and Shinozawa (2012) use employee ownership in Japan to represent the extent of employee resistance. Accordingly, I employ the percentage shareholding of employee shareholding associations, *EmployeeOwn*, as a proxy for employee influence in a firm.

Bova et al. (2015) suggest that shareholder employees play the role of shareholders. In other words, while firms reduce voluntary disclosure in response to employees' above-market rent seeking, employee ownership mitigates the effect of this rent seeking, and firms with larger employee ownership increase voluntary disclosure, consistent with the information demand of non-employee shareholders. However, downsizing is different from voluntary disclosure in that once employees lose their jobs in the firms, it is difficult to recover investments in firm-specific skills and find better jobs; on the other hand, as in Bova et al. (2015), voluntary disclosure may affect wages, and shareholder employees can alternatively recover above-market rents by maximizing shareholder wealth in the forms of dividends and capital gains.

Empirical Models

At the beginning, I define material impairment loss to examine the effect of fixed asset impairment losses on the negative relationship between downsizing and employee influences and the timing of fixed asset impairment loss recognition compared to downsizing implementation. Material fixed asset impairment loss is defined as occurring when fixed asset impairment losses divided by total assets at the end of fiscal year $t-1$ are 1 percent or more. Although this definition is arbitrary, the scale of impairment losses is crucial for management to consider a change in

strategy and seriously impacts the firm's net income.[12] Hereafter, fixed asset impairment loss is based on the one-percent criterion.

To examine the effect of fixed asset impairment loss recognition on the negative relationship between employee influences and downsizing (hypothesis 1a), I run the following logistic regression based on Ahmadjian and Robinson (2001):

$$\begin{aligned} Downsizing_{it} = {} & \alpha_0 + \alpha_1 EmployeeOwn_{it-1} + \alpha_2 EmployeeOwn_{it-1} \times DImp_{it} \\ & + \alpha_3 ForeignOwn_{it-1} + \alpha_4 ForeignOwn_{it-1} \times DImp_{it} \\ & + \alpha_5 Top10Own_{it-1} + \alpha_6 Top10Own_{it-1} \times DImp_{it} \\ & + \alpha_7 DImp_t + \alpha_8 DOmission_{it-1} + \alpha_9 DOmission_{it} + \alpha_{10} Size_{it-1} \\ & + \alpha_{11} Size_{it-1} \times DImp_{it} + \alpha_{12} DebtRatio_{it-1} \\ & + \alpha_{13} ROA_{it-1} + \alpha_{14} ROA_{it} + \alpha_{15} ChgSales_{it} + \alpha_{16} LnAge_{it-1} \\ & + \alpha_{17} LnSegment_{it-1} + \varepsilon_{it} \end{aligned} \quad (1)$$

The dependent variable in the test of hypothesis 1a, $Downsizing_{it}$, is equal to one if a firm experiences permanent employee reduction of more than 5 percent from year *t* to *t* + 1 (two years). This criterion of 5 percent is used by Ahmadjian and Robinson (2001) and Ahmadjian and Robbins (2005). A 5 percent cut is substantial and should involve major negotiations with employees. While Atanassov and Kim (2009) employ a downsizing measure that takes one if an employee reduction in year *t* or a period from year *t* to year *t* + 1 is observed, I consider only the

[12] Elliot and Hanna (1996) employ the 1 percent criterion, while Rees, Gill, and Gore (1996) define losses of less than 0.5 percent of total assets as "immaterial" and exclude such observations from their investigation. I employ 1 percent as my criterion because Riedl (2004), who investigates long-lived asset impairment losses in the United States, reports a median write-off amount of 1.3 percent of total assets during the post-SFAS No. 121 period. While the US standard for long-lived asset impairment employs the principle of materiality, the Japanese standard does not; and a large number of Japanese firms record impairment losses whose scale is immaterial, such as 0.1 percent of total assets. These immaterial impairment losses contain less intention.

latter because the former captures the phenomenon that a firm decreases employees in year *t* and increases them in the subsequent year when the former exceeds a threshold and the latter does not. As a robustness check, I obtain similar results using a measure that includes employee reductions in year *t*.

$DImp_{it}$ (all) is defined as one if a firm record material fixed asset impairment losses in year *t*. It includes all the losses recorded inside and outside Japan. Fixed asset impairment losses recorded outside Japan may have less influences on employee downsizing in Japan because a cash-generating unit in a foreign country is poorly performing, even though it is also true that firms make strategic changes considering their global operation. Thus, I also employ an impairment measure, $DImp_{it}$ (Domestic), that takes one if more than 90 percent of a firm's material fixed asset impairment losses are recorded in Japan.

$EmployeeOwn_{it-1}$ is defined earlier. As Atanassov and Kim (2009) show, employee influences are expected to have a negative relationship with employee downsizing. Hypothesis 1a predicts that fixed asset impairment loss recognition mitigates the negative relationship. Thus, the expected sign of the interaction term between $EmployeeOwn_{it-1}$ and $DImp_{it}$ is positive. I also control for other ownership characteristics. $ForeignOwn_{it-1}$ is percentage ownership by foreign investors at the end of fiscal year $t - 1$. Prior research suggests that managers receive stronger pressure to downsize employees from foreign investors (Ahmadjian and Robinson 2001; Ahmadjian and Robbins 2005; Noda 2013). The expected sign is positive. $Top10Own_{it-1}$ is percentage ownership by top 10 shareholders at the end of fiscal year $t - 1$, excluding treasury

shares and ownership by employee shareholding associations. I also incorporate interaction terms between $DImp_{it}$ and these ownership characteristics.

$DOmission_{it-1\ or\ t}$ takes one if a firm experiences dividend omission in year $t-1$ or t. Repeated game theory predicts that employees make concessions when other parties including shareholders do so. Given that dividend omission can be seen as a form of concessions from shareholders, dividend omission leads to employee concession. Thus, the expected sign is positive. $Size_{it-1}$ is a natural logarithm of total assets at the end of fiscal year $t-1$. Ahmadjian and Robinson (2001) argue that large firms are more prestigious and believed to be good, stable employers. Moreover, those firms have more resources to protect employment. Thus, large firms are expected to less likely downsizing their employees. However, if fixed asset impairment loss recognition has a signaling effect, it may alleviate the reputational effect of firm size. I incorporate the interaction term between firm size and fixed asset impairment losses.

In addition to firm size, I control for debt ratio ($DebtRatio_{it-1}$) and return on asset (ROA_{it-1}) in year $t-1$. These characteristics may affect ownership of a firm. The model also control for concurrent firm performance ($ChgSales_{it}$ and ROA_{it}) and other factors that may affect downsizing likelihood ($LnAge_{it-1}$ and $LnSegment_{it-1}$).

To examine whether fixed asset impairment loss recognition causes president turnovers (hypothesis 1b), following Kang and Shivdasani (1995, 1997), I run the following logistic regression:

$$ChgMGT_{it} = \beta_0 + \beta_1 DImp_t + \beta_2 LnMGTAge_{it-1} + \beta_3 LnTenure_{it-1} + \beta_4 MGTOwn_{it-1} + \beta_5 Performance_{it} + \beta_6 DOmission_{it} + \beta_7 Top10Owon_{it-1} + \beta_8 Size_{it-1}$$

$$+\beta_9 DebtRatio_{it-1} + \varepsilon_{it} \quad (2)$$

$ChgMGT_{it}$ takes one if a firm experiences a president turnover from four months after the fiscal year start of year t (the beginning of August) to four months after the fiscal year end of year t (the end of July).[13] In general, firms hold shareholders' meetings at the end of three months after a fiscal year end (June) and new presidents are appointed in the month (June) or next month (July). Observing president turnovers with this time period reduces the likelihood of capturing reversal causality, that is, the fact that new presidents record fixed asset impairment losses to attribute them to past managers (e.g., Riedl 2004).

I control for president characteristics: age, tenure and percentage shareholding at the end of year $t-1$. $LnMGTAge_{it-1}$ is a natural logarithm of president age at the end of year $t-1$. The older presidents are, the higher the likelihood of their turnover is. $LnTenure_{it-1}$ is a natural logarithm of president tenure at the end of year $t-1$. The longer president tenure is, the higher the likelihood of their turnover is. $MGTOwn_{it-1}$ is percentage shareholding by a president at the end of year $t-1$. The larger it is, the smaller the likelihood of their turnover is.

Performance is return on assets or loss reporting. These performance measures are employed by Kang and Shivdasani (1995, 1997).[14] ROA_{it} is previously defined. $Loss_{it}$ is an indicator variable that takes one if a firm report ordinary income losses (keijo sonshitsu) in year t. Other variables are defined earlier.

[13] In annual reports, the date of management appointment is disclosed on a monthly basis.
[14] They also use annual stock return as a performance measure. In this study, it is not associated with president turnovers and does not affect other results.

To investigate the timeliness of fixed asset impairment losses (hypothesis 1c), I run the following regression similar to Warfield and Wild (1992) and Lapointe-Antunes, Cormier and Magnan (2009):

$$NImpairment_{it} = \gamma_0 + \gamma_1 R_{it} + \gamma_2 R_{it-1} + \gamma_3 R_{it-2} + \gamma_4 R_{it} \times High_{it-1} + \gamma_5 R_{it-1} \times High_{it-1} + \gamma_6 R_{it-2} \times High_{it-1} + \gamma_7 High_{it-1} + \varepsilon_{it} \quad (3)$$

Equation (3) examines how current and past economic losses are incorporated into fixed asset impairment losses. $NImpairment_{it}$ is defined as the negative value of fixed asset impairment losses, deflated by dividend-adjusted market value of equity at the three months after the fiscal year end of year $t - 1$. R_k is annual buy-and-hold return in year k. k denotes year $t - 2$, $t - 1$ or t. $High_{it}$ is defined as one if a firm's $EmployeeOwn_{it-1}$ exceeds its sample median. If hypothesis 1c is true, fixed asset impairment losses recorded by firms with high employee ownership are more strongly associated with current and past negative stock returns, that is, economic losses. Thus, the expected sign of interaction terms between $High_{it}$ and stock returns is positive.

$$Timing_{it} = \delta_0 + \delta_1 EmployeeOwn_{it-2} + \delta_2 Top10Own_{it-2} + \delta_3 Size_{it-2} + \delta_4 DebtRatio_{it-2} + \delta_5 ROA_{it-2} + \delta_6 ROA_{it-1} + \delta_7 Loss_{it-1} + \delta_8 ChgSales_{it-1} + \delta_9 PImpairment_{it} + \delta_{10} LnAge_{it-2} + \delta_{11} LnSegment_{it-2} + \varepsilon_{it} \quad (4)$$

I investigate the influence of employees on the timing of impairment loss recognition compared with downsizing. Operationally, I order downsizing implementation ($Timing_{it}$) as one if

a first 5% reduction is observed in year $t + 1$, two in year t, and three in year $t - 1$. While some firms engage in downsizing activities over two or three consecutive years and $Downsizing_{it}$ in equation (1) considers two years, i.e. year t and $t + 1$, I take only the first reduction into account in constructing $Timing_{it}$ because identifying a downsizing year is necessary to test impairment timing. If managers face little pressure from employees, they will be more likely to implement personnel reduction regardless of impairment recognition. On the other hand, if they face strong influences of their employees, they are expected to be more likely to downsize their employees after recording the losses, that is, in year $t + 1$.

Ordered logistic regression is appropriate for this analysis because impairment losses are often recognized in the second half of year t, and the interval between impairment recognition and downsizing implementation may differ according to the timing of impairment recognition, i.e., years $t - 1$, t, and $t + 1$. I collect impairment recognition timing from interim and annual reports and find that 70 percent of downsizing firms do not recognize impairment losses in the second quarter of year t.[15] Therefore, the difference between values 1 and 2 of $Timing_{it}$ represents a different interval from that between values 2 and 3. Moreover, the dependent variable is limited in terms that it takes only three values.

Ownership variables are measured in year $t - 2$ because $Timing_{it}$ considers downsizings in years $t - 1$, t, and $t + 1$. If hypothesis 2 is supported, $Timing_{it}$ is negatively correlated with $EmployeeOwni_{t-2}$. $Top10Own_{it-2}$ is incorporated to proxy for information asymmetry between managers and shareholders. Recording impairment losses can influence managers' reputations as

[15] Financial statements in the first and third quarters are not audited as with interim and annual reports; thus, I investigate only interim and annual reports.

well as tenure (Watts 2003; Ramanna and Watts 2012). Lower information asymmetry between managers and shareholders can mitigate reputation and tenure concerns of managers; thus, managers with strong information asymmetry may not record impairment losses before implementing personnel reduction. $Top10Own_{it-2}$ is expected to be negatively related to $Timing_{it}$.

Equation (4) includes control variables similar to equation (1). $Size_{it-2}$, $DebtRatio_{it-2}$ and ROA_{it-2} are incorporated as factors that affect firm *i*'s ownership as well as firm conditions before downsizing. Firm performance (ROA_{it-1}, $Loss_{it-1}$and $ChgSales_{it-1}$) and other factors ($LnAge_{it-2}$ and $LnSegment_{it-2}$) are also controlled. All these variables are previously defined. $PImpairment_{it}$ is defined as the positive value of fixed asset impairment losses, deflated by total assets in year $t-1$. It may influence impairment timing.

Sample selection and data

Financial and price, ownership, and management data are obtained from NEEDS-FinancialQuest, NEEDS-Cges, and Nikkei Kigyo Kihon data, respectively.[16] Although impairment losses are included as an independent item in NEEDS-FinancialQuest, some are classified as restructuring charges. I identify whether restructuring charges contain impairment losses by confirming annual reports. The sample selection process is as follows: (1) number of months in a fiscal year is l2; (2) the fiscal year ends in March;[17] (3) firms that adopt Japanese accounting standards; (4) firms that do not record impairment losses of more than 0.5 percent in

[16] I confirm president turnovers by checking annual reports.
[17] Approximately 70 percent of Japanese firms close their books in March. This procedure can reduce macroeconomic effects between firms whose fiscal year ends in March and other months.

year $t-1$ compared with total assets at the end of fiscal year $t-2$;[18] (5) firms whose employees number more than 200 at the end of year $t-1$;[19] (6) all data are obtained. The sample consists of 14,757 firm-year observations and I identify 814 firm-years with "material" impairment losses during the period 2007–2015.[20]

Panels A, B, C, and D of Table 1 present descriptive statistics for variables used in the tests, respectively. In Panel A, the mean of $Downsizing_{it}$ is 0.1604, indicating that 16 percent of observations experience employee reductions. The means of $DImp_t$ (all) and (domestic) are 0.0552 and 0.0453. Only a small number of observations record material fixed impairment losses. The mean (median) of $EmployeeOwn_{it-1}$ is 0.0190 (0.0121). For more than half of observations, employees own a certain portion of shares of their firm. The means of $DOmission_{it-1}$ and $DOmission_{it}$ are 0.0892 and 0.0918, respectively, suggesting that dividend payout is important for Japanese firms, consistent with Denis and Osobov (2008).

<Insert Table1 about here>

Panels A, B, and C of Table 2 present Pearson correlation coefficients for the first, second, and fourth tests, respectively. $EmployeeOwn_{it-1}$ is negatively correlated with $Downsizing_{it}$, consistent with Atanasov and Kim (2009). Interestingly, $ForeignOwn_{it-1}$ is negatively correlated with $Downsizing_{it}$. Prior research suggests foreign investors are market-oriented and put pressure on poorly performing firms (e.g. Ahmadjian and Robinson 2001). However, $ForeignOwn_{it-1}$ is also

[18] This process is used to avoid an effect of impairment losses recorded in year $t-1$ on downsizing in year t.
[19] I employ the criterion of 200 employees, which results in a minimum reduction of 10 employees (5 percent of 200 employees), to avoid capturing unintended decreases in employees for small firms.
[20] Although the standard has been introduced mandatorily since March 2006, impairment losses recorded in the first adoption year included assets impaired during the 1990s. Therefore, I excluded the year to capture firms' deteriorating economics.

correlated with $Size_{it-1}$ and ROA_{it-1}, suggesting the herding behavior of foreign investors. Thus, I control for factors that affect firm ownership.

<Insert Table 2 about here>

Table 3 reports the number and percentage of employee downsizing and impairment recognition by year. The number of downsizing increases in the years ending in March 2009 and 2010. Similarly, the number of impairment recognition increases in the year ending in March 2009. This is consistent with Fujiyama (2014), who finds that a macro-economic factor, change in GDP, affects fixed asset impairment recognition in Japan. Thus, the sample includes only firms whose fiscal year end is March to control for macro-economic factors.

<Insert Table 3 about here>

4. Empirical results

Test of a signaling role of impairment recognition in employee downsizing

Table 4 presents the estimation of equation (1). Column 1 of Panel A reports the results using $DImp_t$ (all); Column 2 reports those using $DImp_t$ (domestic). The coefficients of $EmployeeOwn_{it-1}$ are negative and statistically significant at the 1% level (coefficient = −9.8779 and −9.9015; z = −4.96 and −5.00 for all and domestic impairments, respectively), consistent with Atanassov and Kim (2009). The coefficients of $EmployeeOwn_{it-1}$ * $DImp_{it}$ are positive and statistically significant at the 5% level (coefficient = −9.9283 and −11.6178; z = −2.23 and −2.41 for all and domestic impairments, respectively). While untabulated results show the combinations

of coefficients of $EmployeeOwn_{it-1}$ and $EmployeeOwn_{it-1}$ * $DImp_{it}$ are positive, they are insignificant (coefficient = 0.0504 and 1.7162; z = 0.01 and 0.36). These results suggest that fixed asset impairment loss recognition moderates the negative effect of employee power on downsizing, consistent with hypothesis 1a. While Kolasinski and Siegel (2010) argue that an interaction term in a logistic regression is interpretable, Ai and Norton (2003) question it. In Panel B, I present Ai-and-Norton-adjusted interaction effects for interaction terms in equation (1) as a robustness check. The interaction effects of $EmployeeOwn_{it-1}$ * $DImp_{it}$ are positive and statistically significant at the 1% level (mean interaction effect = 1.1169 and 1.1960; mean z = 2.62 and 4.21 for all and domestic impairments, respectively), confirming the results in Panel A.

The coefficient of $ForeignOwn_{it-1}$ is positive but insignificant for the model with $DImp_{it}$ (all) (z = 1.60), while it is statistically significantly positive at the 10% level for the model with $DImp_{it}$ (domestic) (z = 1.88). This is a weak evidence of foreign investors' market-oriented pressure on employee downsizing. However, I do not find evidence that fixed asset impairment recognition strengthens their pressure (α_4 = 0.9910 and 0.7558; z = 0.99 and 0.64). The coefficients of $Top10Own_{it-1}$ are statistically significantly negative at the 10% and 5% levels for the models with all and domestic impairments, respectively (coefficient = −0.04483 and −0.4925; z = −1.82 and −2.01), suggesting that firms with block holders are entrenched due to relationship-based governance. It should be careful to interpret the results of the interaction term between $Top10Own_{it-1}$ and $DImp_{it}$. While the coefficients are insignificant in Panel A (z = 0.11 and 1.23), the mean interaction effect for domestic impairments is positive and statistically significant at the 5% level in Panel B (z = 2.10). This may suggest that fixed asset impairment loss

recognition mitigates the entrenchment effect of block holders. $Size_{it-1}$ is negatively correlated with $Downsizing_{it}$ (α_4 = −0.2920 and −0.2940; z = −7.63 and −7.76). This may suggest that large Japanese firms are constrained by social norms to a greater extent and that they have more resources to protect job security of employees. The interaction terms between $Size_{it-1}$ and $DImp_{it}$ are positive but insignificant (z = 1.04 and 1.55). $DOmission_{it-1}$ and $DOmission_{it}$ are positively related with $Downsizing_{it}$ at the 1% level (α_8 = 0.3124 and 0.3002 and α_9 = 0.5062 and 0.5261; z for α_8 = 3.13 and 3.01 and z for α_9 = 4.93 and 5.14), suggesting that shareholders' concessions lead to employees' ones and thus they cooperate.

Regarding other control variables, the coefficients of $DebtRatio_{it-1}$ (z = 2.15 and 2.18) and $LnSegment_{it-1}$ (z = 2.14 and 2.13) are statistically significantly positive; those of ROA_{it-1} (z = −4.73 and −4.72), ROA_{it} (z = −6.73 and −6.84), and $ChgSales_{it}$ (z = −10.91 and −10.92) are statistically significantly negative. The coefficients of $LnAge_{it-1}$ are negative but insignificant (z = −0.23 and −0.23).

Table 5 reports the result of the univariate analysis of president turnovers. Turnover rates of impairment firms are 18.80 and 19.31 percent for all and domestic impairment samples, respectively. On the other hand, those of non-impairment firms are 13.28 and 13.31 percent for all and domestic non-impairment samples, respectively. The differences between impairment and non-impairment firms are statistically significant at the 1% level, indicating that impairment firms are more likely to experience president turnovers.

Table 6 presents the results estimating equation (3). In Panel A, ROA_{it} is incorporated as a performance measure. The coefficients of $DImp_{it}$ is positive and statistically significant at the 1%

level (z = 5.05 and 5.03), consistent with hypothesis 1b. This suggests that impairment recognition causes president turnovers and can be viewed as burdening a cost with management. Regarding president characteristics, $LnMGTAge_{it-1}$ (z = 15.42 and 15.40) and $LnTenure_{it-1}$ (z = 6.94 and 6.94) are positively associated with $ChgMGT_{it}$; and $MGTOwn_{it-1}$ is negatively related to it (z = −5.63 and −5.62). The coefficients of ROA_{it} are negative (z = −3.70 and −3.77). $DOmission_{it}$ is positively related with $ChgMGT_{it}$ (z = 2.54 and 2.59), suggesting concessions among closely related parties. The coefficients of $Top10Own_{it-1}$ are statistically significantly positive (z = 7.30 and 7.32), indicating that firms with block holders have a systematic practice regarding president succession. $Size_{it-1}$ (z = 1.04 and 1.15) and $DebtRatio_{it-1}$ (z = 0.21 and 0.19) are insignificant. In Panel B, I obtain results similar to Panel A by incorporating $Loss_{it}$ instead of ROA_{it}.

Table 7 presents the results of impairment timeliness. The sample used in Table 7 consists of only firms recording material fixed asset impairment losses and whose price data available from year $t - 3$. In column 1, baseline results are reported. While R_{it} is positive but insignificant (coefficient = 0.0205; t = 1.44), R_{it-1} (coefficient = 0.0746; t = 4.71) and R_{it-2} (coefficient = 0.0564; t = 4.95) are statistically significantly positive at the 1% level. On average, economic losses in years $t - 1$ and $t - 2$ are incorporated into fixed asset impairment losses. The result of R_{it} is understandable because on average, impairment losses are not timely and new information relating to future corporate restructuring may be released at the same time. In column 2, the difference in impairment timeliness between high and low employee ownership is examined. For both high and low employee ownership firms, the results are consistent with the baseline analysis. In other words, annual stock returns in years $t - 1$ and $t - 2$ are associated with

impairment losses in year *t*, while this is not the case for year *t*. The coefficients of R_{it-1} * $High_{it-1}$ and R_{it-2} * $High_{it-1}$ are positive and statistically significant at the 10% level (coefficient = 0.0490 and 0.0461; t = 1.80 and 1.96), suggesting that economic losses are incorporated into impairment losses to a greater extent for high employee ownership firms. This supports hypothesis 1c.

In sum, the findings suggest that fixed asset impairment loss recognition mitigates the negative effect of employee influences on downsizing and managers of impairment firms incur costs. The results also indicate that fixed asset impairment losses reflect economic losses to a greater extent for high employee ownership firms. Thus, fixed asset impairment accounting has the role of the costly signal of a firm's negative future outlook and is informative around downsizing.

Test of impairment recognition timing

Table 8 reports the timing of impairment loss recognition compared with downsizing. The sample consists of firms that record impairment losses and experience downsizing. In the first row, 31.60 percent of observations implement downsizing after impairment recognition; so do 40.40 and 28.00 percent of them during and before impairment recognition, respectively. The second and third rows report downsizing timing for high and low employee ownership firms, respectively. 34.40 percent of high employee ownership firms downsize their employees after impairment recognition, while 28.80 percent of those with low employee ownership do so.

Table 9 presents the results running ordered logistic regressions. The coefficients of $EmployeeOwn_{it-2}$ are negative and statistically significant at the 5% and 1% levels for the samples

including and excluding firms with foreign impairments, respectively (coefficient = −16.0788 and −22.8741; z = −2.19 and −2.74). The result suggests that firms with higher employee ownership are more likely to record impairment losses before downsizing, consistent with hypothesis 2, and thus that such firms make use of the signaling role of impairment loss to inform employees of their negative future outlooks. $Top10Own_{it-2}$ is negatively related with $Timing_{it}$ (coefficient = −1.8819 and −1.8114; z = −1.96 and −1.65), indicating that firms with less information asymmetry with equity investors are more likely to record impairment losses before downsizing. Private information can reduce the negative effect of impairment recognition on management reputation. $Size_{it-2}$ is negatively related with $Timing_{it}$ (coefficient = −0.3112 and −0.3938; z = −2.54 and −2.73), suggesting that large firms also make use of the costly signal to mitigate social pressure. Among performance variables, only the coefficients of $ChgSales_{it-1}$ are statistically significant at the 5% and 1% levels for the samples including and excluding firms with foreign impairments, respectively (coefficient = −2.2974 and −2.7597; z = −1.96 and −1.98). Other variables are not consistently significant for both samples including and excluding firms with foreign impairments.

Robustness check

To assess the robustness of previous tests, I (1) match impairment firms with non-impairment firms using propensity scores, (2) use data of employee ownership collected from annual report, (3) examine the relationship between forced president turnovers and impairment recognition, (4) use a different threshold of high employee ownership in the timeliness test, (5) use different downsizing thresholds in the timing test.

First, I control for firm-level performance, macro- and industry-level economic conditions and incentives to record impairment losses by using propensity score matching and confirm the robustness of the test of the effect of fixed asset impairment loss recognition on the negative relationship between employee influences and downsizing. Non-impairment firms are selected running the following probit regression, based on Riedl (2004):[21]

$$DImp_{it} = \theta_0 + \theta_1 ChgGDP_t + \theta_2 ChgINDROA_{it} + \theta_3 ChgSales_{it} + \theta_4 ChgE_{it} + \theta_5 ChgCFO_{it} + \theta_6 TarAssets_{it} + \theta_7 ROA_{it-1} + \theta_8 Size_{it} + \theta_9 MGTTurnover_{it-1} + \theta_{10} SMOOTH_{it} + \varepsilon_{it} \quad (5)$$

ChgGDP$_t$ is the percentage change in Japan's Gross Domestic Product from period $t-1$ to t. *ChgINDROA*$_{it}$ is the median change in firm i's industry return on assets from period $t-1$ to t. *ChgSales*$_{it}$ is the percentage change in sales for firm i from period $t-1$ to t. *ChgE*$_{it}$ is the change in firm i's pre-write-off earnings from period $t-1$ to t divided by total assets at the end of $t-1$. *ChgCFO*$_{it}$ is firm i's change in operating cash flows from period $t-1$ to t divided by total assets at the end of $t-1$. *TarAssets*$_{it}$ is defined as fixed assets minus investment securities, shares, and paid-in capital in affiliates, prepaid pension expenses, deferred tax assets, and revaluation amounts of deferred tax assets at the beginning of year t. *ROA*$_{it-1}$ is net income in year $t-1$ divided by total assets at the beginning of year $t-1$. *Size*$_{it}$ is the natural logarithm of total assets at the beginning of

[21] To avoid multicollinearity, this study does not incorporate a proxy for "big bath" reporting in its model, as Riedl (2004) does.

year *t*. $ChgMGT_{it}$ is an indicator variable equal to one if firm *i* undergoes a change in president from April to July in year *t*, and zero otherwise. $SMOOTH_{it}$ is the proxy for "earnings smoothing" reporting, equal to the change in firm *i*'s pre-write-off earnings from period $t - 1$ to *t* divided by total assets at the end of $t - 1$, when it is above the median of the nonzero positive values of this variable, and zero otherwise. Industry and year fixed effects are incorporated. Table 10 presents the results. In panel A, the coefficients of $EmployeeOwn_{it-1}*DImp_{it}$ are positive and statistically significant at the 5% level (z = 2.20 and 2.39 for all and domestic impairments, respectively). In panel B, Ai and Norton (2003) adjusted mean interaction effects of $EmployeeOwn_{it-1}*DImp_{it}$ are statistically significant at the 10% level (mean z = 1.78 and 1.95 for all and domestic impairments, respectively). These results confirm the robustness of the main analysis.

Second, I check the robustness of $EmployeeOwn_{ik}$. $EmployeeOwn_{ik}$ is collected using the NEEDS-Cges database. These data are based on questionnaires and annual reports. $EmployeeOwn_{ik}$ has a non-zero value if a firm responds to the questionnaire with a maximum disclosure of 30 largest shareholders, and an employee shareholdings association is ranked in the questionnaire data and/or annual report. To attenuate the possible bias, $EmployeeOwn_{it-2}$ is recollected using annual reports, in which the 10 largest shareholders are mandatorily disclosed. The results are consistent with those in the main analyses (untabulated).

Third, I examine the timeliness of fixed asset impairment losses using a different threshold of $High_{it}$. I define High2it as one if a firm's $EmployeeOwn_{it-1}$ is higher than the upper third of it. The results are presented in Table 11. While the coefficient of $R_{it-1}*High_{it-1}$ turns to be insignificant (t = -0.13), that of $R_{it-2}*High_{it-1}$ is statistically significant at the 5% level (t = 2.49).

Interestingly, the combination of R_t and R_t*$High_{it-1}$ is positive and statistically significant at the 10% level (t = 1.73), although R_t*$High_{it-1}$ is insignificant (t = 0.98). The combination of stock returns in years $t - 1$ and $t - 2$ and $High_{it-1}$ are significant (t = 2.58 and 4.11). These results confirm that impairment losses recorded by firms with high employee ownership are informative.

Finally, I examine the timing of impairment recognition using different downsizing thresholds. While $Downsizing_{it}$ captures employee reductions from year t to year $t + 1$ (two years), $Timing_{it}$ considers 5% reductions in employees in a year. The magnitude of downsizing may be inconsistent between $Downsizing_{it}$ and $Timing_{it}$. Thus, I employ 2.5% and 3.75% thresholds for $Timing_{it}$. A firm needs to reduce more than 2.5 percent of employees in a year when $Downsizing_{it}$ takes one and the 2.5% and 3.75% thresholds capture first downsizing in two years. The results are similar to those in Table 9 (untabulated).

5. Conclusions

In this paper, I investigate the signaling role of fixed asset impairment loss recognition and the influence of employees on the timing of fixed asset impairment loss recognition around downsizing. I find that impairment recognition mitigates the negative relationship between employee influences and downsizing and that shareholders' concession, i.e. dividend omission, leads to employee downsizing which can be viewed as employees' concession. In addition, the results indicate that managers of impairment firms incur costs and that fixed asset impairment losses recorded by firms with high employee ownership reflect economic losses to a greater extent. These findings suggest that fixed asset impairment losses are a costly and informative signal of

firms' negative future outlooks. I also test the timing of impairment recognition and find that firms with higher employee ownership recognize impairment losses earlier than those with lower or no employee ownership. The evidence suggests that firms with strong employee influence make use of such a costly and informative signal.

Previous studies propose two hypotheses. One is the earnings management hypothesis that managers manage earnings downwards in anticipation of employee negotiations. The other is the informative accounting practice hypothesis that managers make accounting choices and judgments to inform their employees of the firms' underlying economics. The findings of this study can be interpreted as consistent with the informative accounting practice hypothesis, because employees are not the only party to make concessions and impairment loss recognition seems to adjust interests among stakeholders. While DeAngelo and DeAngelo (1991) and Osma et al. (2015) provide evidence consistent with informative accounting practice hypothesis, their samples are limited within industries with strong labor unions (Bova, 2013). My usage of Japanese data allows for a more comprehensive investigation in terms of the extent of employee influence among firms.

In addition, this study extends prior research on the incentives of impairment recognition. Previous studies focus on non-impairment incentives such as management reputation and debt covenant violation. This study sheds light on the opposite aspect, i.e., an incentive of impairment loss recognition. Third, the findings of this study have implications for financial statement users, especially those who are interested in industries or countries with inflexible employment or wage systems.

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Dependent variables

$Downsizing_{it}$: one if a firm experiences permanent employee reduction of more than 5 percent from the end of year $t - 1$ to the end of year $t + 1$, and zero otherwise;

$ChgMGT_{it}$: one if a firm experiences a president turnover from 4months after fiscal year end of year $t - 1$ to that of year t.

$NImpairment_{it}$: a negative value of fixed asset impairment losses recognized in year t, deflated by dividend-adjusted market capitalization in three months after fiscal year end of year $t - 1$;

$Timing_{it}$: one if a first 5% reduction on an annual basis is observed in year $t + 1$, two in year t, and three in year $t - 1$.

Independent variables

$EmployeeOwn_{ik}$: the percentage shareholding of non-executive employee shareholding associations (jugyoin mochikabukai) at the endo of fiscal year k;

$ForeignOwn_{ik}$: the percentage ownership by foreign shareholders at the endo of fiscal year k;

$Top10Own_{ik}$: the percentage ownership of the 10 largest shareholders at the endo of fiscal year k;

$DImp_{it}$ (all): one if fixed asset impairment losses divided by total assets at the end of fiscal year $t - 1$ are 1 percent or more

$DImp_{it}$ (domestic): one if fixed asset impairment losses divided by total assets at the end of fiscal year $t - 1$ are 1 percent or more and more than 90 percent of those losses are recorded in Japan;

$DOmission_{ik}$: one if a firm experiences dividend omission in year k;

$Size_{ik}$: the natural logarithm of total assets in year k;

$DebtRatio_{it-1}$: total debt divided by shareholders' equity (jikoshihon) in year $t - 1$;

ROA_{ik}: net income in year k divided by total assets at the end of the previous fiscal year;

$ChgSales_{ik}$: the percentage change in sales from year $k - 1$ to k;

$LnAge_{ik}$: the natural logarithm of the number of years from a firm's anniversary of foundation to the end of fiscal year k;

$LnSegment_{ik}$: the natural logarithm of the number of business segments in year k;

$LnMGTAge_{it-1}$: a natural logarithm of president age at the end of year $t - 1$;

$LnTenure_{it-1}$: a natural logarithm of president tenure at the end of year $t - 1$;

$MGTOwn_{it-1}$: percentage shareholding by a president at the end of year $t - 1$;

$Loss_{it}$: one if a firm report ordinary income losses (keijo sonshitsu) in year t, and zero otherwise;

$High_{it-1}$: a firm's $EmployeeOwn_{it-1}$ exceeds its sample median, and zero otherwise;

$PImpairment_{it}$: fixed asset impairment losses recognized in year t divided by total assets at the end of year $t - 1$.

Table 1: Descriptive statistics

Panel A: Variables for the test of employee influence on downsizing decision (n = 14,757)

	Mean	SD	Min.	25P	Median	75P	Max
$Downsizing_t$	0.1604	0.3670	0.0000	0.0000	0.0000	0.0000	1.0000
$EmployeeOwn_{t-1}$	0.0190	0.0227	0.0000	0.0000	0.0121	0.0279	0.1113
$ForeignOwn_{t-1}$	0.0969	0.1081	0.0000	0.0109	0.0568	0.1501	0.4972
$Top10Own_{t-1}$	0.4738	0.1657	0.1027	0.3466	0.4582	0.6034	0.8790
$DImp_t$ (all)	0.0552	0.2283	0.0000	0.0000	0.0000	0.0000	1.0000
$DImp_t$ (domestic)	0.0453	0.2079	0.0000	0.0000	0.0000	0.0000	1.0000
$DOmission_{t-1}$	0.0892	0.2851	0.0000	0.0000	0.0000	0.0000	1.0000
$DOmission_t$	0.0918	0.2888	0.0000	0.0000	0.0000	0.0000	1.0000
$Size_{t-1}$	10.9102	1.4721	8.0449	9.8673	10.6852	11.7509	15.2198
$DebtRatio_{t-1}$	0.1854	0.1677	0.0000	0.0354	0.1486	0.2964	0.6869
ROA_{t-1}	0.0544	0.0509	-0.0897	0.0225	0.0446	0.0778	0.2886
ROA_t	0.0516	0.0504	-0.1086	0.0214	0.0434	0.0760	0.2724
$ChgSales_t$	0.0233	0.1334	-0.5136	-0.0415	0.0223	0.0854	0.7609
$LnAge_{t-1}$	3.9689	0.5353	1.6094	3.8067	4.1109	4.2485	4.7791
$LnSegment_{t-1}$	0.7333	0.6006	0.0000	0.0000	0.6931	1.0986	1.9459

Panel B: Variables for the test of the association between impairment recognition and management turnovers (n = 14,757)

	Mean	SD	Min.	25P	Median	75P	Max
$ChgMGT_t$	0.1358	0.3426	0.0000	0.0000	0.0000	0.0000	1.0000
$LnMGTAge_{t-1}$	4.0967	0.1262	3.6376	4.0431	4.1271	4.1744	4.3567
$LnTenure_{t-1}$	1.5233	0.9439	0.0000	0.6931	1.3863	2.0794	3.7136
$MGTOwn_{t-1}$	0.0281	0.0699	0.0000	0.0003	0.0014	0.0162	0.5084
$Loss_t$	0.0855	0.2797	0.0000	0.0000	0.0000	0.0000	1.0000

Panel C: Variables for the test of impairment timeliness (n = 790)

	Mean	SD	Min.	25P	Median	75P	Max
$NImpairment_t$	-0.1057	0.1290	-0.7108	-0.1190	-0.0569	-0.0322	-0.0053
R_t	-0.0188	0.3941	-0.7469	-0.2659	-0.0682	0.1467	1.7966
R_{t-1}	-0.0565	0.3488	-0.6389	-0.2835	-0.1042	0.0902	1.4770
R_{t-2}	0.0120	0.4001	-0.5942	-0.2310	-0.0541	0.1527	2.2179

Panel D: Variables for the test of impairment timing (n = 250)

	Mean	SD	Min.	25P	Median	75P	Max
$Timing_t$	1.9640	0.7727	1.0000	1.0000	2.0000	3.0000	3.0000
$EmployeeOwn_{t-2}$	0.0157	0.0199	0.0000	0.0000	0.0088	0.0241	0.0833
$Top10Own_{t-2}$	0.4655	0.1648	0.1326	0.3403	0.4436	0.5832	0.8546
$Size_{t-2}$	10.5285	1.3394	7.9374	9.5414	10.3310	11.3383	14.2797
$DebtRatio_{t-2}$	0.2483	0.1762	0.0000	0.0885	0.2405	0.3822	0.6763
ROA_{t-2}	0.0366	0.0618	-0.0984	0.0047	0.0267	0.0567	0.3551
ROA_{t-1}	0.0202	0.0572	-0.1485	-0.0041	0.0170	0.0438	0.2413
$Loss_{t-1}$	0.3520	0.4786	0.0000	0.0000	0.0000	1.0000	1.0000
$ChgSales_{t-1}$	-0.0163	0.1503	-0.3482	-0.0979	-0.0184	0.0549	0.5964
$PImpairment_t$	0.0355	0.0348	0.0100	0.0140	0.0212	0.0428	0.1926
$LnAge_{t-2}$	3.9188	0.6128	1.0986	3.7377	4.0943	4.2485	4.8122

Note: See the appendix for variable definitions. In Panel B, descriptive statistics for variables reported in Panel A are not presented.

Table 2: Pearson's correlations

Panel A: Sample for the test of employee influence on downsizing decision (n = 14,757)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)$Downsizing_t$	1.000													
(2)$EmployeeOwn_{t-1}$	**-0.037**	1.000												
(3)$ForeignOwn_{t-1}$	**-0.089**	**-0.299**	1.000											
(4)$Top10Own_{t-1}$	-0.013	**-0.065**	**-0.143**	1.000										
(5)$DImp_t$ (all)	**0.117**	**-0.038**	-0.003	0.004	1.000									
(6)$DImp_t$ (domestic)	**0.100**	**-0.027**	**-0.029**	0.012	**0.901**	1.000								
(7)$DOmission_{t-1}$	**0.190**	**-0.059**	**-0.132**	**0.059**	**0.054**	**0.049**	1.000							
(8)$DOmission_t$	**0.253**	**-0.059**	**-0.127**	**0.051**	**0.137**	**0.123**	**0.689**	1.000						
(9)$Size_{t-1}$	**-0.098**	**-0.346**	**0.599**	**-0.256**	**-0.032**	**-0.050**	**-0.128**	**-0.115**	1.000					
(10)$DebtRatio_{t-1}$	**0.103**	**-0.119**	**-0.096**	**-0.065**	**0.059**	**0.054**	**0.243**	**0.254**	**0.200**	1.000				
(11)ROA_{t-1}	**-0.200**	**-0.041**	**0.266**	**0.181**	**-0.058**	**-0.053**	**-0.267**	**-0.279**	**-0.037**	**-0.339**	1.000			
(12)ROA_t	**-0.264**	-0.011	**0.226**	**0.156**	**-0.097**	**-0.082**	**-0.194**	**-0.318**	**-0.043**	**-0.312**	**0.763**	1.000		
(13)$ChgSales_t$	**-0.214**	0.002	**0.055**	**0.028**	**-0.056**	**-0.047**	**-0.020**	**-0.143**	0.010	**-0.017**	**0.090**	**0.418**	1.000	
(14)$LnAge_{t-1}$	0.004	**-0.103**	**0.028**	**-0.266**	**-0.029**	**-0.040**	**-0.025**	-0.016	**0.186**	**0.038**	**-0.235**	**-0.192**	**-0.060**	1.000
(15)$LnSegment_{t-1}$	0.011	**-0.155**	**0.107**	**-0.141**	**0.023**	**0.025**	0.001	0.002	**0.282**	**0.209**	**-0.094**	**-0.079**	0.004	**0.111**

Panel B: Sample for the test of the association between impairment recognition and management turnovers (n = 14,757)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)$ChgMGT_t$	1.000										
(2)$DImp_t$ (all)	**0.037**	1.000									
(3)$DImp_t$ (domestic)	**0.036**	**0.901**	1.000								
(4)$LnMGTAge_{t-1}$	**0.187**	**-0.052**	**-0.054**	1.000							
(5)$LnTenure_{t-1}$	**0.069**	-0.005	-0.002	**0.144**	1.000						
(6)$MGTOwn_{t-1}$	**-0.055**	**0.034**	**0.035**	**-0.168**	**0.388**	1.000					
(7)ROA_t	**-0.056**	**-0.097**	**-0.082**	**-0.099**	**0.065**	**0.155**	1.000				
(8)$Loss_t$	**0.045**	**0.166**	**0.148**	**-0.018**	-0.002	**0.028**	**-0.498**	1.000			
(9)$DOmission_t$	**0.039**	**0.137**	**0.123**	**-0.029**	**-0.059**	-0.005	**-0.318**	**0.387**	1.000		
(10)$Top10Own_{t-1}$	**0.030**	0.004	0.012	**-0.126**	0.001	**0.225**	**0.156**	**-0.025**	**0.051**	1.000	
(11)$Size_{t-1}$	**0.034**	**-0.032**	**-0.050**	**0.182**	**-0.152**	**-0.282**	**-0.043**	**-0.076**	**-0.115**	**-0.256**	1.000
(12)$DebtRatio_{t-1}$	**0.024**	**0.059**	**0.054**	**0.019**	-0.006	0.009	**-0.312**	**0.101**	**0.254**	**-0.065**	**0.200**

Panel C: Sample for the test of impairment timing (n =250)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)$Timing_t$	1.0000										
(2)$EmployeeOwn_{t-2}$	-0.004	1.000									
(3)$Top10Own_{t-2}$	-0.074	-0.060	1.000								
(4)$Size_{t-2}$	-0.115	**-0.336**	**-0.154**	1.000							
(5)$DebtRatio_{t-2}$	0.024	-0.065	0.022	0.049	1.000						
(6)ROA_{t-2}	**-0.126**	**-0.175**	**0.207**	0.062	**-0.230**	1.000					
(7)ROA_{t-1}	**-0.171**	-0.117	**0.186**	**0.130**	**-0.166**	**0.640**	1.000				
(8)$Loss_{t-1}$	**0.176**	0.114	**-0.142**	**-0.219**	0.038	**-0.389**	**-0.622**	1.000			
(9)$ChgSales_{t-1}$	**-0.197**	-0.083	**0.124**	0.030	-0.022	**0.379**	**0.504**	**-0.193**	1.000		
(10)$PImpairment_t$	0.088	0.034	0.018	**-0.169**	-0.039	-0.120	**-0.192**	**0.256**	-0.081	1.000	
(11)$LnAge_{t-2}$	-0.080	**-0.204**	**-0.163**	**0.279**	0.052	**-0.319**	**-0.169**	-0.089	**-0.213**	-0.081	1.000
(12)$LnSegment_{t-2}$	-0.122	-0.090	0.006	0.041	**0.247**	0.067	0.098	-0.119	0.056	-0.113	0.048

Note: See the appendix for variable definitions. Bold represents statistical significance at the 5% level.

Table 3: The number and percentage of employee downsizing and impairment recognition by year

	2007/3	2008/3	2009/3	2010/3	2011/3	2012/3	2013/3	2014/3	2015/3
5% decrease in employee number from year t to year t+1	169 (11.21%)	298 (16.22%)	402 (22.53%)	339 (21.27%)	305 (18.82%)	281 (16.95%)	224 (13.91%)	169 (10.78%)	180 (11.41%)
Impairment in year t (all)	51 (3.38%)	92 (5.01%)	155 (8.69%)	90 (5.65%)	76 (4.69%)	93 (5.61%)	95 (5.90%)	69 (4.40%)	93 (5.9%)
Impairment in year t (Domestic)	46 (3.05%)	83 (4.52%)	123 (6.89%)	84 (5.27%)	65 (4.01%)	80 (4.83%)	68 (4.22%)	52 (3.32%)	67 (4.25%)

Table 4: The moderating effect of impairment recognition on the relationship between employee downsizing and employee ownership

Panel A: Results by logistic regression

	D_Imp_t (all)			D_Imp_t (domestic)		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
Constant	1.7227***	3.13	0.002	1.7745***	3.25	0.001
$EmployeeOwn_{t-1}$	-9.8779***	-4.96	< 0.000	-9.9015***	-5.00	< 0.000
$EmployeeOwn_{t-1} * DImp_t$	9.9283**	2.23	0.026	11.6178**	2.41	0.016
$ForeignOwn_{t-1}$	0.7325	1.60	0.110	0.8434*	1.88	0.060
$ForeignOwn_{t-1} * DImp_t$	0.9910	0.99	0.321	0.7558	0.64	0.521
$Top10Own_{t-1}$	-0.4483*	-1.82	0.068	-0.4925**	-2.01	0.044
$Top10Own_{t-1} * DImp_t$	0.0647	0.11	0.913	0.7618	1.23	0.220
$DImp_t$	-0.6211	-0.61	0.541	-1.6861	-1.48	0.140
$DOmission_{t-1}$	0.3124***	3.13	0.002	0.3002***	3.01	0.003
$DOmission_t$	0.5062***	4.93	< 0.000	0.5261***	5.14	< 0.000
$Size_{t-1}$	-0.2920***	-7.63	< 0.000	-0.2940***	-7.76	< 0.000
$Size_{t-1} * DImp_t$	0.0883	1.04	0.300	0.1497	1.55	0.122
$DebtRatio_{t-1}$	0.5065**	2.15	0.031	0.5130**	2.18	0.029
ROA_{t-1}	-5.0803***	-4.73	< 0.000	-5.0738***	-4.72	< 0.000
ROA_t	-7.5689***	-6.73	< 0.000	-7.6979***	-6.84	< 0.000
$ChgSales_t$	-3.4296***	-10.91	< 0.000	-3.4366***	-10.92	< 0.000
$LnAge_{t-1}$	-0.0160	-0.23	0.821	-0.0163	-0.23	0.818
$LnSegment_{t-1}$	0.1259**	2.14	0.032	0.1253**	2.13	0.033
Year	Yes			Yes		
Industry	Yes			Yes		
# of Obs.	14,757			14,757		
Log likelihood	-5413.3639			-5420.7521		
Pseudo R2	0.1669			0.1658		

Panel B: Ai and Norton (2003) adjusted interaction effects

	D_Imp_t (all)			D_Imp_t (domestic)		
	mean interaction effect	mean z-statistic	p-value of mean z-statistic	mean interaction effect	mean z-statistic	p-value of mean z-statistic
$EmployeeOwn_{t-1} * DImp_t$	1.1169***	2.62	0.009	1.1960***	4.21	< 0.000
$ForeignOwn_{t-1} * DImp_t$	0.0613	0.32	0.749	-0.0276	-0.49	0.625
$Top10Own_{t-1} * DImp_t$	0.0195	0.42	0.674	0.0693**	2.10	0.036
$Size_{t-1} * D\_Imp_t$	0.0055	0.30	0.766	0.0172	1.43	0.151

Note: See the appendix for variable definitions. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively. In Panel A, z-values are based on standard errors clustered by firm.

Table 5: Univariate analysis of president turnovers

	All impairments		Domestic impairments	
	# of president turnovers	% of president turnovers	# of president turnovers	% of president turnovers
Impairment firms	153	18.80%	129	19.31%
Non-impairment firms	1,851	13.28%	1,875	13.31%
Chi-squared test	$p < 0.0000$		$p < 0.0000$	

Table 6: The influence of impairment recognition on president turnovers

Panel A: Performance is ROA_t

	Performance = ROA_t					
	D_Imp_t (all)			D_Imp_t (domestic)		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
Constant	-27.8621***	-17.02	< 0.0000	-27.8498***	-17.01	< 0.0000
$DImp_t$	0.5001***	5.05	< 0.0000	0.5447***	5.03	< 0.0000
$LnMGTAge_{t-1}$	5.9766***	15.42	< 0.0000	5.9682***	15.40	< 0.0000
$LnTenure_{t-1}$	0.2586***	6.94	< 0.0000	0.2590***	6.94	< 0.0000
$MGTOwn_{t-1}$	-4.8620***	-5.63	< 0.0000	-4.8415***	-5.62	< 0.0000
Performance	-2.4076***	-3.70	< 0.0000	-2.4574***	-3.77	< 0.0000
$DOmission_t$	0.2161**	2.54	0.011	0.2208***	2.59	0.009
$Top10Own_{t-1}$	1.2321***	7.30	< 0.0000	1.2351***	7.32	< 0.0000
$Size_{t-1}$	0.0217	1.04	0.299	0.0241	1.15	0.249
$DebtRatio_t$	0.0390	0.21	0.831	0.0339	0.19	0.853
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5391.192			-5391.1472	
Pseudo R2		0.0804			0.0804	

Panel B: Performance is $Loss_t$

	Performance = $LOSS_t$					
	D_Imp_t (all)			D_Imp_t (domestic)		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
Constant	-28.1571***	-17.28	< 0.0000	-28.1493***	-17.27	< 0.0000
$DImp_t$	0.4912***	4.95	< 0.0000	0.5325***	4.89	< 0.0000
$LnMGTAge_{t-1}$	6.0213***	15.62	< 0.0000	6.0136***	15.60	< 0.0000
$LnTenure_{t-1}$	0.2532***	6.80	< 0.0000	0.2535***	6.81	< 0.0000
$MGTOwn_{t-1}$	-5.0109***	-5.84	< 0.0000	-4.9932***	-5.83	< 0.0000
Performance	0.3087***	3.46	0.001	0.3149***	3.53	< 0.0000
$DOmission_t$	0.2018**	2.34	0.019	0.2060**	2.39	0.017
$Top10Own_{t-1}$	1.1923***	7.07	< 0.0000	1.1944***	7.08	< 0.0000
$Size_{t-1}$	0.0187	0.90	0.367	0.0210	1.01	0.313
$DebtRatio_t$	0.1873	1.04	0.299	0.1859	1.03	0.302
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5393.2857			-5393.3319	
Pseudo R2		0.0800			0.0800	

Note: See the appendix for variable definitions. *** and ** indicate significance at the 1% and 5% levels (two-tailed), respectively. z-values are based on standard errors clustered by firm.

Table 7: The test of impairment timeliness

	Baseline			Differences between high and low employee shareholdings firms		
	Coef.	t-statistic	p-value	Coef.	t-statistic	p-value
Constant	-0.0871***	-3.16	0.002	-0.0743	-2.83	0.005
R_t	0.0205	1.44	0.151	0.0149	0.90	0.370
R_{t-1}	0.0746***	4.71	<0.000	0.0544***	3.31	0.001
R_{t-2}	0.0564***	4.95	<0.000	0.0395***	3.21	0.001
R_t * High				0.0140	0.65	0.514
R_{t-1} * High				0.0490*	1.80	0.072
R_{t-2} * High				0.0461*	1.96	0.050
High				-0.0254***	-2.75	0.006
Year		Yes			Yes	
Industry		Yes			Yes	
# of Observations		790			790	
F-value		2.69***			2.92***	
adjR2		0.0842			0.1027	
$R_t + R_t$ * High				0.0289	1.54	0.123
$R_{t-1} + R_{t-1}$ * High				0.1034***	4.02	<0.000
$R_{t-2} + R_{t-2}$ * High				0.0855***	4.01	<0.000

Note: See the appendix for variable definitions. *** and ** indicate significance at the 1% and 5% levels (two-tailed), respectively. t-statistics are based on White-adjusted standard errors.

Table 8: Downsizing timing

	1	2	3	Total
All firms	79 (31.60%)	101 (40.40%)	70 (28.00%)	250
High employee shareholdings firms	43 (34.40%)	51 (40.80%)	31 (24.80%)	125
Low employee shareholdings firms	36 (28.80%)	50 (40.00%)	39 (31.20%)	125

Note: The sample consists of firms that record impairment losses and experience downsizing.

Table 9: The influence of employee ownership on downsizing timing

	The sample includes foreign impairments			The sample excludes foreign impairments		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
$EmployeeOwn_{t-2}$	-16.0788**	-2.19	0.029	-22.8741***	-2.74	0.006
$Top10Own_{t-2}$	-1.8819*	-1.96	0.050	-1.8114*	-1.65	0.099
$Size_{t-2}$	-0.3112**	-2.54	0.011	-0.3938***	-2.73	0.006
$DebtRatio_{t-2}$	1.4924*	1.75	0.080	1.4145	1.43	0.153
ROA_{t-2}	-3.0706	-0.99	0.322	-3.5501	-1.05	0.292
ROA_{t-1}	2.5040	0.61	0.540	3.4667	0.75	0.451
$Loss_{t-1}$	0.2202	0.56	0.576	0.1247	0.28	0.779
$ChgSales_{t-1}$	-2.2974*	-1.96	0.050	-2.7597**	-1.98	0.048
$PImpairment_{t}$	2.7015	0.64	0.524	5.7562	1.16	0.248
$LnAge_{t-2}$	-0.3771	-1.23	0.217	-0.5120	-1.53	0.126
$LnSegment_{t-2}$	-0.4715*	-1.94	0.052	-0.4226	-1.53	0.126
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		250			202	
LR chi2		84.26***			69.40***	
Log likelihood		-229.52833			-185.91661	
Pseudo R2		0.1551			0.1573	

Note: See the appendix for variable definitions. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 10: Robustness check of the moderating effect of impairment recognition on the relationship between employee downsizing and employee ownership by using a PS-matched sample

Panel A: Analysis using a matched sample

	D_Imp_t (all)			D_Imp_t (domestic)		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
Constant	3.1351**	2.39	0.017	3.4305***	2.83	0.005
EmployeeOwnt-1	-16.3631***	-3.08	0.002	-15.5657***	-3.26	0.001
EmployeeOwnt-1 * DImpt	14.9349**	2.20	0.028	15.8945**	2.39	0.017
ForeignOwnt-1	0.7432	0.59	0.554	1.4239	1.36	0.175
ForeignOwnt-1 * DImpt	0.8201	0.52	0.605	0.1054	0.07	0.948
Top10Ownt-1	-1.9004***	-3.05	0.002	-2.2071***	-3.84	<0.000
Top10Ownt-1 * DImpt	1.4187*	1.74	0.082	2.3698***	2.89	0.004
DImpt	-1.6793	-1.14	0.254	-2.7407*	-1.84	0.066
DOmissiont-1	0.1118	0.49	0.626	0.0737	0.32	0.748
DOmissiont	0.7588***	3.68	<0.000	0.8073***	3.91	<0.000
Sizet-1	-0.3273***	-3.28	0.001	-0.3358***	-3.75	<0.000
Sizet-1 * DImp	0.1077	0.86	0.390	0.1531	1.20	0.232
DebtRatiot-1	0.9647**	2.23	0.026	0.9672**	2.24	0.025
ROAt-1	-3.5646**	-1.96	0.049	-3.6461**	-2.01	0.044
ROAt	-6.6295***	-3.58	<0.000	-6.5701***	-3.53	<0.000
ChgSalest	-2.8937***	-5.18	<0.000	-2.8979***	-5.19	<0.000
LnAget-1	-0.0400	-0.30	0.760	-0.0369	-0.28	0.781
LnSegmentt-1	0.0513	0.44	0.663	0.0599	0.51	0.611
Year	Yes			Yes		
Industry	Yes			Yes		
# of Obs.	1,622			1,622		
Log likelihood	-753.05537			-753.96855		
Pseudo R2	0.2184			0.2175		

Panel B: Ai and Norton (2003) adjusted interaction effects

	D_Imp_t (all)			D_Imp_t (domestic)		
	mean interaction effect	mean z-statistic	p-value of mean z-statistic	mean interaction effect	mean z-statistic	p-value of mean z-statistic
$EmployeeOwn_{t-1}$ * $DImp_t$	2.4275*	1.78	0.074	2.2261*	1.95	0.052
$ForeignOwn_{t-1}$ * $DImp_t$	0.0606	0.19	0.848	-0.0601	-0.43	0.664
$Top10Own_{t-1}$ * $DImp_t$	0.2447	1.48	0.140	0.3599**	2.31	0.021
$Size_{t-1}$ * D_Imp_t	0.0214	1.01	0.313	0.0315	1.55	0.121

Table 11: Robustness check of the timeliness test

	Differences in impairment timeliness between high and low employee shareholdings firms		
	Coef.	t-statistic	p-value
Constant	-0.0755***	-2.96	0.003
R_t	0.0130	0.80	0.422
R_{t-1}	0.0732***	4.46	<0.000
R_{t-2}	0.0383***	3.32	0.001
R_t * High2	0.0218	0.98	0.329
R_{t-1} * High2	-0.0036	-0.13	0.899
R_{t-2} * High2	0.0659**	2.49	0.013
High	-0.0325***	-3.30	0.001
Year		Yes	
Industry		Yes	
# of Observations		790	
F-value		2.89***	
adjR2		0.1011	
R_t + R_t * High2	0.0348*	1.74	0.083
R_{t-1} + R_{t-1} * High2	0.0697**	2.58	0.01
R_{t-2} + R_{t-2} * High2	0.1043***	4.11	<0.000