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Does Recognition versus Disclosure Affect Risk Relevance?

Evidence from Finance Leases in Japan

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Abstract

This study examines the risk relevance of recognized versus disclosed finance leases in Japan. In particular, this study investigates whether and why equity investors treat recognized finance lease obligations differently from disclosed finance lease obligations when assessing firms' equity risk. This study shows that recognized finance leases are associated with equity risk but that disclosed finance leases are not. Moreover, the relations between recognized versus disclosed finance leases and equity risk are substantially different. However, for firms with higher levels of institutional ownership, the risk relevance of disclosed finance leases is similar to the risk relevance of recognized finance leases. These results suggest that institutional investors are more sophisticated at processing disclosed finance leases and treating disclosed and recognized finance leases similarly when assessing firms' equity risk. This study provides the evidence that investors' information processing has significant effects on the risk relevance of lease arrangements. This study contributes to the accounting literature on recognition versus disclosure and to the discussions on the global convergence of accounting standards.

JEL Classification: M41, M48

Keywords: Recognition versus Disclosure, Finance Leases, Equity Risk, Institutional Ownership

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1. Introduction

This study investigates whether and why equity investors treat recognized finance leases in financial statements differently from disclosed finance leases in the notes in Japan. In particular, this study analyzes the associations between recognized versus disclosed finance lease obligations and firms' equity risk. Furthermore, this study examines the effects of institutional ownership on the risk relevance of disclosed versus recognized finance leases.¹

Prior literature examines whether capital market participants treat disclosed financial information differently from recognized amounts (e.g., Aboody, 1996; Ahmed et al., 2006; Davis-Friday et al., 1999; Israeli, 2015; Michels, 2017; Müller et al., 2015; Yu, 2013). In particular, using lease arrangements, previous studies investigate the associations between recognized finance leases versus disclosed operating leases and the costs of debt and equity (Barone et al., 2014; Spencer and Webb, 2015). For instance, Dhaliwal et al. (2011) show that the relations between recognized finance leases versus disclosed operating leases and the cost of equity are substantially different. On the contrary, Bratten et al. (2013) find that capital market participants consider recognized finance leases and disclosed operating leases similarly when assessing firms' risk.

These prior studies provide useful evidence on recognition versus disclosure of lease arrangements. However, they use different types of leases, namely finance leases and operating leases. Therefore, their research design consists of a joint test of the conjectures that operating leases are economically similar to finance leases and that capital market participants treat disclosed information differently from recognized amounts. Moreover, when examining whether disclosed operating leases are processed differently from recognized finance leases, it is necessary to constructively capitalize lease obligations using future minimum lease payments. Since the assumptions underlying lease arrangements

¹ Consistent with prior literature on the risk relevance of lease arrangements (e.g., Bowman, 1980; Bratten et al., 2013; Dhaliwal et al., 2011; Ely, 1995; Imhoff et al., 1993), I consider that finance leases are risk relevant if they are associated with firms' equity or credit risk.

and the parameter estimates affect the estimated amounts, measurement errors concerning constructively capitalized leases can occur.

Using Japanese lease accounting as a research setting prevents the aforementioned issues. In Japan, finance leases must be recognized on lessees' balance sheets, similarly to International Financial Reporting Standards (IFRS) (IAS 17) (IASB, 1982) and U.S. Generally Accepted Accounting Principles (GAAP) (ASC 840/SFAS 13) (FASB, 1976).² However, until 2008, Japanese firms were allowed to not capitalize finance leases on their balance sheets. In fact, almost all firms chose this off-balance sheet treatment. In March 2007, the Accounting Standards Board of Japan (ASBJ), which was established in 2001 as a private standard setter, issued Statement No. 13, *Accounting Standard for Lease Transactions* (ASBJ, 2007a) and abolished the off-balance sheet treatment of finance leases.

When the ASBJ issued Statement No. 13, it also issued Guidance No. 16, *Guidance on Accounting Standard for Lease Transactions* (ASBJ, 2007b). Statement No. 13 requires lessees to recognize all finance leases on their balance sheets retroactively. However, Guidance No. 16 permits an important exception: Japanese firms are allowed to not recognize finance leases that do not transfer ownership to lessees contracted before the initial adoption of Statement No. 13. Therefore, two accounting treatments exist: a principle treatment that requires lessees to recognize all finance leases on their balance sheets retroactively; an exception that permits lessees to recognize only finance leases contracted after the adoption of Statement No. 13. When Japanese firms choose the off-balance sheet treatment of finance leases, they must disclose information equivalent to the capitalization of finance leases. For instance, the amounts of finance lease obligations

² The current lease accounting standards, including IFRS (IAS 17) and U.S. GAAP (ASC 840/SFAS 13), classify leases as either finance (capital) leases or operating leases and account for them differently. The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) have criticized the current accounting standards for creating asymmetry and inaccuracy of information in the market (IASB, 2009, 2010, 2013). In 2016, both accounting standards setters issued new lease accounting standards—IFRS 16 and ASC 842—which required lessees to recognize both finance and operating leases on their balance sheets (FASB, 2016; IASB, 2016).

are disclosed in the notes to financial statements. Accordingly, in Japan, using finance leases could avoid the previous research design issues when examining recognition versus disclosure of lease arrangements.

Employing this unique setting, few prior studies examine the associations between recognized versus disclosed finance leases and firms' credit risk (Arata, 2013; Kusano, 2017b). For instance, Arata (2013) reports that debt investors process disclosed and recognized finance leases differently when assessing firms' credit risk. Using the unique setting in Japan, prior studies provide useful insights into recognition versus disclosure of lease arrangements, but they fail to investigate the reason why capital market participants treat disclosed finance leases differently from recognized finance leases. Therefore, the differences across recognized and disclosed finance leases remain an open question.

For an in-depth study of recognition versus disclosure of lease arrangements, the first objective of this study is to examine whether disclosed finance leases are associated with firms' equity risk and whether the risk relevance of finance leases differs between recognition in financial statements and disclosure in the notes. Capital market participants consider off-balance leases when assessing firms' risk (e.g., Altamuro et al., 2014; Beattie et al., 2000; Ely, 1995; Imhoff et al., 1993; Kraft, 2015; Kusano, 2017a; Lim et al., 2017). Even though capital market participants incorporate disclosed leases into their decision making, it is uncertain whether they process disclosed and recognized leases similarly. In fact, prior studies examine the associations between recognized versus disclosed leases and firms' risk but provide mixed evidence on these associations (Arata, 2013; Bratten et al., 2013; Dhaliwal et al., 2011; Kusano, 2017b; Sengupta and Wang, 2011). Using the standard deviation of daily stock returns as the measure of firms' equity risk, this study analyzes whether disclosed finance leases are associated with firms' equity risk and whether the associations between recognized versus disclosed finance leases and firms' equity risk are substantially different. The results show that disclosed finance leases are not associated with equity risk and that these finance leases are treated differently

from recognized finance leases.

Prior literature shows that one of the factors in investors' differential treatments between recognized and disclosed items is due to investors' information processing, including information processing costs or limited attention (Barth et al., 2003; Hirshleifer and Teoh, 2003; Schipper, 2007). Compared with average equity investors, institutional investors are more sophisticated at processing disclosed financial information in the notes, thereby lowering information processing costs. Accordingly, investors' information processing affects their differential treatments between recognized and disclosed items (Michels, 2017; Müller et al., 2015; Yu, 2013). Using institutional ownership to proxy for investor sophistication, the second objective of this study is to investigate the effects of investors' information processing on the risk relevance of recognized versus disclosed finance leases. This study finds that for firms with higher levels of institutional ownership, the risk relevance of disclosed finance leases is similar to the risk relevance of recognized finance leases.

This study makes three contributions to the accounting literature on recognition versus disclosure and to the setting of accounting standards. First, this study extends previous studies on recognition versus disclosure of lease arrangements by using the same type of leases. Some prior studies investigate the effects of recognition versus disclosure on the risk relevance of lease arrangements (Bratten et al., 2013; Dhaliwal et al., 2011; Sengupta and Wang, 2011). However, they use different types of leases—finance leases and operating leases—when analyzing the associations between recognition versus disclosure of leases and firms' risk. Prior literature suggests that finance and operating leases can differ from an economic perspective (Caskey and Ozel, 2015). Consequently, this study examines the relations between recognized versus disclosed lease arrangements and firms' risk more rigorously than do previous studies by focusing on finance leases.

Second, this study complements the prior literature by showing the evidence that investors' information processing also has significant effects on the risk relevance of recognized versus disclosed lease arrangements. Using lease arrangements, previous

studies suggest that measurement errors concerning constructively capitalized leases cause investors' differential treatments between recognition and disclosure (Bratten et al., 2013; Callahan et al., 2013). In Japan, since the amounts of finance lease obligations are disclosed in the notes, capital market participants directly use these amounts when assessing firms' risk. Mitigating the impacts of reliability of accounting information, this study thus investigates the effects of investors' information processing on the relations between recognized versus disclosed finance leases and firms' equity risk. Accordingly, this study complements the prior literature that shows that investors' information processing also affects their differential treatments between recognition and disclosure (Michels, 2017; Müller et al., 2015; Yu, 2013).

Finally, my research provides useful insights into the discussions on the global convergence of accounting. The IASB has discussed a set of disclosure principles (disclosure framework) to improve the effectiveness and understandability of financial reporting (IASB, 2017). My results suggest that the extent to which capital market participants understand disclosed information in the notes can differ across firms and that sophisticated investors (e.g., institutional investors) are more likely to process disclosed information similarly to recognized amounts in financial statements. These results have implications for the discussions on the roles of financial statements and the notes in providing useful financial information to capital market participants.

The remainder of this paper is organized as follows. Section 2 summarizes accounting for leases in Japan, reviews prior research, and develops hypotheses. Section 3 explains my research design to examine whether and why capital market participants treat recognized finance leases differently from disclosed finance leases when assessing firms' equity risk. Section 4 provides the reasons for selecting the samples and reports the descriptive statistics of the variables of this empirical research. Section 5 reports the associations between recognized versus disclosed finance leases and firms' equity risk and the effects of investors' information processing on the risk relevance of recognized versus disclosed finance leases. Section 6 provides the conclusions and discusses the limitations

of this research.

2. Background and Hypothesis Development

2.1 Accounting for Leases in Japan

In June 1993, the Business Accounting Council (BAC) issued the lease accounting standard, *Statement of Opinions on Accounting Standards for Lease Transactions* (BAC, 1993). The Statement classified leases as finance leases or operating leases and required the following accounting treatments: finance leases were recognized on lessees' balance sheets and operating leases were disclosed in the notes to financial statements. These classifications and accounting treatments are similar to those of IFRS (IAS 17) and U.S. GAAP (ASC 840/SFAS 13).

In Japan, finance leases are classified into two further categories: finance leases that transfer ownership to lessees (FLO) and finance leases that do not transfer ownership to lessees (FLNO).³ In principle, Japanese firms are required to recognize finance leases on their balance sheets. However, the BAC allowed Japanese firms to not recognize FLNO on their balance sheets if information equivalent to the capitalization of finance leases was disclosed in the notes to financial statements. As a result, almost all Japanese firms chose this off-balance sheet treatment (Japan Leasing Association, 2003).

In 2002, the ASBJ began considering whether the off-balance sheet treatment should be repealed to implement global convergence of accounting standards. The ASBJ discussed this issue for four years and finally issued Statement No. 13 in March 2007. Statement No. 13 requires lessees to recognize all finance leases (i.e., both FLO and

³ In January 1994, the Japanese Institute of Certified Public Accountants (JICPA) issued the implementation guidance, *Practical Guidelines on Accounting Standards for, and Disclosure of, Lease Transactions* (JICPA, 1994). The JICPA provided the following criteria for classifying leases as either finance leases or operating leases: (a) transfer of the ownership term, (b) grant of the right to purchase term, (c) custom-made or custom-built assets, (d) present value criterion, and (e) useful economic life criterion. If leases meet any of these criteria, they are classified as finance leases, they are classified as operating leases otherwise. Furthermore, finance leases that meet criterion (a), (b), or (c) are classified as FLO; all others are classified as FLNO.

FLNO) on their balance sheets for fiscal years beginning on or after April 1, 2008.⁴

When issuing Statement No. 13, the ASBJ also issued Guidance No. 16, which permits an important exception to the treatment. If leases contracted before the initial adoption of Statement No. 13 are classified as FLNO, Guidance No. 16 allows Japanese firms to not recognize these finance leases on their balance sheets. In principle, Japanese firms are required to recognize all finance leases on their balance sheets retroactively. However, they can choose the exception to the treatment to avoid the capitalization of FLNO contracted before the adoption of Statement No. 13.

Even after the adoption of Statement No. 13, Japanese firms can choose to not recognize FLNO contracted prior to the adoption of Statement No. 13. When they choose the exception (i.e., off-balance sheet treatment of FLNO), they must disclose information equivalent to the capitalization of finance leases in the notes to financial statements. Using this unique setting, I investigate the associations between recognized versus disclosed finance leases and firms' equity risk.

2.2 Literature Review

2.2.1 Associations between Off-balance Leases and Equity Risk

Previous studies investigate the theoretical relations between firms' leverage (operating leverage and financial leverage) and firms' equity risk, and they empirically analyze these relations (e.g., Beaver et al., 1970; Bowman, 1979; Christie, 1982; Hamada, 1969, 1972; Modigliani and Miller, 1958; Rubinstein, 1973). In particular, prior literature examines whether capital market participants understand and consider recognized amounts in financial statements as well as disclosed financial information in the notes when assessing firms' equity risk as measured by beta and the standard deviation of stock returns (Ryan, 1997, 2012).

Bowman (1980) shows that off-balance finance lease obligations are associated with

⁴ Early adoption of Statement No. 13 was permitted for fiscal years beginning on or after April 1, 2007.

firms' equity risk (i.e., beta). Furthermore, previous studies report that capital market participants amend firms' leverage using off-balance operating leases and employ this leverage in assessing equity risk (Beattie et al., 2000; Bratten et al., 2013; Dhaliwal et al., 2011; Ely, 1995; Ge et al., 2008; Imhoff et al., 1993). For instance, Imhoff et al. (1993) show that estimated operating lease obligations have risk relevance for explaining equity risk by using the standard deviation of stock returns.

In Japan, Shimizu and Yoshida (2016) investigate the associations between disclosed leases and firms' equity risk as measured by the standard deviation of stock returns. They report that disclosed finance lease obligations are not associated with equity risk before the adoption of Statement No. 13. In addition, they show that, after the adoption of Statement No. 13, constructively capitalized operating leases are not risk relevant. However, they fail to examine the associations between recognized versus disclosed finance leases and equity risk. Consequently, I examine whether and why capital market participants process disclosed and recognized finance leases differently when assessing firms' equity risk.

2.2.2 Recognition versus Disclosure of Lease Arrangements in Capital Markets

Prior studies investigate whether recognized items in financial statements are treated differently from disclosed items in the notes (e.g., Aboody, 1996; Ahmed et al., 2006; Davis-Friday et al., 1999; Israeli, 2015; Michels, 2017; Müller et al., 2015; Yu, 2013). For example, Ahmed et al. (2006) examine whether the value relevance of derivative financial instruments differs between recognition and disclosure in both a pre-SFAS 133 and in a pre-SFAS 133 versus post-SFAS 133 setting. They find that recognized fair value measurements are value relevant but that disclosed fair value information is not. Their results suggest that capital market participants consider disclosed financial information differently from recognized amounts.

Moreover, prior literature analyzes the effects of recognition versus disclosure on the value and risk relevance of lease arrangements (Barone et al., 2014; Spencer and Webb,

2015). In particular, previous studies investigate the associations between recognized finance leases versus disclosed operating leases and the costs of capital (Bratten et al., 2013; Dhaliwal et al., 2011; Sengupta and Wang, 2011). For instance, Dhaliwal et al. (2011) find that the relations between recognized finance leases versus disclosed operating leases and the cost of equity are substantially different. On the contrary, Bratten et al. (2013) and Sengupta and Wang (2011) report that the risk relevance of disclosed operating lease obligations is substantially similar to the risk relevance of recognized finance lease obligations.

These studies provide useful evidence on recognition versus disclosure of lease arrangements. However, they use different types of leases, namely finance leases and operating leases. When analyzing the associations between recognition versus disclosure of leases and firms' risk, it is necessary to satisfy the assumption that operating leases are very similar to finance leases from an economic perspective. If this assumption is not satisfied, a joint hypothesis must be tested about whether operating leases are economically similar to finance leases and whether capital market participants treat disclosed information differently from recognized amounts. For instance, Caskey and Ozel (2015) indicate that capital market participants perceive operating leases as having different economic characteristics compared to finance leases. Their results suggest that differences in the economics of lease transactions would affect differences in the risk relevance between recognized finance leases and disclosed operating leases.

In Japan, when firms choose the off-balance sheet treatment of finance leases, they must disclose information equivalent to the capitalization of finance leases, including the amounts of finance lease obligations. Thus, it is possible to use only finance leases when examining recognition versus disclosure of lease arrangements. Employing this unique setting, some prior studies analyze the risk relevance of recognized and disclosed finance lease obligations (Arata, 2013; Kusano, 2017b). For instance, Arata (2013) investigates whether debt investors process disclosed finance lease obligations differently from recognized finance lease obligations using bond spreads. She finds differences in the risk

relevance of finance leases for explaining firms' credit risk in a pre-Statement No. 13 versus post-Statement No. 13 setting. Furthermore, Kusano (2017b) examines whether credit market participants—bond investors and credit rating agencies—make different risk assessments between recognized and disclosed finance leases. He reports that the associations between recognized versus disclosed finance leases and bond spreads are substantially different but that recognized and disclosed finance leases have the same risk relevance for explaining credit ratings.

Using Japanese lease accounting as the research setting can prevent the joint hypothesis problem. In this respect, Arata (2013) and Kusano (2017b) provide useful evidence on recognition versus disclosure of lease arrangements. However, they fail to investigate why disclosed finance leases are treated differently from recognized finance leases. This study examines why capital market participants process disclosed and recognized finance leases differently when assessing firms' equity risk.

2.2.3 Factors in the Differential Treatments of Recognized versus Disclosed Items

Prior literature shows that investors' differential treatments between recognized and disclosed items are due to investors' information processing and/or reliability of accounting information (Schipper, 2007). Information processing costs differ between recognized and disclosed information (Barth et al., 2003), or investors with limited attention make their decision using only recognized information in financial statements (Hirshleifer and Teoh, 2003). Accordingly, investors' information processing such as information processing costs or limited attention can cause their differential treatments between recognized and disclosed items (Michels, 2017; Müller et al., 2015; Yu, 2013). For instance, Yu (2013) reports that sophisticated capital market participants such as institutional investors and financial analysts affect the value relevance of pension obligations and the valuation differences between disclosed and recognized pension obligations. The results indicate that investors' information processing has significant effects on the differences between recognized and disclosed information.

Reliability of accounting information also affects the valuation and risk differences between recognized and disclosed items (Bratten et al., 2013; Callahan et al., 2013; Davis-Friday et al., 2004; Müller et al., 2015). When firms report recognized items in financial statements, the amounts are point estimates; however, they may provide range estimates in the notes (Davis-Friday et al., 2004). Mandating recognition of the item induces greater reliability through increased precision. In addition, firm managers and auditors are more likely to scrutinize recognized amounts in financial statements than disclosed information in the notes (Clor-Proell and Maines, 2014; Cotter and Zimmer, 2003; Goncharov et al., 2014). The differences in managers' and auditors' attitudes between recognized and disclosed items have substantial effects on capital market participants. However, changes in accounting rules from disclosure to recognition can decrease the value and risk relevance since the amounts are less verifiable (Holthausen and Watts, 2001). When fair value information is recognized in financial statements, managers would employ their discretion in measuring 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; Jones, 2013). This discretion can reduce reliability of accounting information.

Employing lease arrangements, prior literature indicates that reliability of accounting information has significant effects on the valuation and risk differences between recognized and disclosed items (Bratten et al., 2013; Callahan et al., 2013). For example, Callahan et al. (2013) find that the value relevance of synthetic lease obligations differs between recognition in financial statements and disclosure in the notes. They also report that the measurement errors for disclosed synthetic lease obligations are significantly higher than the measurement errors for recognized synthetic lease obligations. However, when examining the differences between recognition and disclosure using operating or synthetic leases, prior studies constructively capitalize lease obligations using future minimum lease payments (Bratten et al., 2013; Callahan et al., 2013). Since the assumptions underlying lease arrangements and the parameter estimates affect the estimated amounts, measurement errors concerning constructively capitalized leases

could occur, affecting investors' differential treatments between recognized and disclosed leases.

Using Japanese lease accounting as the research setting can mitigate the effects of reliability of accounting information on capital market participants. When firms disclose finance lease obligations in the notes to financial statements, they must provide point estimates. Therefore, capital market participants can directly use the amounts of finance lease obligations when assessing firms' risk. Furthermore, compared to fair value measurements, managers cannot use their discretion when measuring finance lease obligations. Accordingly, measurement errors related to disclosed finance lease obligations are less likely to occur. Thus, controlling for the effects of reliability of accounting information, it is possible to examine why capital market participants treat disclosed information differently from recognized amounts. This study examines the effects of investors' information processing on the risk relevance of recognized versus disclosed finance leases. It is expected to contribute to and complement the prior accounting literature on recognition versus disclosure.

2.3 Hypothesis Development

Capital market participants assess firms' risk using accounting information, including recognized amounts in financial statements and disclosed financial information in the notes. In fact, prior studies show that capital market participants amend firms' leverage using off-balance leases and assess firms' equity and credit risk (e.g., Altamuro et al., 2014; Beattie et al., 2000; Bowman, 1980; Ely, 1995; Imhoff et al., 1993; Kraft, 2015; Kusano, 2017a; Lim et al., 2017).

However, even though capital market participants incorporate disclosed financial information into their decision making, it is uncertain whether they process disclosed information similarly to recognized amounts. Prior studies investigate whether recognized items in financial statements are treated differently from disclosed items in the notes (e.g., Aboody, 1996; Ahmed et al., 2006; Davis-Friday et al., 1999; Israeli, 2015; Michels, 2017;

Müller et al., 2015; Yu, 2013). In particular, using lease arrangements, previous studies analyze the associations between recognized finance leases versus disclosed operating leases and the costs of capital, providing mixed evidence on these associations (Bratten et al., 2013; Dhaliwal et al., 2011; Sengupta and Wang, 2011).

In Japan, prior literature also examines whether disclosed finance leases are associated with firms' risk and whether the associations between recognized versus disclosed finance leases and firms' risk are substantially different (Arata, 2013; Kusano, 2017b; Shimizu and Yoshida, 2016). For instance, Shimizu and Yoshida (2016) report that disclosed finance leases are not associated with firms' equity risk before the adoption of Statement No. 13. In addition, Arata (2013) and Kusano (2017b) report that bond investors treat disclosed finance leases differently from recognized finance leases when assessing firms' credit risk. However, Kusano (2017b) finds that disclosed finance leases are associated with credit ratings and that these finance leases are processed similarly to recognized finance leases when credit ratings are determined. These prior studies provide mixed evidence on the risk relevance of disclosed finance leases and the relations between recognized versus disclosed finance leases and firms' risk.

Thus, this study investigates whether capital market participants understand disclosed finance leases and whether they treat disclosed and recognized finance leases differently when assessing firms' equity risk. Accordingly, I develop the following hypotheses to examine the associations between recognized versus disclosed finance lease obligations and firms' equity risk:

Hypothesis 1: Disclosed finance lease obligations in the notes to financial statements are associated with equity risk.

Hypothesis 2: The association between disclosed finance leases and equity risk is lower than the association between recognized finance leases and equity risk.

Prior literature shows that one of the factors in investors' differential treatments between recognized and disclosed items is due to investors' information processing (Schipper, 2007). Since information processing costs differ between recognized and

disclosed information (Barth et al., 2003), or investors with limited attention make their decision using only recognized information in financial statements (Hirshleifer and Teoh, 2003), the decision usefulness of accounting information can differ between recognized and disclosed items. Investors' information processing such as information processing costs or limited attention can cause their differential treatments between recognition and disclosure (Michels, 2017; Müller et al., 2015; Yu, 2013). Accordingly, the risk relevance of disclosed finance leases depends on the extent to which disclosed information has been processed by various capital market participants. Compared with unsophisticated investors, sophisticated investors are more likely to process disclosed financial information in the notes and incorporate it into their decision making. Therefore, they would treat disclosed and recognized finance leases similarly when assessing firms' risk. Prior studies use institutional ownership as a proxy for investor sophistication (e.g., Balsam et al., 2002; Bartov et al., 2000; Bradshaw et al., 2004; Callen et al., 2005; Collins et al., 2003; El-Gazzar, 1998; Hand, 1990; Walther, 1997).

Using institutional ownership as the measure of investor sophistication, this study thus examines why capital market participants consider recognized and disclosed finance leases differently when assessing firms' equity risk. Accordingly, I develop the following hypothesis to investigate the effects of investors' information processing on the associations between recognized versus disclosed finance lease obligations and firms' equity risk:

Hypothesis 3: For firms with higher levels of sophisticated investors, the association between disclosed finance leases and equity risk is similar to the association between recognized finance leases and equity risk.

3. Research Models for Testing Hypotheses

To test Hypotheses 1 and 2, I investigate whether capital market participants consider disclosed finance leases and process recognized and disclosed finance leases differently when assessing firms' equity risk. Prior studies employ the standard deviation of stock

returns to measure equity risk (e.g., Beattie et al., 2000; Bratten et al., 2013; Ely, 1995; Ge et al., 2008; Imhoff et al., 1993; Shimizu and Yoshida, 2016). Following prior literature, this study uses the standard deviation of daily stock returns as the measure of firms' equity risk to analyze the risk relevance of recognized versus disclosed lease arrangements. Thus, this research examines the associations between recognized versus disclosed finance lease obligations and firms' equity risk by estimating the following regression model (firm and time subscripts are omitted for brevity):

$$STDRet = \alpha_0 + \alpha_1 FLO_on + \alpha_2 FLO_off + \alpha_3 Lev + \alpha_4 Size + \alpha_5 ROA + \alpha_6 STDROA + \alpha_7 MTB + \sum Year\ Dummy + \varepsilon \quad (1)$$

where *STDRet* is the standard deviation of daily raw stock returns over 250 days centered at the end of fiscal year *t*;⁵ *FLO_on* is recognized finance lease obligations divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year *t*; *FLO_off* is disclosed finance lease obligations divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year *t*; *Lev* is debt (excluding recognized finance lease obligations) divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year *t*; *Size* is the natural log of the sum of total assets and disclosed finance lease assets at the end of fiscal year *t*; *ROA* is business income divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year *t*; *STDROA* is the standard deviation of *ROA* from fiscal year *t* to fiscal year *t*-4; *MTB* is market value of equity divided by the book value of equity at the end of fiscal year *t*.

This study estimates regression equation (1) using fixed-effects model to control for firms fixed effects and robust standard errors clustered at the firm level. Hypothesis 1 predicts that disclosed finance lease obligations are positively associated with firms' equity risk; thus, a larger *FLO_off* results in greater *STDRet* because firms with a high reliance on disclosed finance leases are expected to have higher equity risk. Therefore, the sign of

⁵ This study also measures firms' equity risk using the standard deviation of daily excess stock returns over 10 years government bond rate over 250 days centered at the end of fiscal year *t*. Unreported results show that using the standard deviation of daily excess stock returns does not change my main results.

the coefficient in the regression model will be positive ($\alpha_2 > 0$). In addition, similar to disclosed finance lease obligations, firms with a greater reliance on debt and recognized finance lease obligations are expected to have higher equity risk. Accordingly, the sign of the coefficients of Lev and FLO_on will be positive.

Next, Hypothesis 2 predicts that even though disclosed finance leases are risk relevant, these finance leases are treated differently from recognized finance leases. Capital market participants face higher information processing costs for disclosed information and fail to fully capture the economics of disclosed items in the notes to financial statements (Barth et al., 2003; Schipper, 2007). For example, Dhaliwal et al. (2011) report that equity investors treat disclosed and recognized leases differently when assessing firms' equity risk. Thus, the relation between the coefficients in the regression model is expected to be $\alpha_1 > \alpha_2$. This study tests this prediction using the F test of equality between the coefficients of FLO_on and FLO_off.

This study includes control variables for firms' equity risk. Previous studies report that leverage, firm size, profitability, operating risk, and growth opportunity are correlated with equity risk (e.g., Beattie et al., 2000; Bratten et al., 2013; Ely, 1995; Ge et al., 2008; Imhoff et al., 1993; Shimizu and Yoshida, 2016). Accordingly, in addition to leverage (Lev and FLO_on), this study employs firm size (Size), profitability (ROA), operating risk (STDROA), and growth opportunity (MTB) as control variables. Firms with higher operating risk are expected to have greater equity risk. Therefore, the sign of the coefficient of STDROA is expected to be positive. Since larger, more profitable, and higher growth firms are less likely to be financially constrained, their equity risk is lower. Accordingly, this study expects that the sign of the coefficients of Size, ROA, and MTB will be negative. Moreover, Year Dummy is included into regression model (1) to control for year fixed effects.

To test Hypothesis 3, I investigate the effects of investors' information processing on the associations between recognized versus disclosed finance leases and firms' equity risk. Sophisticated investors are more likely to understand disclosed financial information in the notes and incorporate it into their decision making. Prior studies use institutional

ownership as a proxy for investor sophistication (e.g., Balsam et al., 2002; Bartov et al., 2000; Bradshaw et al., 2004; Callen et al., 2005; Collins et al., 2003; El-Gazzar, 1998; Hand, 1990; Walther, 1997). Following prior literature (Müller et al., 2015; Yu, 2013), this study considers institutional investors as sophisticated investors and constructs my empirical proxy for investor sophistication based on institutional ownership when testing Hypothesis 3. Accordingly, this study investigates why capital market participants treat disclosed and recognized finance leases differently when assessing firms' equity risk by estimating the following regression model (firm and time subscripts are omitted for brevity):

$$\begin{aligned}
STDRet = & \beta_0 + \beta_1 FLO_on + \beta_2 FLO_on \times IO + \beta_3 FLO_off + \beta_4 FLO_off \times IO + \\
& \beta_5 Lev + \beta_6 Size + \beta_7 ROA + \beta_8 STDROA + \beta_9 MTB + \beta_{10} IO + \beta_{11} Lev \times IO + \beta_{12} Size \times \\
& IO + \beta_{13} ROA \times IO + \beta_{14} STDROA \times IO + \beta_{15} MTB \times IO + \sum Year\ Dummy + \epsilon \quad (2)
\end{aligned}$$

where, using institutional ownership (INST) at the end of fiscal year t , IO is the normalization of INST by fiscal year; $FLO_on \times IO$ is an interaction term between FLO_on and IO at the end of fiscal year t ; $FLO_off \times IO$ is an interaction term between FLO_off and IO at the end of fiscal year t ; interaction terms between all control variables and IO are included; all other variables are already defined in equation (1).⁶

This study assumes that higher levels of institutional ownership are more likely to decrease information processing costs and consider carefully disclosed finance leases when assessing firms' equity risk. Accordingly, the sign of the coefficient of $FLO_off \times IO$ is expected to be positive ($\beta_4 > 0$). On the other hand, regardless of the level of institutional ownership, equity investors consider recognized finance leases. This study does not predict the sign of the coefficient of $FLO_on \times IO$ and the interaction terms between all other control variables and IO . However, this study predicts that institutional investors are more

⁶ When testing Hypothesis 3, this study also uses the rank based on quartiles (quintiles) of institutional ownership at the end of fiscal year t and makes an indicator variable that takes the value of 1 if firms are in the highest quartile (quintile), and 0 otherwise. This study also uses institutional ownership at the beginning of fiscal year t and normalizes it by fiscal year. Unreported results are similar to my main results.

sophisticated at processing disclosed finance leases and treating them similarly to recognized finance leases. Therefore, the relation between the coefficients in the regression model is expected to be $\beta_1 + \beta_2 = \beta_3 + \beta_4$. This prediction is tested using the F test. The signs of the coefficients of all other variables in regression model (2) are the same as those in regression model (1).

4. Sample Selection and Descriptive Statistics

The sample is selected from the period 2009–2013 using the following criteria:

- (i) Firms that adopt Japanese GAAP are listed on stock exchanges in Japan.
- (ii) Banks, securities firms, insurance, and other financial firms are deleted.⁷
- (iii) Fiscal year ends on March 31.⁸
- (iv) The accounting period has not changed during the fiscal year.

This study collects data regarding financial statements, stock returns, and institutional ownership from the *Nikkei NEEDS Financial QUEST* database.⁹ This study investigates whether and why capital market participants consider recognized and disclosed finance leases differently when assessing firms' equity risk using the same time period. Since Statement No. 13 was mandatorily adopted for fiscal years beginning on and after April 1, 2008, this research uses the sample periods after March 31, 2009.

Using the aforementioned criteria, the initial sample consists of 10,197 observations from consolidated financial statements. The research also requires data on the standard deviation of daily stock returns over 250 days centered at the end of fiscal year. In addition, this study also requires financial statements data, including finance leases. Firms that lack data on dependent and independent variables are excluded from the sample. The data

⁷ This study excludes firm-year observations for finance institutions because they tend to be net lessors.

⁸ Because most Japanese listed firms end their fiscal year on March 31, this study examines Japanese firms with a fiscal-year end of March 31.

⁹ Following the *Nikkei NEEDS Cges* (Corporate governance evaluation system) database, this study estimates institutional ownership by summing foreign ownership (excluding large individual investors, family ownership, and business firms, if distinguishable), trust accounts, and insurance company ownership. Prior literature also uses this database (e.g., Nakano and Nguyen, 2012).

are available for a sample of 8,121 firm-year observations. Furthermore, 19 observations with negative total assets or a negative book value of equity at the end of fiscal year are excluded. In order to control for outliers, observations of STDRet and each accounting variable are trimmed by year at the top and bottom 1%. The final sample consists of 7,244 firm-year observations. It also includes 5,153 firm-year observations in which the exception (i.e., off-balance sheet treatment of FLNO) is chosen in response to the adoption of Statement No. 13.

<Insert Table 1>

Table 1 presents the descriptive statistics for the variables used in this study. This table reports that the mean (median) of STDRet, which is the standard deviation of daily raw stock returns over 250 days, is 0.0255 (0.0236). It also reports the mean (median) of FLO_on, which is recognized finance lease obligations, is 0.0069 (0.0022). In addition, the mean (median) of FLO_off, which is disclosed finance lease obligations, is 0.0033 (0.0005).

<Insert Table 2>

Table 2 presents the correlation matrix for the variables used in this study. The upper right-hand area of the table reports the Spearman rank-order correlations, and the lower left-hand area of the table reports the Pearson correlations. In both correlation analyses, FLO_on is negatively and significantly associated with STDRet. On the contrary, in both correlation analyses, FLO_off is positively and significantly associated with STDRet. These results indicate that disclosed finance lease obligations are associated with equity risk, as predicted. Most of the correlations between independent variables are relatively low.

5. Results

5.1 Main Results

First, using regression model (1), this study examines whether capital market participants sufficiently understand disclosed finance leases and whether they consider these finance leases differently from recognized finance leases in assessing firms' equity risk. Table 3

reports the results for Hypotheses 1 and 2.

<Insert Table 3>

Column (1) of Table 3 reports the results for a sample of all firms in this study. The coefficient of FLO_on is positive and statistically significant at the 1% level. This result shows that recognized finance lease obligations are associated with firms' equity risk. However, the coefficient of FLO_off, -0.0288 , is not consistent with the expected sign and is not statistically significant.¹⁰ Thus, this result indicates that disclosed finance lease obligations are not associated with firms' equity risk. The evidence of this study is thus not consistent with Hypothesis 1.

When Statement No. 13 was adopted, Japanese firms chose either the principle treatment or the exception to the treatment. Firms that choose the principle treatment recognize all finance leases on their balance sheets retroactively. On the other hand, firms that choose the exception recognize only finance leases contracted subsequent to the adoption of Statement No. 13; however, they do not recognize finance leases that do not transfer ownership to lessees (i.e., FLNO) contracted prior to the adoption of Statement No. 13. To mitigate the cross-sectional effects, column (2) reports the results for firms that choose the exception with both disclosed and recognized finance leases at the same time. The coefficient of FLO_on is positive and statistically significant. However, the coefficient of FLO_off, -0.0221 , is negative and is not statistically significant. These results also indicate that recognized finance lease obligations are associated with firms' equity risk but that disclosed finance lease obligations are not. Once again, my evidence is not consistent with Hypothesis 1.

Using the F test, this study examines whether capital market participants treat disclosed finance leases differently from recognized finance leases. Column (1) reports the results for a sample of all firms, and column (2) reports the results for firms that choose

¹⁰ This study also excludes FLO_on from regression model (1) and reinvestigates the associations between disclosed finance leases and firms' equity risk. Unreported results present that the coefficients of FLO_off are not consistent with the expected sign.

the exception, respectively. For a sample of all firms in this study, the F test shows that the coefficient of FLO_on is significantly different from the coefficient of FLO_off. In addition, for firms that choose the exception, the F test presents that the coefficient of FLO_on is statistically different from the coefficient of FLO_off at the 5% level. These results suggest that capital market participants process disclosed and recognized finance leases differently when assessing firms' equity risk. Accordingly, my evidence is consistent with Hypothesis 2.

Next, this study investigates why capital market participants consider disclosed and recognized finance leases differently when assessing firms' equity risk. Using institutional ownership as a proxy for investor sophistication, this study analyzes the effects of investors' information processing on the risk relevance of recognized versus disclosed finance leases. Table 4 summarizes the results for Hypothesis 3 using regression model (2).

<Insert Table 4>

Column (1) of Table 4 reports the results for a sample of all firms in this study, and column (2) reports the results for firms that choose the exception, respectively. In both columns, the coefficients of FLO_on are positive and statistically significant. On the other hand, the coefficients of FLO_off are negative and are not statistically significant. However, the coefficients of $FLO_off \times IO$ are consistent with the expected sign and statistically significant at the 5% level. The results indicate that institutional ownership has significant effects on the risk relevance of disclosed finance leases. Furthermore, the F tests reveal that the sums of the coefficients of FLO_on and $FLO_on \times IO$ are not significantly different from the sums of the coefficients of FLO_off and $FLO_off \times IO$ (p -values are 0.8619 and 0.9627, respectively). These results suggest that disclosed finance leases are treated similarly to recognized finance leases for firms with higher levels of institutional ownership. The evidence is consistent with the view that institutional investors are more sophisticated at processing disclosed finance leases and treating them similarly to recognized leases when assessing firms' equity risk. Accordingly, my evidence supports Hypothesis 3.

In summary, disclosed finance leases are not associated with firms' equity risk. Moreover, the associations between recognized versus disclosed finance leases and equity risk are substantially different. However, for firms with higher levels of institutional ownership, recognized and disclosed finance leases have the same risk relevance for explaining firms' equity risk. These results show that investors' information processing has significant effects on the risk relevance of recognized versus disclosed finance leases.

5.2 Robustness Tests

The results thus far indicate that the relations between recognized versus disclosed finance leases and firms' equity risk are different but that for firms with higher levels of institutional ownership, recognized and disclosed finance leases have the same risk relevance for explaining firms' equity risk. This subsection describes the analyses conducted to determine the robustness of my findings.

First, to avoid sample selection bias, this study reexamines Hypotheses 1–3 including Japanese firms that do not use finance leases. Unreported results show that disclosed finance leases are not associated with firms' equity risk and that these finance leases are treated differently from recognized finance leases. However, for firms with higher levels of institutional ownership, disclosed and recognized finance leases have the same risk relevance for explaining firms' equity risk. These results are consistent with my main findings.

Second, this study reexamines Hypotheses 1–3 by including operating lease obligations into equations (1) and (2). Unlike U.S. firms, Japanese firms are more likely to use finance leases than operating leases, especially prior to the adoption of Statement No. 13 (Kusano et al., 2015). However, Statement No. 13 requires Japanese firms to recognize finance leases on their balance sheets. Therefore, they are more likely to use operating leases to avoid the effects of capitalizing finance leases (Arata, 2012; Kusano et al., 2016; Yamamoto, 2010). Accordingly, this study includes future minimum lease payments under operating leases to reexamine Hypotheses 1–3. Unreported results show that disclosed

finance leases are not associated with firms' equity risk and that the associations between recognized versus disclosed finance leases and firms' equity risk are substantially different. However, for firms with higher levels of institutional ownership, the risk relevance of disclosed finance leases is similar to the risk relevance of recognized finance leases. These results are also consistent with my main findings.

Finally, using foreign ownership, this study reinvestigates why the risk relevance of disclosed finance leases is different from the risk relevance of recognized finance leases. Prior literature shows that foreign investors enhance corporate governance (e.g., Kho et al., 2009; Aggarwal et al., 2011). For instance, using a sample of Japanese firms, Guo et al. (2015) indicate that foreign investors mitigate real earnings management. Furthermore, He and Shen (2014) report that foreign investors have significant effects on the informational efficiency in Japan. These studies suggest that foreign investors carefully consider disclosed information in the notes and treat disclosed information similarly to recognized items when assessing firms' equity risk. Using foreign ownership as a proxy for investor sophistication, this study reexamines Hypothesis 3 by estimating the following regression model (firm and time subscripts are omitted for brevity):

$$\begin{aligned}
 STDRet = & \gamma_0 + \gamma_1 FLO_on + \gamma_2 FLO_on \times FO + \gamma_3 FLO_off + \gamma_4 FLO_off \times FO + \\
 & \gamma_5 Lev + \gamma_6 Size + \gamma_7 ROA + \gamma_8 STDROA + \gamma_9 MTB + \gamma_{10} FO + \gamma_{11} Lev \times FO + \gamma_{12} Size \times \\
 & FO + \gamma_{13} ROA \times FO + \gamma_{14} STDROA \times FO + \gamma_{15} MTB \times FO + \sum Year\ Dummy + \epsilon \quad (3)
 \end{aligned}$$

where, using foreign ownership at end of fiscal year t , FO is the normalization of foreign ownership by fiscal year;¹¹ $FLO_on \times FO$ is an interaction term between FLO_on and FO at the end of fiscal year t ; $FLO_off \times FO$ is an interaction term between FLO_off and FO at the end of fiscal year t ; interaction terms between all control variables and FO are included; all other variables are already defined in equation (1). The sign of the coefficient of $FLO_off \times FO$ will be positive ($\gamma_4 > 0$). In addition, foreign investors are more

¹¹ When estimating foreign ownership, this study excludes large individual investors, family ownership, and business firms, if distinguishable. This study also includes large individual investors, family ownership, and business firms into foreign ownership and investigates the effects of foreign ownership on the risk relevance of finance leases. Unreported results do not change the results.

sophisticated at processing disclosed finance leases and treating them similarly to recognized finance leases when assessing firms' equity risk. Accordingly, the relation between the coefficients in the regression model is expected to be $\gamma_1 + \gamma_2 = \gamma_3 + \gamma_4$.

<Insert Table 5>

Table 5 reports the results for Hypothesis 3 using foreign ownership. Column (1) of Table 5 presents the results for a sample of all firms, and column (2) presents the results for firms that choose the exception, respectively. In both columns, the coefficients of $FLO_off \times FO$ are positive and statistically significant at the 5% level. These results indicate that foreign ownership has substantial effects on the risk relevance of disclosed finance leases. Furthermore, the F tests report that the sums of the coefficients of FLO_on and $FLO_on \times FO$ are statistically similar to the sums of the coefficients of FLO_off and $FLO_off \times FO$ (p -values are 0.7443 and 0.6590, respectively). These results suggest that the risk relevance of disclosed finance leases is not substantially different from the risk relevance of recognized finance leases for firms with higher levels of foreign ownership. The results are consistent with Hypothesis 3. Therefore, the main results remain unchanged after several robustness tests, suggesting that my inferences are robust.

6. Concluding Remarks

This study investigates whether and why capital market participants process recognition in financial statements differently from disclosure in the notes using finance leases in Japan. Using the standard deviation of daily stock returns as the measure of firms' equity risk, this study examines the associations between recognized versus disclosed finance lease obligations and firms' equity risk. This study provides the following useful evidence on recognition versus disclosure of finance leases.

First, this study examines whether disclosed finance leases are associated with firms' equity risk and whether the risk relevance of finance leases differs between recognition in financial statements and disclosure in the notes. Recognized finance leases are risk relevant for explaining firms' equity risk, but disclosed finance leases are not. Moreover,

the associations between recognized versus disclosed finance lease obligations and equity risk are substantially different.

Second, this study analyzes why capital market participants treat disclosed finance leases differently from recognized finance leases when assessing firms' equity risk. Using institutional ownership as a proxy for investor sophistication, this study finds that for firms with higher levels of institutional ownership, the associations between finance lease obligations and firms' equity risk are very similar, regardless of the accounting treatment of finance leases.

Overall, this study finds that institutional ownership has substantial effects on the relations between recognized versus disclosed finance leases and firms' equity risk. These results suggest that investors' information processing affects differences in the risk relevance between disclosed and recognized finance leases. Despite its useful insights into recognition versus disclosure of lease arrangements, this study has several limitations. For instance, this study does not examine the effects of reliability of accounting information on the risk relevance of finance leases. Reliability of accounting information also has substantial effects on the value and risk relevance of recognized versus disclosed leases (Bratten et al., 2013; Callahan et al., 2013). Since the amounts of disclosed finance lease obligations are point estimates, this study mitigates the effects of reliability of accounting information on the risk relevance of recognized versus disclosed finance leases. However, the effects of reliability of accounting information might affect the risk relevance of finance leases because firm managers and auditors are more likely to scrutinize recognized finance leases than disclosed finance leases. Considering these effects would provide more comprehensive understanding of the risk relevance of recognized versus disclosed finance leases. Nevertheless, despite its limitations, this study makes significant contributions to the accounting literature on recognition versus disclosure as well as to the discussions on the global convergence of accounting standards.

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Table 1: Descriptive Statistics

	N	Mean	SD	Min	p25	Median	p75	Max
STDRet	7,244	0.0255	0.0103	0.0074	0.0181	0.0236	0.0311	0.0756
FLO_on	7,244	0.0069	0.0120	0.0000	0.0004	0.0022	0.0078	0.1105
FLO_off	7,244	0.0033	0.0076	0.0000	0.0000	0.0005	0.0030	0.0921
Lev	7,244	0.2014	0.1647	0.0000	0.0526	0.1765	0.3173	0.6879
Size	7,244	11.0205	1.3983	7.9725	9.9866	10.8504	11.8982	15.0943
ROA	7,244	0.0414	0.0392	-0.1507	0.0194	0.0382	0.0630	0.1834
STDROA	7,244	0.0216	0.0168	0.0021	0.0098	0.0170	0.0282	0.1174
MTB	7,244	0.8575	0.5282	0.1709	0.5057	0.7294	1.0467	5.2280
INST	7,244	0.1644	0.1399	0.0000	0.0454	0.1321	0.2481	0.7814

Notes: Table 1 presents the descriptive statistics for the variables used in this study. All the variables except for INST are trimmed by year at the top and bottom 1%. STDRet is the standard deviation of daily raw stock returns over 250 days centered at the end of fiscal year t ; FLO_on is recognized finance lease obligations divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year t ; FLO_off is disclosed finance lease obligations divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year t ; Lev is debt (excluding recognized finance lease obligations) divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year t ; Size is the natural log of the sum of total assets and disclosed finance lease assets at the end of fiscal year t ; ROA is business income, which sums operating income and financial income (interest income and dividends income), divided by the sum of total assets and disclosed finance lease assets at the end of fiscal year t ; STDROA is the standard deviation of ROA from fiscal year t to fiscal year $t-4$; MTB is market value of equity divided by the book value of equity at the end of fiscal year t ; INST is institutional ownership at the end of fiscal year t .

Table 2: Correlation Matrix

	STDRet	FLO_on	FLO_off	Lev	Size	ROA	STDROA	MTB	INST
STDRet	1.0000	-0.0261 (0.0266)	0.1274 (0.0000)	0.2242 (0.0000)	-0.0984 (0.0000)	-0.2003 (0.0000)	0.3049 (0.0000)	-0.0473 (0.0001)	-0.0082 (0.4868)
FLO_on	-0.0272 (0.0205)	1.0000	-0.0108 (0.3594)	0.1845 (0.0000)	-0.0002 (0.9867)	-0.0106 (0.3684)	0.0024 (0.8366)	0.1227 (0.0000)	-0.0096 (0.4145)
FLO_off	0.1243 (0.0000)	0.1346 (0.0000)	1.0000	0.1521 (0.0000)	-0.0559 (0.0000)	-0.1042 (0.0000)	-0.0324 (0.0058)	-0.0555 (0.0000)	-0.0329 (0.0051)
Lev	0.2164 (0.0000)	0.1024 (0.0000)	0.1444 (0.0000)	1.0000	0.1097 (0.0000)	-0.2620 (0.0000)	-0.0157 (0.1805)	0.1350 (0.0000)	0.0029 (0.8062)
Size	-0.1197 (0.0000)	-0.0588 (0.0000)	-0.0851 (0.0000)	0.1355 (0.0000)	1.0000	0.1020 (0.0000)	-0.1762 (0.0000)	0.3218 (0.0000)	0.7511 (0.0000)
ROA	-0.2243 (0.0000)	0.0106 (0.3686)	-0.0942 (0.0000)	-0.2599 (0.0000)	0.0850 (0.0000)	1.0000	-0.0453 (0.0001)	0.3803 (0.0000)	0.1797 (0.0000)
STDROA	0.2722 (0.0000)	0.0038 (0.7481)	-0.0187 (0.1123)	0.0007 (0.9547)	-0.1469 (0.0000)	-0.1342 (0.0000)	1.0000	0.0932 (0.0000)	-0.0279 (0.0178)
MTB	-0.0105 (0.3733)	0.1061 (0.0000)	0.0153 (0.1939)	0.1703 (0.0000)	0.2274 (0.0000)	0.3181 (0.0000)	0.1259 (0.0000)	1.0000	0.3202 (0.0000)
INST	-0.0159 (0.1757)	-0.0589 (0.0000)	-0.0718 (0.0000)	0.0065 (0.5787)	0.7273 (0.0000)	0.1714 (0.0000)	-0.0122 (0.2981)	0.2434 (0.0000)	1.0000

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 Table 1. p -values for correlation coefficients are reported in parentheses.

Table 3: The Associations between Recognized versus Disclosed Finance Leases and Equity Risk

	Expected Sign	(1)	(2)
		All	Exception
		Coefficient (t-value)	Coefficient (t-value)
Constant		0.0434 ^{***} (3.5645)	0.0582 ^{***} (4.0279)
FLO_on	+	0.0426 ^{***} (2.6309)	0.0555 ^{***} (2.8510)
FLO_off	+	-0.0288 (-1.0740)	-0.0221 (-0.7324)
Lev	+	0.0120 ^{***} (3.9791)	0.0116 ^{***} (3.2969)
Size	-	-0.0011 (-0.9257)	-0.0023 [*] (-1.6968)
ROA	-	-0.0056 (-1.3603)	-0.0105 ^{**} (-2.1746)
STDROA	+	0.0126 (0.9277)	0.0001 (0.0070)
MTB	-	0.0011 ^{**} (2.3929)	0.0002 (0.3007)
Firm Fixed Effects		Yes	Yes
Year Fixed Effects		Yes	Yes
N		7,244	5,153
Within R ²		0.5353	0.5715
F test		6.4269 [0.0113]	6.0273 [0.0142]

Notes: Table 3 reports the associations between recognized versus disclosed finance leases and firms' equity risk using regression model (1). Column (1) reports the results for a sample of all firms in this study, and column (2) reports the results for firms that choose the exception, respectively. All the variables are defined in Table 1. t statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ^{***}, ^{**}, ^{*} 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 F test analyzes the equality between the coefficients of FLO_on and FLO_off and reports F statistics. p values are reported in square brackets.

Table 4: The Effects of Investors' Information Processing on the Risk Relevance of Recognized versus Disclosed Finance Leases Using Institutional Ownership

	Expected Sign	(1)	(2)
		All Coefficient (t-value)	Exception Coefficient (t-value)
Constant		0.0391*** (3.2781)	0.0548*** (3.7962)
FLO_on	+	0.0439*** (2.7356)	0.0557*** (2.8295)
FLO_on × IO	?	0.0014 (0.1022)	-0.0017 (-0.0944)
FLO_off	+	-0.0137 (-0.5301)	-0.0047 (-0.1632)
FLO_off × IO	+	0.0532** (2.4522)	0.0569** (2.5598)
Lev	+	0.0113*** (3.8530)	0.0118*** (3.2921)
Size	-	-0.0007 (-0.5956)	-0.0020 (-1.4758)
ROA	-	-0.0065 (-1.5977)	-0.0111** (-2.2852)
STDROA	+	0.0133 (1.0013)	0.0078 (0.4584)
MTB	-	0.0015*** (3.2122)	0.0005 (0.8875)
IO	?	0.0029 (0.8639)	0.0051 (1.3289)
Lev × IO	?	0.0006 (0.3403)	0.0009 (0.3606)
Size × IO	?	-0.0000 (-0.0094)	-0.0002 (-0.5536)
ROA × IO	?	-0.0094*** (-2.9156)	-0.0047 (-1.3330)
STDROA × IO	?	-0.0490*** (-5.1489)	-0.0484*** (-4.1543)
MTB × IO	?	-0.0018*** (-5.4290)	-0.0020*** (-4.6765)
Firm Fixed Effects		Yes	Yes
Year Fixed Effects		Yes	Yes

N	7,244	5,153
Within R ²	0.5453	0.5813
F test	0.0302	0.0022
	[0.8619]	[0.9627]

Notes: Table 4 reports the effects of investor' information processing on the risk relevance of recognized versus disclosed finance leases using institutional ownership. Using regression model (2), column (1) reports the results for a sample of all firms in this study, and column (2) reports the results for firms that chooses the exception, respectively. IO is the normalization of institutional ownership (INST) by fiscal year; FLO_on \times IO is an interaction term between FLO_on and IO; FLO_off \times IO is an interaction term between FLO_off and IO; Lev \times IO is an interaction term between Lev and IO; Size \times IO is an interaction term between Size and IO; ROA \times IO is an interaction term between ROA and IO; STDROA \times IO is an interaction term between STDROA and IO; MTB \times IO is an interaction term between MTB and IO. All other variables are defined in Table 1. *t* statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, * 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 F test analyzes the equality of the sums of the coefficients of FLO_on and FLO_on \times IO and the sums of the coefficients of FLO_off and FLO_off \times IO and reports F statistics. *p*-values are reported in square brackets.

Table 5: The Effects of Investors' Information Processing on the Risk Relevance of Recognized versus Disclosed Finance Leases Using Foreign Ownership

	Expected Sign	(1)	(2)
		All Coefficient (t-value)	Exception Coefficient (t-value)
Constant		0.0423*** (3.5003)	0.0555*** (3.8239)
FLO_on	+	0.0384** (2.3380)	0.0504** (2.5477)
FLO_on × FO	?	-0.0179 (-1.4922)	-0.0236 (-1.4299)
FLO_off	+	-0.0183 (-0.6914)	-0.0085 (-0.2812)
FLO_off × FO	+	0.0503** (2.5123)	0.0541** (2.4957)
Lev	+	0.0121*** (4.0581)	0.0122*** (3.3960)
Size	-	-0.0009 (-0.8311)	-0.0021 (-1.5069)
ROA	-	-0.0061 (-1.4741)	-0.0109** (-2.2442)
STDROA	+	0.0151 (1.1098)	0.0051 (0.2950)
MTB	-	0.0015*** (3.1648)	0.0005 (0.9117)
FO	?	0.0060** (2.3839)	0.0064** (2.0897)
Lev × FO	?	0.0012 (0.9033)	0.0016 (0.9481)
Size × FO	?	-0.0003 (-1.3268)	-0.0003 (-1.3245)
ROA × FO	?	-0.0106*** (-3.3587)	-0.0085** (-2.4371)
STDROA × FO	?	-0.0423*** (-4.4630)	-0.0364*** (-3.2995)
MTB × FO	?	-0.0014*** (-4.0835)	-0.0016*** (-4.5233)
Firm Fixed Effects		Yes	Yes
Year Fixed Effects		Yes	Yes

N	7,244	5,153
Within R ²	0.5447	0.5819
F test	0.1064	0.1948
	[0.7443]	[0.6590]

Notes: Table 5 reports the effects of investor' information processing on the risk relevance of recognized versus disclosed finance leases using foreign ownership. Using regression model (3), column (1) reports the results for a sample of all firms in this study, and column (2) reports the results for firms that chooses the exception, respectively. FO is the normalization of foreign ownership by fiscal year; FLO_on \times FO is an interaction term between FLO_on and FO; FLO_off \times FO is an interaction term between FLO_off and FO; Lev \times FO is an interaction term between Lev and FO; Size \times FO is an interaction term between Size and FO; ROA \times FO is an interaction term between ROA and FO; STDROA \times FO is an interaction term between STDROA and FO; MTB \times FO is an interaction term between MTB and FO. All other variables are defined in Table 1. *t* statistics are based on robust standard errors clustered at the firm level and are reported in parentheses. ***, **, * 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 F test analyzes the equality of the sums of the coefficients of FLO_on and FLO_on \times FO and the sums of the coefficients of FLO_off and FLO_off \times FO and reports F statistics. *p*-values are reported in square brackets.