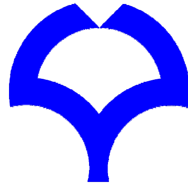

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Managerial Ownership, Modification of Business Risk Disclosure and Investors Risk Perception: Evidence from Japan

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Managerial Ownership, Modification of Business Risk Disclosure and Investors Risk Perception: Evidence from Japan*

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Abstract: This paper investigates the association between ownership structure with business risk disclosure in Japan, and the relationship between information content of risk disclosure and investors' risk perception. In the sample of Japanese firms over the period 2014-2021, the main results indicate a significant and non-monotonic relationship between managerial ownership and annual modification in business risk disclosure. In particular, the modification of business risk disclosure decreases as managerial ownership increases for both high and low levels of management share holdings, while it increases for intermediate levels of it. In addition, I find that the annual increase in business risk disclosure is negatively associated with changes in daily stock return volatility and trading volume, suggesting a greater opinion convergence among investors after the release of business risk disclosure. This study contributes to existing literature in support of the non-boilerplate argument and informativeness of risk disclosure.

JEL Classification: M41; M48

Keywords: Managerial Ownership, Business Risk Disclosure, Narrative Financial Disclosure, Information Content, Market Reactions

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1. Introduction

Managers are commonly believed to hold more information than external stakeholders do. Previous studies indicate that the management tends to hold and delay the release of unfavorable news on the current stage (Kothari et al., 2009; Baginski et al., 2018; Bao at al., 2019). However, when it comes to the forward-looking unfavorable information, the corporate textual risk disclosure, researchers find the release of unfavorable news advantageous to firm, by reducing cost of capital (Heinle & Smith, 2017), decreasing information asymmetry (Campbell et al., 2014) and better assessment of analyst (Hope et al., 2016). Despite these benefits, the determinants of changes in textual risk disclosure remain a puzzle. This study tries to fill the gap by investigating the determinants and effect of risk disclosure by testing two hypotheses. First, it tests the hypothesis on how firms' ownership structure affects the annual change in risk disclosure. And second, it examines how change in disclosure influences the investors risk perception and investment behaviors.

Eng and Mak (2003) argue that firms' ownership structure has an important impact on voluntary disclosure. As a substitute of monitoring, the demand of disclosure is negatively associated with managerial ownership since owning shares helps to alleviate agency problems by aligning the interests of management to the firm's value. However, this story becomes more complicated when considering the entrenchment effect that arises at the intermediate level of managerial ownership (Morck et al., 1988). Especially in Japan, several empirical studies suggest a non-monotonic relationship between managerial ownership and some characteristics such as performance of a firm (Teshima, 2004) and accounting conservatism (Shuto & Takada, 2010). Following Eng and Mak (2003) and studies on non-monotonic effect of managerial ownership in Japan, I first examine if there is a linear and negative association between managerial ownership and risk disclosure. Then, I investigate if this relationship becomes nonlinear as the magnitude of shares owned by managers changes.

This paper also investigates the information content of business risk disclosure. Krevet and Muslu (2013) and Campbell et al. (2014) provide evidence against the boilerplate statement of corporate textual risk disclosure, instead, it is regarded as informative and exposes unknown risk factors to investors. Following their study, this study tends to provide evidence on informativeness of business risk disclosure from the Japanese stock market, and instead of using

a dictionary method in previous literature (Krevet & Muslu, 2013; Campbell et al., 2014; Hope et al., 2016), this study follows the work of Brown and Tucker (2011), in which they introduce the method of cosine similarity to measuring the modification score using the U.S. data to detect the change on a year-over-year basis on MD&A section.

This study takes advantage of the introduction of business risk disclosure in Japan, which is an independent regime that was introduced at the end of fiscal year of 2004 (FSA, 2003). Similar to risk factor disclosure in annual reports in the U.S., the business risk disclosure in Japan is introduced as a channel for the information transmission and believed to assist investors to assess business risk of a company (Kim & Yasuda, 2017). To fill the gap of information asymmetry, business risk disclosure should be reliable and timely, however, despite its mandatory nature, its content is still under the discretion of managers, or as argued by Japanese scholars "voluntary in nature" (Kim & Yasuda, 2018). In fact, this issue has become a concern of regulators such as FSA in Japan. Guidance issued by FSA for good disclosure highlights the importance of reviewing business risk disclosure on a timely basis and including the change in risks timely (FSA, 2022). In this case, the usefulness of business risk disclosure will be undermined if managers delay or omit the change in risk and not report potential risk in business risk disclosure.

I test the hypothesis in this paper using Japanese data for three reasons. First, unlike U.S. firms, financial disclosure in Asian countries is believed to be less transparent, especially, Japanese firms are considered to share information in private channels (Shuto & Takada, 2010) and not required to make assurance on the risks reported (Fukukawa & Kim, 2017) which makes the informativeness of textual disclosure a critical question. Second, this paper takes the advantage of the availability of ownership structure data in Japan. The ownership structure and the way it is reported is distinct in Japan (Nagata & Nguyen, 2017), in which various types of ownership data are mandated to be disclosed, making the analysis more detailed and comprehensive. Third, as far as I have known, a comprehensive analysis of financial textual risk disclosure is limited in Japan. This gap is expected to be filled.

In terms of research design, this paper measures business risk disclosure by the modification score developed by Brown and Tucker (2011). A higher modification score indicates larger change and more informative textual disclosure that is less likely to be boilerplate (Brown & Tucker, 2011). For testing the association between managerial ownership

and risk disclosure, I follow the specification of Shuto & Takada (2010) and add linear, quadratic and cubic form of managerial ownership to capture the nonmonotonic relationship. On the other hand, I follow Kravet and Muslu's (2013) specification to investigate the effect of risk disclosure on investors' risk perception, this paper uses the change in daily stock volatility and change in trading volume around the release of annual reports as the proxy of investor's opinion divergence. It is believed that investors will trade more (or less) if their opinions differ greater (or less) with each other. It is possible that the change in business risk disclosure introduces new risk factors and leads to higher levels of disagreement ($Divergence\ Argument$) or resolves current risk factors and reduces information difference among investors ($Convergence\ Argument$). Thus, I predict that the change of business risk disclosure is significantly related to stock volatility and trading volume during and after the filling period.

Using a sample of 13,597 Japanese firm-year observations from 2014 to 2021, the results find a nonmonotonic relationship between managerial ownership and change in business risk disclosure. This finding suggests that the alignment effect overwhelms at low and high levels of managerial ownership, leading to lower demand for disclosure, and entrenchment effect becomes significant at intermediate level, resulting in higher demand for disclosure. Moreover, in contrast to the findings in the paper of Kravet and Muslu (2013), the results indicate a negative relationship between increasing information content in textual risk disclosure and investors' opinion divergence. It suggests that in Japan, investors are more confident in their expectation and agree more with each other when more risk factors are announced to the public.

This paper extends the literature in several aspects. First, by using the natural language processing packages, $Mecab$, developed by Japanese scholars, this paper extends the modification score method developed in the paper of Brown and Tucker (2011) to non-English disclosures. Second, as Li (2010) and Elshandidy et al. (2018) identifies the potential future direction of relating corporate governance to textual disclosure using large-sample data in their work, this paper contributes to the literature with a special focus on corporate governance and textual disclosure. Finally, this paper contributes to current disclosure literature by providing evidence on the role that alignment and entrenchment effects play on corporate textual disclosure.

The rest of the paper is organized as follows. Section 2 reviews the related studies and presents the development of hypotheses. Section 3 shows the research design of this paper. Section 4 presents the sample selection and data description, while Section 5 focuses on the empirical results. Finally, Section 6 concludes this paper by a summary and further discussion.

2. Literature Review and Hypothesis Development

In this section, I provide discussion on the background of this study by reviewing literature, and develop two hypotheses on the determinants and effects of business risk disclosure in Japan. Firstly, I briefly reviewed the previous studies on textual disclosure, with a special focus on risk disclosure. Secondly, I provide hypotheses on how the demand of risk disclosure changes from the perspective of agency problems, which are responsive to the level of managerial ownership. With the effect of incentive alignment and management entrenchment, I predict a nonmonotonic relationship between managerial ownership and risk disclosure. Finally, I present a review on the link between risk disclosure and investors risk perceptions. Following previous papers, I hypothesize that investor's opinions, proxied by stock volatility and trading volume, are significantly influenced by less boilerplate and more informative business risk disclosure.

2.1 Risk Disclosure: The Background

The use of boilerplate text has been reported as a problematic feature in annual reports and warned by financial regulators (Lang & Stice-Lawrence, 2005). The concept of boilerplate texts refers to a standardized expression that is similar and unlikely to change over time in narrative disclosure. This attribute becomes problematic because it leaves space for management to hide information and reduce the informativeness of textual disclosure. Previous study found that boilerplate issues can be witnessed in various narrative disclosures. Brown and Tucker (2011) provide evidence that shows an increasing usage of boilerplate text in MD&A section of 10-K reports in the US. By quantifying trends in annual reports, the work of Dyer et al. (2017) also finds a tendency of boilerplate financial texts during 1996 to 2013. Similarly, studies based on U.S. firms find that despite financial authorities' calls for useful and timely risk disclosures, evidence shows companies can easily avoid providing relevant information on potential risk and result in boilerplate statements (Kravet & Muslu, 2013).

The business risk disclosure in Japan is unique in its nature. First of all, it is believed that information transparency in Asia, including Japan, is not sufficient for investors to make decisions (Jiang & Kim, 2004). Thus, it becomes an interesting question if Japanese firms are providing boilerplate texts or informative disclosure that can affect investors' perception. Second, although Japan business disclosure is mandatory, its content is, to a large extent, discretionary and dependent on the managers (Kim & Yasuda, 2018). Moreover, Kravet and Muslu (2013) point out in their work that risk disclosure offers a range of future estimates, instead of the level of it. This feature makes risk disclosure more likely to be discretionary and difficult to interpret. Moreover, business risk disclosure is textual and forward-looking, which lends itself to potential vagueness and subtlety for interpreting. Finally, the information contained in this section is designed to relate to "unfavorable" factors. All these factors make study of business risk disclosure a challenging task.

2.2 Managerial Ownership, Agency Problems and Disclosure

Agency theory describes the conflicts between managers and shareholders, which is the result of separation of ownership and control (Jensen & Meckling, 1976). According to agency theory, the management tends to prioritize its own interests, instead of the interests of shareholders and the whole firm, by opportunistic behavior and therefore bring extra costs to the firm, the agency cost. A well-known practice to reduce this cost is to give the management equity shares and mitigate agency problems (Himmelberg et al., 1999). The reason behind this practice can be traced back to the work of Jensen and Merckling (1976), in which they argue that a higher level of managerial ownership helps to alleviate the agency problem by aligning the interests of managers and shareholders. It is referred to by the following literatures as the incentive alignment effect. There are abundant empirical studies providing evidence for the alignment effect of managerial ownership. For example, Signh and Davidson (2003) provide empirical evidence showing a positive relation between managerial ownership and asset utilization.

It is widely known that financial disclosure serves as one important mechanism of outside monitoring of a firm (Hope & Thomas, 2008). By disclosing the financial performance and corporate governance of a firm to external stakeholders, the management is disciplined to maximize the interests of the firm as a whole. However, in line with the fundamental agency

problem, managers are inherently unwilling to disclose information to investors and be monitored (Nargars et al., 2003). In this case, the ultimate demand of shareholders of timely and accurate disclosure cannot be satisfied at time. To solve this problem, aligning the interests of managers and owners by increasing managerial ownership helps to mitigate disclosure agency problems and motivate managers to release better disclosure. Eng and Mak (2003) find a negative relationship between managerial ownership and voluntary disclosure. They argue that the demand for disclosure increases at a low-level managerial ownership, because the agency problems become more severe without the alignment of interests. However, to my best knowledge, there are no previous studies examining the effect of managerial ownership on textual disclosure in Japanese context. To fill the gap, I include managerial ownership to find the association between ownership structure and modification in risk disclosure.

According to the incentive alignment effect, as managers have larger shareholdings, agency problems will be alleviated, and the demand for disclosure will be less severe (Eng & Mak, 2003). Thus, I hypothesize that in a linear model, managerial ownership is negatively related to the change in business risk disclosure.

Hypothesis 1.1: There is a negative relationship between managerial ownership and modification in business risk disclosure.

However, Morck et al (1988) find a significant nonmonotonic relationship between the managerial ownership and firm's value, which is proxied by Tobin's q. They posit that managers with a larger number of shares are likely to have greater controls of the firm and be entrenched from other stakeholders. In this case, a higher level of managerial ownership will give rise to agency costs. This channel explains a more complicated impact of managerial ownership on agency problems. Accordingly, the following literature examines the management entrenchment effect and incentive alignment effect simultaneously (Lennox, 2005; and Teshima and Shuto, 2010). It is further argued that the entrenchment effect only has significant power in the intermediate level of managerial ownership (Shuto & Takada, 2010). In the case that managers only have a small portion of shares and little power in making decisions, they cannot focus on their own interest since the lack of control, while the managers with an extremely large number of shares will not be entrenched because they benefit from most of the value increases of the whole firm.

Several empirical studies provide evidence on the nonlinear effects of managerial ownership on agency problems. Short and Keasey (1999) point out that managers are aligned only at low and high levels of shareholding, but entrenched at intermediate level. Benson and Davidson III (2009) find a U-shape relationship between managerial ownership and firms' value by a quadratic specification of managerial ownership, showing incentive alignment effects take effect at low level of managerial ownership. Using China's non-listed firms, Hu and Zhou (2008) provide evidence on the non-linear relationship between firm performance and managerial ownership.

The nonmonotonic effect of managerial ownership on agency problems is salient in the Japanese context. Plentiful studies have been reporting a non-linear relationship between managerial ownership and other financial behaviors, with the usage of Japanese data. Teshima (2003) found there is a nonmonotonic effect of managerial ownership on performance of Japanese firms, proxied by Tobin's Q. Furthermore, similar nonmonotonic relationship of managerial ownership is found when examining earnings management (Teshima & Shuto, 2008), and accounting conservatism (Shuto & Takada, 2010). In accordance with the previous literature, I hypothesize that as the management entrenchment effects overwhelm at the intermediate level, the demand of risk disclosure will be increased. Therefore, there is a significant positive relationship between managerial ownership and change in risk disclosure at intermediate level of managerial ownership. Meanwhile, at both low level and high level of managerial ownership, the negative relationship still holds, due to the incentive alignment effect.

Hypothesis 1.2: The relationship between managerial ownership and modification of business risk disclosure is positive at the intermediate level of managerial ownership, and negative within the low and high level of managerial ownership

2.3 Investors' Risk Perception and Risk Disclosure

The information content of risk disclosure and the informativeness of risk disclosure has been a concern for both regulators and investors. For example, it is common for financial authorities to encourage firms to provide more specific and meaningful risk disclosure (Kravet & Muslu, 2013). However, despite the requirement of financial regulators, risk disclosure is usually criticized by scholars to be boilerplate and lengthy (Arikan, 2022). One possible reason

for non-disclosure in risks is the propensity costs in traditional disclosure theory (Verrecchia, 2001). Moreover, recent studies suggest that managers can benefit from standardized text in risk disclosure by more favorable judicial and regulatory assessments (Cazier et al., 2021). Stating that risk disclosure is boilerplate and not informative is called $Null\ Argument$ in researches of risk disclosure.

Several studies on risk disclosure dispute the boilerplate claim. Kravet and Muslu (2013) investigate changes around the filling period and find that increased risk disclosure will result in greater volatility of daily stock return and trading volume. Campell et al. (2014) provide empirical evidence suggesting that risk disclosure is useful and informative to investors. They find a positive relationship between market beta and volatility in stock return after the release of risk disclosure and the disclosure itself, indicating a revision of estimates by outside investors. In the study of Hope at al. (2016), more specific risk disclosure is found to be more beneficial to the firm, in terms of more positive market reaction and better analysts following. These findings are summarized as Divergence Argument, suggesting that changing in risk disclosure exposes investors to unknown risk factors and increase their risk perceptions (Bao & Datta, 2014).

However, there are counterarguments against the aforementioned beliefs. Using more detailed textual analysis, Bao and Datta (2014) reveals certain unsystematic risk disclosures, such as human resources and regulation changes, can decrease investors' risk perception. They argue that by making potential risks known to the public, the information difference among investors is decreasing and, and therefore increase the tendency of uniform investment choice (Bao & Datta, 2014). This argument is called Convergence Argument.

Taking the three arguments together, I hypothesize that the modification of risk disclosure contains specific risk factors to external financial report users, and make them re-assess the investment decision they made before disclosure. In other words, it is not boilerplate and has a significant association with investors' risk perception. However, depending on the content it covers, the sign of this effect can be positive, or negative.

Hypothesis 2.1: The modification of risk disclosure is significantly correlated to change in daily stock return volatility in post-filling period.

Hypothesis 2.2: The modification of risk disclosure is significantly correlated to short-term trade volume during filing period and change in trading volume after filling period.

3. Research Design

3.1 Measures of Modification of Risk Disclosure

For the measurement of textual disclosure modification, this study intends to adopt a widely used '*cosine similarity*' method to measure the timeliness and nature of textual disclosure (Hanly & Hoberg., 2010; Brown & Tucker., 2011; Merkley, 2014). Specifically, I follow the work of Brown & Tucker (2011) to capture the change in informative content of textual disclosure by modification score calculated on a year-on-year basis, with the use of vector space model (Turney & Pantel, 2010; Merkley, 2014). The assumption is that the less similar risk disclosure between this year and the previous year, the timelier and less boilerplate the risk disclosure is in the current period. The similarity of two textual materials can be calculated by the angle between two vectors that are composed of the number of unique words[1] extracted from each document (Brown & Tucker ,2011). The idea of this method is that a smaller angle between two vectors suggests less difference between textual materials these vectors represent for.

Suppose there are two documents, m_1 and m_2, that contain the business risk disclosure of one firm in year t and $t-1$ respectively. In total, there are n unique words. In accordance, two n-dimensional vectors v_1 and v_2, can be constructed to represent the content of m_1 and m_2:

$$v_1 = (k_1, k_2, k_3 \dots k_n);\ v_2 = (j_1, j_2, j_3 \dots j_n) \quad (1)$$

$where$: k and j are the number of each unique word from 1 to n. Then, the cosine similarity score can be calculated as follows:

$$Sim = cos\,(\theta) = \frac{v_1}{||v_1||} \cdot \frac{v_2}{||v_2||} = \frac{v_1 v_2}{||v_1||\,||v_2||}$$

In accordance with Brown & Tucker (2011) and Hanley & Hoberg (2012), this paper defines the annual change of business risk disclosure using difference score, which is 1 minus

[1] Following previous studies, I removed all common prepositions, punctuations and take use of word roots instead of original words (Hanly & Hoberg., 2010; Merkley, 2014; Hanley & Hoberg., 2012). The conversion of words into word roots is conducted using *MeCab*.

the similarity score, as $Rawscore$. In addition, in previous literature with a focus on financial text, the similarity of narrative disclosure is believed to be strongly correlated with the total length of text (Li, 2008). Following previous research (Brown & Tucker, 2011; Lee 2016, Rennekamp et al, 2022), this paper uses the residuals to remove the effect of length on similarity. The final variable measuring the modification of business risk disclosure, $Score$ is derived by estimating the relation between $Rawscore$ and the total length of business risk disclosure. The estimation includes quadratic and cubic forms of total length of business risk disclosure. Further, the independent variables are standardized for interpretation.

3.2 Research Models

To test the two hypotheses developed in Section 2, this paper estimates the following OLS regressions to investigate the effect of managerial ownership on the modification of business risk disclosure and how this change affect investors risk perception. To test the nonmonotonic relationship effect of managerial ownership, the cubic form of managerial ownership is added to equation (1). And Equation (2) is designed to test Hypothesis 2.

3.2.1 Ownership Structure and Risk Disclosure

$$\begin{aligned} Score_{i,t} = \; & \beta_0 + \beta_1 MO_{i,t} + \beta_2 {MO_{i,t}}^2 + \beta_3 {MO_{i,t}}^3 + \beta_4 FIN_{i,t} + \beta_5 Foreign_{i,t} + \beta_6 GOV_{i,t} \\ & + \beta_7 CORP_{i,t} + \beta_9 Size_{i,t} + \beta_{10} BTM_{i,t} + \beta_{11} RET_{i,t} + \beta_{12} \Delta EPS_{i,t} \\ & + \beta_{13} \Delta Current_{i,t} + \beta_{14} \Delta Debtdue_{i,t} + \beta_{15} \Delta Leverage_{i,t} + \beta_{16} Acquire_{i,t} \\ & + \beta_{17} Downsize_{i,t} + \beta_{18} \Delta Segment_{i,t} + Year + Industry \\ & + \varepsilon_{i,t} \qquad\qquad (1) \end{aligned}$$

To test hypothesis 1, this paper includes MO, managerial ownership, defined as the fraction of share owned by all directors (Kaplan & Minton, 1994; Basu et al., 2007; Ahmed & Iwasaki, 2021). Following Shuto & Takada (2010), I include linear, quadratic and cubic form of managerial ownership (MO, MO^2, MO^3) in the regression to capture the nonlinear relationship between managerial ownership and business risk disclosure. Following previous studies with an interest on Japanese ownership (Kato et al., 2009; Shuto & Iwasaki, 2014, Nagata & Nguyen, 2017; David et al, 2022), this paper controls the following ownership variables: $FIN, Foreign, GOV, CORP$, representing the fraction of shares owned by banks, foreign investors, government and other corporations respectively, which are believed to be important in corporate governance in Japan.

In the above regression model, the coefficients of linear form of managerial ownership MO and cubic form MO^3 measures the alignment effect, and are expected to be negative, as discussed in Section 2. Meanwhile, the coefficient of quadratic form $MO^2$are expected to be positive, reflecting an increase in demand on risk disclosure at intermediate level of managerial ownership.

For control variables, firstly, this paper includes $Size$, BTM and RET to control the basic features of a firm (Eng & Mak, 2003; Campbell et al., 2014). Then, following the work of Brown & Tucker (2011), the regression includes variables to capture the economic change: ΔEPS reflects the change in results of operation, $\Delta Current, \Delta Debtdue$ and $\Delta Leverage$ captures the change in liquidity. $Accquire$ and $Downsize$ represents the change in business strategy. Additionally, $\Delta Segments$ reflects the change in complexity of business. This model also controls year and industry. The detailed definitions are presented in Appendix 1.

3.2.2 Investors' Risk Perception and Risk Disclosure

This study measures investors' change in risk perception by the extent of opinion divergence, proxied by changes in daily stock return volatility and trading volume during and after the release of risk disclosure. First, to test the change in daily stock volatility, I follow the work of Kravet & Muslu (2013) and Campell et al.(2014), by adding $\Delta\sigma(Return)$, which is the change in daily stock return volatility and $\Delta(\sigma(Neg\ Return)/\sigma(Pos\ Return)$, which is a measure of change in ratios of volatility of negative daily stock returns to volatility of positive daily stock returns, as the proxy of investors' risk perception.

Second, as regards to trading volume, Bamber (1987) finds that the unexpected magnitude of stock trading reflects the investors' use of financial disclosure to make investment decisions. Garfinkel & Sokobin (2006) and Garfinkel (2009) argue that abnormal trading volume is a reliable proxy of opinion divergence. Thus, I build two variables to capture the change in opinion, $Log(Filling\ Trading\ Volume)$, the logarithm form of trading volume in three-day window before and after the annual report, and $\Delta Log(Volume)$, the logarithm form of changes of 60 days period before and after the filling period, following the work of Kravet & Muslu (2013). If investors' opinions become more diverse, there will be increasing trading volume during the filling period, and the difference in trading volume before and after risk disclosure will also be increased. To test Hypothesis 2.1 and 2.1, the coefficient of β_1 in model (2) is

expected to be significant.

The OLS regression model is presented as follows, the control variables differ when testing stock volatility and trading volume. In addition, to differentiate industry-level risk disclosure and firm-level risk disclosure, I split $Score$ into $Industry\ Score$, which is the median value of modification score within a certain industry in a year, and $Firm\ Score$, the difference between $Score$ and $Industry\ Score$. Similar discussions can be found in the work of Kravet and Muslu (2013) and Bao and Datta. (2014).

$$\begin{aligned} Risk\ Perception \\ = \ & \beta_0 + \beta_1\ Score_{i,t} + \beta_2 Log(NonFiling\ Volume)_{i,t} \\ & + \ \beta_3 \Delta\ Log(Market\ Volume)_{i,t} + \ \beta_4 \Delta\ Filling\ Return_{i,t} \\ & + \ \beta_5 \Delta\ Absolute\ Filling\ Return_{i,t} + \beta_6 \Delta\ Managerial\ Forecast_{i,t} \\ & + \beta_7 \Delta\ Sales\ Growth_{i,t} + \ \ \beta_8 \Delta\ ROA_{i,t} + \beta_9\ \Delta\ Segment_{i,t} + \beta_{10}\ Loss_{i,t} \\ & + Year + Industry \\ & + \ \varepsilon \qquad (2) \end{aligned}$$

Following Kravet and Muslu (2013), I control the change of trading volume brought by whole market and therefore include $Log(NonFiling\ Volume)$, the logarithm form of trading volume of three month before the risk disclosure, $Log(Market\ Volume)$, the logarithm of three-day trading volume during the release of annual reports and weighted by firms' market value, and $\Delta Log(Market\ Volume)$, the change in value-weighted trading volume over a 60-day period before and after the filing date. To control the fluctuation of trading volume due to the change in stock return, I include $\Delta\ Filing\ Return_{i,t}$ and $\Delta\ Absolute\ Filing\ Return_{i,t}$, following the work of Garfinkel (2009). Also, in order to control changes in other information sources for investors, including management earnings forecasts, sales growth, ROA, number of business segments, and losses reported in financial reports. The detailed definition is presented in Appendix 1.

4. Sample and Data

4.1 Sample selection

Table 1 provides an overview of the sample selection procedure of this paper. The selection starts from an initial sample of 21,900 firm-year observations of listed firm from 2014 to 2021, since regulatory authority in Japan started incorporating textual disclosure into XBRL

files after the end of December 31, 2013 (FSA, 2013). The final sample starts from 2015 because of textual variables is built upon year-on-year changes and therefore lack the data for initial year. The necessary financial data are obtained from the Nikkei NEEDS Financial QUEST database and the textual data are manually collected from eol database from the format of XBRL files. I first exclude 1,245 observations that do not follow Japanese GAAP, and 861 observations in which the fiscal periods do not equal 12 months. Then, 304 observations in financial industry are removed. I also deleted 5,237 observations due to the lack of textual data and key corporate ownership data for testing H1. A further 656 observations are removed for lacking daily trade volume and stock return for testing H2. The selection procedure results in a final sample of 13,597 firm-year observations. In addition, all continuous variables are winsorized at the 1st and 99th percentile.

[Insert Table 1 about here]

4.2 Descriptive Statistics

Table 2 shows descriptive statistics for all variables. The mean value of total word counts of the business risk disclosure section, $Total\ Words$, is 1182, consistent with prior Japanese research (Kim & Yasuda, 2018; Yazawa, Ito and Kin, 2021). The main variable of interest $Score$ is standardized and have a mean of 0 and standard deviation of 1. Following the work of Kravet and Muslu (2013), I divide $Score$ into two parts, $Industry\ Score$,reflecting the industry average, and $Firm\ Score$, firm's annual modification of risk disclosure that does not follows the trend in its industry. The mean for these two variables is -0.260 and 0.266. The mean of managerial ownership is 0.088, slightly larger than the work of Shuto and Takada (2010).

Figure 1 depicts a reversed U-shape of annual change in business risk disclosure in Japan. Although the counts of total words in the risk disclosure section keeps growing from 2015 to 2021, the actual change in contents, measured by modification score developed by Brown and Tucker (2011) does not change overall. This suggests an increase of only boilerplate and standardized contents in risk disclosure over these years. However, risk disclosure increases significantly in the year of 2020, indicating a timely response to uncertainty brought by covid-19 pandemic during 2020. Furthermore, the median-adjusted firm-level change in disclosure is consistently larger than the industry median value, suggesting a tendency that sufficient

numbers of firms are willing to modify their disclosure compared with its peers.

[Insert Figure 1 about here]

[Insert Table 2 about here]

Table 3 presents Pearson correlation coefficients among key variables. Three measures of annual modification of risk disclosure are positively correlated with each other. $Score$ is positively correlated to firm-level, as well as industry-level annual changes in risk disclosure. As predicted, the univariate correlation reveals a negative relationship between $Score$ and the management ownership, MO. In addition, Table 3 suggests that $Score$ is negatively and significantly correlated with stock market variables, $Log(Filing\ Volume)$,$\Delta Log(Volume)$, and $\Delta\sigma(Return)$.The results are in support of the convergence hypothesis I discussed in Section 2, and in contrast of the results in the work of Kravet and Muslu (2013).

[Insert Table 3 about here]

5. Results

5.1 Test of Hypothesis 1

Table 4 shows the results of OLS regression which tests hypothesis 1. To test Hypotheis 1.1 and Hypothesis 1.2, I used three models including linear (Column 1), Quadratic (Column 2) and Cubic (Column 3) form of managerial ownership, MO, following the work of Shuto and Takada (2010). Firstly, I test Hypothesis 1.1, in which management ownership is predicted to be negatively correlated with risk disclosure modification in linear format. The coefficient of MO is significant at 1% level in all three specifications, suggesting a significant correlation between management ownership and modification of business risk disclosure. Moreover, the coefficient of MO is significantly negative in Column (1), (2) and (3), with values of -0.437, -0.825 and -1.485, respectively. With regards to economic significance, one percentage increase on MO lead to 1.485 standard deviation decrease in Score, when other variables held constant.

Further, in Column (3), I test the non-monotonic relationship discussed in Hypothesis 1.2. The coefficient of MO, MO^2, MO^3 is -1.485, 3.782 and -3.321, respectively. The estimation results are significant at 1% level and the sign of these three coefficients are as expected in

Hypothesis 1.2, indicating that incentive alignment effect and management entrenchment effect will affect the relation between ownership and disclosure at different ownership level. Further, the adjusted R-squared is slightly higher (20.4% vs. 20.3%) in the specification that includes the cubic form of MO.

In terms of the control variables, I find no significant correlations between other ownership variables. Interestingly, the modification of risk disclosure is not significantly correlated to the change in debt conditions and unfavorable change in assets, such as $\Delta Current$, $\Delta Debtdue$, $\Delta Leverage$ and $Downsize$. In addition, the variables relating to a firm's operating performance and business complexity are controlled.

[Insert Table 4 about here]

5.2 Test of Hypothesis 2

5.2.1 Volatility of Daily Stock Returns and Modification of Business Risk Disclosure

Table 5 provides the regression results of Equation 2, with the specification measuring the influence of business risk disclosure on the volatility of daily stock returns. Column (1) and (3) include the variable $Score$ while Column (2) and (4) include industry-level modification score, $Industry\ Score$ and firm-level modification score, $Firm\ Score$.

In contrast to the results of Kravet and Muslu (2013), which find a significant and positive relationship between change in risk disclosure and stock return volatility, the result in Column (1) indicates a significant and negative association between $Score$ and $\Delta\sigma(Return)$. This supports the convergence theory of change in risk disclosure (Bao & Datta, 2014). It can also be explained by the work of Moumen et al. (2015), in which they find that the higher level of risk disclosure helps investors' prediction on future performance. In this case, the daily stock volatility decreases as modification of risk disclosure increases, because investors are more able to predict a firm's future earnings and thus, stock price volatility reduces as a result of converging opinion on future. However, the coefficient of $Score$ in Column (3) is not significant, suggesting that annual change in risk disclosure does not make negative daily stock return more volatile.

In addition, the coefficients of industry level and firm level modification score in Column

(2) is significantly negative. And with regard to economic significance, both coefficients of $Industry\ Score$ in Column (2) and (4) are larger in absolute value than $Firm\ Score$, indicating that investors react more to industry level information instead of firm-specific information.

[Insert Table 5 about here]

5.2.2 Trade Volume and Modification of Business Risk Disclosure

Table 6 provides the OLS regression results with a dependent variable of change in trading volume. The coefficient of $Log(Filing\ Volume)$ in Column 1 is not significant, while that of $\Delta Log(volume)$ in Column 3 is significant, suggesting that investors do not respond to the modification in risk disclosure in a relatively short period of time (three-days around filing date). Meanwhile, in Column 3, the negative and significant coefficient of $\Delta Log(Volume)$, representing the change of trading volume before and after 60 days of filing date, provides evidence that new information in risk disclosure affects investors choice in long term. The negative relations between trade volume and risk disclosure are consistent with the findings in Table 5, indicating that the release of risk information decreases investors' risk conception. This finding rejects the $Null\ Argument$ and supports $Convergence\ Argument$, which is in line with Hypothesis 2.2.

The similar findings are shown when it comes to $Industry\ Score$ and $Firm\ Score$. The coefficients of $Industry\ Score$ is -0.233 (Column 2) and -0.074 (Column 4) respectively, and consistently larger in absolute value than the coefficients of $Firm\ Score$, with the value of 0.013 (Column 2) and -0.017 (Column 4). Also, the coefficient of firm-level risk disclosure in Column 2 is not statistically significant. It may suggest that during the short period, the firm-specific risk disclosure attracts less attention than the industry-level information.

[Insert Table 6 about here]

6. Conclusion

This study investigates the determinants and market reaction to modification of business

risk disclosure. First, I find that the annual change in risk disclosure is negatively related to managerial ownership in linear form, which is consistent with the incentive alignment theory. Furthermore, the results of quadratic and cubic models indicate that at intermediate level, the modification of business risk disclosure is positively correlated with managerial ownership. This finding suggests that management entrenchment effects overwhelm at the intermediate level of management share holdings. This nonlinear relationship supports the previous studies on managerial ownership in the U.S. and Japan, and provides new empirical evidence with regards to corporate textual disclosure and agency problems.

Second, in contrast to the findings of Kravet and Muslu (2013) and Compel et al. (2014), I find a negative association between the modification of risk disclosure and investors' risk perception. In additional test, I separate modification score to firm level and industry level, and the result shows a consistent larger market response, measured by change in daily stock volatility and trading volume, to industry-level risk disclosure. These results are related to the $Convergence\ Argument$ found in the paper of Bao and Datta (2014). It suggests that investors' risk perception decreases as certain risk factors are known by the public. Taking the two parts together, my findings highlight the determinant and effects of corporate textual risk disclosure in the Japanese context.

Appendix. Definitions of Variables

Variables	Definition
Textual Variables	
$Total\ Words_{i,t}$	Total words count identified in the section of business risk disclosure in annual report at fiscal year end t
$Rawscore_{i,t}$	The modification score calculated by the cosine similarity method developed by Brown & Tucker (2011)
Hypothesis 1	
Dependent Variables	
$Score_{i,t}$	The standardized modification score calculated as the difference between $Rawscore$ and the expected score using $Total\ Words$ in fiscal year t
Independent Variables	
$MO_{i,t-1}$	The percentage of the shares owned by all directors in year $t-1$
$FIN_{i,t-1}$	The percentage of the shares owned by banks in year $t-1$
$Foreign_{i,t-1}$	The percentage of the shares owned by foreign investors in year $t-1$
$GOV_{i,t-1}$	The percentage of the shares owned by government and other public organizations in year $t-1$
$CORP_{i,t-1}$	The percentage of the shares owned by government and other corporations in year $t-1$
Control Variables	
$Size_{i,t}$	The log of the market value of equity at the fiscal year end of t
$BTM_{i,t}$	The ratio of book value of equity divided by market value of equity at the fiscal year end of t
$RET_{i,t}$	The 12-month stock return before the fiscal year end of t
$\Delta EPS_{i,t}$	The change in diluted EPS, scaled by the stock price at the end of the fiscal year end t
$\Delta Current_{i,t}$	The change in current ratio for fiscal year t
$\Delta Debtdue_{i,t}$	The change in debts due in one year for fiscal year t
$\Delta Leverage_{i,t}$	The change in total liabilities for fiscal year t
$Accquire_{i,t}$	Dummy variable that equals to 1 if the total asset increased by 1/3 or higher at the end of fiscal year t and 0 otherwise
$Downsize_{i,t}$	Dummy variable that equals to 1 if the total asset decreased by 1/3 or higher at the end of fiscal year t and 0 otherwise
$\Delta Segment_{i,t}$	Change in business segment at the end of year t

Hypothesis 2	
Dependent Variables	
$\Delta\sigma(Return)$	The change in standard deviation of daily stock returns before the 60 days period and after the 60 days period of filing. It excludes the three-day window [-1,1] around the release of annual reports.
$\Delta(\sigma(Neg\ Return)/\sigma(Pos\ Return)$	The change in ratios of standard deviation of negative daily stock returns to standard deviation of positive daily stock return before the 60 days period and after the 60 days period of filing. It excludes the three-day window [-1,1] around the release of annual reports.
$Log(Filling\ Volume)_{i,t}$	The natural logarithm of firm i's average daily trading volume scaled by outstanding shares in the three-day window [-1,1] surrounding firm i's annual report for fiscal year t
$\Delta Log(Volume)_{i,t}$	The change in firm i's natural logarithm of the average daily trading volume scaled by outstanding shares between the 60 trading-day period before and the 60 trading-day period after firm i's annual report for fiscal year t, excluding the three-day period $[-1,\ 1]$ surrounding the release of annual reports
Independent Variables	
$Industry\ Score_{i,t}$	The median value of $Score$, based on industry and year. The industry is defined using $Nikkei\ Industry\ Code$ (Middle)
$Firm\ Score_{i,t}$	The difference between $Score$ and $Industry\ Score$ for fiscal year t
Control Variables	
$\Delta Market\ Return$	The change in daily market returns between the 60 days period and after the 60 days period of filing, excluding the three-day window [-1,1] around the release of annual reports.
$\Delta Market\ Volatility$	The change in standard deviation of daily market returns between the 60 days period and after the 60 days period of filing, excluding the three-day window [-1,1] around the release of annual reports.
$Log(NonFiling\ Volume)_{i,t}$	The natural logarithm of firm i's average daily trading volume divided by outstanding shares over the 3-month period ending 60 trading days prior to firm i's 10-K filing for fiscal year t
$Log(Market\ Volume)_{i,t}$	The logarithm of firms' value-weighted three-day trading volume scaled by outstanding shares surrounding firm annual report for fiscal year t.
$\Delta\ Log(Market\ Volume)_{i,t}$	The change in logarithm of firms' value-weighted three-day trading volume scaled by outstanding shares between the 60 trading-day period before and the 60 trading-day period after firm i's annual report for fiscal year t, excluding the three-day period $[-1,\ 1]$

	surrounding the 10-K filing
$Filing\ Return_{i,t}$	Sum of stock return of firm i around the three-day period [-1,1] of filing date.
$Absolute\ Filing\ Return_{i,t}$	Sum of the absolute value of stock return of firm i around the three-day period [-1,1] of filing date.
$\Delta Management\ Forecast_{i,t}$	The change in frequency of the release of management forecast between year t and $t-1$
$\Delta Sales\ Growth_{i,t}$	The change in net sales growth between fiscal year t and $t-1$. Net sales growth is defined as the ratio of increase of decrease in net sales from the previous fiscal year.
$\Delta ROA_{i,t}$	The change in return on assets between fiscal year end t and $t-1$
$\Delta Segments_{i,t}$	The change in the number of firm i's business segments between fiscal years t and $t-1$
$Loss_{i,t}$	A dummy variable equals to 1 if the earnings of firm in fiscal year t is negative and 0 otherwise.

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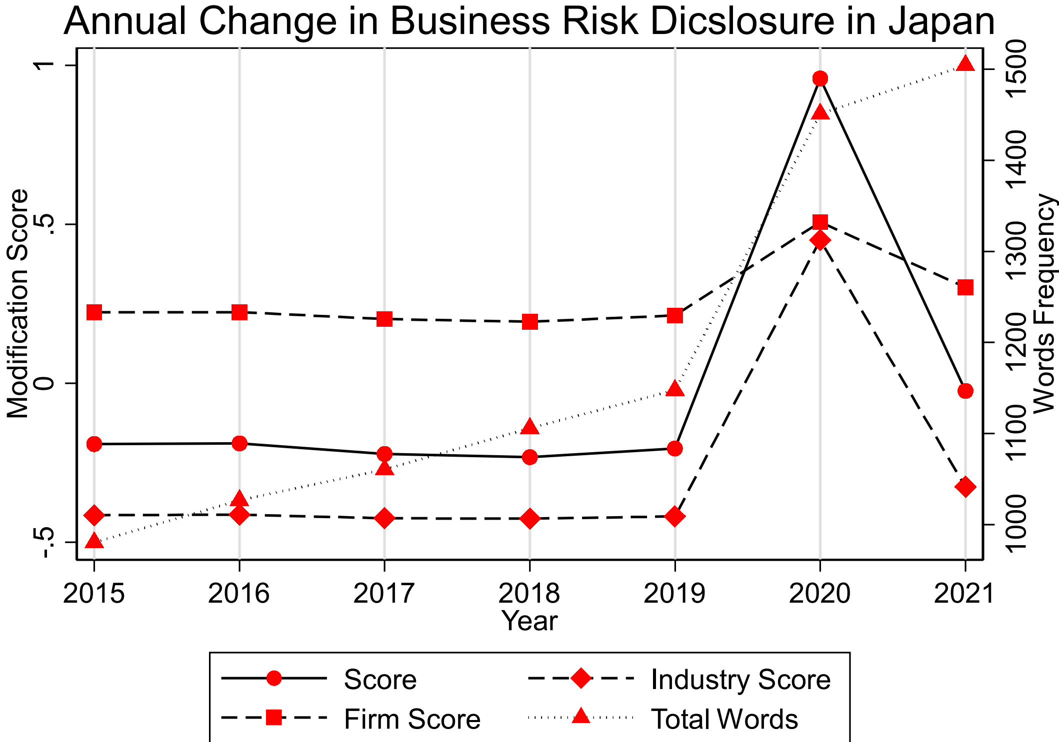
Table 1. Sample Section Procedures

Criteria	Firm-years
Firm-year observation for listed firms with financial data on Nikkei Financial Quest from 2015 to 2021	21,900
Less	
Firms that are not using Japan GAAP	(1,245)
Firms with the number of months in a fiscal period not equal to 12	(861)
Banks, securities firms, insurance firms, and other financial institutions	(304)
Missing data for H1	(5,237)
Missing data for H2	(656)
Number of observations for final sample	13,597

Figure 1： Annual Changes in Business Risk Disclosure in Japan by year.



Note: The figure depicts the annual change in mean values of risk disclosure, measured by modification score developed by Brown and Tucker (2011). The Sample includes 13, 597 observations collected from eol database, ranging from year 2015 to 2021

Table 2 Descriptive Statistics

VARIABLES	(1) N	(2) mean	(3) S.D.	(4) min	(5) max
$Total\ Words$	13,597	1182	1018	159	4792
$Score$	13,597	0.000	1.000	-0.497	5.450
$Industry\ Score$	13,597	-0.260	0.431	-0.452	3.187
$Firm\ Score$	13,597	0.266	0.880	-3.087	5.894
MO	13,597	0.088	0.151	0.000	0.709
FIN	13,597	0.181	0.126	0.000	0.491
$Foreign$	13,597	0.122	0.121	0.000	0.505
GOV	13,597	0.001	0.001	0.000	0.009
$CORP$	13,597	0.252	0.179	0.003	0.725
$Size$	13,597	24.140	1.744	20.921	28.846
BTM	13,597	2.101	1.765	0.101	9.142
RET	13,597	0.291	1.359	-0.674	9.494
ΔEPS	13,597	1.135	89.071	-390.198	365.909
$\Delta Current$	13,597	-0.006	0.132	-0.558	0.584
$\Delta Debtdue$	13,597	-0.001	0.060	-0.229	0.230
$\Delta Leverage$	13,597	-0.002	0.052	-0.166	0.224
$Acquire$	13,597	0.036	0.187	0.000	1.000
$Downsize$	13,597	0.013	0.114	0.000	1.000
$Log(Filing\ Volume)$	13,597	-5.595	1.395	-9.568	-2.319
$\Delta Log(Volume)$	13,597	-0.087	0.612	-1.609	2.117
$\Delta\sigma(Return)$	13,597	-0.225	1.249	-5.009	4.549
$\Delta(\sigma(Neg\ Return)/\sigma(Pos\ Return))$	13,597	-0.090	0.560	-2.719	1.423
$Log(Nonfiling\ Volume)$	13,597	-5.321	2.252	-9.277	0.000
$Log(Market\ Volume)$	13,597	-11.663	2.520	-17.741	-6.336
$\Delta\ Log(Market\ Volume)$	13,597	0.035	0.910	-2.028	3.195
$Filing\ Return$	13,597	0.114	7.057	-18.484	22.120
$Absolute\ Filing\ Return$	13,597	7.900	5.966	0.000	29.386
$\Delta Management\ Forecast$	13,597	4.409	0.995	1.000	7.000
$\Delta Sales\ Growth$	13,597	-0.026	0.186	-0.809	0.639
ΔROA	13,597	-0.008	0.726	-3.854	3.785
$\Delta Segments$	13,597	0.007	0.226	-1.000	1.000
$Loss$	13,597	0.089	0.284	0.000	1.000

Table 3 Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) $Score$	1.000							
(2) $Industry\ Score$	0.494***	1.000						
(3) $Firm\ Score$	0.905***	0.077***	1.000					
(4) $Log(Filing\ Volume)$	-0.060***	-0.088***	-0.025***	1.000				
(5) $\Delta Log(Volume)$	-0.069***	-0.088***	-0.036***	0.077***	1.000			
(6) $\Delta\sigma(Return)$	-0.134***	-0.144***	-0.083***	-0.033***	0.545***	1.000		
(7) $\Delta(\sigma(Neg\ Return)/\sigma(Pos\ Return))$	-0.004	-0.013	0.002	0.053***	-0.095***	0.159***	1.000	
(8) MO	-0.075***	-0.090***	-0.042***	0.133***	0.063***	0.001	-0.054***	1.000

Note:
Table 3 presents the Pearson correlation of the important variables for the sample with 3 decimals. All continuous variables are winsorized at 1 and 99 percentile level. Variable definition is provided in Appendix 1.
*** represents statistical significance at the 0.01 level

Table 4 The Non-monotonic Relationship between Managerial Ownership and Modifications of Business Risk Disclosure

	(1)		(2)		(3)	
	$Dependent\ Variable = Score$					
VARIABLES	Linear		Quadratic		Cubic	
	$Coefficent$	t_Value	$Coefficent$	t_Value	$Coefficent$	t_Value
MO	-0.437***	(-6.96)	-0.825***	(-4.87)	-1.485***	(-4.48)
MO^2			0.682***	(2.77)	3.782***	(2.99)
MO^3					-3.321***	(-2.65)
FIN	-0.034	(-0.33)	-0.070	(-0.67)	-0.084	(-0.80)
$Foreign$	-0.077	(-0.74)	-0.089	(-0.86)	-0.095	(-0.92)
GOV	2.593	(0.32)	1.802	(0.22)	1.325	(0.16)
$CORP$	-0.015	(-0.26)	-0.041	(-0.69)	-0.042	(-0.70)
$Size$	-0.002	(-0.26)	-0.003	(-0.37)	-0.004	(-0.48)
BTM	0.017***	(2.91)	0.016***	(2.79)	0.016***	(2.68)
RET	-0.018***	(-4.69)	-0.018***	(-4.79)	-0.018***	(-4.89)
ΔEPS	-0.001***	(-3.23)	-0.001***	(-3.23)	-0.001***	(-3.29)
$\Delta Current$	-0.030	(-0.39)	-0.031	(-0.41)	-0.030	(-0.39)
$\Delta Debtdue$	0.108	(0.72)	0.113	(0.75)	0.111	(0.73)
$\Delta Leverage$	-0.083	(-0.49)	-0.069	(-0.40)	-0.077	(-0.45)
$Acquire$	0.137***	(3.18)	0.133***	(3.10)	0.133***	(3.09)
$Downsize$	0.090	(1.11)	0.087	(1.08)	0.085	(1.05)
$\Delta Segment$	-0.070**	(-2.09)	-0.069**	(-2.07)	-0.069**	(-2.07)
$Constant$	-0.031	(-0.17)	0.019	(0.10)	0.057	(0.29)
$Year, Industry$	Control		Control		Control	
$Observations$	13,597		13,597		13,597	
$Adj. R^2$	20.3%		20.4%		20.4%	

Notes:
The dependent variable of linear, quadratic and cubic models is modification score of business risk disclosure, $Score$. See Appendix 1 for other variables' definitions. Robust t statistics calculated from White's (1980) method.
*** represent significance at the 0.01 or better at two-tailed test.

Table 5 Change in Volatility of Stock Return and Modification of Business Risk Disclosure

	(1)		(2)		(3)		(4)	
VARIABLES	$\Delta\sigma(Return)$		$\Delta\sigma(Return)$		$\Delta(\sigma(Neg\ Return) / \sigma(Pos\ Return))$		$\Delta(\sigma(Neg\ Return) / \sigma(Pos\ Return))$	
$Score$	-0.100***	(-8.10)			-0.001	(-0.04)		
$Industry\ Score$			-0.143***	(-2.76)			-0.046***	(-2.76)
$Firm\ Score$			-0.097***	(-7.55)			0.003	(0.63)
$\Delta Market\ Return$	-0.279***	(-4.52)	-0.272***	(-4.37)	-0.152***	(-4.60)	-0.145***	(-4.36)
$\Delta Market\ Volatility$	0.015**	(2.47)	0.015**	(2.44)	-0.011***	(-3.18)	-0.011***	(-3.23)
$Filing\ Return$	0.019***	(10.91)	0.019***	(10.91)	0.001	(0.29)	0.001	(0.29)
$Absolute\ Return$	-0.008***	(-3.34)	-0.008***	(-3.36)	0.003***	(3.06)	0.003***	(2.98)
$\Delta Institutional\ Ownership$	-0.287	(-0.63)	-0.277	(-0.60)	0.144	(0.68)	0.154	(0.74)
$\Delta Management\ Forecast$	-0.030**	(-2.36)	-0.030**	(-2.35)	-0.012**	(-2.31)	-0.012**	(-2.29)
$\Delta Sales\ Growth$	-0.004	(-0.05)	-0.004	(-0.06)	-0.007	(-0.27)	-0.008	(-0.30)
ΔROA	-0.006	(-0.43)	-0.006	(-0.43)	-0.001	(-0.20)	-0.001	(-0.21)
$\Delta Segment$	0.025	(0.52)	0.026	(0.54)	0.025	(1.23)	0.026	(1.28)
$Loss$	0.218***	(4.63)	0.218***	(4.63)	-0.012	(-0.73)	-0.012	(-0.74)
$Constant$	0.131*	(1.80)	0.114	(1.52)	-0.058*	(-1.68)	-0.076**	(-2.17)
$Year, Industry$	Control		Control		Control		Control	
$Observations$	13,597		13,597		13,597		13,597	
$Adj. R^2$	5.5%		5.5%		2.1%		2.1%	

Note:
See definition of variables in Appendix 1. Robust t statistics calculated from White's (1980) method. *p < .1, **p < .05, ***p < .01 (two-sided).

Table 6 Trading Volume and Modification of Business Risk Disclosure

VARIABLES	(1) $Log(Filing\ Volume)$		(2) $Log(Filing\ Volume)$		(3) $\Delta Log(Volume)$		(4) $\Delta Log(Volume)$	
	$Coefficient$	t_value	$Coefficient$	t_value	$Coefficient$	t_value	$Coefficient$	t_value
$Score$	-0.004	(-0.41)			-0.021***	(-3.67)		
$Industry\ Score$			-0.233***	(-6.37)			-0.074***	(-3.49)
$Firm\ Score$			0.013	(1.27)			-0.017***	(-2.86)
$Log(NonFiling\ Volume)$	0.208***	(36.32)	0.208***	(36.40)	0.008**	(2.57)	0.008***	(2.58)
$Log(Market\ Volume)$	0.164***	(18.35)	0.162***	(18.23)				
$\Delta\ Log(Market\ Volume)$					0.061***	(4.31)	0.061***	(4.29)
$Filing\ Return$	-0.003**	(-2.12)	-0.003**	(-2.11)	0.014***	(17.66)	0.014***	(17.66)
$Absolute\ Return$	0.111***	(64.25)	0.110***	(64.12)	0.011***	(10.22)	0.011***	(10.13)
$\Delta Institutional\ Ownership$	1.102***	(3.39)	1.159***	(3.58)	0.481**	(2.47)	0.494**	(2.53)
$\Delta Management\ Forecast$	0.004	(0.45)	0.004	(0.45)	-0.007	(-1.11)	-0.007	(-1.11)
$\Delta Sales\ Growth$	0.045	(0.92)	0.041	(0.83)	-0.014	(-0.43)	-0.015	(-0.46)
ΔROA	0.019	(1.62)	0.019	(1.59)	0.006	(0.80)	0.006	(0.79)
$\Delta Segment$	-0.039	(-1.02)	-0.035	(-0.90)	-0.004	(-0.18)	-0.003	(-0.13)
$Loss$	0.117***	(3.53)	0.115***	(3.48)	0.118***	(4.91)	0.118***	(4.90)
$Constant$	-4.905***	(-62.65)	-4.998***	(-62.77)	-0.085**	(-2.02)	-0.105**	(-2.45)
$Year, Industry$	Control		Control		Control		Control	
$Observations$	13,597		13,597		13,597		13,597	
$Adj. R^2$	48.5%		48.7%		8.1%		8.1%	

Note:
See definition of variables in Appendix 1. Robust t statistics calculated from White's (1980) method. *p < .1, **p < .05, ***p < .01 (two-sided).