



*Kyoto University,
Graduate School of Economics
Discussion Paper Series*

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Evidence from Pension Accounting in Japan**

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Discussion Paper No. E-19-007

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November, 2019

Recognition versus Disclosure and Audit Fees and Costs: Evidence from Pension Accounting in Japan*

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November 6, 2019

Abstract

Statement No. 26, *Accounting Standard for Retirement Benefits*, requires Japanese firms to recognize previously off-balance sheet pension liabilities on their balance sheets. We explore auditors' responses to recognized versus disclosed pension liabilities in the Japanese audit market. We use a pre-Statement No. 26 versus post-Statement No. 26 setting to analyze the effects of disclosed versus recognized pension information on audit fees and costs. We show that disclosed pension liabilities are processed similarly to recognized previously off-balance sheet pension liabilities when audit fees are determined. However, we find that associations with audit costs differ between disclosed and recognized pension liabilities. We also find that audit costs' differential relations with disclosed and recognized pension liabilities are particularly pronounced for firms with a large pension plan deficit. Overall, our results suggest that auditors scrutinize recognized amounts more closely than disclosed financial information, thereby increasing the reliability of accounting information.

Keywords: Recognition versus Disclosure, Pension Accounting, Audit Fees, Audit Costs

JEL Classification: M41, M42, M48

* Acknowledgements: We gratefully appreciate the helpful comments and suggestions received from Keishi Fujiyama and Tomoaki Yamashita. Kusano gratefully acknowledges the financial support from the Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research (C) (JSPS KAKENHI Grant Number 17K04051). Sakuma also gratefully acknowledges the financial support from the Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research (C) (JSPS KAKENHI Grant Number 18K01938).

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1. Introduction

Using Japanese audit data, we explore the effects of recognized versus disclosed pension information on auditors' responses when the pension accounting standard changes from disclosure in the notes to recognition in financial statements. Specifically, we analyze whether disclosed and recognized pension liabilities differ in their associations with audit fees and costs, and whether these associations differ between audit fees and costs. We also investigate how firms' incentives to manage accounting numbers affect the associations between recognized versus disclosed pension information and audit fees and costs.

In May 2012, the Accounting Standards Board of Japan (ASBJ) issued Statement No. 26, *Accounting Standard for Retirement Benefits* (ASBJ, 2012). Statement No. 26 requires Japanese firms sponsoring defined benefit (DB) pension plans to recognize the differences between retirement benefit obligations and plan assets on their balance sheets. Before Statement No. 26 was adopted, however, certain changes in pension liabilities and assets (e.g., actuarial gains and losses and prior service costs) were not recognized when they occurred and were thus disclosed in the notes to financial statements. Statement No. 26 abolishes the delayed recognition of these items and recognizes them as a component of accumulated other comprehensive income. Accordingly, under Statement No. 26, firms' pension funding status is recognized as a liability (underfunded) or asset (overfunded) on their balance sheets by adjusting accumulated other comprehensive income. We employ a pre-Statement No. 26 versus post-Statement No. 26 setting to examine disclosure versus recognition of pension information.

Most previous studies investigate whether capital market participants process recognized amounts and disclosed financial information differently in making their decision (e.g., Aboody, 1996; Davis-Friday et al., 1999; Kusano, 2019; Yu, 2013). Many of these studies report that disclosed items are treated differently from recognized items when firms' stock prices (stock returns) and risk are assessed. For instance, Davis-Friday et al. (1999) find that recognized obligations for post-retirement benefits other than pensions are more value relevant than are disclosed post-retirement benefit obligations.

The reliability of accounting information is an important factor in the difference between how investors treat recognition and disclosure (Bratten et al., 2013; Callahan et al., 2013; Davis-Friday et al., 2004; Müller et al., 2015). For instance, Müller et al. (2015) report that disclosed investment property fair values have lower associations with stock prices than with recognized fair values; however, these lower associations are attenuated for disclosure firms that employ external appraisers. Prior research suggests that auditors scrutinize recognized amounts in financial statements more closely than disclosed financial information in the notes (e.g., Schipper, 2007).

However, although auditors are expected to enhance the credibility of financial reporting and to improve the reliability of accounting information, the evidence concerning whether auditors expend more effort for recognized items than for disclosed items is scant. Only a few studies investigate the differential impacts of recognition versus disclosure on auditors (Goncharov et al., 2014; Krishnan and Sengupta, 2011; Kusano and Sakuma, 2019). For instance, Goncharov et al. (2014) and Krishnan and Sengupta (2011) analyze how audit fees are associated with recognized amounts versus disclosed financial information; however, they fail to identify how recognition versus disclosure affects auditors' decisions. Since audit fees reflect both audit effort and a risk premium, using audit fee data alone cannot determine whether audit fee increases are attributable to additional audit effort or to a higher risk premium. When auditors raise audit fees by charging a risk premium without expending their greater effort, the increased audit fees do not indicate an increase in the reliability of accounting information.

Kusano and Sakuma (2019) overcome this limitation by employing unique Japanese audit data. Japanese firms have to disclose the number of audit team members based on their professional qualifications in their annual securities reports. They use the number of audit team members as a measure of audit costs (i.e., audit effort) and examine whether and how audit fees and costs have different associations with disclosed versus recognized finance leases. Their results suggest that auditors charge a risk premium to recognized finance leases relative to disclosed finance leases without expending incremental audit

effort. The literature does not make clear whether auditors scrutinize recognized amounts more closely than disclosed financial information.

Unlike Kusano and Sakuma (2019), we focus on DB pension plans, which allows us to explore whether auditors expend more validation effort on recognized amounts than on disclosed financial information. Previous studies find that firms manage reported earnings by employing pension assumptions (e.g., An et al., 2014; Bergstresser et al., 2006; Comprix and Muller, 2006; Glaum, 2009; Li and Klumpes, 2013; Naughton, 2019). Prior research also reveals that the change in pension accounting standard from disclosure to recognition causes firm managers to change actuarial assumptions in order to manage reported accounting numbers (Fried and Davis-Friday, 2013; Jones, 2013). This management of accounting numbers increases auditors' business risk, which causes auditors to increase their audit investment (i.e., audit effort). Employing pension accounting as our research setting, we provide novel insights into auditors' responses to recognized versus disclosed items.

First, our study investigates whether disclosed pension liabilities have positive associations with audit fees and costs in the pre-Statement No. 26 period. Even if pension information is disclosed in the notes to financial statements, auditors' business risk increases when firms manage reported accounting numbers by using actuarial assumptions. An increased business risk leads auditors to expend additional effort and/or charge a higher risk premium (e.g., Houston et al., 2005; Lyon and Maher, 2005; Pratt and Stice, 1994; Simunic, 1980). Thus, we examine the effects of off-balance sheet pension information on audit fees and costs. We find that, unlike recognized pension liabilities, disclosed pension liabilities are not related to audit fees but have positive associations with audit costs.

In addition to analyzing the effects of disclosed pension liabilities on audit fees and costs, we also examine how the presentation format of pension information affects auditors' decisions. When the pension accounting rules change from disclosure to recognition, firms change pension assumptions to manage reported accounting numbers (Fried and Davis-

Friday, 2013; Jones, 2013). This management of reported accounting numbers increases auditors' business risk further. Accordingly, our study also investigates whether and how disclosed and recognized pension liabilities differ in their associations with audit fees and costs. Using a pre-Statement No. 26 versus post-Statement No. 26 setting, we show that disclosed pension liabilities are treated similarly to recognized previously off-balance sheet pension liabilities when audit fees are determined, whereas disclosed pension liabilities are processed differently from recognized previously off-balance sheet pension liabilities when audit costs are determined.

As auditors treat recognized and disclosed items differently in determining audit costs, their responses can vary depending on the managers' incentives to manage accounting numbers. Firms manage reported accounting numbers by changing their actuarial assumptions (e.g., Bergstresser et al., 2006; Comprix and Muller, 2006; Fried and Davis-Friday, 2013; Glaum, 2009; Jones, 2013; Naughton, 2019). Firms with a large pension plan deficit are more likely to manage reported earnings (Li and Klumpes, 2013), which increases auditors' business risk. Thus, the third objective of our study is to analyze how pension funding status relates to recognition versus disclosure of pension information. We employ firms' pension funding status as a proxy for balance sheet management and find that auditors process disclosed and recognized pension liabilities differently when determining audit costs for firms with a large pension plan deficit. Our overall results suggest that higher auditors' business risk causes auditors to be more likely to expend additional effort for recognized amounts than for disclosed financial information, thereby increasing the reliability of accounting information.

Our study makes two important contributions to the accounting literature on recognition versus disclosure. First, our study extends the research by investigating the effects of recognition versus disclosure on auditors. Much of the previous research analyzes recognized versus disclosed items in capital markets (e.g., Ahmed et al., 2006; Dhaliwal et al., 2011; Israeli, 2015; Kusano, 2019; Michels, 2017). Few studies examine whether auditors treat disclosed items differently from recognized items when determining audit

fees (Goncharov et al., 2014; Krishnan and Sengupta, 2011). Using audit fee data alone makes it impossible to determine whether auditors expend additional effort for, or charge a risk premium to, recognized amounts relative to disclosed financial information. This study employs a unique setting in which both audit fee and cost data are publicly available, which enables it to analyze how auditors' decisions are affected by recognized versus disclosed items more clearly than previous studies have done.

Second, our study extends and complements prior research on recognition versus disclosure by providing evidence that auditors make a greater effort to examine recognized amounts than they make to examine disclosed financial information. To the best of our knowledge, only one recent study examines the relations between recognized versus disclosed items and audit fees and costs (Kusano and Sakuma, 2019). Its results suggest that auditors charge a risk premium to recognized amounts relative to disclosed financial information without expending their additional effort. In contrast to Kusano and Sakuma (2019), our results suggest that auditors scrutinize recognized items more closely than disclosed items, thus increasing the reliability of accounting information. Our study complements the previous finding that the reliability of accounting information causes the differential in investors' treatment between recognized amounts and disclosed financial information (Bratten et al., 2013; Callahan et al., 2013; Davis-Friday et al., 2004; Müller et al., 2015; Schipper, 2007).

Our research also has policy implications for standard setting. Firms are motivated to manage reported accounting numbers in financial statements or misstate financial statements through capital market and contractual incentives (e.g., Dechow et al., 2011; Dechow and Skinner, 2000). Changes in accounting rules from disclosure to recognition can decrease the reliability of accounting information since firm managers are more likely to have incentives to manage reported accounting numbers employing their discretion (Holthausen and Watts, 2001). Our results suggest that auditors increase their effort for recognized pension liabilities relative to disclosed pension information, thereby avoiding a decrease in the reliability of accounting information.

The rest of the paper is structured as follows. Section 2 describes pension accounting in Japan, reviews prior studies, and develops our hypotheses. Section 3 explains the design of our research on whether and how auditors treat disclosed and recognized pension liabilities differently when determining audit fees and costs. Section 4 outlines the study's samples and reports the descriptive statistics for the variables of our empirical research. Section 5 presents our main findings, robustness tests, and additional analysis. Finally, Section 6 concludes the study and discusses its limitations.

2. Background and Hypothesis Development

2.1 Pension Accounting in Japan

In June 1998, the Business Accounting Council (BAC) of Japan issued the pension accounting standard entitled *Statement on Establishing Accounting Standard for Retirement Benefits* (BAC, 1998). Until this BAC Statement was issued, accounting rules for retirement benefits differed depending on the payment method (i.e., lump sum payment versus pension payment) and funding method (i.e., internal funding versus external funding) of the retirement benefits. For instance, firms expensed pension costs on an accrual basis when using internal funding but on a cash basis when using external funding. Accordingly, the BAC comprehensively reviewed the accounting rules for retirement benefits.

Firms sponsoring DB pension plans are obliged to pay retirement benefits to their employees. To ensure the payments, these firms are responsible for contributing liquid assets to their pension plans. Since firms' funding status is based on the difference between retirement benefit obligations and plan assets, their pension plans are underfunded (overfunded) when plan assets are lower (higher) than retirement benefit obligations. However, under the provisions of the BAC Statement, firms' funding status was not reported on their balance sheets since certain changes in pension liabilities and assets—actuarial gains and losses and prior service costs—were not recognized in financial

statements when they arose.¹ These items were disclosed in the notes to financial statements and were recognized as pension expenses systematically in the following periods. These accounting treatments were similar to those of Statement of Financial Accounting Standards (SFAS) No. 87, *Employers' Accounting for Pensions* (SFAS 87) (FASB, 1985).

The delayed recognition of actuarial gains and losses and prior service costs meant that the funding status of DB pension plans was not reported in financial statements. The Financial Accounting Standards Board (FASB) criticized the delayed recognition since it prevented capital market participants from obtaining information on pension funding status in a complete and understandable manner. In September 2006, the FASB issued a new pension accounting standard, SFAS No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans—an amendment of FASB Statements No. 87, 88, 106, and 132(R)* (ASC 715/ SFAS158) (FASB, 2006). In addition, to converge with the U.S. Generally Accepted Accounting Principles (GAAP), in June 2011, the International Accounting Standards Board (IASB) issued revisions to International Accounting Standard (IAS) No. 19, *Employee Benefits* (IAS 19R) (IASB, 2011).

The ASBJ, established as a private standard-setter in 2001, also considered whether the delayed recognition should be repealed to further the global convergence of accounting standards. In May 2012, the ASBJ issued Statement No. 26 and abolished the delayed recognition for consolidated financial statements.² Japanese firms sponsoring DB pension plans are now required to recognize the differences between retirement benefit obligations and plan assets on their balance sheets for fiscal years beginning on or after April 1, 2013. However, Statement No. 26 does not change the recognition and measurement of pension

¹ When the BAC Statement was adopted for fiscal years beginning on or after April 1, 2000, Japanese firms were also allowed to disclose net transition liabilities in the notes to financial statements. The off-balance sheet pension items were recognized as expenses based on a straight-line method within 15 years.

² Japanese firms are required to prepare both consolidated and unconsolidated (parent-only) financial statements. However, the ASBJ did not abolish the delayed recognition of actuarial gains and losses and prior service costs for unconsolidated financial statements, since recognizing these items in financial statements has significant effects on distributable net income under Japanese company law.

expenses. The previously off-balance sheet pension items (i.e., actuarial gains and losses and prior service costs) are recognized as a component of accumulated other comprehensive income, after adjusting for tax effects. Accordingly, Statement No. 26 requires Japanese firms to recognize previously disclosed pension liabilities aggregately with previously recognized pension liabilities by adjusting accumulated other comprehensive income. These accounting treatments are similar to those of the U.S. GAAP (ASC 715/ SFAS 158) and International Financial Reporting Standards (IFRS) (IAS 19R).

In recent years, Japanese firms have gradually switched from DB pension plans to defined contribution (DC) pension plans. However, unlike U.S. firms, many Japanese firms still sponsor DB pension plans (e.g., Goto and Yanase, 2016). Employing this unique Japanese institutional setting allows us to analyze recognition versus disclosure of pension information more cleanly than prior studies have done.

2.2 Literature Review

Capital market participants employ not only recognized amounts in financial statements but also disclosed financial information in the notes in their decision making. Previous studies find that capital market participants consider disclosed pension information and assess firms' stock prices (stock returns) and risk (e.g., Barth, 1991; Beaudoin et al., 2011; Dhaliwal, 1986; Gopalakrishnan, 1994; Kraft, 2015; Landsman, 1986). For instance, Dhaliwal (1986) suggests that capital market participants amend firms' leverage using off-balance sheet pension information in the notes when assessing firms' equity risk.

However, recent studies also report that capital market participants face difficulties in understanding the pension information disclosed in the notes (e.g., Basu and Naughton, 2018; Beaudoin et al., 2011; Landsman and Ohlson, 1990; Picconi, 2006; Sengupta and Wang, 2011; Yu, 2013). For instance, Basu and Naughton (2018) find that credit rating agencies adjust disclosed pension information incorrectly in the pre-SFAS 158 period and thus *upgrade* corporate credit ratings after the adoption of SFAS 158. Their results suggest

that capital market participants may treat disclosed financial information differently from recognized amounts.

Much of the prior research on recognition versus disclosure in capital markets analyzes how recognized versus disclosed items are related to firms' stock prices (stock returns) and risk (e.g., Bratten et al., 2013; Dhaliwal et al., 2011; Kusano, 2019; Michels, 2017; Müller et al., 2015). Previous studies use DB pension plans to examine whether capital market participants process disclosed and recognized pension information differently (e.g., Beaudoin et al., 2011; Yu, 2013). For instance, Yu (2013) reports that recognizing previously off-balance sheet pension liabilities increases value-relevance for firms with less sophisticated financial statement users, and that this increase becomes less evident for firms with more sophisticated financial statement users. His results indicate that the sophistication of financial statement users influences the value-relevance of pension liabilities and the valuation differences between disclosed and recognized pension liabilities.

The differences in financial information presentation format between recognition and disclosure can also have significant effects on auditors. Previous studies find that earnings management and material misstatements affect auditors' business risk, as audit firms can suffer losses resulting from engaging with clients (e.g., Heninger, 2001; Palmrose and Scholz, 2004). Firm managers' incentives to manage or manipulate reported accounting numbers are likely to increase when accounting rules change from disclosure to recognition (Holthausen and Watts, 2001). The change in pension accounting standard from disclosure to recognition leads firm managers to manage reported accounting numbers by changing their actuarial assumptions (Fried and Davis-Friday, 2013; Jones, 2013). Prior research employing proprietary data from audit firms reports that auditors address their business risk by increasing their effort, charging a higher risk premium, or both (e.g., Bedard and Johnstone, 2004; Bell et al., 2001; Johnstone and Bedard, 2001, 2003; O'Keefe et al., 1994; Simunic and Stein, 1996).

However, little is known about whether auditors process recognized and disclosed

items differently when addressing their business risk. Only a few studies investigate how recognized amounts versus disclosed financial information affect audit fees (Goncharov et al., 2014; Krishnan and Sengupta, 2011). Krishnan and Sengupta (2011) report that auditors neither increase audit effort for, nor charge a risk premium to, recognized pension liabilities relative to disclosed pension information. On the contrary, Goncharov et al. (2014) find that auditors are more likely to expend incremental effort for, or charge a risk premium to, recognized rather than disclosed fair value of investment property.

These two studies provide useful evidence on the associations between recognition versus disclosure and audit fees. However, it is still an open question whether the difference in financial information presentation format between recognition and disclosure influences auditors' decisions. First, Krishnan and Sengupta (2011) investigate whether auditors treat disclosed pension liabilities (unrecognized items) differently from recognized pension liabilities (additional liabilities) in the pre-SFAS 158 period. They fail to analyze the difference between recognition and disclosure for the same items (i.e., actuarial gains and losses and prior service costs). Since auditors would conduct an audit of the entire pension plan, their analysis cannot determine how differences in the presentation format of identical financial information can affect auditors.

In addition, Goncharov et al. (2014) and Krishnan and Sengupta (2011) fail to identify how recognition versus disclosure affects auditors' decisions since they use audit fee data only. As audit fees reflect both audit effort and a risk premium, using audit fee data alone makes it impossible to determine whether auditors expend incremental audit effort or charge a higher risk premium when addressing their higher business risk. It is necessary to employ audit cost data as well as audit fee data when investigating the effects of recognized amounts versus disclosed financial information on auditors' decisions.

Japanese firms are required to disclose the number of audit team members following their professional qualification—certified public accountants, junior accountants, and other professional staff—in their annual securities reports. Kusano and Sakuma (2019) employ the number of audit team members as a proxy for audit costs and investigate

whether and how disclosed and recognized finance leases differ in their associations with audit fees and costs. They reveal differences in the relations between recognized versus disclosed finance lease obligations and audit fees. However, they find that recognized and disclosed finance leases have similar associations with audit costs. Their results suggest that auditors charge a risk premium to recognized finance leases relative to disclosed finance leases without expending additional audit effort.

Overall, the evidence on the relations between recognized versus disclosed items and audit fees is mixed and does not fully describe how the presentation format of identical financial information affects auditors' decisions. By focusing on DB pension plans, we investigate auditors' decisions about whether to increase their effort or charge a risk premium when the accounting rule changes from disclosure in the notes to recognition in financial statements. Since DB pension plans would have more substantial effects on auditors' business risk, this study provides insights into auditors' responses to recognized versus disclosed items that Kusano and Sakuma (2019) do not provide, thus enriching the accounting literature on recognition versus disclosure.

2.3 Hypothesis Development

Capital market participants assess firms' stock prices (stock returns) and risk using both recognized amounts in financial statements and disclosed financial information in the notes. Since a large pension plan deficit increases firms' business risk (e.g., Hann et al., 2007; Maher, 1987; Wang and Zhang, 2014), capital market participants presumably incorporate such pension information into their decision making, irrespective of the presentation format used for the financial information. In fact, previous studies report that capital market participants understand and consider off-balance sheet pension information when making their decisions (e.g., Barth, 1991; Beaudoin et al., 2011; Dhaliwal, 1986; Gopalakrishnan, 1994; Kraft, 2015; Landsman, 1986). Consequently, DB pension plans influence firms' business risk, including financial risk, thereby affecting auditors' business risk (e.g., Brumfield et al., 1983; Johnstone, 2000; O'Malley, 1993).

Auditors' business risk also increases when firms manage or manipulate reported accounting numbers in their financial statements (e.g., Heninger, 2001; Palmrose and Scholz, 2004). Prior research shows that firms employ pension assumptions such as the expected rate of return on plan assets to manage reported earnings (e.g., An et al., 2014; Bergstresser et al., 2006; Comrix and Muller, 2006; Li and Klumpes, 2013). When auditors' business risk increases, they expend their greater effort and/or charge a higher risk premium (e.g., Houston et al., 2005; Lyon and Maher, 2005; Pratt and Stice, 1994; Simunic, 1980).³ Additional audit effort increases audit costs and thus audit fees. Moreover, auditors will charge a higher risk premium in their fees to cover potential future losses. Auditors' responses to their business risk thus increase both audit fees and costs.

Accordingly, we examine the relations between off-balance sheet pension liabilities and audit fees and costs in the pre-Statement No. 26 period. We develop the following hypotheses to analyze the effects of disclosed pension information on audit fees and costs:

Hypothesis 1(a): Disclosed pension liabilities in the pre-Statement No. 26 period have positive associations with audit fees.

Hypothesis 1(b): Disclosed pension liabilities in the pre-Statement No. 26 period have positive associations with audit costs.

Though off-balance sheet pension liabilities are related to audit fees and costs, it is not obvious whether auditors treat disclosed and recognized pension liabilities similarly when determining audit fees and costs. In fact, prior research provides mixed evidence on how recognized amounts versus disclosed financial information influence audit fees (Goncharov et al., 2014; Krishnan and Sengupta, 2011; Kusano and Sakuma, 2019). The relations between recognized versus disclosed pension liabilities and audit fees and costs remain empirical issues for investigation.

Changes in accounting rules from disclosure in the notes to recognition in financial

³ Auditors can also respond to their higher business risk by resigning from the audit engagement (e.g., Krishnan and Krishnan, 1997; Shu, 2000; Stice, 1991). Investigating this response is beyond the scope of our study since it focuses on the effects of recognized versus disclosed pension information on audit fees and costs.

statements would induce earnings management or material misstatements in firm managers. In fact, prior research reveals that, when fair value information is recognized in financial statements, firm managers would employ their discretion to measure fair value (e.g., Aboody et al., 2006; Amir and Gordon, 1996; Bartov et al., 2007; Bratten et al., 2015; Choudhary, 2011; Hodder et al., 2006; Johnston, 2006). In particular, when the pension accounting standard changes from disclosure to recognition, firms manage reported accounting numbers by changing their actuarial assumptions (Fried and Davis-Friday, 2013; Jones, 2013). These findings suggest that, since firms are more likely to manage or manipulate reported accounting numbers in financial statements than financial information disclosed in the notes, recognized amounts have more substantial impacts on auditors' business risk than do disclosed financial information. Auditors' higher business risk would motivate them to expend incremental effort and/or charge a higher risk premium (e.g., Greiner et al., 2017; Houston et al., 1999, 2005; Krishnan et al., 2013).

Consequently, auditors are more likely to consider their business risk to be higher for recognized items in financial statements than for disclosed items in the notes; thus, they are likely to differentiate between recognition and disclosure when determining their audit fees and costs. Using the pre-Statement No. 26 versus post-Statement No. 26 setting, we examine how the presentation format of pension information affects auditors' decisions. We develop the following hypotheses to examine whether and how auditors treat disclosed and recognized pension liabilities differently when determining audit fees and costs:

Hypothesis 2(a): Disclosed pension liabilities exhibit weaker associations with audit fees than with recognized previously off-balance sheet pension liabilities.

Hypothesis 2(b): Disclosed pension liabilities exhibit weaker associations with audit costs than with recognized previously off-balance sheet pension liabilities.

If changes in accounting rules from disclosure to recognition have significant effects on the relations between recognized versus disclosed pension liabilities and audit fees and costs, these effects can vary according to managers' incentives to manage accounting numbers. Since Statement No. 26 requires Japanese firms to recognize their pension

funding status as a liability (underfunded) or asset (overfunded) on their balance sheets, a change in pension accounting rules has a greater impact on firms with a large pension plan deficit. Previous studies argue that firms manage reported accounting numbers by changing their actuarial assumptions (e.g., Bergstresser et al., 2006; Comrix and Muller, 2006; Fried and Davis-Friday, 2013; Glaum, 2009; Jones, 2013; Naughton, 2019). Specifically, firms with a large pension plan deficit manage reported earnings by employing the expected rate of return on pension assets (Li and Klumpes, 2013). Firms with a large pension plan deficit are more likely to manage reported accounting numbers, thereby increasing auditors' business risk. Auditors will respond to their increased business risk by increasing their effort for, and/or charging a higher risk premium to, recognized amounts relative to disclosed financial information.

Accordingly, since pension plan deficits influence auditors' business risk, auditors' responses to recognition versus disclosure can vary according to pension funding status. By using pension funding status as a proxy for balance sheet management, we propose the following hypotheses to analyze how pension plan deficits affect the relations between recognized versus disclosed pension liabilities and audit fees and costs:

Hypothesis 3(a): The differences in the associations between disclosed versus recognized pension liabilities and audit fees are pronounced for firms with strong incentives to manage reported accounting numbers.

Hypothesis 3(b): The differences in the associations between disclosed versus recognized pension liabilities and audit costs are pronounced for firms with strong incentives to manage reported accounting numbers.

3. Research Design

We examine whether and how auditors process disclosed and recognized pension liabilities differently when determining audit fees and costs. In addition, we investigate the effects of firms' incentives to manage accounting numbers on the associations between recognized versus disclosed pension liabilities and audit fees and costs. Following Kusano and

Sakuma (2019), we conduct our empirical tests by estimating the following regression models:

$$\begin{aligned}
Fee_{i,t} = & \alpha_0 + \alpha_1 PL_on_{i,t} + \alpha_2 PL_off_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 Loss_{i,t} \\
& + \alpha_6 Liq_{i,t} + \alpha_7 GC_{i,t} + \alpha_8 Size_{i,t} + \alpha_9 Comp_{i,t} + \alpha_{10} Sub_{i,t} + \alpha_{11} FO_{i,t} \\
& + \alpha_{12} Big3_{i,t} + \sum_j \alpha_j Industry Indicator + \sum_k \alpha_k Year Indicator \\
& + \varepsilon
\end{aligned} \tag{1}$$

$$\begin{aligned}
Cost_{i,t} = & \beta_0 + \beta_1 PL_on_{i,t} + \beta_2 PL_off_{i,t} + \beta_3 Lev_{i,t} + \beta_4 ROA_{i,t} + \beta_5 Loss_{i,t} \\
& + \beta_6 Liq_{i,t} + \beta_7 GC_{i,t} + \beta_8 Size_{i,t} + \beta_9 Comp_{i,t} + \beta_{10} Sub_{i,t} + \beta_{11} FO_{i,t} \\
& + \beta_{12} Big3_{i,t} + \sum_j \beta_j Industry Indicator + \sum_k \beta_k Year Indicator \\
& + \epsilon
\end{aligned} \tag{2}$$

where our dependent variables of interest are Fee and Cost. Fee is the natural log of audit fees in fiscal year t. Cost is the natural log of the number of accounting and non-accounting professionals (excluding signing partners) on an audit team in fiscal year t.⁴ Our independent variables of interest are PL_on and PL_off. PL_on is recognized pension liabilities (excluding actuarial gains and losses and prior service costs in the post-Statement No. 26 period) divided by total assets at the end of fiscal year t. PL_off is off balance sheet pension liabilities (i.e., actuarial gains and losses and prior service costs) divided by total assets at the end of fiscal year t.⁵ We provide details on the variables employed in our regression models in the Appendix. We divide our sample into pre- and

⁴ Many Japanese firms report point estimates of the numbers of certified public accountants, junior accountants, and other professional staff in their annual securities reports. However, some firms provide range estimates of the number of accounting and non-accounting professionals on an audit team. In this case, we use the median number of audit team members. In addition, some firms do not disclose the classification of audit team members but provide only the total number of members. In unreported tests, we also exclude these firms from our sample and investigate whether audit costs differ in their associations with recognized versus disclosed pension liabilities. Our main results remain unchanged.

⁵ Since the adoption of Statement No. 26, previously disclosed pension liabilities are recognized aggregately with previously recognized pension liabilities by adjusting accumulated other comprehensive income, after adjusting for tax effects. However, auditors can know the amounts of PL_off before adjusting for tax effects when conducting audits of DB pension plans in the post-Statement No. 26 period. To ensure consistency between the pre- and post-Statement No. 26 periods, we use the amounts of PL_off before adjusting for tax effects. In addition, following Krishnan and Sengupta, 2011, we set the values of PL_on and PL_off to zero when PL_on and PL_off are negative (i.e., pension assets).

post-Statement No. 26 periods when estimating regression models (1) and (2).⁶

Hypothesis 1 predicts that, in the pre-Statement No. 26 period, off-balance sheet pension liabilities have positive associations with audit fees and costs. A higher PL_{off} leads to an increase in auditors' business risk because firms with more disclosed pension liabilities are expected to have greater business risk. To address this increase, auditors will increase their audit investment and thus raise audit costs and fees. They will also charge a risk premium, thereby raising audit fees. Thus, a higher PL_{off} results in higher Fee and Cost. We predict that the sign of the coefficients in the regression models will be positive in the pre-Statement No. 26 period. In addition, as with disclosed pension liabilities, firms with more recognized pension liabilities are expected to have greater business risk. Auditors will address their increased business risk by expending incremental effort or charging a higher risk premium, thereby increasing audit fees and costs. Consequently, the sign of the coefficients of PL_{on} is also expected to be positive.

Next, Hypothesis 2 predicts that, even though disclosed pension liabilities have positive associations with audit fees and costs, auditors will process disclosed and recognized pension liabilities differently when determining audit fees and costs. When the pension accounting rule changes from disclosure to recognition, firms manage reported accounting numbers by changing their actuarial assumptions (Fried and Davis-Friday, 2013; Jones, 2013). Previous studies indicate that earnings management and material misstatements affect auditors' business risk (e.g., Heninger, 2001; Palmrose and Scholz, 2004). To address this risk, auditors will expend more effort for, or charge a higher risk premium to, recognized pension liabilities than disclosed pension liabilities. Accordingly, the relations between recognized versus disclosed pension liabilities and audit fees and costs can differ. We estimate each regression model which divides the sample into pre- and

⁶ We are concerned about multicollinearity when using interaction terms in the regression models that include the pre- and post-Statement No. 26 periods. We also conduct analyses employing the interaction terms and confirm that the unreported results are consistent with our main results. However, some values of the variance inflation factor (VIF) are greater than 10. Therefore, we partition our sample into pre- and post-Statement No. 26 periods when testing our hypotheses.

post-Statement No. 26 periods simultaneously and analyze the effects of recognized versus disclosed pension liabilities on audit fees and costs. We predict that the coefficients of PL_off in the pre-Statement No. 26 period are smaller than the coefficients of PL_off in the post-Statement No. 26 period. We test these predictions using the Wald test of equality between the coefficients of PL_off in the pre- and post-Statement No. 26 periods.

In addition, Hypothesis 3 predicts that, when firms have a large pension plan deficit, auditors expend more audit effort for, and/or charge a higher risk premium to, recognized pension liabilities than disclosed pension liabilities. Prior research indicates that firms with a large pension plan deficit manage reported accounting numbers by employing their actuarial assumptions (Li and Klumpes, 2013). Since firms' incentives to manage accounting numbers influence auditors' business risk, auditors will address the increased risk by increasing their effort for, and/or charging a higher risk premium to, recognized amounts relative to disclosed financial information. Therefore, pension plan deficits have significant effects on the relations between recognized versus disclosed pension liabilities and audit fees and costs. By dividing our sample into firms with small and large pension plan deficits, we investigate how balance sheet management influences the associations between recognized versus disclosed pension liabilities and audit fees and costs. Following the prior literature (e.g., Francis and Reiter, 1987; Goto and Yanase, 2016; Rauh, 2006), we partition our sample by year based on the median of the ratio of pension plan deficits, which is defined as plan assets minus retirement benefit obligations divided by retirement benefit obligations. We predict that, when firms have a large pension plan deficit, the coefficients of PL_off in the post-Statement No. 26 period are larger than the coefficients of PL_off in the pre-Statement No. 26 period.

Following the prior research, we include control variables regarding clients' risk, size, and complexity as well as other client- and auditor-related factors for audit fees and costs (e.g., Bae et al., 2016; DeFond and Zhang, 2014; Hay et al., 2006; Hossain et al., 2017). In addition to pension liabilities, we include profitability (ROA) and financial risk (Lev, Loss,

Liq, and GC) to control for clients' risk.^{7,8} When clients' risk is higher, auditors will expend greater effort and/or charge a higher risk premium, thereby increasing audit fees and costs. Thus, the sign of the coefficients of Lev, Loss, and GC is expected to be positive, while the sign of the coefficients of ROA and Liq is expected to be negative. In addition, to control for clients' size, we use firm size (Size) as a control variable. We also use inherent risk (Comp) and the number of subsidiaries (Sub) to control for clients' complexity. When a client is larger and more complex, auditors need to expend their greater effort to conduct the audit and thus raise audit fees and costs. Therefore, we expect that the sign of the coefficients of Size, Comp, and Sub will be positive.

Furthermore, to control for other client-related factors, we also use foreign ownership (FO) as a control variable. When foreign ownership is higher, foreign investors demand increased effort from auditors to enhance management monitoring. In response to this expectation, auditors expend their additional effort, thereby raising audit fees and costs. In addition, we include a Big N dummy (Big 3), which takes the value of 1 if an auditor is a Big 3 audit firm, and 0 otherwise, to control for auditor-related factors.⁹ Big N auditors are expected to provide higher audit quality relative to non-Big N auditors. Big N auditors increase their audit investment to provide higher audit quality, which leads to higher audit fees and costs. Consequently, the sign of the coefficients of FO and Big3 is expected to be

⁷ Our findings do not change when we use MOPINION, an indicator variable that takes the value of 1 if a firm receives anything other than an unqualified opinion in the fiscal year, and 0 otherwise, instead of GC for financial risk (unreported table).

⁸ Previous studies also use as a control variable a first audit year dummy that takes the value of 1 if an audit firm is an initial audit engagement for a firm in the first year, and 0 otherwise (e.g., Bae et al., 2016; Kim and Fukukawa, 2013). Following the literature, we also include this control variable and examine the effects of recognition versus disclosure of pension liabilities on audit fees and costs. The inclusion of this variable does not change our inferences (unreported table).

⁹ Unlike in the U.S. and many other countries, Big 3 audit firms dominate Japan's audit market. The Big 3 audit firms—Azsa, ShinNihon, and Tohmatsu—have dominated the Japanese audit market since the 2007 dissolution of ChuoAoyama, a former PricewaterhouseCoopers (PwC) affiliate. Each Japanese Big 3 audit firm is allied with an international audit firm: Azsa is affiliated with KPMG; ShinNihon (currently EY ShinNihon) is affiliated with Ernst & Young; and Tohmatsu is affiliated with Deloitte Touche Tohmatsu. The fourth audit firm, PwC Arata, a PwC affiliate, is much smaller than the Big 3 audit firms regarding the number of clients and certified public accountants (Fukukawa, 2011). Following the literature (e.g., Hossain et al., 2017; Kim and Fukukawa, 2013; Kusano and Sakuma, 2019), we employ Big 3 as our control variable for auditor-related factors.

positive. Finally, we include Industry Indicators and Year Indicators to control for industry and year fixed effects.¹⁰ Standard errors are clustered by firm.

4. Sample Selection and Descriptive Statistics

We test our hypotheses using a sample period covering 2009 to 2018 based on the following criteria:

- (i) Firms that prepare consolidated financial statements using Japanese GAAP are listed on stock exchanges in Japan.
- (ii) Banks, securities firms, and insurance are excluded.
- (iii) The firm's fiscal year ends on March 31.¹¹
- (iv) The accounting period does not change during the fiscal year.
- (v) Firms with joint auditors are excluded.
- (vi) Firms sponsor DB pension plans.

We obtain financial statement data from the *Nikkei NEEDS Financial QUEST* database and hand-collect audit data from annual securities reports. We start our sample period in March 2009 since the demise of ChuoAoyama in 2007 and the introduction of internal control audits under the Japanese equivalent of Sarbanes-Oxley Act (J-SOX) in 2008 substantially changed the Japanese audit market (e.g., Fukukawa, 2011; Kusano and Sakuma, 2019; Skinner and Srinivasan, 2012). Japanese firms have to adopt Statement No. 26 for fiscal years ending on or after March 31, 2014. Consequently, the pre-Statement No. 26 period in our sample is from 2009 to 2013, and the post-Statement No. 26 period is from 2014 to 2018.¹²

¹⁰ We define industries using the Nikkei industry classification comprising 36 industries (*Nikkei gyousyu chu-bunru*).

¹¹ We examine Japanese firms with a fiscal-year end of March 31 because most Japanese listed firms end their fiscal year on that date.

¹² After fiscal years beginning on or after April 1, 2009, Japanese firms have to use the discount rate based on the interest rates of high-grade bonds on the balance sheet date when estimating retirement benefit obligations. Until then, they could choose the discount rate based on the five-year average of the interest rates of high-grade bonds. We also use a sample period starting after March 2010 to analyze the effects of recognized versus disclosed pension liabilities on audit fees and costs. Changing our sample period does not change our main results (unreported table).

Given these criteria, the initial sample consists of 18,304 observations from consolidated financial statements. Firms that lack the data required to test our hypotheses are excluded from our sample. The necessary data are available for a sample of 17,764 firm-year observations. To control for outliers, observations of continuous variables are trimmed by year at the top and bottom 1%. Our final sample consists of 15,297 firm-year observations, which includes 7,985 firm-year observations in the pre-Statement No. 26 period and 7,312 firm-year observations in the post-Statement No. 26 period.¹³

<Insert Table 1>

Table 1 presents the descriptive statistics for the variables used in this study. Panel A of Table 1 reports the descriptive statistics for all firms examined in this study. This table shows that the mean (median) of Fee is 3.7298 (3.6270). It also shows that the mean (median) of Cost is 2.5730 (2.5649). In addition, the means (medians) of PL_on and PL_off are 0.0301 (0.0205) and 0.0082 (0.0025), respectively.

Panel B of Table 1 reports the descriptive statistics for the variables divided between the pre- and post-Statement No. 26 periods. As the panel shows, the mean and median differences in Fee, -0.0185 and -0.0267 , are negative and statistically significant. By contrast, the mean and median differences in Cost, 0.1119 and 0.0741 , are positive and statistically significant. These results indicate that audit fees are more likely to decrease but that audit costs are more likely to increase after the adoption of Statement No. 26. In addition, the mean and median differences in PL_on and PL_off are negative and statistically significant. The results show that the amounts of pension liabilities are smaller after the adoption of Statement No. 26.

<Insert Table 2>

Table 2 presents the correlation matrix for the variables used in this study. The upper right-hand (left-hand) area of the table reports the Spearman (Pearson) correlations. In

¹³ Our final sample includes four firm-year observations with SEC registrants. SEC registrants have substantial effects on audit fees and costs. We also exclude SEC registrants from our sample and examine whether and how recognized and disclosed pension liabilities have different associations with audit fees and costs. This change does not alter our main results.

both correlation analyses, PL_on has significantly negative association with Fee and Cost. However, both correlation analyses reveal that PL_off has significantly positive association with Fee and Cost. These results suggest that off-balance sheet pension liabilities are positively related with audit fees and costs. Most of the correlations between the independent variables are relatively low.¹⁴

5. Results

5.1 Main Results

We use regression models (1) and (2) to investigate whether and how audit fees and costs have different associations with disclosed versus recognized pension liabilities. Table 3 presents the results for Hypotheses 1 and 2. Industry and year fixed effects are included but not tabulated. Columns (1) and (3) report the results on the associations between recognized versus disclosed pension liabilities and audit fees, and columns (2) and (4) report the results on the associations between recognized versus disclosed pension liabilities and audit costs.

<Insert Table 3>

First, we analyze the relations between off-balance sheet pension liabilities and audit fees and costs. Columns (1) and (2) of Table 3 present these relations in the pre-Statement No. 26 period. In column (1), the coefficient of PL_on is positive and statistically significant at the 5% level. This result indicates that recognized pension liabilities have positive associations with audit fees. However, the coefficient of PL_off, -0.2832 , does not have the expected sign and is not statistically significant. Our result does not show that disclosed pension liabilities are related with audit fees before the adoption of Statement No. 26. Thus, our evidence is not consistent with Hypothesis 1(a). Column (2) reports the results

¹⁴ However, Table 2 reports that some correlations between the independent variables are relatively high. For instance, the coefficients between Size and Sub are 0.7514 (Pearson correlation) and 0.7274 (Spearman correlation), respectively. We calculate the VIF to examine the effects of multicollinearity. The values of the VIF are lower than 10. These results suggest that the effects of multicollinearity are not a concern.

on the relations between off-balance sheet pension liabilities and audit costs. The coefficient of PL_on has the expected sign but is not statistically significant, suggesting that recognized pension liabilities are not associated with audit costs. However, the coefficient of PL_off, 0.9818, is positive and marginally statistically significant. This result shows that disclosed pension liabilities have positive associations with audit costs. Thus, our evidence is consistent with Hypothesis 1(b).

Statement No. 26 abolishes the delayed recognition of actuarial gains and losses and prior service costs and requires Japanese firms to recognize the differences between retirement benefit obligations and plan assets on their balance sheets. We analyze how the change in the pension accounting rule from disclosure to recognition affects audit fees and costs. Columns (3) and (4) of Table 3 report the results for the post-Statement No. 26 period. In column (3), the coefficient of PL_on, which excludes previously unrecognized items (i.e., actuarial gains and losses and prior service costs), is positive and statistically significant at the 1% level. However, the coefficient of PL_off, which is previously disclosed pension liabilities in the notes, is positive but is not statistically significant. Our results indicate that, unlike recognized pension liabilities, previously disclosed pension liabilities are not associated with audit fees after the adoption of Statement No. 26. Column (4) shows that the coefficients of PL_on and PL_off, 1.0179 and 3.4232, have the expected sign and are statistically significant at the 1% level. Our results show that both recognized and disclosed pension liabilities are positively related with audit costs in the post-Statement No. 26 period.

Next, we examine whether and how auditors process recognized and disclosed pension liabilities differently when determining audit fees and costs. By simultaneously estimating the regression models and using the Wald test, we investigate the equality of the coefficients of PL_off in the pre- and post-Statement No. 26 periods. In column (3), the Wald test reports that the coefficient of PL_off in the pre-Statement No. 26 period is not significantly different from the coefficient of PL_off in the post-Statement No. 26 period. This result indicates that the associations between disclosed versus recognized pension

liabilities and audit fees are statistically similar. Our evidence is not consistent with Hypothesis 2 (a). Column (4) presents the relations between recognized versus disclosed pension liabilities and audit costs. The Wald test reveals that the coefficients of PL_off in the pre and post-Statement No. 26 periods statistically differ. This result suggests that auditors process disclosed and recognized pension liabilities differently when determining audit costs. This evidence is consistent with Hypothesis 2(b).

To test Hypothesis 3, we analyze the effects of pension funding status on the associations between recognized versus disclosed pension liabilities and audit fees and costs. Table 4 presents the results for Hypothesis 3. Columns (1) and (3) report the results for firms with a small pension plan deficit, and columns (2) and (4) report the results for firms with a large pension plan deficit, respectively.

<Insert Table 4>

Panel A of Table 4 presents the results on the relations between recognized versus disclosed pension liabilities and audit fees. Columns (1) and (2) report that the coefficients of PL_off are negative but are not statistically significant before the adoption of Statement No. 26. In columns (3) and (4), the Wald tests indicate that the coefficients of PL_off in the pre-Statement No. 26 period are not statistically different from the coefficients of PL_off in the post-Statement No. 26 period. These results suggest that audit fees have similar associations with disclosed and recognized pension liabilities, regardless of pension plan deficits. Accordingly, our evidence is not consistent with Hypothesis 3(a).

Panel B of Table 4 reports the results on the relations between recognized versus disclosed pension liabilities and audit costs. Columns (1) and (2) show the results for the pre-Statement No. 26 period. Column (1) shows that, for firms with a small pension plan deficit, the coefficient of PL_off has the expected sign and is statistically significant at the 5% level. However, for firms with a large pension plan deficit, the coefficient of PL_off is positive but is not statistically significant, as shown in column (2). In addition, in column (3), the Wald test reveals that the coefficients of PL_off in the pre- and post-Statement No. 26 periods are statistically similar. However, in column (4), the Wald test reports that the

coefficient of PL_off in the pre-Statement No. 26 period is marginally statistically different from the coefficient of PL_off in the post-Statement No. 26 period. Our results indicate that the relations between recognized versus disclosed pension liabilities and audit costs vary along with pension funding status: for firms with a large pension plan deficit, auditors treat disclosed and recognized pension liabilities differently when determining audit costs.¹⁵ Our evidence is consistent with Hypothesis 3(b).

5.2 Interpretation of Results

We explore whether and how disclosed and recognized pension liabilities differ in their associations with audit fees and costs using the pre-Statement No. 26 versus post-Statement No. 26 setting. We show that disclosed pension liabilities are processed similarly to recognized previously off-balance sheet pension liabilities when audit fees are determined. However, we find differences in the associations between recognized versus disclosed pension liabilities and audit costs. We also find that pension funding status has significant effects on the associations between recognized versus disclosed pension liabilities and audit costs. When firms have a large pension plan deficit, auditors process disclosed pension liabilities differently from recognized previously off-balance sheet pension liabilities in determining audit costs.

Previous studies report that auditors address their business risk by increasing their effort and/or charging a higher risk premium (e.g., Houston et al., 2005; Lyon and Maher, 2005; Pratt and Stice, 1994; Simunic, 1980). Our results indicate that audit fees do not differ between recognized and disclosed pension liabilities but that audit costs are higher for recognized pension liabilities than for disclosed pension liabilities. Accordingly, our findings suggest that, in response to an increase in auditors' business risk, auditors expend

¹⁵ Statement No. 26 not only changes the pension accounting rule from disclosure to recognition but also enhances the disclosure of pension information. For instance, Japanese firms are required to disclose the allocation of pension assets among various investment categories. Auditors must also respond to these disclosure requirements and might thus increase their effort. However, since the effects of the pension disclosure rule changes are unlikely to vary according to firms' pension funding status, our results indicate that auditors increase their effort in response to an increase in their business risk.

their greater effort for recognized amounts in financial statements than disclosed financial information in the notes. Our results substantially differ from those reported by Kusano and Sakuma (2019). Their results indicate that, unlike audit costs, audit fees are higher for recognized finance leases than for disclosed finance leases, suggesting that auditors address their higher business risk by charging a higher risk premium without expending additional audit effort.

These studies might generate different results for the following reasons. Unlike with finance lease obligations, firm managers are likely to manage reported accounting numbers by using pension assumptions (e.g., Bergstresser et al., 2006; Comprix and Muller, 2006; Fried and Davis-Friday, 2013; Jones, 2013). Since managerial discretion regarding pension information is high, auditors are more likely to expend their greater effort than to charge a higher risk premium when addressing their higher business risk. In fact, our results show that, for firms with a large pension plan deficit, auditors are more likely to increase their effort for recognized pension liabilities than for disclosed pension liabilities. Therefore, our findings suggest that auditors scrutinize recognized items more closely than disclosed items and thus increase the reliability of accounting information. Our evidence is congruent with the view that the reliability of accounting information influences the differential in investors' treatment between recognition and disclosure (Bratten et al., 2013; Callahan et al., 2013; Davis-Friday et al., 2004; Müller et al., 2015; Schipper, 2007).

5.3 Robustness Tests

Our results thus far indicate that the associations between recognized versus disclosed pension liabilities and audit fees are statistically similar but that the associations between recognized versus disclosed pension liabilities and audit costs are substantially different. Specifically, when firms have a large pension plan deficit, disclosed and recognized pension liabilities have different associations with audit costs. This subsection describes analyses conducted to determine the robustness of our findings.

First, we retest Hypotheses 1 to 3 by using the next year's audit fees and costs. Hackenbrack et al. (2014) report that auditors and firms determine their audit fees and sign an engagement letter (audit contract) by the end of the first quarter of the fiscal year. When making an audit plan, auditors' decisions reflect the firms' past business risk. Accordingly, we reinvestigate how differences between recognized and disclosed pension liabilities affect the next year's audit fees and costs. Unreported results indicate that disclosed and recognized pension liabilities have similar associations with the next year's audit fees but have different associations with the next year's audit costs. In addition, when firms have a large pension plan deficit, the relations between recognized versus disclosed pension liabilities and the next year's audit costs are substantially different. These results are consistent with our main findings.

Second, to avoid sample selection bias, we retest Hypotheses 1 and 2 by including Japanese firms that do not sponsor DB pension plans. We reinvestigate how recognized versus disclosed pension liabilities affect audit fees and costs by including in equations (1) and (2) an indicator variable that takes the value of 1 if a firm sponsors DB pension plans and, 0 otherwise (DB). Previous studies indicate that DB pension plans increase firms' business risk due to pension plan deficits, which increases auditors' business risk (e.g., Chen et al., 2017; Krishnan and Sengupta, 2011). Accordingly, the sign of the coefficient of DB is expected to be positive. Table 5 reports the results for Hypotheses 1 and 2 when firms that do not sponsor DB pension plans are included.

<Insert Table 5>

Columns (1) and (3) present the results on the relations between recognized versus disclosed pension liabilities and audit fees, and columns (2) and (4) present the results on the relations between recognized versus disclosed pension liabilities and audit costs. In columns (1) and (3), the coefficients of DB are negative and statistically significant at the 1% and 5% levels. However, columns (2) and (4) report that the coefficients of DB are not statistically significant. These results indicate that, contrary to the results of previous studies, audit fees are lower for firms that sponsor DB pension plans than for firms that

do not sponsor them. Japanese firms are shifting their pension plans from DB pension plans to DC pension plans. Our results suggest that auditors charge a risk premium to audit fees for firms that do not sponsor DB pension plans.

We investigate whether and how recognized and disclosed pension liabilities have different associations with audit fees and costs. Columns (1) and (2) present the results for the pre-Statement No. 26 period. In column (1), the coefficient of PL_off is negative and is not statistically significant. However, column (2) reports that the coefficient of PL_off has the expected sign and is marginally statistically significant. These results suggest that disclosed pension liabilities do not have associations with audit fees but have positive associations with audit costs. We also examine the equality of the coefficients of PL_off in the pre- and post-Statement No. 26 periods using the Wald test. In column (3), the Wald test reports that the coefficient of PL_off in the pre-Statement No. 26 period is statistically similar to the coefficient of PL_off in the post-Statement No. 26 period. This result suggests that auditors treat disclosed and recognized pension liabilities similarly when determining audit fees. In column (4), however, the Wald test shows that the coefficients of PL_off in the pre- and post-Statement No. 26 periods significantly differ. Our result reveals that disclosed and recognized pension liabilities are processed differently when audit costs are determined. Accordingly, these results are consistent with our main findings.

<Insert Table 6>

Third, we retest Hypothesis 3 by employing the discount rate for retirement benefit obligations. Japanese firms use the discount rate based on the interest rates of high-grade bonds on the balance sheet date when estimating retirement benefit obligations. However, firms can employ higher discount rates to manage the amounts of retirement benefit obligations. In fact, as shown in Panel A of Table 6, the discount rate differs among firms in the same year. An unreported result reveals that the standard deviation of the discount rates in the post-Statement No. 26 period is statistically larger than the standard deviation of the discount rates in the pre-Statement No. 26 period (p -value: 0.0000). This result suggests that, since Japanese firms have to recognize the differences between

retirement benefit obligations and plan assets on their balance sheets after the adoption of Statement No. 26, firms are more likely to manage pension liabilities by employing the discount rate. By using the discount rate as a proxy for balance sheet management, we reinvestigate whether auditors increase their effort for, and/or charge a higher risk premium to, recognized items relative to disclosed items in response to their higher business risk. We divide our sample by year based on the median of the discount rate for retirement benefit obligations. Panels B and C of Table 6 present the results for Hypothesis 3 when the discount rate is used. Columns (1) and (3) report the results for firms that choose lower discount rates, and columns (2) and (4) report the results for firms that choose higher discount rates.

Panel B of Table 6 presents the results on the associations between recognized versus disclosed pension liabilities and audit fees. Columns (1) and (2) report that, unlike the coefficients of PL_{on}, the coefficients of PL_{off} are not statistically significant in the pre-Statement No. 26 period. In addition, the Wald tests reveal that the coefficients of PL_{off} in the pre-Statement No. 26 period are statistically similar to the coefficients of PL_{off} in the post-Statement No. 26 period regardless of which discount rate level is selected.

Panel C of Table 6 reports the results on the associations between recognized versus disclosed pension liabilities and audit costs. Columns (1) and (2) present the results for the pre-Statement No. 26 period. In Column (1), the coefficient of PL_{off} is positive but is not statistically significant. However, for firms that choose higher discount rates, the coefficient of PL_{off} is statistically significant at the 5% level, as shown in column (2). Furthermore, for firms that choose lower discount rates, the Wald test indicates that the coefficients of PL_{off} in the pre- and post-Statement No. 26 periods are statistically similar. By contrast, for firms that choose higher discount rates, the Wald test reveals that the coefficient of PL_{off} in the pre-Statement No. 26 period is marginally statistically different from the coefficient of PL_{off} in the post-Statement No. 26 period. These results suggest that, in response to auditors' higher business risk, auditors expend more effort for recognized amounts than for disclosed financial information. Therefore, the results of

several robustness tests are unchanged from the main results, suggesting that our inferences are robust.

5.4 Additional Analysis

Prior research argues that audit firm size has significant effects on audit quality (e.g., DeAngelo, 1981). When audit firm size influences audit quality, auditors' responses to recognition versus disclosure might differ between Big N and non-Big N audit firms. Considering the Japanese audit environment, we partition our sample into firms with Big 3 and non-Big 3 auditors and conduct an additional analysis to examine whether recognized and disclosed pension liabilities have different associations with audit costs.¹⁶ Table 7 presents the results on the effects of audit firm size on recognition versus disclosure of pension liabilities for this subsample analysis. Columns (1) and (3) report the results for firms whose auditors are Big 3 audit firms, and columns (2) and (4) report the results for firms whose auditors are non-Big 3 audit firms.

<Insert Table 7>

Columns (1) and (2) of Table 7 show the results for the pre-Statement No. 26 period. Column (1) reports that, for firms with Big 3 auditors, the coefficients of PL_on and PL_off have the expected sign and are statistically significant. However, column (2) shows that, for firms with non-Big 3 auditors, the coefficients of PL_on and PL_off are negative and are not statistically significant. For firms whose auditors are Big 3 audit firms, the Wald test reveals that the coefficient of PL_off in the pre-Statement No. 26 period is not significantly different from the coefficient of PL_off in the post-Statement No. 26 period. However, for firms whose auditors are non-Big 3 audit firms, the Wald test reveals that the coefficients of PL_off in the pre- and post-Statement No. 26 periods are substantially different.

¹⁶ We also examine the associations between recognized versus disclosed pension liabilities and audit fees by dividing between Big 3 and non-Big 3 audit firms. We find that auditors process disclosed and recognized pension liabilities similarly when determining audit fees irrespective of audit firm size (unreported table).

Collectively, our results indicate that the associations between recognized versus disclosed pension liabilities and audit costs vary along with audit firm size. Big N auditors exert more effort in examining disclosed pension information and thus process disclosed and recognized pension liabilities similarly when determining audit costs. Contrariwise, non-Big N auditors might not expend their greater effort for disclosed pension liabilities. When the previously off-balance sheet pension liabilities are recognized in financial statements, non-Big N auditors are likely to address the increased business risk by expending more effort for pension information and thus process disclosed and recognized pension liabilities differently when determining audit costs. Our results suggest that auditors' responses to recognition versus disclosure of pension liabilities differ between Big N and non-Big N auditors.

6. Concluding Remarks

We explore auditors' responses to recognized versus disclosed pension information when audit fees and costs are determined. We specifically examine whether audit fees and costs differ in their associations with recognized versus disclosed pension liabilities, and whether these associations differ between audit fees and costs. We also analyze how managers' incentives to manage accounting numbers affects the associations between recognized versus disclosed pension liabilities and audit fees and costs. Our findings provide the following useful evidence regarding the effects of recognized versus disclosed pension information on auditors' decisions.

First, we investigate whether disclosed pension liabilities have positive associations with audit fees and costs in the pre-Statement No. 26 period. Unlike our finding for recognized pension liabilities, we do not find that disclosed pension liabilities are related to audit fees. However, by employing the number of audit team members as the measure of audit costs (i.e., audit effort), we find that disclosed pension liabilities have positive associations with audit costs before the adoption of Statement No. 26.

Second, using the pre-Statement No. 26 versus post-Statement No. 26 setting, we

analyze whether auditors process disclosed pension liabilities differently from recognized previously off-balance sheet pension liabilities when determining audit fees and costs. We find that the relations between recognized versus disclosed pension liabilities and audit fees are statistically similar. By contrast, we find differences in the associations between recognized versus disclosed pension liabilities and audit costs.

Third, by using firms' pension funding status, we examine how firms' incentives to manage accounting numbers affect the relations between recognized versus disclosed pension liabilities and audit fees and costs. We find that, regardless of pension funding status, disclosed and recognized pension liabilities are treated similarly when audit fees are determined. However, we also reveal that, when firms have a large pension plan deficit, auditors process disclosed and recognized pension liabilities differently when determining audit costs.

Collectively, we find that audit costs are higher for recognized previously off-balance sheet pension liabilities than for disclosed pension information but that audit fees do not differ between recognition and disclosure of pension liabilities. Our overall results suggest that auditors expend their greater effort for recognized amounts than for disclosed financial information in response to their higher business risk. Previous research suggests that incremental audit effort for recognized items increases the reliability of accounting information; therefore, capital market participants process recognized and disclosed items differently when making their decisions (e.g., Schipper, 2007). Our findings are consistent with the view that the reliability of accounting information leads to the differential in investors' treatment between recognition and disclosure (Bratten et al., 2013; Callahan et al., 2013; Davis-Friday et al., 2004; Müller et al., 2015).

Although our results provide useful insights into how recognition versus disclosure influences auditors' decisions, our study has several limitations. We find that, in response to an increase in auditors' business risk, auditors increase their effort for recognized pension liabilities relative to disclosed pension liabilities. Specifically, employing pension plan deficits as a proxy for balance sheet management, our study shows that auditors

scrutinize recognized amounts more closely than disclosed financial information. However, our study does not directly examine the associations between balance sheet management and auditors' business risk. It would be fruitful to clearly investigate how firms' incentives to manage accounting numbers affect the relations between recognized versus disclosed items and audit fees and costs. Such an examination would provide a more comprehensive understanding of auditors' responses to recognition versus disclosure.

References

- Abodiy, D. (1996), "Recognition versus Disclosure in the Oil and Gas Industry," *Journal of Accounting Research* 34(Supplement): 21–32.
- Abodiy, D., M. E. Barth and R. Kasznik (2006), "Do Firms Understate Stock Option-Based Compensation Expense Disclosed under SFAS 123?" *Review of Accounting Studies* 11(4): 429–461.
- Accounting Standards Board of Japan: ASBJ (2012), ASBJ Statement No. 26, *Accounting Standard for Retirement Benefits*, ASBJ.
- Ahmed, A. S., E. Kilic and G. J. Lobo (2006), "Does Recognition versus Disclosure Matter? Evidence from Value-Relevance of Banks' Recognized and Disclosed Derivative Financial Instruments," *The Accounting Review* 81(3): 567–588.
- Amir, E. and E. A. Gordon (1996), "Firms' Choice of Estimation Parameters: Empirical Evidence from SFAS No. 106," *Journal of Accounting, Auditing & Finance* 11(3): 427–448.
- An, H., Y. W. Lee and T. Zhang (2014), "Do Corporations Manage Earnings to Meet/Exceed Analyst Forecasts? Evidence from Pension Plan Assumption Changes," *Review of Accounting Studies* 19(2): 698–735.
- Bae, G. S., S. U. Choi and J. H. Rho (2016), "Audit Hours and Unit Audit Price of Industry Specialist Auditors: Evidence from Korea," *Contemporary Accounting Research* 33(1): 314–340.
- Barth, M. E. (1991), "Relative Measurement Errors among Alternative Pension Asset and Liability Measures," *The Accounting Review* 66(3): 433–463.
- Bartov, E., P. Mohanram and D. Nissim (2007), "Managerial Discretion and the Economic Determinants of the Disclosed Volatility Parameter for Valuing ESOs," *Review of Accounting Studies* 12(1): 155–179.
- Basu, R. and J. P. Naughton (2018), "The Real Effects of Financial Statement Recognition: Evidence from Corporate Credit Ratings," *Management Science* forthcoming.
- Beaudoin, C., N. Chandar and E. M. Werner (2011) "Good Disclosure Doesn't Cure Bad Accounting—Or Does It? Evaluating the Case for SFAS 158," *Advances in Accounting* 27(1): 99–110.
- Bedard, J. C. and K. M. Johnstone (2004), "Earnings Manipulation Risk, Corporate Governance Risk, and Auditors' Planning and Pricing Decisions," *The Accounting Review* 79(2): 277–304.
- Bell, T. B., W. R. Landsman and D. A. Shackelford (2001), "Auditors' Perceived Business Risk and Audit Fees: Analysis and Evidence," *Journal of Accounting Research* 39(1): 35–43.
- Bergstresser, D., M. Desai and J. Rauh (2006), "Earnings Manipulation, Pension Assumptions, and Managerial Investment Decisions," *The Quarterly Journal of Economics* 121(1): 157–195.
- Bratten, B., P. Choudhary and K. Schipper (2013), "Evidence that Market Participants Assess Recognized and Disclosed Items Similarly when Reliability is Not an Issue," *The Accounting Review* 88(4): 1179–1210.

- Bratten, B., R. Jennings and C. M. Schwab (2015), “The Effect of Using a Lattice Model to Estimate Reported Option Values,” *Contemporary Accounting Research* 32(1): 193–222.
- Brumfield, C. A., R. K. Elliott and P. D. Jacobson (1983), “Business Risk and the Audit Process,” *Journal of Accountancy* 155(4): 60–68.
- Business Accounting Council: BAC (1998), *Statement on Establishing Accounting Standard for Retirement Benefits*, BAC.
- Callahan, C. M., R. E. Smith and A. W. Spencer (2013), “The Valuation and Reliability Implications of FIN 46 for Synthetic Lease Liabilities,” *Journal of Accounting and Public Policy* 32(4): 271–291.
- Chen, Y., R. Ge and L. Zolotoy (2017), “Do Corporate Pension Plans Affect Audit Pricing?” *Journal of Contemporary Accounting & Economics* 13(3): 322–337.
- Choudhary, P. (2011), “Evidence on Differences between Recognition and Disclosure: A Comparison of Inputs to Estimate Fair Values of Employee Stock Options,” *Journal of Accounting and Economics* 51(1–2): 77–94.
- Comprix, J. and K. A. Muller III (2006), “Asymmetric Treatment of Reported Pension Expense and Income Amounts in CEO Cash Compensation Calculations,” *Journal of Accounting and Economics* 42(3): 385–416.
- Davis-Friday, P. Y., L. B. Folami, C. S. Liu and H. F. Mittelstaedt (1999), “The Value Relevance of Financial Statement Recognition vs. Disclosure: Evidence from SFAS No. 106,” *The Accounting Review* 74(4): 403–423.
- Davis-Friday, P. Y., C. S. Liu and H. F. Mittelstaedt (2004), “Recognition and Disclosure Reliability: Evidence from SFAS No. 106,” *Contemporary Accounting Research* 21(2): 399–429.
- DeAngelo, L. E. (1981), “Auditor Size and Audit Quality,” *Journal of Accounting and Economics* 3(3): 183–199.
- Dechow, P. M., W. Ge, C. R. Larson and R. G. Sloan (2011), “Predicting Material Accounting Misstatements,” *Contemporary Accounting Research* 28(1): 17–82.
- Dechow, P. M. and D. J. Skinner (2000), “Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators,” *Accounting Horizons* 14(2): 235–250.
- DeFond, M. and J. Zhang (2014), “A Review of Archival Auditing Research,” *Journal of Accounting and Economics* 58(2–3): 275–326.
- Dhaliwal, D. S. (1986), “Measurement of Financial Leverage in the Presence of Unfunded Pension Obligations,” *The Accounting Review* 61(4): 651–661.
- Dhaliwal, D. S., H. S. Lee and M. Neamtiu (2011), “The Impact of Operating Leases on Firm Financial and Operating Risk,” *Journal of Accounting, Auditing & Finance* 26(2): 151–197.
- Financial Accounting Standards Board: FASB (1985), *Statement of Financial Accounting Standards (SFAS) No. 87, Employers’ Accounting for Pensions*, FASB.
- Financial Accounting Standards Board: FASB (2006), *Statement of Financial Accounting Standards (SFAS) No. 158, Employers’ Accounting for Defined Benefit Pension and Other Postretirement Plans—an amendment of FASB Statements No. 87, 88, 106, and*

132(R), FASB.

- Francis, J. R. and S. A. Reiter (1987), "Determinants of Corporate Pension Funding Strategy," *Journal of Accounting and Economics* 9(1): 35–59.
- Fried, A. N. and P. Y. Davis-Friday (2013), "Economic Consequences of Mandatory GAAP Changes: The Case of SFAS No. 158," *Advances in Accounting* 29(2): 186–194.
- Fukukawa, H. (2011), "Audit Pricing and Cost Strategies of Japanese Big 3 Firms," *International Journal of Auditing* 15(2): 109–126.
- Glaum, M. (2009), "Pension Accounting and Research: A Review," *Accounting and Business Research* 39(3): 273–311.
- Goncharov, I., E. J. Riedl and T. Sellhorn (2014), "Fair Value and Audit Fees," *Review of Accounting Studies* 19(1): 210–241.
- Gopalakrishnan, V. (1994), "The Effect of Recognition vs. Disclosure on Investor Valuation: The Case of Pension Accounting," *Review of Quantitative Finance and Accounting* 4(4): 383–396.
- Goto, S. and N. Yanase (2016), "The Information Content of Corporate Pension Funding Status in Japan," *Journal of Business Finance & Accounting* 43(7–8): 903–949.
- Greiner, A., M. J. Kohlbeck and T. J. Smith (2017), "The Relationship between Aggressive Real Earnings Management and Current and Future Audit Fees," *Auditing: A Journal of Practice & Theory* 36(1): 85–107.
- Hackenbrack, K. E., N. T. Jenkins and M. Pevzner (2014), "Relevant but Delayed Information in Negotiated Audit Fees," *Auditing: A Journal of Practice & Theory* 33(4): 95–117.
- Hann, R. N., F. Heflin and K. R. Subramanayam (2007), "Fair-Value Pension Accounting," *Journal of Accounting and Economics* 44(3): 328–358.
- Hay, D. C., W. R. Knechel and N. Wong (2006), "Audit Fees: A Meta-analysis of the Effect of Supply and Demand Attributes," *Contemporary Accounting Research* 23(1): 141–191.
- Heninger, W. G. (2001), "The Association between Auditor Litigation and Abnormal Accruals," *The Accounting Review* 76(1): 111–126.
- Hodder, L., W. J. Mayew, M. L. McAnally and C. D. Weaver (2006), "Employee Stock Option Fair-Value Estimates: Do Managerial Discretion and Incentives Explain Accuracy?" *Contemporary Accounting Research* 23(4): 933–975.
- Holthausen, R. W. and R. L. Watts (2001), "The Relevance of the Value-Relevance Literature for Financial Accounting Standard Setting," *Journal of Accounting and Economics* 31(1–3): 3–75.
- Hossain, S., K. Yazawa and G. S. Monroe (2017), "The Relationship between Audit Team Composition, Audit Fees, and Quality," *Auditing: A Journal of Practice & Theory* 36(3): 115–135.
- Houston, R. W., M. F. Peters and J. H. Pratt (1999), "The Audit Risk Model, Business Risk and Audit-Planning Decisions," *The Accounting Review* 74(3): 281–298.
- Houston, R. W., M. F. Peters and J. H. Pratt (2005), "Nonlitigation Risk and Pricing Audit Services," *Auditing: A Journal of Practice & Theory* 24(1): 37–53.
- International Accounting Standards Board: IASB (2011), International Accounting

- Standard (IAS) No. 19, *Employee Benefits*, IASB.
- Israeli, D. (2015), "Recognition versus Disclosure: Evidence from Fair Value of Investment Property," *Review of Accounting Studies* 20(4): 1457–1503.
- Johnston, D. (2006), "Managing Stock Option Expense: The Manipulation of Option-Pricing Model Assumptions," *Contemporary Accounting Research* 23(2): 395–425.
- Johnstone, K. M. (2000), "Client-Acceptance Decisions: Simultaneous Effects of Client Business Risk, Audit Risk, Auditor Business Risk, and Risk Adaptation," *Auditing: A Journal of Practice & Theory* 19(1): 1–25.
- Johnstone, K. M. and J. C. Bedard (2001), "Engagement Planning, Bid Pricing, and Client Response in the Market for Initial Attest Engagements," *The Accounting Review* 76(2): 199–220.
- Johnstone, K. M. and J. C. Bedard (2003), "Risk Management in Client Acceptance Decisions," *The Accounting Review* 78(4): 1003–1025.
- Jones, D. A. (2013). "Changes in the Funded Status of Retirement Plans after the Adoption of SFAS No. 158: Economic Improvement or Balance Sheet Management?" *Contemporary Accounting Research* 30(3): 1099–1132.
- Kim, H. and H. Fukukawa (2013), "Japan's Big 3 Firms' Response to Clients' Business Risk: Greater Audit Effort or Higher Audit Fees?" *International Journal of Auditing* 17(2): 190–212.
- Kraft, P. (2015), "Rating Agency Adjustments to GAAP Financial Statements and Their Effect on Ratings and Credit Spreads," *The Accounting Review* 90(2): 641–674.
- Krishnan, J. and J. Krishnan (1997), "Litigation Risk and Auditor Resignations," *The Accounting Review* 72(4): 539–560.
- Krishnan, G. V. and P. Sengupta (2011), "How do Auditors Perceive Recognized vs. Disclosed Lease and Pension Obligations? Evidence from Fees and Going-Concern Opinions," *International Journal of Auditing* 15(2): 127–149.
- Krishnan, G. V., L. Sun, Q. Wang and R. Yang (2013), "Client Risk Management: A Pecking Order Analysis of Auditor Response to Upward Earnings Management Risk," *Auditing: A Journal of Practice & Theory* 32(2): 147–169.
- Kusano, M. (2019), "Recognition versus Disclosure of Finance Leases: Evidence from Japan," *Journal of Business Finance and Accounting* 46(1–2): 159–182.
- Kusano, M. and Y. Sakuma (2019), "Effects of Recognition versus Disclosure of Finance Leases on Audit Fees and Costs: Evidence from Japan," *Journal of Contemporary Accounting & Economics* 15(1): 53–68.
- Landsman, W. R. (1986), "An Empirical Investigation of Pension Fund Property Rights," *The Accounting Review* 61(4): 662–691.
- Landsman, W. R. and J. A. Ohlson (1990), "Evaluation of Market Efficiency for Supplementary Accounting Disclosures: The Case of Pension Assets and Liabilities," *Contemporary Accounting Research* 7(1): 185–198.
- Li, Y. and P. Klumpes (2013), "Determinants of Expected Rate of Return on Pension Assets: Evidence from the UK," *Accounting and Business Research* 43(1): 3–30.
- Lyon, J. D. and M. W. Maher (2005), "The Importance of Business Risk in Setting Audit

- Fees: Evidence from Cases of Client Misconduct,” *Journal of Accounting Research* 43(1): 133–151.
- Maher, J. J. (1987), “Pension Obligations and the Bond Credit Market: An Empirical Analysis of Accounting Numbers,” *The Accounting Review* 62(4): 785–798.
- Michels, J. (2017), “Disclosure versus Recognition: Inferences from Subsequent Events,” *Journal of Accounting Research* 55(1): 3–34.
- Müller, M. A., E. J. Riedl and T. Sellhorn (2015), “Recognition versus Disclosure of Fair Values,” *The Accounting Review* 90(6): 2411–2447.
- Naughton, J. P. (2019), “Regulatory Oversight and Trade-offs in Earnings Management: Evidence from Pension Accounting,” *Review of Accounting Studies* 24(2): 456–490.
- O’Keefe, T. B., D. A. Simunic and M. T. Stein (1994), “The Production of Audit Services: Evidence from a Major Public Accounting Firm,” *Journal of Accounting Research* 32(2): 241–261.
- O’Malley, S. F. (1993), “Legal Liability is Having a Chilling Effect on the Auditor’s Role,” *Accounting Horizons* 7(2): 82–87.
- Palmrose, Z. V. and S. Scholz (2004), “The Circumstances and Legal Consequences of Non-GAAP Reporting: Evidence from Restatements,” *Contemporary Accounting Research* 21(1): 139–180.
- Picconi, M. (2006), “The Perils of Pensions: Does Pension Accounting Lead Investors and Analysts Astray?” *The Accounting Review* 81(4): 925–955.
- Pratt, J. and J. D. Stice (1994), “The Effects of Client Characteristics on Auditor Litigation Risk Judgments, Required Audit Evidence, and Recommended Audit Fees,” *The Accounting Review* 69(4): 639–656.
- Rauh, J. D. (2006), “Investment and Financing Constraints: Evidence from the Funding of Corporate Pension Plans,” *The Journal of Finance* 61(1): 33–71.
- Schipper, K. (2007), “Required Disclosures in Financial Reports,” *The Accounting Review* 82(2): 301–326.
- Sengupta, P. and Z. Wang (2011), “Pricing of Off-Balance Sheet Debt: How do Bond Market Participants Use the Footnote Disclosures on Operating Leases and Postretirement Benefit Plans?” *Accounting and Finance* 51(3): 787–808.
- Shu, S. Z. (2000), “Auditor Resignations: Clientele Effects and Legal Liability,” *Journal of Accounting and Economics* 29(2): 173–205.
- Simunic, D. A. (1980), “The Pricing of Audit Services: Theory and Evidence,” *Journal of Accounting Research* 18(1): 161–190.
- Simunic, D. A. and M. T. Stein (1996), “The Impact of Litigation Risk on Audit Pricing: A Review of the Economics and the Evidence,” *Auditing: A Journal of Practice & Theory* 15(Supplement): 119–134.
- Skinner, D. J., and S. Srinivasan (2012), “Audit Quality and Auditor Reputation: Evidence from Japan,” *The Accounting Review* 87(5): 1737–1765.
- Stice, J. D. (1991), “Using Financial and Market Information to Identify Pre-Engagement Factors Associated with Lawsuits against Auditors,” *The Accounting Review* 66(3): 516–533.

- Wang, F. A. and T. Zhang (2014), “The Effect of Unfunded Pension Liabilities on Corporate Bond Ratings, Default Risk, and Recovery Rate,” *Review of Quantitative Finance and Accounting* 43(4): 781–802.
- Yu, K. (2013), “Does Recognition versus Disclosure Affect Value Relevance? Evidence from Pension Accounting,” *The Accounting Review* 88(3): 1095–1127.

Appendix: Description of Variables

Variable	Definition
Fee	The natural log of audit fees in fiscal year t .
Cost	The natural log of the number of accounting and non-accounting professionals (excluding signing partners) on an audit team in fiscal year t .
PL_on	Recognized pension liabilities (excluding actuarial gains and losses and prior service costs in the post-Statement No. 26 period) divided by total assets at the end of fiscal year t .
PL_off	Disclosed pension liabilities (i.e., actuarial gains and losses and prior service costs) divided by total assets at the end of fiscal year t .
Lev	Debt divided by total assets at the end of fiscal year t .
ROA	Ordinary income divided by total assets at the end of fiscal year t .
Loss	An indicator variable that takes the value of 1 if a firm reports net loss during fiscal year $t-1$ or fiscal year t , and 0 otherwise.
Liq	The sum of cash and trading securities divided by total assets at the end of fiscal year t .
GC	An indicator variable that takes the value of 1 if a firm receives a going concern opinion in fiscal year t , and 0 otherwise.
Size	The natural log of total assets at the end of fiscal year t .
Comp	The sum of receivables and inventories divided by total assets at the end of fiscal year t .
Sub	The natural log of one plus the number of subsidiaries at the end of fiscal year t .
FO	Foreign ownership at the end of fiscal year t .
Big3	An indicator variable that takes the value of 1 if an auditor is a Big 3 audit firm (i.e., Azsa, ShinNihon, and Tohmatsu), and 0 otherwise.

Notes: This appendix describes the construction of the variables used in this study.

Table 1: Descriptive Statistics

Panel A: Full Sample

	N	Mean	SD	Min	p25	Median	p75	Max
Fee	15,297	3.7298	0.6040	2.5177	3.3142	3.6270	4.0254	5.9584
Cost	15,297	2.5730	0.5221	1.0986	2.1972	2.5649	2.9444	4.0431
PL_on	15,297	0.0301	0.0314	0.0000	0.0062	0.0205	0.0432	0.1799
PL_off	15,297	0.0082	0.0132	0.0000	0.0000	0.0025	0.0107	0.1180
Lev	15,297	0.1914	0.1640	0.0000	0.0472	0.1581	0.3011	0.7337
ROA	15,297	0.0464	0.0405	-0.2117	0.0229	0.0431	0.0699	0.1924
Loss	15,297	0.2113	0.4082	0.0000	0.0000	0.0000	0.0000	1.0000
Liq	15,297	0.1730	0.1079	0.0101	0.0922	0.1525	0.2314	0.5887
GC	15,297	0.0050	0.0703	0.0000	0.0000	0.0000	0.0000	1.0000
Size	15,297	10.9191	1.3595	7.4776	9.9464	10.7807	11.7891	15.2341
Comp	15,297	0.3406	0.1497	0.0076	0.2426	0.3422	0.4384	0.7499
Sub	15,297	2.3296	0.9866	0.6931	1.6094	2.1972	2.9444	5.1930
FO	15,297	0.0981	0.1029	0.0000	0.0126	0.0618	0.1572	0.4690
Big3	15,297	0.7318	0.4430	0.0000	0.0000	1.0000	1.0000	1.0000

Panel B: Pre-Statement No. 26 versus Post-Statement No. 26

	Pre-Statement No. 26 (N=7,985)			Post-Statement No. 26 (N=7,312)			Mean Difference	Median Difference
	Mean	SD	Median	Mean	SD	Median		
Fee	3.7386	0.6053	3.6376	3.7201	0.6025	3.6109	-0.0185*	-0.0267**
Cost	2.5195	0.4953	2.5649	2.6314	0.5438	2.6391	0.1119***	0.0741***
PL_on	0.0331	0.0326	0.0235	0.0268	0.0297	0.0172	-0.0063***	-0.0063***
PL_off	0.0119	0.0162	0.0052	0.0042	0.0070	0.0008	-0.0076***	-0.0045***
Lev	0.2055	0.1707	0.1758	0.1761	0.1548	0.1426	-0.0293***	-0.0332***
ROA	0.0392	0.0430	0.0367	0.0543	0.0360	0.0499	0.0151***	0.0132***
Loss	0.3002	0.4584	0.0000	0.1142	0.3181	0.0000	-0.1860***	0.0000***
Liq	0.1651	0.1043	0.1454	0.1817	0.1110	0.1621	0.0166***	0.0168***
GC	0.0063	0.0789	0.0000	0.0036	0.0595	0.0000	-0.0027**	0.0000**
Size	10.8494	1.3675	10.6989	10.9953	1.3467	10.8744	0.1459***	0.1754***
Comp	0.3411	0.1499	0.3430	0.3401	0.1495	0.3413	-0.0011	-0.0017
Sub	2.2942	0.9852	2.1972	2.3681	0.9868	2.3026	0.0739***	0.1054***
FO	0.0821	0.0936	0.0452	0.1155	0.1095	0.0825	0.0334***	0.0373***
Big3	0.7416	0.4378	1.0000	0.7211	0.4485	1.0000	-0.0205***	0.0000***

Notes: Table 1 presents the descriptive statistics for the variables used in this study. Panel A reports the descriptive statistics for the variables for a sample of all firms, and Panel B reports the descriptive statistics for the variables divided between the pre- and post-Statement No. 26 periods, respectively. All continuous variables are trimmed by year at the top and bottom 1%. All the variables are defined in the Appendix. *** and ** indicate that mean (median) difference is significant at the 0.01 and 0.05 levels using a two-tailed t test (Mann-Whitney U test), respectively.

Table 2: Correlation Matrix

	Fee	Cost	PL_on	PL_off	Lev	ROA	Loss	Liq	GC	Size	Comp	Sub	FO	Big3
Fee	1.0000	0.5430	-0.0719	0.2480	0.1380	0.0604	-0.0445	-0.1845	-0.0416	0.8083	-0.0210	0.7126	0.5818	0.2819
	.	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0092)	(0.0000)	(0.0000)	(0.0000)
Cost	0.5708	1.0000	-0.0489	0.1565	0.0495	0.1038	-0.0581	-0.1155	-0.0334	0.4640	-0.0406	0.4191	0.3727	0.4206
	(0.0000)	.	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
PL_on	-0.0798	-0.0487	1.0000	0.1992	-0.0056	-0.1089	0.0645	-0.0387	0.0215	-0.1322	0.0527	-0.0735	-0.1680	-0.0270
	(0.0000)	(0.0000)	.	(0.0000)	(0.4894)	(0.0000)	(0.0000)	(0.0000)	(0.0079)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0008)
PL_off	0.1626	0.1034	0.2071	1.0000	0.0064	-0.0649	0.0604	-0.1501	-0.0200	0.2570	0.1024	0.2099	0.1164	0.0882
	(0.0000)	(0.0000)	(0.0000)	.	(0.4251)	(0.0000)	(0.0000)	(0.0000)	(0.0133)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Lev	0.1587	0.0530	-0.0586	0.0096	1.0000	-0.3563	0.2061	-0.4718	0.0567	0.0825	-0.0383	0.1709	-0.1593	-0.0336
	(0.0000)	(0.0000)	(0.0000)	(0.2369)	.	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	0.0292	0.0890	-0.1015	-0.1091	-0.3513	1.0000	-0.5278	0.2546	-0.1003	0.1041	-0.0467	0.0753	0.3185	0.0567
	(0.0003)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	.	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Loss	-0.0263	-0.0582	0.0625	0.1185	0.2223	-0.5258	1.0000	-0.0533	0.1251	-0.1342	0.0162	-0.0656	-0.1588	-0.0384
	(0.0012)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	.	(0.0000)	(0.0000)	(0.0000)	(0.0452)	(0.0000)	(0.0000)	(0.0000)
Liq	-0.1827	-0.1147	-0.0118	-0.1361	-0.4319	0.2327	-0.0499	1.0000	-0.0113	-0.2319	-0.1491	-0.1504	0.0727	-0.0490
	(0.0000)	(0.0000)	(0.1439)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	.	(0.1614)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GC	-0.0367	-0.0336	0.0286	-0.0010	0.0731	-0.1497	0.1251	-0.0079	1.0000	-0.0878	0.0246	-0.0533	-0.0653	-0.0181
	(0.0000)	(0.0000)	(0.0004)	(0.8987)	(0.0000)	(0.0000)	(0.0000)	(0.3285)	.	(0.0000)	(0.0023)	(0.0000)	(0.0000)	(0.0252)
Size	0.8216	0.4833	-0.1430	0.1521	0.1020	0.0867	-0.1236	-0.2466	-0.0913	1.0000	-0.0451	0.7274	0.6914	0.1464
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	.	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Comp	-0.0524	-0.0374	0.0563	0.1046	-0.1063	-0.0443	0.0092	-0.1809	0.0176	-0.0671	1.0000	-0.0281	-0.0633	-0.0324
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.2533)	(0.0000)	(0.0298)	(0.0000)	.	(0.0005)	(0.0000)	(0.0001)
Sub	0.7419	0.4386	-0.0884	0.1534	0.1623	0.0576	-0.0599	-0.1685	-0.0494	0.7514	-0.0310	1.0000	0.5410	0.1083

	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	.	(0.0000)	(0.0000)
FO	0.5274	0.3506	-0.1511	0.0328	-0.1383	0.2876	-0.1343	0.0862	-0.0486	0.6192	-0.0733	0.5152	1.0000	0.1149
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	.	(0.0000)
Big3	0.2610	0.4396	-0.0380	0.0706	-0.0279	0.0488	-0.0384	-0.0278	-0.0181	0.1483	-0.0289	0.1074	0.1054	1.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0006)	(0.0000)	(0.0000)	(0.0006)	(0.0252)	(0.0000)	(0.0003)	(0.0000)	(0.0000)	.

Notes: Table 2 presents the correlation matrix for the variables used in this study. Pearson (Spearman) correlations are below (above) the diagonal. All the variables are defined in the Appendix. *p*-values for correlation coefficients are reported in parentheses.

Table 3: The Relations between Recognized versus Disclosed Pension Liabilities and Audit Fees and Costs

	Expected Sign	(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Audit Fees	Audit Costs	Audit Fees	Audit Costs
		Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		0.0810 (0.8025)	0.8660*** (7.6471)	-0.1563 (-1.4675)	0.6897*** (4.9781)
PL_on	+	0.4448** (1.9883)	0.3583 (1.3463)	0.9850*** (4.1211)	1.0179*** (3.1649)
PL_off	+	-0.2832 (-0.6422)	0.9818* (1.8970)	0.1552 (0.1687)	3.4232*** (2.8059)
Lev	+	0.3039*** (6.0360)	0.1067* (1.8599)	0.3407*** (6.1914)	0.1896*** (2.6460)
ROA	-	-0.1412 (-0.9485)	0.2483 (1.3276)	-0.4790** (-2.4526)	0.8226*** (3.0551)
Loss	+	0.0449*** (3.6815)	0.0230 (1.5565)	0.0483*** (2.7741)	0.0695*** (3.0212)
Liq	-	0.2435*** (3.1661)	-0.0955 (-1.0226)	0.1297 (1.6322)	-0.1165 (-1.1365)
GC	+	0.2150*** (3.6595)	0.0488 (0.7744)	0.1315** (2.0891)	0.0258 (0.3914)
Size	+	0.2793*** (29.3596)	0.1083*** (10.0697)	0.2980*** (30.2428)	0.1188*** (9.2004)
Comp	+	0.0645 (1.1010)	-0.0517 (-0.7577)	0.1320** (2.2544)	0.0052 (0.0656)
Sub	+	0.1623*** (13.2633)	0.0833*** (6.4098)	0.1466*** (12.5371)	0.0777*** (5.1823)
FO	+	0.2192** (2.1552)	0.2161* (1.9185)	0.1223 (1.3899)	0.1966* (1.6822)
Big3	+	0.1950*** (11.7198)	0.3942*** (18.1014)	0.2008*** (12.9518)	0.5046*** (22.4409)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		7,985	7,985	7,312	7,312
Adj. R ²		0.7536	0.3907	0.7835	0.4301
Wald test				0.2752 [0.5998]	4.6373 [0.0313]

Notes: Table 3 reports the relations between recognized versus disclosed pension liabilities and audit fees and costs. Columns (1) and (2) present the results for the pre-Statement No. 26 period, and columns (3) and (4)

present the results for the post-Statement No. 26 period, respectively. Columns (1) and (3) report the results for audit fees, while columns (2) and (4) report the results for audit costs. All the variables are defined in the Appendix. t statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, and * indicate that the coefficient estimate is significant at the 0.01, 0.05, and 0.1 levels using a two-tailed t test, respectively. The Wald test analyzes the equality between the coefficients of PL_off in the pre- and post-Statement No. 26 periods and reports chi-square values. p -values are reported in square brackets.

Table 4: The Effects of Pension Plan Deficit on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Fees and Costs

Panel A: Audit Fees

		(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Small	Large	Small	Large
	Expected Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		-0.0275 (-0.1958)	0.1467 (1.0615)	-0.1852 (-1.2547)	-0.1845 (-1.2181)
PL_on	+	0.7436* (1.9065)	0.3318 (1.0890)	1.8854*** (3.6800)	1.1013*** (3.3671)
PL_off	+	-0.2263 (-0.3814)	-0.3975 (-0.6471)	-0.3654 (-0.3057)	0.8294 (0.5646)
Lev	+	0.3540*** (4.8231)	0.2400*** (3.6066)	0.4066*** (4.8036)	0.2883*** (3.9163)
ROA	-	-0.1677 (-0.8296)	-0.1502 (-0.7394)	-0.3983 (-1.4073)	-0.5121** (-1.9986)
Loss	+	0.0387** (2.2409)	0.0508*** (3.0975)	0.0574** (2.1396)	0.0318 (1.4441)
Liq	-	0.1345 (1.2043)	0.3428*** (3.4745)	-0.0861 (-0.7286)	0.3039*** (3.1001)
GC	+	0.3349*** (5.3603)	0.1187 (1.4509)	0.0979** (2.0316)	0.1698** (1.9810)
Size	+	0.2987*** (21.9452)	0.2666*** (20.7730)	0.3120*** (22.1389)	0.2910*** (21.5116)
Comp	+	0.0330 (0.3994)	0.0813 (1.0155)	0.0265 (0.3107)	0.1741** (2.2323)
Sub	+	0.1434*** (8.3053)	0.1749*** (10.6210)	0.1205*** (7.1351)	0.1623*** (10.6623)
FO	+	0.1974 (1.4564)	0.2243 (1.5220)	0.1968 (1.6163)	0.0084 (0.0696)
Big3	+	0.1923*** (7.8664)	0.1904*** (8.9958)	0.2146*** (9.1775)	0.1819*** (9.0782)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		3,994	3,991	3,656	3,656
Adj. R ²		0.7766	0.7180	0.7919	0.7658
Wald test				0.0158 [0.8999]	0.8328 [0.3615]

Table 4: The Effects of Pension Plan Deficit on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Fees and Costs (Continued)

Panel B: Audit Costs

		(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Small	Large	Small	Large
	Expected Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		0.9669*** (5.8527)	0.7798*** (4.9104)	0.6293*** (2.9564)	0.7830*** (4.2646)
PL_on	+	0.2955 (0.6243)	0.5185 (1.3837)	1.4442** (2.0627)	1.1629*** (2.6585)
PL_off	+	1.4380** (1.9970)	0.2387 (0.3375)	3.4201** (2.1419)	3.2908* (1.8068)
Lev	+	0.0825 (0.9921)	0.1349* (1.7046)	0.1385 (1.2747)	0.2188** (2.2659)
ROA	-	-0.3403 (-1.2753)	0.6699*** (2.6274)	0.5956 (1.4893)	0.9639*** (2.6204)
Loss	+	-0.0038 (-0.1827)	0.0377* (1.8291)	0.0594* (1.8456)	0.0670** (2.1157)
Liq	-	-0.1424 (-1.0976)	-0.0542 (-0.4170)	-0.2570* (-1.7029)	-0.0339 (-0.2481)
GC	+	0.0888 (0.9184)	0.0300 (0.3830)	0.0202 (0.2412)	0.0269 (0.3518)
Size	+	0.1079*** (6.7475)	0.1074*** (7.3865)	0.1359*** (6.8643)	0.1071*** (6.2550)
Comp	+	-0.1035 (-1.0408)	0.0111 (0.1241)	-0.0575 (-0.4640)	0.0587 (0.5782)
Sub	+	0.0925*** (5.0112)	0.0751*** (4.2415)	0.0570** (2.4867)	0.0873*** (4.4125)
FO	+	0.2298 (1.4393)	0.1571 (1.0341)	0.3248* (1.9598)	0.0293 (0.1856)
Big3	+	0.3712*** (11.5709)	0.4125*** (14.4359)	0.4701*** (14.0138)	0.5341*** (18.0232)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		3,994	3,991	3,656	3,656
Adj. R ²		0.4015	0.3694	0.4288	0.4255
Wald test				1.7525 [0.1856]	3.0352 [0.0815]

Notes: Table 4 reports the effects of pension plan deficit on the relations between recognized versus disclosed

pension liabilities and audit costs. Panel A presents the results on the relations between recognized versus disclosed pension liabilities and audit fees. Panel B presents the results on the relations between recognized versus disclosed pension liabilities and audit costs. Columns (1) and (2) report the results for the pre-Statement No. 26 period, and columns (3) and (4) present the results for the post-Statement No. 26 period, respectively. Columns (1) and (3) present the results for firms with a small deficit pension plan, while columns (2) and (4) present the results for firms with a large pension plan deficit. All the variables are defined in the Appendix. *t* statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, and * indicate that the coefficient estimate is significant at the 0.01, 0.05, and 0.1 levels using a two-tailed *t* test, respectively. The Wald test analyzes the equality between the coefficients of *PL_off* in the pre- and post-Statement No. 26 periods and reports chi-square values. *p*-values are reported in square brackets.

Table 5: The Relations between Recognized versus Disclosed Pension Liabilities and Audit Fees and Costs including Firms that do not Sponsor DB Pension Plans

	Expected Sign	(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Audit Fees	Audit Costs	Audit Fees	Audit Costs
		Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		0.3015*** (3.2093)	0.8725*** (8.4318)	-0.0677 (-0.7040)	0.6368*** (5.2282)
DB	+	-0.0759*** (-2.6711)	0.0331 (1.1191)	-0.0497** (-2.0048)	0.0007 (0.0217)
PL_on	+	0.3939* (1.7797)	0.3688 (1.4147)	1.0186*** (4.3599)	1.0344*** (3.2834)
PL_off	+	-0.1449 (-0.3253)	0.9328* (1.7629)	0.4432 (0.4809)	3.7524*** (3.1161)
Lev	+	0.2498*** (5.3604)	0.0853 (1.6329)	0.2731*** (5.5545)	0.1389** (2.1888)
ROA	-	-0.1321 (-1.0692)	0.1577 (1.0035)	-0.4977*** (-3.1925)	0.5701*** (2.6804)
Loss	+	0.0510*** (4.3225)	0.0239* (1.7050)	0.0541*** (3.3520)	0.0588*** (2.8008)
Liq	-	0.2062*** (3.0243)	-0.0470 (-0.5731)	0.1311* (1.9420)	-0.0581 (-0.6852)
GC	+	0.1991*** (4.0933)	0.1150* (1.9506)	0.1613** (2.5489)	0.0048 (0.0799)
Size	+	0.2649*** (30.5579)	0.1041*** (10.6555)	0.2921*** (33.0801)	0.1210*** (10.5992)
Comp	+	0.0804 (1.5050)	-0.0319 (-0.5152)	0.2018*** (3.8770)	0.0250 (0.3735)
Sub	+	0.1736*** (14.8481)	0.0864*** (7.1565)	0.1508*** (14.1924)	0.0738*** (5.4853)
FO	+	0.2214** (2.2942)	0.2048* (1.9502)	0.1048 (1.2818)	0.1789* (1.6629)
Big3	+	0.1826*** (11.5324)	0.3932*** (19.2951)	0.1900*** (13.0959)	0.4883*** (23.6785)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		8,771	8,771	8,359	8,359
Adj. R ²		0.7455	0.3951	0.7844	0.4338
Wald test				0.4975	6.3933

[0.4806]

[0.0115]

Notes: Table 5 reports the relations between recognized versus disclosed pension liabilities and audit fees and costs including firms that do not sponsor DB pension plans. Columns (1) and (2) present the results for the pre-Statement No. 26 period, and columns (3) and (4) present the results for the post-Statement No. 26 period, respectively. Columns (1) and (3) report the results for audit fees, while columns (2) and (4) report the results for audit costs. DB is an indicator variable that takes the value of 1 if a firm sponsors DB pension plans in fiscal year t , and 0 otherwise. All other variables are defined in the Appendix. t statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, and * indicate that the coefficient estimate is significant at the 0.01, 0.05, and 0.1 levels using a two-tailed t test, respectively. The Wald test analyzes the equality between the coefficients of `PL_off` in the pre- and post-Statement No. 26 periods and reports chi-square values. p -values are reported in square brackets.

Table 6: The Effects of the Discount Rate on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Fees and Costs

Panel A: Descriptive Statistics for the Discount Rate

	N	Mean	SD	Min	p25	Median	p75	Max
2009	1,420	0.0220	0.0095	0.0050	0.0200	0.0200	0.0230	0.1512
2010	1,362	0.0213	0.0092	0.0049	0.0200	0.0200	0.0200	0.1116
2011	1,334	0.0210	0.0087	0.0049	0.0200	0.0200	0.0200	0.0950
2012	1,319	0.0198	0.0091	0.0039	0.0150	0.0200	0.0200	0.0950
2013	1,311	0.0157	0.0085	0.0020	0.0110	0.0150	0.0190	0.0850
2014	1,272	0.0161	0.0113	0.0014	0.0110	0.0140	0.0170	0.0930
2015	1,255	0.0118	0.0109	0.0000	0.0070	0.0100	0.0120	0.0900
2016	1,229	0.0079	0.0133	-0.0020	0.0020	0.0050	0.0089	0.0950
2017	1,218	0.0079	0.0129	-0.0010	0.0020	0.0050	0.0080	0.0900
2018	1,199	0.0075	0.0124	-0.0007	0.0020	0.0050	0.0080	0.0900

Table 6: The Effects of the Discount Rate on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Fees and Costs (Continued)

Panel B: Audit Fees

		(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Low	High	Low	High
	Expected Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		0.0137 (0.1012)	-0.4178*** (-2.7781)	-0.1636 (-1.0387)	-0.6144*** (-3.8796)
PL_on	+	0.4973* (1.7748)	0.5198* (1.8427)	1.0368*** (3.1709)	1.2938*** (4.3391)
PL_off	+	-0.4912 (-0.9792)	0.2013 (0.3294)	0.9973 (0.8517)	-0.5200 (-0.4024)
Lev	+	0.2426*** (3.9379)	0.3520*** (4.6584)	0.3645*** (4.7802)	0.2839*** (3.5564)
ROA	-	-0.0021 (-0.0108)	-0.1037 (-0.4277)	-0.6058** (-2.0754)	-0.7773*** (-2.7181)
Loss	+	0.0447*** (2.6080)	0.0374** (1.9757)	0.0136 (0.5356)	0.0568** (2.3845)
Liq	-	0.2001** (2.0836)	0.2290** (2.0196)	0.0924 (0.7996)	0.1286 (1.0826)
GC	+	0.1275 (1.4681)	0.1261 (0.8615)	0.0635 (1.1115)	0.1478** (2.5393)
Size	+	0.2883*** (21.8013)	0.3199*** (23.4928)	0.2992*** (20.4502)	0.3413*** (23.3882)
Comp	+	0.0575 (0.8394)	0.0534 (0.5613)	0.1740** (2.3117)	0.1213 (1.2727)
Sub	+	0.1510*** (9.5073)	0.1495*** (9.5077)	0.1336*** (7.5924)	0.1403*** (9.2559)
FO	+	0.0546 (0.4414)	0.2541** (1.9910)	0.1127 (0.9114)	0.0729 (0.6158)
Big3	+	0.2077*** (9.8355)	0.2350*** (10.4446)	0.1964*** (9.0608)	0.2232*** (10.4777)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		3,500	3,246	3,066	3,107
Adj. R ²		0.7079	0.7816	0.7488	0.7991
Wald test				1.8006 [0.1796]	0.3391 [0.5603]

Table 6: The Effects of the Discount Rate on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Fees and Costs (Continued)

Panel C: Audit Costs

		(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Low	High	Low	High
	Expected Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		0.8945 ^{***} (5.8177)	0.9807 ^{***} (5.4487)	0.5363 ^{***} (2.7601)	0.7830 ^{***} (3.6318)
PL_on	+	0.1878 (0.5506)	0.3662 (1.0455)	1.5526 ^{***} (3.6754)	0.7402 [*] (1.6524)
PL_off	+	0.6510 (1.0444)	1.4968 ^{**} (2.1084)	1.8680 (1.1381)	4.2387 ^{***} (2.6008)
Lev	+	0.0978 (1.2431)	0.1032 (1.2748)	0.1360 (1.4252)	0.3055 ^{***} (2.8624)
ROA	-	0.6614 ^{**} (2.4936)	-0.1067 (-0.3432)	0.9793 ^{**} (2.5431)	0.7994 ^{**} (1.9845)
Loss	+	0.0572 ^{***} (2.6399)	-0.0111 (-0.4986)	0.1055 ^{***} (3.2575)	0.0098 (0.2839)
Liq	-	-0.1588 (-1.3080)	-0.2221 (-1.6355)	-0.2065 (-1.4661)	-0.2983 ^{**} (-2.0261)
GC	+	0.0388 (0.3432)	-0.0538 (-0.4630)	0.0257 (0.2293)	0.0926 (0.8629)
Size	+	0.1172 ^{***} (7.9886)	0.0903 ^{***} (5.5119)	0.1419 ^{***} (7.8822)	0.1131 ^{***} (5.7417)
Comp	+	-0.1215 (-1.3537)	-0.1362 (-1.3106)	-0.0107 (-0.0989)	-0.1086 (-0.8977)
Sub	+	0.0584 ^{***} (3.5308)	0.1119 ^{***} (6.3353)	0.0535 ^{***} (2.6146)	0.0780 ^{***} (3.7977)
FO	+	0.1449 (0.9796)	0.3240 ^{**} (2.0321)	0.0948 (0.6257)	0.3138 [*] (1.8910)
Big3	+	0.3551 ^{***} (12.4632)	0.4239 ^{***} (14.2500)	0.4706 ^{***} (15.9977)	0.4961 ^{***} (14.7841)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		3,500	3,246	3,066	3,107
Adj. R ²		0.3061	0.4160	0.3856	0.4268
Wald test				0.5973 [0.4396]	2.9665 [0.0850]

Notes: Table 6 reports the effects of the discount rate on the relations between recognized versus disclosed

pension liabilities and audit costs. Panel A describes the descriptive statistics for the discount rate by year. Panel B presents the results on the relations between recognized versus disclosed pension liabilities and audit fees. Panel C presents the results on the relations between recognized versus disclosed pension liabilities and audit costs. Columns (1) and (2) report the results for the pre-Statement No. 26 period, and columns (3) and (4) present the results for the post-Statement No. 26 period, respectively. Columns (1) and (3) present the results for firms that choose lower discount rates, while columns (2) and (4) present the results for firms that choose higher discount rates. All the variables are defined in the Appendix. *t* statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, and * indicate that the coefficient estimate is significant at the 0.01, 0.05, and 0.1 levels using a two-tailed *t* test, respectively. The Wald test analyzes the equality between the coefficients of *PL_off* in the pre- and post-Statement No. 26 periods and reports chi-square values. *p*-values are reported in square brackets.

Table 7: The Effects of Audit Firm Size on the Relations between Recognition versus Disclosure of Pension Liabilities and Audit Costs

	Expected Sign	(1)	(2)	(3)	(4)
		Pre-Statement No. 26		Post-Statement No. 26	
		Big 3	Non-Big 3	Big 3	Non-Big 3
		Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
Constant		1.2092 ^{***} (9.5451)	1.0134 ^{***} (4.0076)	1.3163 ^{***} (8.3527)	0.3275 (1.1843)
PL_on	+	0.5056 [*] (1.8478)	-0.2091 (-0.3311)	1.2453 ^{***} (3.3250)	0.3091 (0.5006)
PL_off	+	1.5465 ^{***} (2.8798)	-0.9928 (-0.7166)	2.6576 [*] (1.9246)	5.3415 ^{**} (2.0356)
Lev	+	0.0920 (1.5029)	0.1148 (0.8794)	0.2387 ^{***} (2.9724)	0.0758 (0.5008)
ROA	-	0.2094 (1.0210)	0.2932 (0.7401)	0.5886 [*] (1.9048)	1.1877 ^{**} (2.1664)
Loss	+	0.0210 (1.3474)	0.0202 (0.6018)	0.0785 ^{***} (3.0188)	0.0462 (1.0101)
Liq	-	-0.1150 (-1.1396)	0.0046 (0.0216)	-0.1741 (-1.4862)	0.0206 (0.1000)
GC	+	0.1584 [*] (1.8776)	-0.1076 (-1.0670)	0.0080 (0.1056)	0.0307 (0.2708)
Size	+	0.1160 ^{***} (9.9128)	0.0901 ^{***} (3.6611)	0.1093 ^{***} (7.6017)	0.1465 ^{***} (5.4877)
Comp	+	-0.0040 (-0.0549)	-0.1624 (-1.0616)	-0.0418 (-0.4667)	0.1068 (0.6934)
Sub	+	0.0684 ^{***} (5.1270)	0.1124 ^{***} (3.3993)	0.0832 ^{***} (4.9937)	0.0350 (1.1011)
FO	+	0.2140 [*] (1.7530)	0.2964 (1.1579)	0.3194 ^{**} (2.4557)	-0.0261 (-0.1090)
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
N		5,922	2,063	5,273	2,039
Adj. R ²		0.3112	0.2131	0.2996	0.2371
Wald test				0.7457 [0.3878]	6.9423 [0.0084]

Notes: Table 7 reports the effects of audit firm size on the relations between recognized versus disclosed pension liabilities and audit costs. Columns (1) and (2) report the results for the pre-Statement No. 26 period, and columns (3) and (4) present the results for the post-Statement No. 26 period, respectively. Columns (1) and (3) present the results for firms with Big 3 auditors, while columns (2) and (4) present the results for firms with non-Big 3 auditors. All the variables are defined in the Appendix. *t* statistics are based on robust standard

errors clustered at the firm level and are reported in parentheses. ***, **, and * indicate that the coefficient estimate is significant at the 0.01, 0.05, and 0.1 levels using a two-tailed t test, respectively. The Wald test analyzes the equality between the coefficients of PL_off in the pre- and post-Statement No. 26 periods and reports chi-square values. *p*-values are reported in square brackets.