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Asset Impairment Accounting Decisions and Employee Downsizing in Japan

Keishi FUJIYAMA

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Research Institute for Economics and Business Administration

Kobe University

2-1 Rokkodai, Nada, Kobe 657-8501 JAPAN

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Abstract: Given the long-term relationship between firms and employees, the literature suggests that managers enhance the informativeness of accounting numbers in anticipation of employee negotiations to inform their employees of the firm's underlying economics. This study complements and extends the existing literature by investigating whether asset impairment losses play a signaling role in downsizing negotiations and whether variations in employee influence over firms lead to different impairment accounting practices. Specifically, using a large sample of Japanese firms operating in an environment where employee downsizing is difficult to implement, I find that asset impairment loss recognition mitigates the negative relationship between employee ownership and downsizing, suggesting 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 reporting hypothesis. Importantly, I also find that downsizing firms with strong employee bargaining power recognize asset impairment losses earlier around downsizing implementation than those with weak employee bargaining power, suggesting that such an accounting practice by downsizing firms with strong employee bargaining power elicits concessions from employees.

Keywords: Labor negotiation, Asset impairment, Employee ownership, Downsizing

JEL: G34, J54, M41

1. Introduction

The purpose of this study is to investigate the signaling role of asset impairment in employee negotiations. Specifically, I examine whether the recognition of asset impairment losses, which is identifiable and discretionary accounting, mitigates the adverse impact of employee bargaining power on employee downsizing, using data from Japanese firms. I also examine whether firms with strong employee bargaining power are more likely to record impairment losses before/during a downsizing period than those with weak employees. 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; Osma et al. 2015).[1] In particular, prior research is silent about whether accounting practices in the face of labor negotiations vary among firms with different levels of employee bargaining power. I fill the void in the literature by providing evidence on the signaling role of asset impairment and how managers make use of such a signal in response to different levels of employee influence.

One stream of the literature suggests that managers behave strategically in the face of labor pressure and/or negotiations. Managers can 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

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

their bargaining power may be to manage earnings downwards in order to portray negative outlooks for their firms, which in turn makes it easy to reach agreements that decrease employees' wealth or reduced employee pressure (opportunistic reporting hypothesis provided by Liberty and Zimmerman 1986).

On the other hand, another line of the literature suggests that given long-term, and hence cooperative, relationships between firms and their employees, managers do not opportunistically manage earnings downward to mislead their employees and enhance their bargaining power, but inform their employees of real conditions of their firms (informative reporting hypothesis). For example, Osma et al. (2015) show that negotiation firms report more conservative earnings than non-negotiation firms, consistent with the informative reporting hypothesis. Taken together, the literature discusses the two competing hypotheses and it is an empirical question whether accounting practices are opportunistic or informative in the face of labor negotiations.

This study aims to add new evidence surrounding this debate by examining the effect of Japanese firms' asset impairments on employee downsizing. I focus on asset impairment accounting by Japanese firms for several reasons. First, Japan provides a unique institutional setting to investigate employee influences, as a society in which employee downsizing for reorganizational purposes is difficult due to its social norms and judicially created doctrines.[2] These norms and doctrines likely facilitate managers of Japanese firms to communicate with employees and convince them that downsizing is unavoidable. Second, an increasing number of Japanese firms engage in

[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 index.

employee downsizing. After the collapse of the bubble economy in 1991, Japanese firms have experienced long-term stagnation, which is called the “lost two decades”, and have been forced to downsize their employees due to their deteriorating financial position. Thus, Japanese firms currently operate two contradictory conditions: difficulty in and necessity of employee downsizing, in which accounting numbers can potentially play an important role.

In addition, prior research on both long-lived tangible asset and goodwill impairment losses reports that firms tend to reform their businesses around the impairment loss recognition (Riedl 2004; Hayn and Hughes 2006), which is consistent with the notion 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 reporting incentives affect managers’ impairment decisions (Riedl 2004; Ramanna and Watts 2012; Fujiyama 2014). Managers can record impairment losses to convey private information in certain circumstances (Gunn et al. 2018). Therefore, Japan provides a unique context that allows me to explore an accounting role in labor negotiations.

Using a large sample of Japanese firms for the period 2007–2015, I provide several significant findings. First, building on Atanassov and Kim (2009) suggesting that firms with strong employee bargaining power are less likely to reduce their workforce, I find that asset impairment alleviates the negative relationship between employee downsizing and employee shareholdings, which are a proxy for employee bargaining power. Second, I find that impairment firms are more likely to experience president turnovers, which are one of the costs managers of impairment firms incur, negating the possibility of cheap talk by managers (opportunistic reporting hypothesis). Third,

I find that asset impairment losses recorded by firms with high employee shareholdings are more strongly associated with economic losses that arise one and two years before its recognition than those by firms with low employee shareholdings. This evidence suggests that asset impairments are more informative in firms with strong employees. Finally, I analyze the timing of asset impairment loss recognition around downsizing implementation, using a sample of firms with both impairment losses and downsizing. The result show that for those firms with strong employee bargaining power, managers are more likely to record impairment losses before and/or during downsizing. Combined, these findings are consistent with the informative reporting hypothesis and highlight the importance of the signaling role of asset impairment losses for firms with strong employee bargaining power.

This study makes several contributions to the existing literature. First, my study contributes to prior research on accounting practices around employee negotiations by showing the influence of employees on asset impairment practice. While DeAngelo and DeAngelo (1991) and Osma et al. (2015) provide empirical evidence consistent with the informative reporting hypothesis in labor negotiation settings, 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), respectively. I exploit a strong institutional setting to investigate accounting practices around labor negotiations and provide large sample evidence that accounting numbers around labor negotiations are generally informative and managers elicit concessions from employees through impairment accounting practices. More importantly, I extend prior research by showing evidence suggesting that impairment accounting practice varies with employee bargaining power.

Second, the findings of this study add to the literature on determinants of impairment recognition inclusive of 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). In other words, this study extends the literature by providing evidence suggesting that a key stakeholder group, that is, employees influence impairment recognition. In addition, the result reveals that impairment recognition causes management turnovers, which in turn provides underlying support to agency-based non-impairment incentives relating to managers' wealth.

Third, this study expands the findings of Pinnuck and Lillis (2007) who argue, providing consistent evidence, that the reporting of an accounting loss acts as a major disciplinary event and a number of outside forces intervene the operations of the firm, including a reduction in workforce. They call for future research examining how the impact of reporting an accounting loss on downsizing activities varies across different types of factors of production. I respond to the call and fill the void by focusing on asset impairment including capital investment, which is one of the production factors Pinnuck and Lillis (2007) point out. This study extends this line of research by focusing on loss reporting at the segmented level, not the firm-level, and showing how it impacts on employee downsizing, i.e., the signaling role of asset impairment.

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 less flexible 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 hypotheses. Section 3 documents the research design. Section 4 presents empirical results, including several robustness checks. 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. Pinnuck and Lillis (2007) suggest that loss reporting is a heuristic trigger for workforce reduction. Therefore, while firms with strong employee bargaining power face difficulty in implementing employee downsizing, accounting numbers can play a role in gaining concessions from employees, i.e., employee downsizing.

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 (opportunistic reporting 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) 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.

Several studies, however, provide evidence suggesting that managers make income-decreasing accounting choices strategically 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

[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., $q - 4$).

[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.

downwards. However, he does not provide evidence that suggests an increased likelihood of expectation-missing practices during negotiation periods. In addition, Hsieh et al. (2017) show that firms with labor unions report less conservative earnings, while Leung et al. (2009) find that earnings become more conservative after firms' unionization, suggesting that labor union contracts generate accounting conservatism. Therefore, while prior research suggests labor consideration affects loss reporting, it does not support the opportunistic reporting hypothesis in negotiation periods.

On the other hand, Osma et al. (2015) propose an alternative hypothesis, the informative reporting 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 the informative reporting 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 industry in the US. This study uses a larger set of data from broader industries, providing compelling evidence. 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 practices around labor negotiations among firms with different employee bargaining power 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 different employment norms prevail.

The Japanese employment system

In a Japanese setting, regardless of employee bargaining power, 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

[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."

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 in 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).

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).

Reflecting lifetime employment norm, the doctrine of the abuse of rights of dismissal sets four requirements for collective dismissals:[7] (1) necessity, (2) duty to implement dismissal avoidance efforts, (3) selection adequacy, and (4) procedural adequacy. The first and forth guidelines

[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.

[7] Collective dismissal is defined here as employment termination that firms unilaterally propose in accordance with the doctrine. Note that firms rarely engage in collective dismissals and instead, they propose voluntary or early retirement programs as dismissal avoidance effort (second requirement). Managers refer to case laws even in the process of voluntary and early retirement programs to avoid unnecessary lawsuits. The downsizing measure of this study is assumed to include the effect of voluntary and early retirement programs and thus, I use the words "employee downsizing" in a broader sense than "collective dismissal." Employment termination by voluntary and early retirement programs is generally not temporal and supposed to be an outcome of negotiations with labor unions or employee representatives and/or individual employees.

are relevant to the present study. Managers are required to demonstrate the necessity of collective dismissals (first requirement) and set conversations with labor unions or employee representatives (fourth requirement). Thus, accounting numbers can play a role in employee downsizing and the process involves employee renegotiations.

Under the social norm and doctrine, Japanese firms have faced difficulty in employee downsizing 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 employee downsizing, they need to negotiate with their employees regardless of the extent of the employees' bargaining power. 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; 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 employee downsizing and severe difficulties in implementing it. This unique institutional environment enables me to test the role of accounting practices around employee downsizing. Furthermore, 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.

Japanese standard for asset impairment

Accounting for 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 asset impairment harmonious with US GAAP and International Accounting Standards (IAS) issued by International Accounting Standards Committee; and providing investors with adequate information about assets, especially those that

[8] Early voluntary adoption of the standard is allowed from the fiscal year ending on March 31, 2004.

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 non-current 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.

Gordon and Hsu (2018) suggest that recognition and measurement criteria affect the nature of an impairment loss. I explain these aspects of the Japanese standard below. Accounting for asset impairment in Japan adopts "probability criterion," which requires impairment recognition when the probability of asset impairment is sufficiently high. Specifically, impairment test is conducted when a sign of asset impairment is observed, and then a firm compares undiscounted cash flows of an asset or a group of assets to its carrying amount. If the later exceeds the former, an asset or a group of assets is recognized as impaired. The signs of asset impairment include consecutive operating losses or negative cash flows of an asset or asset group, continuance of low operating rates, substantial changes in business environments, substantial decreases in the price of an asset or asset group. After the recognition procedure, the amount of an impairment loss is measured, using the larger amount of its net realizable value or value in use. Gordon and Hsu (2018) find that impairment losses under probability criterion are associated with past operating cash flows, suggesting that the firm's business condition is sufficiently poor at the time of impairment recognition. Banker et al. (2017) also suggest that asset impairment losses are recorded when relatively short-term indicators such as sales and operating cash flows deteriorate.

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 the "probability" criterion, but not the "economic" criterion, losses are recognized when impairment indications such as records of operating losses in two consecutive years are observed and book values of 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

[9] See Fujiyama (2014) for further previous studies written in Japanese; they show similar results.

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 the informative reporting hypothesis, convincing and informative accounting numbers can play a role in downsizing negotiations.

An 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, 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 an asset impairment loss has a signaling role, it mitigates the negative relationship between employee bargaining power and downsizing. I propose the following hypothesis:

Hypothesis 1a: Asset impairment loss recognition mitigates the adverse effect of employee bargaining power on employee downsizing.

However, it might be possible that managers record asset impairment losses as cheap talk to deceive employees (opportunistic reporting 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 plays 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 are more likely to play a signaling role when firms incur costs.

One of the key costs a management team incurs is firm President turnover when firm performance is deteriorating and restructuring is necessary.[10][11] Thus, if an asset impairment loss is a costly signal of a firm's negative future outlook, firms with such losses are more likely to experience a President turnover.

Hypothesis 1b: Asset impairment loss recognition is positively associated with firm President turnover.

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

[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 asset impairment loss recognition or employee downsizing is unclear. Therefore, I focus on President turnover in this study.

Hypothesis 1c: Asset impairment losses recorded by firms with strong employee bargaining power reflect economic losses that have arisen before their recognition to a greater extent than firms with weak employee bargaining power..

A natural question that arises from the discussion is that if asset impairment recognition has a signaling effect, do managers with strong employee bargaining power record such losses in a timing different from those with weak employee bargaining power around downsizing implementation? Firms with weak employee influences, which are expected to downsize their employees more easily, are more likely to hesitate to record 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 asset impairment losses before/during downsizing implementation to signal firms' future outlooks to their employees, 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 record impairment losses earlier around the implementation of employee downsizing than those facing employees with weak bargaining power.

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 with private information. In addition, with private information during downsizing negotiations, impairment losses recorded just 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 bargaining power

To proxy for employee bargaining power in a firm, the percentage shareholding of non-executive employee shareholding associations (jugyoin mochikabukai), $EmployeeOwn_{ik}$, is employed. k denotes 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 Japanese social norms 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, $EmployeeOwn_{ik}$, as a proxy for employee bargaining power 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

I begin with defining material impairment loss to examine the effect of asset impairment losses on the negative relationship between downsizing and employee bargaining power and the timing of asset impairment loss recognition around downsizing implementation. Material asset impairment loss is defined as occurring when 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 an impairment loss is crucial for management to consider a change in strategy and seriously impacts the firm's net income.[12] Hereafter, an asset impairment loss is based on the one-percent criterion.

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

[12] Elliot and Hanna (1996) employ the one-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.

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

The dependent variable, $Downsizing_{it}$, 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 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 records material asset impairment losses in year *t*. It includes all the losses recorded inside and outside Japan. 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 asset impairment losses are recorded in Japan.

EmployeeOwn$_{it-1}$ is defined earlier. As Atanassov and Kim (2009) show, employee bargaining power is expected to have a negative relationship with employee downsizing. As Hypothesis 1a predicts, I expect the interaction term between *EmployeeOwn*$_{it-1}$ and *DImp*$_{it}$ to be 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 define *DOmission*$_{it-1\ or\ t}$ as one if a firm experiences dividend omission in year $t - 1$ or t. Because employees make concessions when other parties including shareholders do so and dividend omission, a form of concessions from shareholders, can lead to employee concession, 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 downsize their employees. However, if 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 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 $LnSegment_{it-1}$).[13]

To provide corroborating evidence on the signaling role, I examine whether asset impairment loss recognition leads to President turnovers (hypothesis 1b), following Kang and Shivdasani (1995, 1997). Specifically, I run the following logistic regression:

$$\begin{aligned} ChgMGT_{it} = {} & \beta_0 + \beta_1 DImp_t + \beta_2 LnMGTAge_{it-1} + \beta_3 LnTenure_{it-1} + \beta_4 MGTOwn_{it-1} \\ & + \beta_5 Performance_{it} + \beta_6 DOmission_{it} + \beta_7 Top10Owon_{it-1} + \beta_8 Size_{it-1} \\ & + \beta_9 DebtRatio_{it-1} + \varepsilon_{it} \end{aligned} \quad (2)$$

$ChgMGT_{it}$ 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).[14] 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 reverse causality, that is, the fact that new presidents record asset impairment losses to attribute them to past managers (e.g., Riedl 2004).

Since prior research suggests that CEO characteristics affect turnover, 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

[13] Byzalov and Basu (2016) suggest that a segment-level change in sales is a good indicator of asset impairments. However, they use a sample of firms with multiple segments. I do not incorporate the variable because my sample includes firms with only a business segment.

[14] In annual reports, the date of management appointment is disclosed on a monthly basis.

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).[15] 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.

To investigate the informativeness of asset impairment losses (hypothesis 1c), I run the following regression, similar to Warfield and Wild (1992) and Lapointe-Antunes, Cormier and Magnan (2009):[16]

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

Equation (3) examines how current and past economic losses are incorporated into asset impairment losses. $NImpairment_{it}$ is defined as the negative value of 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*. $High_{it-1}$ is defined

[15] 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.

[16] Similar to my model, Glaum et al. (2018) examine the association between goodwill impairment recognition and stock returns in years $t-1$ and *t* to investigate the timeliness of goodwill impairment recognition. A timely goodwill impairment can be viewed as informative.

as one if a firm's $EmployeeOwn_{it-1}$ exceeds its sample median. If hypothesis 1c is true, 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 $High_{it-1}$ and stock returns is positive.

To investigate the influence of employees on the timing of impairment loss recognition around employee downsizing (hypothesis 2), I run the ordered logistic regression as follows:

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

Operationally, I order downsizing implementation ($Timing_{it}$) as one if a first 5% reduction in employees is observed in year $t + 1$ compared to the impairment recognition in year t, 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 bargaining power 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 approximately 70 percent of downsizing firms do not recognize impairment losses in the second quarter of year t.[17] 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, $EmployeeOwn_{it-2}$ is negatively correlated with $Timing_{it}$. $Top10Own_{it-2}$ is incorporated to proxy for information asymmetry between managers and shareholders. Recording impairment losses can influence managers' reputations as 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

[17] 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.

defined as the positive value of asset impairment losses, deflated by total assets in year $t-1$, which may influence impairment timing.

Sample selection and data

I start with all firms with financial and price, ownership, and management data from NEEDS-FinancialQuest, NEEDS-Cges, and Nikkei Kigyo Kihon data, respectively.[18] The sample consists of only firms whose number of months in a fiscal year is l2 and whose fiscal year ends in March.[19] Then, I retain firms that adopt Japanese accounting standards. To eliminate the effect of impairment losses recorded in year $t-1$ on downsizing in year t, firms that record impairment losses of more than 0.5 percent in year $t-1$ compared with total assets at the end of fiscal year $t-2$ are excluded. Finally, I exclude firms whose employee number is more than 200 at the end of year $t-1$ to avoid capturing unintended decreases in employees for small firms.[20] 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 final sample consists of 14,757 firm-year observations and I identify 814 firm-years with "material" impairment losses during the period 2007–2015.[21]

[18] I also validate information on president turnovers from annual reports.
[19] 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.
[20] The criterion of 200 employees results in a minimum reduction of 10 employees (5 percent of 200 employees).
[21] 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.

Panels A, B, C, and D of Table 1 present descriptive statistics for variables used in the tests, respectively. All the continuous variables are winsorized at the values of 1st and 99th percentile by year except for the tests of impairment informativeness and timing, where the same procedure is conducted for whole the samples. In Panel A, the mean of $Downsizing_{it}$ is 0.1604, indicating that 16 percent of observations experience employee reductions. This may result from the consideration of two year downsizing. The means of $DImp_t$ (all) and (domestic) are 0.0552 and 0.0453. Only a small number of observations record material 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. In Panel A, $EmployeeOwn_{it-1}$ 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 that foreign investors are market-oriented and put pressure on poorly performing firms (e.g. Ahmadjian and Robinson 2001). However, $ForeignOwn_{it-1}$ is also 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 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 results of equation (1). Column 1 reports the results using $DImp_{it}$ (all); Column 2 reports those using $DImp_{it}$ (domestic). The coefficients of $EmployeeOwn_{it-1}$ are negative and statistically significant at the 1% level (coefficient = −9.8415 and −9.8408; z = −4.95 and −4.98 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 = −9.6173 and −10.7023; z = −2.16 and −2.21 for all and domestic impairments, respectively). In untabulated analysis, I find that the combination of the coefficients of $EmployeeOwn_{it-1}$ and $EmployeeOwn_{it-1} * DImp_{it}$ (domestic) is positive but insignificant (coefficient = 0.8615; z = 0.18). These results suggest that asset impairment loss recognition moderates the negative effect of employee bargaining 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. As a robustness check, I compute Ai-and-Norton-adjusted interaction effects for interaction terms in equation (1). The interaction effects of $EmployeeOwn_{it-1}$ * $DImp_{it}$ are positive and statistically significant at the 1% level (mean interaction effect = 1.0949 and 1.1628; mean z = 2.86 and 3.21 for all and domestic impairments, respectively), confirming the main results.

<Insert Table 4 about here>

The coefficient of $ForeignOwn_{it-1}$ is positive and statistically significant at the 10% and 5% levels in Columns 1 and 2 (coefficient = 0.8255 and 0.8875; z = 1.90 and 2.04), respectively. This is evidence of foreign investors' market-oriented pressure on employee downsizing. The coefficients of $Top10Own_{it-1}$ are statistically significantly negative at the 10% level for the models with all and domestic impairments, respectively (coefficient = −0.4431 and −0.4410; z = −1.88 and −1.87), suggesting that firms with block holders are entrenched due to relationship-based governance. $Size_{it-1}$ is negatively correlated with $Downsizing_{it}$ (coefficient = −0.2956 and −0.2942; z = −7.82 and −7.84). This suggests 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 and statistically significant (z = 2.04 and 2.01), while Ai and Norton-adjusted mean z indicates statistical insignificance (mean z = 0.83 and 1.12). Thus, the results for $Size_{it-1}$ * $DImp_{it}$ is not robust. $DOmission_{it-1}$ and $DOmission_{it}$ are positively related with $Downsizing_{it}$ at the 1% level (α_6 = 0.3124 and 0.3002 and α_7 = 0.5062 and 0.5261; z for α_6 = 3.13 and 3.01 and z for α_7 = 4.93 and 5.14), suggesting that shareholders' concessions likely lead to employees' concessions and thus they cooperate.

Regarding other control variables, the coefficients of $DebtRatio_{it-1}$ (z = 2.14 and 2.17) and $LnSegment_{it-1}$ (z = 2.15 and 2.14) are statistically significantly positive; those of ROA_{it-1} (z = −4.70 and −4.70), ROA_{it} (z = −6.76 and −6.87), and $ChgSales_{it}$ (z = −10.89 and −10.90) are statistically significantly negative. The coefficients of $LnAge_{it-1}$ are negative but insignificant (z = −0.23 and −0.23).

To provide evidence on costly signaling, I report the univariate results of president turnovers in Table 5. 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, consistent with a costly signaling explanation.

<Insert Table 5 about here>

Table 6 presents the results estimating equation (2). 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 = 5.03 and 4.96 for all and domestic impairments, respectively), 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 = 6.66 and 6.67) are positively associated with $ChgMGT_{it}$; and $MGTOwn_{it-1}$ is negatively related to it (z = −5.15 and −5.13). The coefficients of ROA_{it} are negative (z = −2.87 and −2.93). $DOmission_{it}$ is positively related with $ChgMGT_{it}$ (z = 2.97 and 3.03),

suggesting concessions among closely related parties. $Size_{it-1}$ (z = −0.50 and −0.39) and $DebtRatio_{it-1}$ (z = −0.02 and −0.05) are insignificant. In Panel B, I obtain results similar to Panel A by incorporating $Loss_{it}$ instead of ROA_{it}.

<Insert Table 6 about here>

Table 7 presents the results of impairment informativeness. The sample used in Table 7 consists of only firms recording material asset impairment losses and whose price data are 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 systematically incorporated into asset impairment losses. The result of R_{it} is understandable because on average, impairment losses under "probability criterion" are delayed (Gordon and Hsu 2018).[22] In column 2, the difference in impairment informativeness 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.

<Insert Table 7 about here>

[22] Consistent with my result, Glaum et al. (2018) find that current period stock returns are not correlated to the recognition of goodwill impairment in a low enforcement regime for non-financial firms.

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

Test of impairment recognition timing

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

<Insert Table 8 about here>

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 ($z = -2.19$ 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 an impairment loss to inform employees of their negative future outlooks.

Top10Own$_{it-2}$ is negatively related with *Timing*$_{it}$ (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*$_{it}$ (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 (z = −1.96 and −1.98). Other variables are not consistently significant for both samples including and excluding firms with foreign impairments.

<Insert Table 9 about here>

Robustness checks

To assess the robustness of previous tests, I (1) include additional economic determinants of asset impairment losses, (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 informativeness test, (5) incorporate additional variables that may influence management incentives to not downsize employees in the timing test, (6) use different downsizing thresholds in the timing test.

First, I include additional variables that affect the recognition of asset impairment losses into equation (1).[23] [24] Lawrence et al. (2013) distinguish non-discretionary from discretionary conservatism. Since non-discretionary conservatism includes the fact that managers decide to not resist auditors but follow the accounting standard even though they can resist them, it partly reflects management intention. Thus, I present the results in the previous subsection as main results and further examine the mitigating effect of asset impairment on the negative relationship between employee bargaining power and downsizing by incorporating additional determinants of impairment recognition. Those determinants are industry-level changes in ROA in year *t* ($ChgIndROA_{it}$), changes in earnings in year *t* ($ChgE_{it}$), and changes in operating cash flows in year *t* ($ChgCFO_{it}$) (Riedl 2004); beginning-of-period Book-to-Market ratios (BTM_{it-1}) (Lawrence et al. 2013); percentage shareholdings of presidents ($MgtOwn_{it-1}$) (LaFond and Roychowdhury 2008).[25] I exclude ROA_{it} because $ChgE_{it}$ is incorporated. The results are presented in Table 10. The coefficients of $EmployeeOwn_{it-1} * DImp_{it}$ are positive and statistically significant at the 5% level (z = 2.08 and 2.12; Ai and Norton-adjusted mean z = 2.77 and 3.08), confirming the main results.

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. $EmployeeOwn_{ik}$

[23] Different firms employ different depreciation methods for same assets. This fact implies that some firms do not have carrying amounts of assets that are economically impaired because of accelerated depreciation. However, it is difficult to identify such firms because even though all the depreciation methods are disclosed, the disclosure of each method does not correspond to each asset. In addition, goodwill is generally amortized over 5 years using the straight-line method by many firms because Japanese tax law allows for the inclusion of goodwill amortization as a deductible expense only over 5 years. Thus, it is assumed that firms employ same depreciation methods.

[24] Same variables are incorporated in equation (4). I obtain results providing a same inference as the main test.

[25] I do not include the country-level changes in Gross Domestic Product from period year *t* – 1 to year *t* because the model includes year-fixed effects and this avoids malticollinearity between the changes in GDP and $ChgIndROA_{it}$.

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 test the likelihood of forced management turnovers. Kang and Shivdasani (1995) distinguish routine and non-routine management turnovers. If asset impairments pose costs on managers, an increased likelihood of non-routine turnovers is predicted. I define forced management turnovers in two ways: first, $Forced1_{it}$ takes one if a president does not stay at the board after the resignation; second, $Forced2_{it}$ takes one if a president is not appointed as chairman, vice-chairman or company auditor, or is not given the right of representation. I estimate equation (2) replacing $ChgMGT_{it}$ with $Forced1_{it}$ and $Forced2_{it}$. The coefficients of $DImp_{it}$ are positive and statistically significant at the 1% level (coefficient = 0.5833 and 0.5371; z = 4.47 and 3.74 for all and domestic impairments, respectively) for the regressions using ROA_{it} as performance measure and $Forced1_{it}$ as dependent variable (untabulated). I obtain similar results when using $Forced2_{it}$ as dependent variable and/or $Loss_{it}$ as performance measure. The results suggest that impairment recognition causes forced resignation of presidents.

Fourth, I examine the informativeness of asset impairment losses using a different threshold of $High_{it-1}$. I define $High2_{it-1}$ 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 $R_{it-1} * High2_{it-1}$ turns to be insignificant (t = –0.13), that of $R_{it-2} * High2_{it-1}$ is statistically significant at the 5% level (t = 2.49).

Interestingly, the combination of R_t and R_t * $High2_{it-1}$ is positive and statistically significant at the 10% level (t = 1.73), although R_t * $High2_{it}$ is insignificant (t = 0.98). The combinations of stock returns in years t – 1 and t – 2 and $High2_{it-1}$ are significant (t = 2.58 and 4.11). These results confirm that impairment losses recorded by firms with high employee ownership are informative.

Fifth, I incorporate into equation (4) additional variables that affect management incentives to not downsize employees. It is possible that firms that rely heavily on firm-specific knowledge hesitate to downsize employees because it is costly to re-establish firm-specific knowledge bases. For example, Wang et al. (2009) suggest that firms make use of employee shareholding as a device to promote employees' investments in firm-specific knowledge. To mitigate this endogeneity concern of employee ownership, R&D expenditure and employee tenure are incorporated. $R\&D_{it-2}$ is defined as R&D expenditure in year t – 2 deflated by sales in t – 2. $LnEmpTenure_{it-2}$ is a natural logarithm of average employee tenure at a parent firm level at the end of t – 2. The results are presented in Table 12. Similar to the main results, the coefficients of $EmployeeOwn_{it-2}$ are negative and statistically significant at the 5% and 1% levels for all and domestic impairment samples, respectively (z = –2.05 and –2.66). The coefficients of $R\&D_{it-2}$ are negative and statistically significant at the 5% level (z = –2.02 and –2.06), indicating that firms that rely on firm-specific knowledge are more likely to record impairment losses before employee downsizing. The coefficients of $LnEmpTenure_{it-2}$ are negative but insignificant.

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 study, I investigate the signaling role of asset impairment loss recognition decisions and the influence of employees on the timing of asset impairment losses around employee downsizing. Prior research provides two competing explanations for accounting practices around labor negotiations: (1) the opportunistic reporting hypothesis that managers manage earnings downwards in anticipation of employee negotiations and (2) the informative reporting hypothesis that managers make accounting choices and judgments to inform their employees of the firms' underlying economics. I shed new light on the debate about the role of accounting practices around labor negotiations by investigating a comprehensive sample of Japanese firms that reflects substantial variation in employee bargaining power and demonstrating several important findings.

Specifically, I find evidence that impairment recognition mitigates the negative relationship between employee bargaining power and downsizing and that shareholder concessions, (i.e., dividend omissions) lead to employee concessions. In addition, the results indicate that managers of impairment firms incur costs and that asset impairment losses recorded by firms with high employee ownership reflect economic losses to a greater extent. These findings are consistent with the view that asset impairment losses are a costly and informative signaling device of firms'

negative future outlooks, further supporting the informative reporting hypothesis. I also test the timing of impairment recognition and find that firms with higher employee ownership recognize impairment losses earlier around downsizing implementation than those with lower employee ownership, suggesting that firms with strong employee bargaining power are more likely to make use of such a costly and informative signal. Overall, my findings support the view that accounting practices around labor negotiations vary with employee bargaining power.

This study also 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., the incentives for impairment loss recognition. Third, it extends prior research on the disciplinary role of reporting accounting losses by investigating how loss reporting at a smaller business unit or an accounting item impacts on employee downsizing. Finally, the findings of this study have implications for financial statement users, especially those who are interested in industries or countries with relatively inflexible employment or wage systems.

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Appendix: variable definitions

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 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 in employees on an annual basis is observed in year $t + 1$, two in year t, and three in year $t - 1$ compared to impairment recognition in year t.

Independent variables

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

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

$Top10Own_{ik}$: the percentage ownership by the 10 largest shareholders at the end of fiscal year k, excluding treasury shares and employee ownership if ranked as top 10 shareholders;

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

$DImp_{it}$ (domestic): one if asset impairment losses in year t 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, and zero otherwise;

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

$Size_{ik}$: 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}: ordinary income (keijo rieki) 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;

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

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

$MGTOwn_{it-1}$: the 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;

R_{ik}: firm i's annual buy-and-hold return in year k;

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

$PImpairment_{it}$: a positive value of asset impairment losses recognized in year t divided by total assets at the end of year $t - 1$;

$ChgIndROA_{it}$: the median change in firm i's industry return on assets from period $t - 1$ to t;

$ChgE_{it}$: a firm's change in net income excluding impairment losses from year $k - 1$ to k, deflated by total assets at the end of year $t - 1$;

$ChgCFO_{it}$: a firm's change in operating cash flows from year $k - 1$ to k, deflated by total assets at the end of year $t - 1$;

BTM_{it-1}: shareholders' equity (jikoshihon) deflated by market capitalization at the beginning of year t;

$High2_{it-1}$: one if a firm's $EmployeeOwn_{it-1}$ exceeds the sample's upper third of $EmployeeOwn_{it-1}$, and zero otherwise;

$R\&D_{it-2}$: R&D expenditure in year $t - 2$, deflated by sales in $t - 2$;

$LnEmpTenure_{it-2}$: the natural logarithm of a firm's average employee tenure at the end of fiscal year $t - 2$ for the parent firm.

Table 1: Descriptive statistics

Panel A: Variables for the test of the moderating effect of impairment recognition (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
$EmpOwn_{t-1}$	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 impairment influence on president 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 informativeness (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: Table 1 presents descriptive statistics for the variables used for the main analyses. 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: Table 2 presents Pearson's correlations between variables used in the test of hypotheses 1a, 1b and 2. 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%)

Note: Table 3 presents the numbers and percentage of employee downsizing and impairment recognition by year. The first row reports the number and percentage of employee downsizing. The second and third rows report the numbers and percentage of impairment firms for all and domestic impairments, respectively.

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

	$DImp_t$ (all)			$DImp_t$ (domestic)		
	Coef.	z-statistic	Marginal effect	Coef.	z-statistic	Marginal effect
Constant	1.7529***	3.22		1.7468***	3.24	
$EmployeeOwn_{t-1}$	-9.8415***	-4.95	-1.0136	-9.8408***	-4.98	-1.0151
$DImp_t$	-0.9899	-1.33	-0.0731	-1.2940	-1.52	-0.0860
$EmployeeOwn_{t-1}$ * $DImp_t$	9.6173**	2.16	1.0949	10.7023**	2.21	1.1628
$ForeignOwn_{t-1}$	0.8255*	1.90	0.0850	0.8875**	2.04	0.0915
$Top10Own_{t-1}$	-0.4431*	-1.88	-0.0456	-0.4410*	-1.87	-0.0455
$DOmission_{t-1}$	0.3138***	3.15	0.0357	0.3014***	3.02	0.0342
$DOmission_t$	0.5050***	4.92	0.0608	0.5229***	5.11	0.0634
$Size_{t-1}$	-0.2956***	-7.82	-0.0304	-0.2942***	-7.84	-0.0303
$Size_{t-1}$ * $DImp_t$	0.1344**	2.04	0.0101	0.1539**	2.01	0.0137
$DebtRatio_{t-1}$	0.5045**	2.14	0.0520	0.5120**	2.17	0.0528
ROA_{t-1}	-5.0525***	-4.70	-0.5204	-5.0507***	-4.70	-0.5210
ROA_t	-7.6119***	-6.76	-0.7840	-7.7364***	-6.87	-0.7980
$ChgSales_t$	-3.4238***	-10.89	-0.3526	-3.4300***	-10.90	-0.3538
$LnAge_{t-1}$	-0.0162	-0.23	-0.0017	-0.0166	-0.23	-0.0017
$LnSegment_{t-1}$	0.1262**	2.15	0.0130	0.1259**	2.14	0.0130
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5413.8036			-5421.691	
Pseudo R2		0.1668			0.1656	

Note: Table 4 reports the results by running logistic regressions. The dependent variable, $Downsizing_{it}$, takes one if firm *i* 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. $EmployeeOwn_{it-1}$ is the percentage shareholding of firm *i*'s non-executive employee shareholding associations at the end of fiscal year $t - 1$. $DImp_{it}$ (all) [domestic] takes one if firm *i*'s asset impairment losses in year *t* 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], and zero otherwise. See the appendix for definitions of other variables. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively. z-values are based on standard errors clustered by firm. Ai and Norton-adjusted interaction effects for $EmployeeOwn_{it-1} * DImp_{it}$ are 1.0949 and 1.1628 and the corresponding mean z are 2.86 and 3.21 for all and domestic impairments, respectively. Ai and Norton-adjusted interaction effects for $Size_{it-1} * DImp_{it}$ are 0.0101 and 0.0137 and the corresponding mean z are 0.83 and 1.12 for all and domestic impairments, respectively.

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	$p < 0.0000$		$p < 0.0000$	

Note: Table 5 reports the univariate analysis of president turnovers. Column 1 includes all firms recording asset impairments of more than 1% compared to total assets as impairment firm, and in Column 2, firms are viewed as impairment firm if more than 90% of such impairments are recorded in Japan.

Table 6: The influence of impairment recognition on president turnovers

Panel A: Performance is ROA_t

	Performance = ROA_t					
	$DImp_t$ (all)			$DImp_t$ (domestic)		
	Coef.	z-statistic	Marginal effect	Coef.	z-statistic	Marginal effect
Constant	-26.7055***	-16.59		-26.6843***	-16.58	
$DImp_t$	0.4965***	5.03	0.0573	0.5368***	4.96	0.0630
$LnMGTAge_{t-1}$	5.9220***	15.42	0.5760	5.9122***	15.4	0.5752
$LnTenure_{t-1}$	0.2411***	6.66	0.0235	0.2414***	6.67	0.0235
$MGTOwn_{t-1}$	-4.4446***	-5.15	-0.4323	-4.4214***	-5.13	-0.4302
Performance	-1.8727***	-2.87	-0.1822	-1.9213***	-2.93	-0.1869
$DOmission_t$	0.2530***	2.97	0.0097	0.2582***	3.03	0.0098
$Size_{t-1}$	-0.0102	-0.50	-0.0010	-0.0080	-0.39	-0.0008
$DebtRatio_t$	-0.0046	-0.02	-0.0004	-0.0091	-0.05	-0.0009
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5412.373			-5412.4925	
Pseudo R2		0.0759			0.0759	

Panel B: Performance is $Loss_t$

	Performance = $Loss_t$					
	$DImp_t$ (all)			$DImp_t$ (domestic)		
	Coef.	z-statistic	Marginal effect	Coef.	z-statistic	Marginal effect
Constant	-26.9598***	-16.85		-26.9443***	-16.84	
$DImp_t$	0.4854***	4.90	0.0559	0.5234***	4.81	0.0613
$LnMGTAge_{t-1}$	5.9562***	15.59	0.5801	5.9473***	15.56	0.5794
$LnTenure_{t-1}$	0.2376***	6.57	0.0231	0.2378***	6.57	0.0232
$MGTOwn_{t-1}$	-4.5848***	-5.34	-0.4465	-4.5653***	-5.33	-0.4447
Performance	0.2687***	3.06	0.0285	0.2750***	3.12	0.0293
$DOmission_t$	0.2309***	2.67	0.0242	0.2355***	2.73	0.0247
$Size_{t-1}$	-0.0114	-0.56	-0.0011	-0.0093	-0.46	-0.0009
$DebtRatio_t$	0.1125	0.62	0.0110	0.1115	0.62	0.0109
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5412.373			-5412.4925	
Pseudo R2		0.0759			0.0759	

Note: Table 6 reports the results by running logistic regressions. The dependent variable, $ChgMGT_{it}$, takes one if firm *i* experiences a change in its president from four months after fiscal year end of year $t - 1$ to that of year *t*. $DImp_{it}$ (all) [domestic] takes one if firm *i*'s asset impairment losses in year *t* 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], and zero otherwise. See the appendix for definitions

of other variables. *** indicates significance at the 1% level (two-tailed). z-values are based on standard errors clustered by firm.

Table 7: The test of impairment informativeness

	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 * $High_{t-1}$				0.0140	0.65	0.514
R_{t-1} * $High_{t-1}$				0.0490*	1.80	0.072
R_{t-2} * $High_{t-1}$				0.0461*	1.96	0.050
$High_{t-1}$				-0.0254***	-2.75	0.006
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		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: Table 7 presents the results by running OLS regression. Column 1 reports the baseline result and Column 2 reports the result of differences between high and low employee shareholdings firms. The sample includes only firms with asset impairment losses. The dependent variable, $NImpairment_{it}$, is a negative value of firm *i*'s asset impairment losses deflated by dividend-adjusted market capitalization in three months after fiscal year end of year $t - 1$. R_{ik} is firm *i*'s buy-and-hold annual stock return from three months after fiscal year end of year $k - 1$ to that of year k. $High_{it-1}$ takes one if firm *i*'s $EmployeeOwn_{it-1}$ exceeds its sample median, and zero otherwise. See the appendix for variable definitions. *** and * indicate significance at the 1% and 10% levels (two-tailed), respectively. t-statistics are based on White-adjusted standard errors.

Table 8: Impairment 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. 1 indicates that firms record impairment losses before employee downsizing; 2 indicates that firms do so in the year of impairment recognition; 3 indicates that firms do so after employee downsizing.

Table 9: The influence of employee ownership on impairment timing

	Sample including foreign impairments			Sample excluding 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: Table 9 reports the results by running ordered logistic regressions. The sample consists of firms that record impairment losses and experience downsizing. The dependent variable, $Timing_{it}$, takes one if a first 5% reduction in employees on an annual basis is observed in year $t + 1$ compared to impairment recognition in year t; two in year t; and three in year $t - 1$. $EmployeeOwn_{it-2}$ is the percentage shareholding of firm i's non-executive employee shareholding associations at the end of fiscal year $t - 2$. See the appendix for definitions of other variables. ***, **, 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 incorporating additional determinants of asset impairments

	DImpt (all)			DImpt (domestic)		
	Coef.	z-statistic	Marginal effect	Coef.	z-statistic	Marginal effect
Constant	1.0972***	1.88		1.0728*	1.85	
$EmployeeOwn_{t-1}$	-10.3530***	-5.14	-1.0727	-10.3639***	-5.18	-1.0756
$DImp_t$	-0.9634	-1.30	-0.0722	-1.2004	-1.42	-0.0827
$EmployeeOwn_{t-1}$ * D_Imp_t	9.2410**	2.08	1.0904	10.2310**	2.12	1.1646
$ChgIndROA_t$	-5.0001	-1.59	-0.5181	-5.3678*	-1.71	-0.5571
$ChgE_t$	-3.4781***	-4.31	-0.3604	-3.4948***	-4.33	-0.3627
$ChgSales_t$	-4.0091***	-13.62	-0.4154	-4.0219***	-13.66	-0.4174
$ChgCFO_t$	0.4833	1.31	0.0501	0.4782	1.29	0.0496
BTM_{t-1}	0.2926*	1.96	0.0303	0.2994**	2.01	0.0311
$MtgOwn_{t-1}$	1.1194*	1.94	0.1160	1.1422**	1.98	0.1185
Controls		Yes			Yes	
Year		Yes			Yes	
Industry		Yes			Yes	
# of Obs.		14,757			14,757	
Log likelihood		-5413.8036			-5432.9129	
Pseudo R2		0.1668			0.1639	

Note: Table 10 reports the results by incorporating additional variables that determine asset impairment recognition and running logistic regressions. The dependent variable, $Downsizing_{it}$, takes one if firm *i* 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. $EmployeeOwn_{it-1}$ is the percentage shareholding of firm *i*'s non-executive employee shareholding associations at the end of fiscal year $t - 1$. $DImp_{it}$ (all) [domestic] takes one if firm *i*'s asset impairment losses in year *t* 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], and zero otherwise. $ChgIndROA_{it}$ is a median change in ROA in year *t* for firm *i*'s industry. $ChgE_{it}$ is firm *i*'s change in net income excluding impairment losses from year $t - 1$ to *t*, deflated by total assets at the end of fiscal year $t - 1$. $ChgOCF_{it}$ is firm *i*'s change in operating cash flows from year $t - 1$ to *t*, deflated by total assets at the end of fiscal year $t - 1$. BTM_{it-1} is firm *i*'s Book-to-Market ratio at three months after fiscal year end of year $t - 1$. $MgtOwn_{it-1}$ is president ownership at the end of fiscal year $t - 1$. ROA_{it} is excluded from equation (1). See the appendix for definitions of other variables. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively. z-values are based on standard errors clustered by firm. Ai and Norton-adjusted

interaction effects for $EmployeeOwn_{it-1} * DImp_{it}$ are 1.0904 and 1.1646 and the corresponding mean z are 2.77 and 3.08 for all and domestic impairments, respectively.

Table 11: Robustness check of the informativeness test by using an alternative measure of high employee ownership

	Differences in impairment informativeness 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 * $High2_{t-1}$	0.0218	0.98	0.329
R_{t-1} * $High2_{t-1}$	-0.0036	-0.13	0.899
R_{t-2} * $High2_{t-1}$	0.0659**	2.49	0.013
$High2_{t-1}$	-0.0325***	-3.30	0.001
Year		Yes	
Industry		Yes	
# of Obs.		790	
F-value		2.89***	
adjR2		0.1011	
R_t + R_t * $High2_{t-1}$	0.0348*	1.74	0.083
R_{t-1} + R_{t-1} * $High2_{t-1}$	0.0697**	2.58	0.01
R_{t-2} + R_{t-2} * $High2_{t-1}$	0.1043***	4.11	<0.000

Note: Table 11 presents the results by using an alternative indicator variable of high employee ownership and running an OLS regression. The sample includes only firms with asset impairment losses. The dependent variable, $NImpairment_{it}$, is a negative value of firm *i*'s asset impairment losses in year *t* deflated by dividend-adjusted market capitalization in three months after fiscal year end of year $t - 1$. R_{ik} is firm *i*'s buy-and-hold annual stock return from three months after fiscal year end of year $k - 1$ to that of year *k*. $High2_{it-1}$ takes one if firm *i*'s $EmployeeOwn_{it-1}$ exceeds the sample's upper third of $EmployeeOwn_{it-1}$, and zero otherwise. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively. t-statistics are based on White-adjusted standard errors.

Table 12: Robustness check of timing test by incorporating factors that affect management incentives to not downsize employees

	Sample including foreign impairments			Sample excluding foreign impairments		
	Coef.	z-statistic	p-value	Coef.	z-statistic	p-value
$EmployeeOwn_{t-2}$	-15.0808**	-2.05	0.041	-22.1727***	-2.66	0.008
$Top10Own_{t-2}$	-1.8479*	-1.90	0.058	-1.9151*	-1.71	0.088
$Size_{t-2}$	-0.2339*	-1.84	0.066	-0.3320**	-2.20	0.028
$DebtRatio_{t-2}$	0.9318	1.05	0.294	0.9225	0.90	0.367
ROA_{t-2}	-3.9461	-1.26	0.209	-3.9064	-1.14	0.252
ROA_{t-1}	0.3946	0.09	0.926	2.1392	0.46	0.645
$Loss_{t-1}$	0.1933	0.49	0.625	0.1730	0.39	0.698
$ChgSales_{t-1}$	-2.1856*	-1.84	0.065	-3.0254**	-2.14	0.032
$PImpairment_{t}$	1.7507	0.41	0.683	4.6983	0.93	0.354
$LnAge_{t-2}$	-0.2021	-0.58	0.565	-0.3292	-0.86	0.391
$LnSegment_{t-2}$	-0.5780**	-2.32	0.020	-0.5891**	-2.03	0.042
$R\&D_{t-2}$	-12.7276 **	-2.02	0.044	-17.4441 **	-2.06	0.039
$LnEmpTenure_{t-2}$	-0.5403	-1.31	0.191	-0.5089	-1.11	0.269
Year	Yes			Yes		
Industry	Yes			Yes		
# of Obs.	250			202		
LR chi2	89.90***			74.87***		
Log likelihood	-226.70797			-183.18312		
Pseudo R2	0.1655			0.1697		

Note: Table 12 reports the results by incorporating additional variables that affect management incentives to not downsize employees and running ordered logistic regressions. The sample consists of firms that record impairment losses and experience downsizing. The dependent variable, $Timing_{it}$, takes one if a first 5% reduction in employees on an annual basis is observed in year $t + 1$ compared to impairment recognition in year t; two in year t; and three in year $t - 1$. $EmployeeOwn_{it-2}$ is the percentage shareholding of firm i's non-executive employee shareholding associations at the end of fiscal year $t - 2$. $R\&D_{it-2}$ is R&D expenditure in year $t - 2$, deflated by sales in year $t - 2$. $LnEmpTenure_{it-2}$ is the natural logarithm of average employee tenure at the end of fiscal year $t - 2$ for parent firms. See the appendix for definitions of other variables. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (two-tailed), respectively.