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Accounting Policy Changes and Firm Debts: Evidence from Japan

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Using 86 accounting policy changes made by Nikkei-225 Japanese firms, this study examines the correlation between the probability of making accounting policy changes and debt. After controlling other motives for accounting policy changes, we find that a high amount of debt is negatively correlated with the probability of making accounting policy changes, which contradicts the debt-covenant hypothesis. This result suggests that Japanese firms with large amounts of debt do not need to make accounting policy changes to avoid debt-covenant violations because banks within their groups play significant roles in controlling and monitoring their operations. Our findings are consistent with the argument by Inoue and Thomas (1996) – factors that affect the choice of accounting policy in the US may not similarly affect the choice of accounting policy in Japan. We find that the current return on equity and prior year's return on assets to be negative determinants of the accounting policy changes, and current return on assets and prior year's change in return on equity are positive determinants. Finally, we find that firms that make accounting policy changes tend to be the ones receiving qualified audit opinions.

1. Introduction

Research in accounting policy changes is important since firms periodically change their accounting for various reasons (Peterson et al., 2022) and financial statements' comparability and consistency are crucial for regulators and standard setters (Peterson et al., 2015). Accounting policy sends an important signal to the stakeholders and is one of the essential determinants of firms' financial parameters. For example, recent articles report external impacts of accounting changes on accounting quality (Armstrong et al., 2019; Buchetti et al., 2022; Gallo & Kothari, 2019). Labelle (1990) documents that an accounting policy could affect debt covenants. Peterson et al. (2022) provide evidence that companies with accounting changes are more likely to report misstatements.

We investigate whether debt is correlated with the probability of making accounting policy changes as suggested by the debt-covenant hypothesis using Japanese firms. Debt is a very important part of a firm's success and yet, research generally suggests that it has a detrimental effect by giving managers incentives to manage earnings (Gupta et al., 2008; Kung & Goodwin, 2013). The debt-covenant hypothesis specifically suggests that managers manage earnings to avoid debt-covenant violations and the incentives to manage

earnings are higher for firms with high leverage (DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002; Dyreng et al., 2020; Franz et al., 2014; Sweeney, 1994). Motivated by these lines of research, this study investigates whether accounting policy changes made by 86 Japanese firms listed in Nikkei Index from 2010 to 2019 are associated with the firm's debts.

Our study focuses on Japanese firms since the business environment in Japan is unique. In addition, Japan is a huge market and has an important role in the global economy. JP Morgan (2022) estimated that there was approximately USD 146.7 billion of working capital at the Nikkei-225 firms and the market capitalization is approximately 488 trillion JPY (Nikkei, 2023).

Inoue and Thomas (1996) report that since the general business characteristics and environment in Japan differ drastically from those in the US, factors affecting the choice of accounting policy in the US may not similarly affect the choice of accounting policy in Japan. For example, in Japan, commercial code regulations tend to protect the interests of debtholders rather than shareholders, unlike in the US. Japanese firms are often part of a group called *keiretsu*. In the Japanese *keiretsu*, the strong relationship between banks and firms protects firms from takeover and bankruptcy. So, the number of takeovers and bankruptcies of Japanese firms is smaller than that of US firms. As a part of a *keiretsu*, a firm can borrow a significant amount of capital from a bank within the group (Hoshi et al., 1990). The bank not only acts as the firm's main lender but also owns a significant portion of the firm's equity. Moreover, the bank usually places its executives in the firm's top management positions. Aman and Nguyen (2008) discuss that corporate boards in Japan are overwhelmingly dominated by management and shareholders, interlocked shareholdings are frequent, and banks are allowed to hold large stakes in borrowing firms. The tight relationship between banks and firms protects firms from violating their debt covenants. Previous research has not considered this extraordinary relationship between banks and firms that can protect firms from violating their covenants.

Our findings show that Japanese firms with higher leverage have a significantly lower probability of making accounting policy changes. This finding is consistent with the premise that tight relationships with banks who control a firm's operation protect the firm from violating debt covenants and the managers cannot manage earnings without the bank's knowledge (Inoue & Thomas, 1996). In addition, we find that the probability of making accounting policy changes is correlated with the firm's present and past return on asset (ROA), return on equity (ROE), and audit opinion.

Our additional tests to investigate the impact of accounting policy changes on some firm performance measures show a positive association between accounting policy changes and long-term debts market-to-book (LTDMB) ratio. We find that firms show higher LTDMB ratios in the year they make

accounting policy changes. Interestingly, we do not find a significant association between the accounting policy changes and earnings per share (EPS).

Our findings contribute to the literature by providing new evidence that Japanese firms behave contrary to the debt-covenant hypothesis, in that higher debts provide more incentives for managers to make accounting changes to avoid violating debt covenants. Focusing on Japan allows us to use firms that operate in a very different business environment where there is a tight connection between banks as lenders and borrowing firms. Managers of Japanese firms with large amounts of debt behave differently since they have heavy connections with banks in their groups that control and monitor their operations. These managers do not need to manage earnings to avoid violating their debt covenants. Our findings support Inoue and Thomas (1996) – different business characteristics affect how managers behave. The implication for future research is that it is important to control a country's characteristics. For the regulators, it is important to carefully consider the characteristics of their country since what is applicable in one country may not be applicable in another country.

The remainder of the paper is organized as follows. The following section reviews the related literature and develops the hypotheses. Next, we describe our data and the empirical model. Then we present our empirical results and draw our conclusions.

1.1. Literature Review and Hypothesis Development

Accounting choice is any decision made by firms to influence the output of the accounting system in a particular way (Fields et al., 2001). Accounting choice is allowed by the accounting standard setters because firms need some flexibility to provide accurate information to their stakeholders. Rigid standards may prevent firms from providing accurate information, especially when they are economically and financially different from other firms. Dye and Verrecchia (1995) suggested that the reporting flexibility allowed by accounting standards may result in a more informative signal about firm performance. However, although the objective of accounting flexibility is for efficient reporting, firms may use it opportunistically because managers have various incentives to manage earnings.

Changing accounting policy is one method of earnings management. When firms experience fundamental financial and economic changes, standard setters allow firms to change their accounting policies to produce more accurate accounting information. In the US, since the primary principle for setting standards is decision usefulness for existing and potential investors, lenders, and other creditors (FASB, 2010), the Financial Accounting Standards Board (FASB) allows firms to change from one accounting method to another method that is more representative of the real economic condition when circumstances change. Pincus and Wasley (1994) stated that under efficient contracting, voluntary accounting changes are rational responses to changes in firms' investment opportunity sets. Keune et al. (2017) stated that

the ability to make voluntary changes allows managers to ensure that the financial statements best reflect economic reality when circumstances change. Peterson et al. (2022) contended that the risk of misstating is heightened when companies change their accounting, resulting in potential damage to investors, companies, managers, boards, and auditors.

The debt-covenant hypothesis suggests that debts provide incentives to make accounting policy changes. Debt-covenant violations are costly because they may cause higher interest rates and more restrictions such as dividend restriction, and reduced ability to issue debts. To avoid violating earnings-based debt covenants, firms have incentives to manage their earnings. Watts and Zimmerman (1990) stated that earnings might be managed to reduce the probability of violating a debt covenant. Watts and Zimmerman (1986) argued that debt contracts that make covenant thresholds a function of financial ratios give borrowers an incentive to change accounting methods to avoid costly covenant violations. Keune et al. (2017) showed that debt contracts and financial distress provide strategic incentives for managers to make voluntary changes and other financial reporting choices. Dyreng et al. (2020) showed that shareholders can benefit from covenant-related earnings management if it allows them to avoid the costs of covenant violations.

Sweeney (1994) investigated whether borrowers use accounting changes to avoid violating financial covenants that are designed to monitor borrowers' performance. The results showed that managers of firms approaching default respond with income-increasing accounting changes and the default costs imposed by lenders and the accounting flexibility available to managers are important determinants of managers' accounting responses. Beatty and Weber (2003) found that concerns about debt contracts affect borrowers' accounting choices. They showed that borrowers take advantage of the flexibility to make income-increasing accounting method changes that affect contract calculations. In addition, they found evidence suggesting that incentives to lower interest rates through performance pricing and to retain dividend payment flexibility appear to affect borrowers' accounting method choices.

Generally, the debt-covenant hypothesis predicts a positive association between debts and earnings management. When the leverage is high, the costs of violating covenants are more severe and, therefore, there are higher incentives to manage earnings. However, the business characteristics and financial environment in Japan as the world's largest bank-oriented economy are unique and different from countries with a capital-market-oriented economy (Chong et al., 2016; Inoue & Thomas, 1996). The Japanese accounting policy could be affected by Japanese culture, which is quite different from the US culture (Harrison & McKinnon, 1986). Inoue and Thomas (1996) further argued that the Japanese business environment also tends to affect the accounting policy choice in Japanese firms. Since the general business characteristics and environment in Japan differ drastically from those in the US, factors affecting the choice of accounting policy in the

US may not similarly affect the choice of accounting policy in Japan. The unique characteristics of Japanese firms are further documented by Cooke (1993), who observed that Japanese firms tend to report more conservative earnings than US firms.

Japanese firms are extremely bank oriented, own relatively high leverage (Chong et al., 2016), and tend to be more group focused than individual focused (Tsalikis & Seaton, 2008). They also tend to have corporate boards that are overwhelmingly dominated by insiders, with frequent interlocked shareholdings, and associated with banks that are allowed to hold large stakes in borrowing firms (Aman & Nguyen, 2008).

Firms in Japan are often part of a *keiretsu* that allows them to borrow a significant amount of capital from a bank in their group. Hoshi et al. (1990) explained that many firms in Japan have very close ties to a main bank that provides debt financing to the firm, owns some of the firm's equity, and places its executives in top management positions in the firm. This situation also implies that banks, instead of shareholders, played a central role and carefully monitored firms (Yamada, 2019) since they had supplied large amounts of capital. When the banks are from within the group and have significant control over their operations, firms do not have to be concerned about reporting financial performance measures that would violate their debt covenants. For these firms, there are no incentives to make accounting policy changes as they are closely monitored by the banks in their groups. On the other hand, low-leverage non-*keiretsu* firms need to make accounting policy changes to avoid violating their debt covenants. Although accounting research finds that high-leverage firms have more incentives to make accounting policy changes to avoid debt-covenant violations (DeFond & Jiambalvo, 1994; Sweeney, 1994), we predict that Japanese firms are the opposite. We propose the following hypothesis:

H1: There is a negative correlation between debt and making accounting policy changes.

If the objective of making accounting policy changes is to report a better performance, the decision to make accounting policy changes should be driven by both past and present performances. In general, when firms are doing well, there is a low incentive to make accounting policy changes and vice versa.

Various research supports this contention. For example, Bremser (1975) found that companies reporting discretionary accounting changes are more likely to have a worse performance pattern or trend. Lilien et al. (1988) found that unsuccessful firms are more likely to improve income through accounting changes. Similarly, Keating and Zimmerman (2000) found that firms adopting income-increasing accounting changes have the worst financial performance and the highest leverage. They stated that the declining accounting performance creates incentives to adopt income-increasing accounting changes. Pincus and Wasley (1994) found that firms making

income-increasing voluntary accounting changes have significantly lower sales and earnings growth before making a voluntary accounting change and lower interest coverage ratio, higher debt-to-equity ratios, and tighter dividend constraints in the year-of-change compared with other firms. Beatty and Weber (2003) found a correlation between small and large losses before accounting policy changes, suggesting that current performance is associated with the decision to make accounting changes. Keune et al. (2017) stated that managers have used accounting changes to smooth income and to minimize poor performance.

We predict that performance affects firms' decision to make accounting policy changes and firms that make accounting policy changes expect to report better performance because of the changes. We propose the following hypothesis:

H2A: There is a positive correlation between current performance and making accounting policy changes.

Firms with poor prior year's performance have more incentives to make accounting policy changes as an effort to report better performance in the current year. Elliott and Philbrick (1990) found evidence that is consistent with managers adopting accounting changes to smooth income. Keune et al. (2017) showed that changes associated with big baths and income smoothing can be related to managerial contracts. We predict that a prior year's poor performance increases the probability of accounting policy changes. We propose the following hypothesis:

H2B: There is a negative correlation between past performance and making accounting policy changes.

Bos and Donker (2004) found that accounting changes are often associated with earnings management. They provided evidence that the flexibility in accounting policy choices opens the door to opportunistic behavior of managers seeking to maximize their own utility. Since making accounting policy changes is one way to manage earnings, the reasons for earnings management apply to accounting policy changes.

Healy and Palepu (1990) found that changing accounting methods are used to manage reported earnings to reduce the probability of violating a dividend constraint in lending contracts, which was consistent with the debt hypothesis. Pincus and Wasley (1994) found evidence that managers change accounting techniques to mask poor performance and/or to reduce the probability of violating debt covenants. Similarly, Beatty and Weber (2003) found that managers have used accounting changes opportunistically to meet debt covenant calculations. Keune et al. (2017) showed that several studies support the hypothesis that managers are more likely to make income-increasing accounting changes when they are nearing default on covenants or have limited ability to receive funding through the credit market. In a bank-oriented market, the market value of debts is a very important performance

measure. Firms that make accounting policy changes may appear to have lower risks that will increase the market value of their debts. Beatty et al. (2002) found that borrowers with debt contracts that allow accounting flexibility in the calculation of covenants are willing to pay substantially higher interest rates to retain the flexibility that may help them avoid covenant violations. Shuto and Kitagawa (2011) stated that accounting changes could reflect changes in managerial ownership that could affect the cost of debt due to the impact on financial variables. They document that these changes are related to the market interest rate, implying changes to the market value of debts. Kwon (2018) documented that accounting changes as reflected in the changes in accounting information disclosure tends to be related to firms' market value, including debt and equity values. We propose the following hypothesis:

H3A: There is a positive correlation between making accounting policy changes and the market value of debts.

Earnings are a very important measure used by various stakeholders to evaluate performance. Graham et al. (2005) conducted a survey and interviewed 400 executives. They found that earnings are the most important financial metric to external constituents. Because of their importance, earnings become the object of manipulations. Watts and Zimmerman (1990) stated that earnings management occurs when managers exercise their discretion over the accounting numbers that can be either firm value maximizing or opportunistic. Healy and Wahlen (1999) stated that earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.

Earnings management literature has shown that firms manage earnings to achieve various objectives, such as to avoid earnings decreases and losses (Burgstahler & Dichev, 1997), to exceed thresholds such as reporting positive profits, sustaining recent performance, and meeting analysts' expectations (Degeorge et al., 1999), to influence valuation (Dharan & Lev, 1993), and to avoid violating financial covenants designed to monitor borrowers' performance (Sweeney, 1994). Watts and Zimmerman (1978) showed that managers choose accounting policies that benefit their compensations under bonus plans. Healy (1985) suggested that accrual policies of managers are related to income-increasing incentives of their bonus contracts. Firms also have incentives to manage earnings to enhance their reputation. Barth et al. (1999) found that firms that report continuous growth in annual earnings receive a price premium compared with other firms. Bowen et al. (1995) and Burgstahler and Dichev (1997) stated that firms enhance their reputation with stakeholders and get better terms of trade by managing earnings. We propose the following hypothesis:

H3B: There is a positive correlation between making accounting policy changes and current earnings.

One of the auditor's responsibilities is to evaluate whether the comparability of the financial statements between periods has been materially affected by a change in accounting principle. The auditor should recognize a change in accounting principle in the auditor's report if the matter has a material effect on the financial statements (Public Company Accounting Oversight Board, 2008). The accounting standards indicate that a company may make a change in accounting principles only if it justifies that the allowable alternative accounting principle is preferable. If the company does not provide reasonable justification that the alternative accounting principle is preferable, the auditor should consider the accounting change to be a departure from generally accepted accounting principles. If the effect of the change in accounting principle is material, the company should issue a qualified or adverse opinion (Public Company Accounting Oversight Board, 2017). However, Peterson et al. (2022) stated that auditor mentions of accounting changes in preferability letters are very rare and only capture specific types of accounting changes.

When firms change their accounting policies for opportunistic reasons and not because of economic changes, it is more likely for the auditors to issue a non-clean opinion. Keune et al. (2017) showed that in addition to debt contracts and financial distress, audit firms affect the managers' decision to make voluntary changes. Czerney et al. (2014) found that audit opinions that contain explanatory paragraphs that discuss the adoption of new accounting standards are associated with higher misstatement risk. We hypothesize that firms that make accounting policy changes are more likely to receive a non-clean audit opinion. We propose the following hypothesis:

H4: There is a positive association between firms not receiving clean audit opinions and the probability of making accounting policy changes.

2. Research Methodology

Our sample includes 86 Nikkei-225 firms with annual data from 2010 to 2019 that was obtained from the Nikkei FinancialQUEST. The sample period begins from 2010 for two reasons. After the 2008 crisis, the Japanese stock market carried out a significant reform in 2010 and Japan Financial Trading launched high-frequency trading in the Tokyo Stock Exchange (Asian Development Bank, 2016; Japan Securities Research Institute, 2020). The 2010 substantial reforms in the Japanese financial market have three important components that impact both the debt and equity market. First, there was the tax reform of Japanese bondholders. The tax was reduced to zero on revenues from domestic firm bonds held by nonresidents to end the isolation of Japanese domestic markets. Second, the financial service authority developed and supervised the credit rating agency registration system. This

implies better debt market supervision. Third, a high-speed trading platform was introduced on the stock exchange in January 2010. This enhanced platform facilitates dealing with dramatic changes in the market: new demand from investors, higher bargaining power, and concentrated order placement in a short time. Therefore, we strongly believe that the sample is much better after 2010 due to more efficiency in the Japanese financial markets until 2019, a year before the COVID-19 pandemic disruption.

The final data consisted of 860 firm-year balance panel data from Nikkei FinancialQUEST. A firm must be listed in Nikkei for all ten years to be included in this sample. Our data is limited since Nikkei FinancialQUEST does not provide detailed explanations about the accounting changes.¹ Following a similar approach used in Beatty and Weber (2003), we used a simple dichotomous variable (*Change*) as the dependent variable that indicates whether a firm makes accounting policy changes in a specific year. To test the determinants of accounting policy changes we used the following logistic model:

$$\begin{aligned} Change_{i,t} = & \alpha_0 + \alpha_1 LTDMB_{i,t} + \alpha_2 LEV_{i,t} + \alpha_3 EPS_{i,t} + \alpha_4 ROA_{i,t} \\ & + \alpha_5 ROE_{i,t} + \alpha_6 LROA_{i,t} + \alpha_7 LROE_{i,t} \\ & + \alpha_8 DROA_{i,t} + \alpha_9 DROE_{i,t} + \alpha_{10} TA_{i,t} \\ & + \alpha_{11} Opinion_{i,t} + \varepsilon \end{aligned}$$

Where:

<i>Change</i>	=	Accounting policy changes dummy variable (1 for firm-year that accounting policy changes occur, 0 otherwise)
<i>LTDMBV</i>	=	Long-term debts market to book value
<i>LEV</i>	=	Long-term debts to total assets ratio
<i>EPS</i>	=	Earnings per share
<i>ROA</i>	=	Return on assets calculated as net income divided by book value of total assets
<i>ROE</i>	=	Return on equity calculated as net income divided by book value of total equity
<i>LROA</i>	=	Prior year's ROA
<i>LROE</i>	=	Prior year's ROE
<i>DROA</i>	=	Change in ROA from t-2 to t-1
<i>DROE</i>	=	Change in ROE from t-2 to t-1
<i>TA</i>	=	Book value of total assets
<i>Opinion</i>	=	Auditor's opinion dummy variable (1 for qualified opinion, 0 for unqualified opinion)

Following Baltagi (2013), Croissant and Millo (2018), and Hsiao (2014), we used the random effect panel logistic analysis method that we implemented in R (Croissant, 2021). We used random effect since it is more appropriate than the fixed effect for individual observation, in our case, individual firm (Verbeek, 2008). The economic implication is that the random effect captures a firm's unique characteristics better. The fixed

¹ We manually read the financial statements of the observed firms for all the years and only find that most of the changes were related to assets depreciation method and investments in subsidiaries or associates. We prepared a written summary that is available upon request.

effect is more appropriate if the individual sample is state or country level. O'Connell (2007) indicated that many accounting variables are not strictly exogenous and, therefore, the random effect is an appropriate method (Keane & Runkle, 1992). Following Lee (2019), we performed a formal statistical test to demonstrate that the random effect is better than the fixed effect.

LTDMB and LEV are the variables of interest to test H1 on whether the amount of debt in firms' capital structure affects their decisions to make accounting policy changes. Bos and Donker (2004) stated that the larger debt ratio gives more incentives to a firm's manager to select accounting policies that shift income from future periods to the current period.

We included ROE and ROA in our model because a classical study by Bauman (1996) revealed a persistent impact of accounting policy choice on ROE/ROA. His study involves fundamental analysis on accounting policies and found an association between accounting policy change and ROE/ROA. Following Ismail et al. (2013) and Dickinson et al. (2016), we examined earnings per share (EPS), return on asset (ROA), and return on equity (ROE) as the performance determinants of the accounting policy changes.

This study looks at the current year's ratios to test H2A and the prior year's ratios to test H2B. This study also adds recent performance changes to test H2B. Following Beatty and Weber (2003), we included total assets as a control variable to control for the possibility that firm size may be associated with accounting policy changes. To test whether an auditor's opinion is associated with the probability of making accounting policy changes (H4), the Opinion variable was included in the model.

The ratio of market value to book value has been extensively used as an indicator of the market's view of firms' performance. Chen and Zhao (2006) investigated the relationship between the market-to-book value ratio of total assets and growth opportunity and leverage. They documented that firms with higher market-to-book ratios face lower debt-financing costs. Liu (2009) used the historical market-to-book ratio to explain leverage and found evidence that the historical market-to-book ratios are a proxy for growth options. Recent research demonstrated that the leverage ratio is an essential parameter for a firm's performance. Ferris et al. (2018) found that market and book leverage ratios are associated with a firm's growth opportunities.

To examine the relationship between accounting policy changes and how the market values firms' debts (H3A), we used Long-term debts market to book value (LTDMBV) as our dependent variable. We estimated the following panel data regressions:

$$\begin{aligned} LTDMBV_{i,t} = & \beta_0 + \beta_1 Change_{i,t} + \beta_2 ROA_{i,t} + \beta_3 TA_{i,t} + \beta_4 LTD_{i,t} \\ & + \beta_5 Opinion_{i,t} + \beta_6 Change * ROA_{i,t} + \beta_7 Change * TA_{i,t} \\ & + \beta_8 Opinion * ROA_{i,t} + \beta_9 Opinion * TA_{i,t} + \delta \end{aligned}$$

Managers think that EPS is one of the most important metrics for earnings and the analysts' consensus EPS estimate is mentioned by 73.5% of Chief Financial Officers (CFOs) as the most important performance target (Graham et al., 2005). Farrell et al. (2013) used EPS as a proxy for firm performance and documented a strong association between EPS, share repurchase management, and firm governance.

To examine the association between accounting policy changes and earnings (H3B), we estimated the following panel data regressions:

$$\begin{aligned} EPS_{i,t} = & \gamma_0 + \gamma_1 Change_{i,t} + \gamma_2 ROA_{i,t} + \gamma_3 TA_{i,t} + \gamma_4 LTDMB_{i,t} \\ & + \gamma_5 Opinion_{i,t} + \gamma_6 Change * ROA_{i,t} + \gamma_7 Change * TA_{i,t} \\ & + \gamma_8 Opinion * ROA_{i,t} + \gamma_9 Opinion * TA_{i,t} + \epsilon \end{aligned}$$

We included the interaction variables to examine whether the associations between the dependent variables (EPS and LTDMB) and the independent variables (ROA and TA) are different for firms that make accounting policy changes from the rest of the firms in the sample.

3. Results

3.1. Descriptive Statistics

Table 1 reports the descriptive statistics of our sample longitudinal data.

Table 1. Descriptive Statistics
Panel A: All Observations

Variables	Mean	SD	Max	Min	Obs
LEV	0.525	0.699	6.334	0.000	860
LTDMB	0.944	0.252	1.099	0.000	860
EPS	388.60	3,306.59	53,137.93	0.000	860
ROA	0.060	0.040	0.283	0.000	860
ROE	0.094	0.088	1.232	0.000	860
TA	0.496	0.865	10.186	0.026	860
LTD	0.246	0.499	4.444	0.000	860
Dummy Variables	Mean	SD	Max	Min	Obs
Change	0.094	0.292	1.000	0.000	860
Opinion	0.184	0.387	1.000	0.000	860

Panel B: Firm-year with No Accounting Changes

Variables	Mean	SD	Max	Min	Obs
LEV	0.537	0.724	6.334	0.000	779
LTDMB	0.252	0.518	4.444	0.000	779
EPS	413.66	3,471.52	53,137.93	0.000	779
ROA	0.060	0.040	0.283	0.000	779
ROE	0.096	0.091	1.232	0.000	779
TA	0.504	0.902	10.186	0.026	779
LTD	0.252	0.518	4.444	0.000	779
Dummy Variables	Mean	SD	Max	Min	Obs
Change	0.000	0.000	0.000	0.000	779
Opinion	0.149	0.356	1.000	0.000	779

Panel C: Firm-year with Accounting Changes

Variables	Mean	SD	Max	Min	Obs
LEV	0.973	0.193	1.071	0.000	81
LTDMB	0.410	0.364	1.486	0.000	81
EPS	147.58	365.98	2,877.00	0.830	81
ROA	0.052	0.038	0.244	0.000	81
ROE	0.077	0.046	0.191	0.000	81
TA	0.422	0.315	1.693	0.064	81
LTD	0.185	0.247	1.517	0.000	81
Dummy Variables	Mean	SD	Max	Min	Obs
Change	1.000	0.000	1.000	1.000	81
Opinion	0.519	0.503	1.000	0.000	81

The table presents the descriptive statistics of our sample that consists of 86 Nikkei-225 firms from 2010 to 2019. TA is the book value of total assets. LTD is the book value of long-term debts. LEV is long-term debt to total assets ratio. LTDMB is the long-term debt market-to-book value. EPS is earnings per share. ROA is the return on assets. ROE is the return on equity. Change is accounting policy changes dummy variable (1 = the firm makes accounting policy changes, 0 = otherwise). Opinion is audit opinion dummy variable (1 = qualified opinion, 0 = unqualified opinion).

Panel D: Yearly Total Sales for All Firms

Year	Mean	SD	Max	Min	Obs
2010	9,199,624	11,140,307	74,204,594	-	860
2011	10,113,563	12,571,577	88,704,220	760,670	860
2012	9,991,085	12,999,127	94,773,071	-	860
2013	10,456,592	12,727,970	79,144,060	586,072	860
2014	11,904,435	15,618,201	109,679,216	565,798	860
2015	12,453,851	16,649,400	116,267,187	614,721	860
2016	11,493,117	14,979,186	123,119,587	-	860
2017	11,726,021	14,643,898	111,062,700	381,266	860
2018	12,544,595	16,049,026	120,229,383	-	860
2019	12,916,159	16,523,692	115,735,370	-	860

Total sales are in 100,000 Japanese Yen (JPY).

Panel E: Yearly Total Assets Turnover

Year	Mean	SD	Max	Min	Obs
2010	0.8513	0.3270	2.3168	0.2307	860
2011	0.9171	0.3556	2.4385	0.2299	860
2012	0.9087	0.3359	2.2439	0.1942	860
2013	0.8938	0.3328	1.9610	0.1850	860
2014	0.9351	0.3700	2.2557	0.1874	860
2015	0.9156	0.3639	2.1955	0.1845	860
2016	0.8951	0.3433	2.1590	0.1859	860
2017	0.8724	0.3399	2.3166	0.1916	860
2018	0.9073	0.3409	2.1541	0.1869	860
2019	0.8868	0.3315	2.0144	0.1966	860

Panel F: Number of Employees

Year	Mean	SD	Max	Min	Obs
2010	20,198	25,314	157,203	459	860

Year	Mean	SD	Max	Min	Obs
2011	20,755	27,320	182,773	475	860
2012	21,240	28,501	194,734	489	860
2013	21,641	28,333	206,323	491	860
2014	22,473	30,517	225,484	494	860
2015	23,064	32,081	240,798	498	860
2016	23,488	32,466	240,865	482	860
2017	23,910	32,629	248,330	468	860
2018	24,721	33,550	255,133	464	860
2019	25,438	35,178	272,796	456	860

Panel G: Industry Distribution

Industry	# firm	Industry	# firm	Industry	# firm
Fishery	1	Services	2	Automotive	6
Mining	1	Petroleum	1	Precision Instrument	1
Construction	6	Glass & Ceramics	2	Other Manufacturing	3
Foods	5	Steel	1	Real Estate	3
Trading	2	Machinery	9	Railway/Bus	3
Textiles	4	Nonferrous Metals	5	Marine Transport	3
Retail	2	Holdings	3	Air Transport	1
Chemicals	7	Electric Machinery	9	Warehousing	1
Pharmaceuticals	1	Shipbuilding	2	Gas	2

The total number of industries is 86.

According to **Table 1**, the average ratio of long-term debt to assets (LEV) is 0.525 ($SD = 0.70$). The range of long-term debt to assets is from 0 to 6.334. This implies that some firms have quite high leverage, and some firms have very small long-term debt. The average long-term debts market-to-book value is 0.944 ($SD = 0.252$), with the range from 0 to 1.099. On average, the firms' market values of debts is slightly below their book values.

The average EPS is 388.6 JPY, with a 3,306.59 JPY standard deviation, with a range of 0 to 53,137.93. The profitability varies significantly for the firms in our sample. The average ROA is 6% ($SD = 4\%$), with a range of 0% to 28%. The average ROE is 9.4% ($SD = 8.8\%$), with a range of 0%–123%. Again, these statistics show the variability of profitability. The reported zero amount for EPS, ROA, and ROE is possible not because some firms report zero profit but because their profits are very small. If a firm's profit is very small, the amount of profit in million JPY may show up in the table as zero. When divided by a large denominator such as total assets or total equity, the result will be zero.

We observed that 9% of 860 observations made accounting policy changes and 18% received other than unqualified audit opinions. The low percentage of firms making accounting policy changes is consistent with prior research's findings that only a small portion of Asian firms make accounting policy changes (Ahmed & Ali, 2015; Ball et al., 2003).

[Panel B](#) and [Panel C](#) of [Table 1](#) show the descriptive statistics for firm-year with and without accounting policy changes. Firm-years with accounting changes show a higher average of LEV (0.973 versus 0.537), LTDMB (0.41 versus 0.252), and qualified opinion (0.519 versus 0.149). They also show lower EPS (147.58 versus 413.66), ROE (0.077 versus 0.096), and LTD (0.185 versus 0.252).

[Panel D](#) of [Table 1](#) shows the yearly sales for all firms in our sample, [Panel E](#) shows the yearly total asset turnover, [Panel F](#) shows the number of employees, and [Panel G](#) shows the industry distribution of firms in our sample. [Panel D](#) shows that the 2019 average annual total sales is 12,916,159 (in 100,000 JPY) and 16,523,692 standard deviation. These statistics suggested variability in total annual sales is significant with some firms reporting very small total sales. The annual total asset turnover in 2019 is 0.8868 with 0.3315 standard deviation. On average, the firms generate less than 0.88 JPY for every 1 JPY invested in total assets. [Panel F](#) shows that the number of employees also varies among firms with the average of 25,438 employees. The smallest firm had 456 employees in 2019. Finally, the firms belong to many industries with Machinery and Electric Machinery as the industries with the most representation.

3.2. Empirical Results

[Table 2](#) presents the results of a limited dependent variable statistical analysis. Our results consistently showed that leverage has significant negative coefficients of γ_2 . For the regressions with current ROA and ROE, past ROA and ROE, and changes in ROA and ROE, the coefficients for LEV are -6.07 ($t = 1.86$), -0.64 ($t = 1.84$), and -0.63 ($t = 1.93$), respectively. The coefficients are -0.92 ($t = 1.63$), -0.71 ($t = 1.96$), and -0.73 ($t = 2.12$) respectively when LTDMB is included as a control variable. The coefficients are also significant when past and changes in ROA and ROE are combined ($\gamma_2 = -0.72$ with $t = 2$ and $\gamma_2 = -0.76$ with $t = 2.08$) and when all current, past, and changes are combined ($\gamma_2 = -0.66$ with $t = 1.81$).

These strong findings indicated that leverage is a negative determinant of accounting policy changes. Higher leverage reduces the probability of firms making accounting policy changes, which supports our main hypothesis that firms with large debts do not have the incentives to make accounting policy changes to avoid debt-covenant violation because banks play the most important role in monitoring firms with large debts. The negative and significant coefficient of leverage means the higher a firm's leverage, the smaller the probability of it making accounting changes.

The tables also consistently report that audit opinion is positively and statistically significant. We can infer that firms making accounting policy changes tend to be firms that do not receive a clean or unqualified audit opinion.

Table 2. Random Effect Panel Logistic Regression with Accounting Policy Changes as the Dependent Variable and Debt Measures and All Performance Ratios as the Independent Variables

$$Change_{i,t} = \gamma_0 + \gamma_1 LTDMB_{i,t} + \gamma_2 LEV_{i,t} + \gamma_3 EPS_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 ROE_{i,t} + \gamma_6 LROA_{i,t} + \gamma_7 LROE_{i,t} + \gamma_8 DROA_{i,t} + \gamma_9 DROE_{i,t} + \gamma_{10} TA_{i,t} + \gamma_{11} Opinion_{i,t} + \mu$$

	Dependent Variable: Change in Accounting Policy													
Intercept	2.59*** (7.55)	-2.24*** (5.85)	-2.08*** (4.70)	-3.07*** (3.79)	-2.12*** (5.32)	-2.86*** (3.58)	-3.39*** (4.89)	-2.65*** (9.52)	-3.41*** (4.93)	-2.91*** (3.42)	-1.96*** (4.48)	-2.63*** (3.12)	-2.97*** (3.40)	
LTDMB	-0.79 (1.34)		0.75 (0.70)	0.55 (0.77)		0.78 (1.10)	0.50 (0.73)		0.88 (1.26)	0.44 (0.62)		0.67 (0.94)	0.93 (1.28)	
LEV		-6.07* (1.86)	-0.92 (1.63)		-0.64* (1.84)	-0.71* (1.96)		-0.63* (1.93)	-0.73** (2.12)		-0.72** (2.00)	-0.76** (2.08)	-0.66* (1.81)	
EPS	0.00 (0.47)	0.00 (0.48)	0.00 (0.50)	0.00 (0.38)	0.00 (0.30)	0.00 (0.34)	0.00 (0.47)	0.00 (0.56)	0.00 (0.57)	0.00 (0.33)	0.00 (0.22)	0.00 (0.27)	0.00 (0.35)	
ROA	-0.71 (0.15)	-2.55 (0.54)	-2.84 (0.60)										20.00* (1.93)	
ROE	-2.90 (1.19)	2.36 (0.99)	-2.26 (0.95)										-6.95** (1.98)	
LROA				1.86 (0.36)	-3.06 (0.58)	-1.84 (0.33)				-0.03 (0.01)	-6.11 (1.04)	-4.69 (0.76)	-18.82* (1.71)	
LROE				-5.59* (1.90)	-4.09 (1.43)	-4.28 (1.46)				-4.83 (1.62)	-3.03 (1.07)	-3.25 (1.12)	-0.56 (0.21)	
DROA							-0.14 (0.92)	-0.14 (0.94)	-0.13 (0.89)	-0.13 (0.86)	-0.19 (1.13)	-0.17 (1.03)	-0.49 (1.49)	
DROE							0.06 (1.33)	0.06 (1.37)	0.06 (1.41)	0.03 (0.57)	0.03 (0.70)	0.03 (0.73)	0.12** (2.02)	
TA	0.12 (0.33)	-0.24 (0.91)	-0.58 (1.04)	-0.24 (0.87)	-0.23 (0.87)	-0.26 (0.93)	-0.23 (0.86)	-0.22 (0.84)	-0.25 (0.92)	-0.24 (0.88)	-0.25 (0.91)	-0.27 (0.96)	-0.24 (0.86)	
Opinion	1.96*** (6.99)	1.94*** (6.95)	1.92*** (6.88)	2.10*** (6.79)	2.11*** (6.75)	2.11*** (6.76)	2.07*** (6.82)	2.13*** (6.96)	2.12*** (6.94)	2.09*** (6.72)	2.09*** (6.68)	2.09*** (6.69)	2.13*** (6.72)	
Sigma (random effect analysis)	0.86*** (2.66)	0.83** (2.55)	0.81** (2.44)	0.82** (2.20)	0.83** (2.20)	0.78** (2.03)	0.87** (2.43)	0.85** (2.33)	0.79** (2.13)	0.82 (0.03)	0.81** (2.15)	0.77** (2.00)	0.72* (1.77)	
Log-likelihood	-237.10	-235.86	-235.62	-207.64	-205.64	-204.96	-209.15	-206.92	-206.02	-206.95	-204.38	-203.90	-200.52	

The table presents the results of the random effect panel logistic regression with accounting policy changes (Change) as the dependent variable. Change is dummy variable for accounting policy changes (1 = the firm-year an accounting policy change occurs, 0 = otherwise). The independent variables are as follows: LTDMB is the long-term debts market-to-book value. LEV is long-term debt to total assets ratio. EPS is earnings per share. ROA is the return on assets. ROE is the return on equity. LROA is previous year's return on assets. LROE is previous year's return on equity. DROA is change in ROA from t-2 to t-1. DROE is change in ROE from t-2 to t-1. TA is the book value of total assets. Opinion is audit opinion dummy variable (1 = qualified opinion, 0 = unqualified opinion). Parentheses () are t-statistics. *** significant at 1%, ** significant at 5%, * significant at 10%.

Table 2 shows that regressed separately with and without LEV as a control variable, current ROE and ROA do not seem to have significant impacts on making accounting policy changes. When past performances (LROE and LROA) are regressed together without LEV as a control variable, firms with a low previous year's ROE tend to make accounting policy changes. We found a negative significant coefficient for LROE ($\gamma_7 = -5.59$ with $t = 1.90$). However, when we controlled for leverage (LEV), the significance disappeared. This finding suggested that although the previous year's ROE is significant for the whole sample, there is no significant difference in firms with similar leverage levels. We did not find past changes in performance (DROE and DROA) to be significant determinants for accounting policy changes.

When we combined current, previous year, and the most recent changes in ROE and ROA, our results revealed that the current ROA and DROE are positively associated with the probability of making accounting policy changes. The results also showed that the current ROE and the previous year's ROA are negatively associated with the probability of accounting policy changes.

When all variables are included, the positive association between current ROA and accounting policy changes is consistent with H2A. Firms make accounting policy changes to report a better current performance. The combination of the negative coefficient for the previous year's ROA ($\gamma_6 = -18.82$ with $t = 1.71$) and the positive coefficient for the current ROA ($\gamma_4 = 20$ with $t = 1.93$) suggested that firms with low ROA in the prior year make accounting policy changes because they have incentives to improve their ROA.

The negative coefficient for current ROE ($\gamma_5 = -6.95$ with $t = 1.98$) seems to be counter intuitive because firms would make accounting policy changes to report a better performance. One possible explanation for the finding is that firms that do not make accounting policy changes tend to have small debts. These firms have high equity and because equity is the denominator in calculating ROE, have lower ROE. On the other hand, firms with large debts and low ROE do not have the incentives to make accounting policy changes because their banks play the monitoring role. Therefore, the negative coefficient is consistent with our leverage analysis.

The positive coefficient for the previous year's change in ROE ($\gamma_9 = 0.12$ with $t = 2.02$) implies that firms with prior year's ROE increase have the incentives to maintain the positive trend. This ROE increase is very important for the firms and a decrease in ROE after a recent increase may be associated with poor performance, and firms try to avoid that by making accounting policy changes.

Table 3. Random Effect Panel Regression with the Ratio of Long-Term Debts Market-to-Book Value as the Dependent Variable
 $LTDMB_{i,t} = \beta_0 + \beta_1 Change_{i,t} + \beta_2 ROA_{i,t} + \beta_3 TA_{i,t} + \beta_4 LTD_{i,t} + \beta_5 Opinion_{i,t} + \beta_6 Change * ROA_{i,t} + \beta_7 Change * TA_{i,t} + \beta_8 Opinion * ROA_{i,t} + \beta_9 Opinion * TA_{i,t} + \delta$

Dependent Variable: Long-Term Debts Market-to-Book Value			
Intercept	0.99*** (38.63)	0.99*** (38.26)	1.00*** (39.57)
Change	0.01 (0.63)	0.05 (1.49)	0.07* (1.76)
ROA	-0.94*** (6.00)	-0.90*** (5.67)	-1.01*** (6.16)
TA	0.02 (0.87)	0.02 (0.84)	0.01 (0.81)
LTD	-0.01 (0.18)	-0.01 (0.15)	0.00 (0.11)
Opinion	0.00 (0.32)	-0.01 (0.44)	-0.05** (2.34)
Change * ROA		-0.61 (1.52)	-0.77* (1.90)
Change * TA		-0.03 (0.60)	-0.03 (0.54)
Opinion * ROA			0.84*** (2.58)
Opinion * TA			0.01 (0.44)
Adj-R-squared	3.71%	3.74%	4.32%

The table presents the random effect panel regression results using the ratio of long-term debt market-to-book (LTDMB) as the dependent variable. The independent variables are as follows: Change is accounting policy changes dummy variable (1 = the firm makes accounting policy changes, 0 = otherwise). ROA is the return on assets. TA is the book value of total assets. LTD is the book value of long-term debts. Opinions is audit opinion dummy variable (1 = qualified opinion, 0 = unqualified opinion). Parentheses () are t-statistics. *** significant at 1%, ** significant at 5%, * significant at 10%.

The positive coefficient for Opinion ($\gamma_{11} = 2.13$ with $t = 6.72$) suggests that the accounting policy changes tend to be done by firms that do not receive a clean audit opinion. From the statistical robustness checks, [Table 2](#) reports statistically significant sigma. This shows that the random effect tends to be a more appropriate method than the fixed effect (Lee, 2019).

[Table 3](#) presents the regression results with the LTDMB ratio as the dependent variable. The ratio measures the market values of firms' long-term debts relative to the book values. When we include the interaction variables, we find that the Change variable is positive and significant ($\beta_1 = 0.07$ with $t = 1.76$). Our finding suggests that making accounting policy changes is associated with a higher market value of long-term debts. It implies that the performance reported in the year of the accounting policy changes causes the debt market to put higher values on the firms' long-term debts.

The results in [Table 3](#) also show that ROA and audit opinion are negatively associated with LTDMB. The negative coefficient for ROA indicates that the market tends to value a firm's debts lower (higher) when a firm has a higher (lower) ROA. This is consistent with the pecking order theory (Donaldson, 1961). Managers prefer to fund new investments with

retained earnings rather than debt but prefer debt to equity financing (Hovakimian et al., 2001). Profitable firms with high ROA tend to accumulate retained earnings and reduce their leverage, while less profitable firms with low ROA tend to increase their leverage. Chong et al. (2016) found that firms' performance has a negative impact on the target leverage ratio for Japanese firms in their sample and high-growth firms tend to use equity financing. In a bank-oriented economy where debts are the main source of financing, reducing the leverage ratio may send a negative signal that results in banks reducing the market value of a firm's debts.

Further analysis of the interaction variable shows that the association between ROA and LTDMB is more negative in the years the firms that make accounting policy changes. This is possibly caused by the fact that firms that make accounting policy changes tend to be firms with smaller debts.

The negative coefficient for audit opinion indicates that firms tend to have lower market value for their long-term debts when they receive an audit opinion other than a clean or unqualified opinion. This finding suggests that the Japanese debt market puts value on the earnings quality and auditor's opinions.

[Table 4](#) reports the random effect panel regression results with EPS as the dependent variable. Our finding does not support the contention that there is a significant association between accounting policy changes and EPS. We find that ROA and LTDMB are both positively associated with EPS. Firms that report higher ROA tend to report higher EPS and firms with higher LTDMB tend to report higher EPS. A positive and significant LTDMB implies that because a firm with a higher debt market value tends to be more scrutinized by debt investors, it will have more pressure to generate better financial performance. Similarly, these firms might be penalized with lower debt access for poor financial performance.

Table 4. Random Effect Panel Regression with Earnings per Share as the Dependent Variable

$$EPS_{i,t} = \alpha_0 + \alpha_1 Change_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 TA_{i,t} + \alpha_4 LTD_{i,t} + \alpha_5 Opinion_{i,t} + \alpha_6 Change * ROA_{i,t} + \alpha_7 Change * TA_{i,t} + \alpha_8 Opinion * ROA_{i,t} + \alpha_9 Opinion * TA_{i,t} + \varepsilon$$

Dependent Variable: EPS			
Intercept	-3,215.04*** (4.71)	-3,221.30*** (4.81)	-3,279.46*** (4.93)
Change	-58.35 (0.17)	920.86 (1.14)	836.83 (1.02)
ROA	27,512.15*** (8.70)	28,912.07*** (9.04)	29,732.99*** (8.98)
TA	270.48 (1.38)	261.87 (1.38)	284.03 (1.49)
LTDMB	1,887.63*** (3.11)	1,815.49*** (3.04)	1,813.00*** (3.08)
Opinion	305.22 (1.15)	264.00 (0.99)	617.74 (1.26)
Change * ROA		-17,246.29* (1.96)	-16,497.76* (1.85)
Change * TA		-118.25 -0.11	-79.25 (0.08)

Dependent Variable: EPS			
Opinion * ROA			-4,985.13 (0.70)
Opinion * TA			-175.71 (0.66)
Adj-R-squared	8.04%	8.43%	8.47%

The table presents the random effect panel regression results using earnings per share (EPS) as the dependent variable. The independent variables are as follows: Change is accounting policy changes dummy variable (1 = the firm makes accounting policy changes, 0 = otherwise). ROA is the return on assets. TA is the book value of total assets. LTDMB is the long-term debts market-to-book value. Opinion is audit opinion dummy variable (1 = qualified opinion, 0 = unqualified opinion). Parentheses () are t-statistics. *** significant at 1%, ** significant at 5%, * significant at 10%.

Further analysis of the ROA using the interaction between ROA and Change variables suggests that the positive association between ROA and EPS is significantly lower for firms that make accounting policy changes. Although making accounting policy changes has no significant direct association with EPS, it seems to weaken the association between ROA and EPS.

3.3. Discussion

[Table 5](#) reports the summary of the results. Overall, our results are consistent with the theory that Japanese firms behave differently from US firms with respect to making accounting policy changes. Firms that make accounting policy changes tend to be firms with low debts because firms with high debts are monitored and controlled by their banks, which do not allow them to manage earnings. Firms with high leverage tend to have strong control and covenant (direct or indirect) from debt investors. Since such firms would fulfill the covenant requirements to gain access to debt funding, their accounting policies are likely to comply at the highest level. Otherwise, the debt investors might refuse to lend money to the firms.

Our second hypothesis that predicts positive correlation between current performance and accounting policy changes is partially supported only for ROA. One possible explanation for insignificant ROE is that firms that make accounting policy changes tend to have low debts. Because firms with low debts are inherently firms with high equity, they tend to have low ROE.

Table 5. Summary of Results and Hypotheses

	Hypothesis	Supported
H1	Negative correlation between debt and accounting policy changes	Yes
H2A	Positive correlation between current performance and accounting policy changes	Yes, for ROA
H2B	Negative correlation between past performance and accounting policy changes	Yes, for LROE
H3A	Positive correlation between accounting policy changes and market value of debts	Yes
H3B	Positive correlation between accounting policy changes and current earnings	No
H4	Positive association between not receiving clean audit opinions and accounting policy changes	Yes

Hypothesis 2B is also partially supported. Lag ROE has a negative coefficient suggesting that firms with low past ROE have a higher probability to make accounting policy changes. However, when we control for leverage, the significance disappears, suggesting that there is no significant difference in firms with similar leverage levels. The different results between ROE and ROA and between LROE and LROA are likely due to the emphasis on debt investors rather than equity investors. Unfavorable prior ROE tends to trigger future accounting changes but not current ROE. This implies that the dynamic of current equity performance relative to its past performance, rather than liabilities, is associated with accounting changes. This is also consistent with our findings documenting a strong debt covenant from debt investors.

Our results support the hypothesis, that there is a positive correlation between market value of debts and accounting policy changes (H3A), but not for current earnings (H3B). We conclude that Japanese debt investors value the reported earnings with the accounting policy changes. This suggests that debt investors scrutinize the accounting changes and is consistent with the importance or dominance of debt investors' control over the firms.

Finally, H4 suggests that firms who make accounting policy changes tend to be firms that do not receive a clean audit opinion. The significant statistical result of audit opinion can be logically explained as if a firm does not obtain the unqualified audit opinion, it has the incentives to make accounting changes to obtain the unqualified opinion in the next accounting period.

4. Conclusions

Firms making opportunistic accounting policy changes to achieve certain goals are widely documented in accounting literature. This paper contributes to the literature by documenting that Japanese firms that make accounting policy changes tend to be firms with lower amounts of debt. This finding suggests Japanese firms behave differently from firms in the US and the debt-covenant hypothesis (DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002; Dyreng et al., 2020; Franz et al., 2014; Sweeney, 1994). Our finding is consistent with Inoue and Thomas (1996), who state that because the general business characteristics and environment in Japan differ drastically from those in the US, factors affecting the choice of accounting policy in the US may not similarly affect the choice of accounting policy in Japan. We conclude that the unique characteristics of the Japanese market where firms with large debts have very close relationships with banks in their groups explain this unique behavior. If the banks monitor the firms' operations very closely or even control the firms' operations, there is no need for the firms to make accounting policy changes to avoid violating debt covenants.

Examinations using logistic regression suggest that a firm's leverage is negatively associated with the probability of accounting policy changes. This indicates that higher leverage firms are less likely to make accounting policy changes. In their highly bank-oriented environment, Japanese firms with large debts from within group banks do not need to make accounting policy

changes because banks assert significant control over their operations and have carefully monitored their operations. This is different from firms in the US, where shareholders play the most important role in monitoring firms. Positive associations between the probability of accounting policy changes and audit opinion suggest that firms that make accounting policy changes tend to do it opportunistically, which results in receiving an audit opinion other than the unqualified opinion.

We document that the decisions to make accounting policy changes among the Japanese firms in our sample are affected by their motivation to improve ROA and maintain the previous year's positive change in ROE. Consistent with our discussion about debts, firms with low debts tend to be the firms that make accounting policy changes. These are also firms that tend to report low ROE.

This study provides evidence that the market value of long-term debts is higher for firms in years with accounting policy changes. Although the accounting policy changes are not directly associated with the EPS, we find an indirect effect from our interaction variable analysis that accounting policy changes lower the positive association between ROA and EPS.

There are several implications and practical contributions of our findings. First, a high level of debt causes banks as lenders to be more involved in firms' operations that include strict monitoring that could in turn, help firms avoid violating debt covenants. This especially occurs in Japan because of the unique corporate culture of Japanese firms that are very bank oriented. Learning from our findings, regulators in various countries can develop regulations that allow banks to help monitor firms' operations by giving advice and consultations to help firms avoid covenant violations. Second, although we do not find causal relationship between profitability measures and accounting policy changes, we find a possibility that unfavorable changes in profitability and the desire to maintain past performance improvement could provide enough incentives for the management to make accounting policy changes. Regulators and auditors can infer that although unfavorable changes in profitability do not necessarily result in accounting policy changes, unfavorable changes in performance that are followed by changes in accounting policy can be a sign of opportunistic earnings management that may require further investigation by the firm. Third, auditors should be aware that their reports would have an impact on the behavior of their clients because a non-clean opinion affects managers' decisions to make accounting changes (Keune et al., 2017). When a firm realizes that opportunistic behavior will result in a non-clean audit opinion, it has a disincentive to manage earnings opportunistically. Fourth, since the characteristics of one country are different from other countries, the implication for international research is that it is important to control for a country's characteristics. For the regulators, it is very important to carefully consider the characteristics of their country because what is important in one country may not be important in another country.

4.1. Study Limitations and Direction for Future Research

This study has several limitations, and addressing these limitations could direct us to future research. First and most importantly is the data. We obtained the financial statements information through a database as secondary data. The firms' financial statements and disclosures contain richer information that includes not only corporate governance information but also important non-financial information. However, they are in Japanese. We were able to retrieve some data from the financial statements, but it was still limited, and we missed some detailed information, especially about the policy changes. If more accessible data is available for future research, including more variables could allow researchers to elaborate more factors that may influence accounting policy changes. Second, our variables are prone to an endogeneity problem, which is not uncommon for corporate governance variables (Wintoki et al., 2012). One robust statistical method to address the endogeneity is the Nonparametric Regression. However, as outlined by Faraway (2016), interpreting the Nonparametric Regression output is much more challenging, especially for non-theorist researchers. Future research may address the possible endogeneity problem using the nonparametric regression.



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References

- Ahmed, K., & Ali, M. J. (2015). Has the harmonization of accounting practices improved? Evidence from South Asia. *International Journal of Accounting & Information Management*, 23(4), 327–348. <https://doi.org/10.1108/IJAIM-12-2014-0082>
- Aman, H., & Nguyen, P. (2008). Do stock prices reflect the corporate governance quality of Japanese firms? *Journal of the Japanese and International Economies*, 22(4), 647–662. <https://doi.org/10.1016/j.jjie.2008.05.001>
- Armstrong, C. S., Glaeser, S., & Kepler, J. D. (2019). Accounting quality and the transmission of monetary policy. *Journal of Accounting and Economics*, 68(2–3), 101265. <https://doi.org/10.1016/j.jacceco.2019.101265>
- Asian Development Bank. (2016). *ASEAN+3 Bond Market Guide 2016 Japan*.
- Ball, R., Robin, A., & Wu, J. S. (2003). Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics*, 36(1–3), 235–270. <https://doi.org/10.1016/j.jacceco.2003.10.003>
- Baltagi, B. H. (2013). *Econometric analysis of panel data* (5th ed.). John Wiley & Sons Ltd.
- Barth, M., Elliot, J., & Finn, M. (1999). Market rewards associated with patterns of increasing earnings. *Journal of Accounting Research*, 37(2), 387–413. <https://doi.org/10.2307/2491414>
- Bauman, M. P. (1996). A review of fundamental analysis research in accounting. *Journal of Accounting Literature*, 15, 1–33.
- Beatty, A., Ramesh, K., & Weber, J. (2002). The importance of accounting changes in debt contracts: The cost of flexibility in covenant calculations. *Journal of Accounting and Economics*, 33(2), 205–227. [https://doi.org/10.1016/S0165-4101\(02\)00046-0](https://doi.org/10.1016/S0165-4101(02)00046-0)
- Beatty, A., & Weber, J. (2003). The effects of debt contracting on voluntary accounting method changes. *The Accounting Review*, 78(1), 119–142. <https://doi.org/10.2308/accr.2003.78.1.119>
- Bos, A., & Donker, H. (2004). Monitoring accounting changes: Empirical evidence from the Netherlands. *Corporate Governance*, 12(1), 60–73. <https://doi.org/10.1111/j.1467-8683.2004.00343.x>
- Bowen, R., DuCharme, L., & Shores, D. (1995). Stakeholders' implicit claims and accounting method choice. *Journal of Accounting and Economics*, 20(3), 255–295. [https://doi.org/10.1016/0165-4101\(95\)00404-1](https://doi.org/10.1016/0165-4101(95)00404-1)
- Bremser, W. G. (1975). The earnings characteristics of firms reporting discretionary accounting changes. *The Accounting Review*, 50(3), 563–573.
- Buchetti, B., Parbonetti, A., & Pugliese, A. (2022). Covid-19, corporate survival and public policy: The role of accounting information and regulation in the wake of a systemic crisis. *Journal of Accounting and Public Policy*, 41(1), 106919. <https://doi.org/10.1016/j.jaccpubpol.2021.106919>
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24(1), 99–126. [https://doi.org/10.1016/S0165-4101\(97\)00017-7](https://doi.org/10.1016/S0165-4101(97)00017-7)
- Chen, L., & Zhao, X. (2006). On the relation between the market-to-book ratio, growth opportunity, and leverage ratio. *Finance Research Letters*, 3(4), 253–266. <https://doi.org/10.1016/j.frl.2006.06.003>
- Chong, T., Law, D., & Yao, F. (2016). The debt-equity choice of Japanese firms. *International Journal of Business and Society*, 17(2), 167–182.

- Cooke, T. E. (1993). The impact of accounting principles on profits: The US versus Japan. *Accounting and Business Research*, 23(92), 460–476. <https://doi.org/10.1080/00014788.1993.9729891>
- Croissant, Y. (2021). *R PGLM Package*. <https://cran.r-project.org/web/packages/pglm/pglm.pdf>
- Croissant, Y., & Millo, G. (2018). *Panel Data Econometrics with R*. John Wiley & Sons Ltd. <https://doi.org/10.1002/9781119504641>
- Czerney, K., Schmidt, J., & Thompson, A. (2014). Does auditor explanatory language in unqualified audit reports indicate increased financial misstatement risk? *The Accounting Review*, 89(6), 2115–2149. <https://doi.org/10.2308/accr-50836>
- DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1), 145–176. [https://doi.org/10.1016/0165-4101\(94\)90008-6](https://doi.org/10.1016/0165-4101(94)90008-6)
- Degeorge, F., Patel, J., & Zeckhauser, R. J. (1999). Earnings management to exceed thresholds. *Journal of Business*, 72(1), 1–33. <https://doi.org/10.1086/209601>
- Dharan, B. G., & Lev, B. (1993). The valuation consequence of accounting changes: A multi-year examination. *Journal of Accounting, Auditing & Finance*, 8(4), 475–494. <https://doi.org/10.1177/0148558X9300800407>
- Dichev, I. D., & Skinner, D. J. (2002). Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research*, 40(4), 1091–1123. <https://doi.org/10.1111/1475-679X.00083>
- Dickinson, V., Wangerin, D. D., & Wild, J. J. (2016). Accounting rules and post-acquisition profitability in business combinations. *Accounting Horizons*, 30(4), 427–447. <https://doi.org/10.2308/acch-51504>
- Donaldson, G. (1961). *Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity*. Harvard Business School, Division of Research, Harvard University.
- Dye, R. A., & Verrecchia, R. E. (1995). Discretion vs. uniformity: Choices among GAAP. *The Accounting Review*, 70(3), 389–415.
- Dyreg, S., Hillegeist, S., & Penalva, F. (2020). Earnings management to avoid debt covenant violations and future performance. *European Accounting Review*, 31(2), 311–343. <https://doi.org/10.1080/09638180.2020.1826337>
- Elliott, J. A., & Philbrick, D. R. (1990). Accounting changes and earnings predictability. *The Accounting Review*, 65(1), 157–174.
- Faraway, J. J. (2016). *Extending the linear model with R: Generalized linear, mixed effects and nonparametric regression models*. CRC Press.
- Farrell, K. A., Yu, J., & Zhang, Y. (2013). What are the characteristics of firms that engage in earnings per share management through share repurchases? *Corporate Governance: An International Review*, 21(4), 334–350. <https://doi.org/10.1111/corg.12029>
- Ferris, S. P., Hanousek, J., Shamshur, A., & Tressl, J. (2018). Asymmetries in the firm's use of debt to changing market values. *Journal of Corporate Finance*, 48, 542–555. <https://doi.org/10.1016/j.jcorpfin.2017.12.006>
- Fields, T., Lys, T., & Vincent, L. (2001). Empirical research on accounting choice. *Journal of Accounting and Economics*, 31(1–3), 255–307. [https://doi.org/10.1016/S0165-4101\(01\)00028-3](https://doi.org/10.1016/S0165-4101(01)00028-3)
- Financial Accounting Standards Board (FASB). (2010). *Statement of financial accounting concepts no. 8: Conceptual framework for financial reporting*.

- Franz, D. R., Hassabelnaby, H. R., & Lobo, G. J. (2014). Impact of proximity to debt covenant violation on earnings management. *Review of Accounting Studies*, 19(1), 473–505. <https://doi.org/10.1007/s11142-013-9252-9>
- Gallo, L. A., & Kothari, S. P. (2019). Discussion of “accounting quality and the transmission of monetary policy.” *Journal of Accounting and Economics*, 68(2–3), 101262. <https://doi.org/10.1016/j.jacceco.2019.101262>
- Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1–3), 3–73. <https://doi.org/10.1016/j.jacceco.2005.01.002>
- Gupta, M., Khurana, I., & Pereira, R. (2008). Legal enforcement, short maturity debt, and the incentive to manage earnings. *Journal of Law and Economics*, 51(4), 619–639. <https://doi.org/10.1086/590128>
- Harrison, G. L., & McKinnon, J. L. (1986). Culture and accounting change: A new perspective on corporate reporting regulation and accounting policy formulation. *Accounting, Organizations and Society*, 11(3), 233–252. [https://doi.org/10.1016/0361-3682\(86\)90023-1](https://doi.org/10.1016/0361-3682(86)90023-1)
- Healy, P. (1985). The impact of bonus schemes on the selection of accounting principles. *Journal of Accounting and Economics*, 7(1–3), 85–107. [https://doi.org/10.1016/0165-4101\(85\)90029-1](https://doi.org/10.1016/0165-4101(85)90029-1)
- Healy, P., & Palepu, K. (1990). Effectiveness of accounting-based dividend covenants. *Journal of Accounting and Economics*, 12(1–3), 97–123. [https://doi.org/10.1016/0165-4101\(90\)90043-4](https://doi.org/10.1016/0165-4101(90)90043-4)
- Healy, P., & Wahlen, J. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365–384. <https://doi.org/10.2308/acch.1999.13.4.365>
- Hoshi, T., Anil, K., & Scharfstein, D. (1990). The role of banks in reducing the costs of financial distress in Japan. *Journal of Financial Economics*, 27(1), 67–88. [https://doi.org/10.1016/0304-405X\(90\)90021-Q](https://doi.org/10.1016/0304-405X(90)90021-Q)
- Hovakimian, A., Opler, T., & Titman, S. (2001). The debt-equity choice. *Journal of Financial and Quantitative Analysis*, 36(1), 1–24. <https://doi.org/10.2307/2676195>
- Hsiao, C. (2014). *Analysis of panel data*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139839327>
- Inoue, T., & Thomas, W. (1996). The choice of accounting policy in Japan. *Journal of International Financial Management and Accounting*, 7(1), 1–23. <https://doi.org/10.1111/j.1467-646X.1996.tb00061.x>
- Ismail, A. W., Kamarudin, K. A., van Zijl, T., & Dunstan, K. (2013). Earnings quality and the adoption of IFRS-based accounting standards: Evidence from an emerging market. *Asian Review of Accounting*, 21(1), 53–73. <https://doi.org/10.1108/13217341311316940>
- Japan Securities Research Institute. (2020). *Securities market in Japan 2020*.
- JP Morgan. (2022). *Improvement in working capital for Japan but significant potential remains*. <https://www.jpmorgan.com/solutions/treasury-payments/insights/working-capital-index-2022-japan>
- Keane, M. P., & Runkle, D. E. (1992). On the estimation of panel-data models with serial correlation when instruments are not strictly exogenous. *Journal of Business & Economic Statistics*, 10(1), 1–9. <https://doi.org/10.1080/07350015.1992.10509877>
- Keating, A. S., & Zimmerman, J. L. (2000). Depreciation-policy changes: Tax, earnings management, and investment opportunity incentives. *Journal of Accounting and Economics*, 28(3), 359–389. [https://doi.org/10.1016/S0165-4101\(00\)00004-5](https://doi.org/10.1016/S0165-4101(00)00004-5)

- Keune, M., Keune, T., & Quick, L. (2017). Voluntary changes in accounting principle: Literature review, descriptive data, and opportunities for future research. *Journal of Accounting Literature*, 39(1), 52–81. <https://doi.org/10.1016/j.acclit.2017.09.001>
- Kung, S. Y. K., & Goodwin, J. (2013). Short-term debt maturity, monitoring, and accruals-based earnings management. *Journal of Contemporary Accounting & Economics*, 9(1), 67–82. <https://doi.org/10.1016/j.jcae.2013.01.002>
- Kwon, G. J. (2018). Comparative value relevance of accounting information among Asian countries: Focusing on Korea, Japan, and China. *Managerial Finance*, 44(2), 110–126. <https://doi.org/10.1108/MF-07-2017-0261>
- Labelle, R. (1990). Bond covenants and changes in accounting policy: Canadian evidence. *Contemporary Accounting Research*, 6(2), 677–698. <https://doi.org/10.1111/j.1911-3846.1990.tb00781.x>
- Lee, S. C. (2019). A computational note on maximum likelihood estimation in random effects panel probit model. *Communications for Statistical Applications and Methods*, 26(3), 315–323. <https://doi.org/10.29220/CSAM.2019.26.3.315>
- Lilien, S., Mellman, M., & Pastena, V. (1988). Accounting changes: Successful versus unsuccessful firms. *The Accounting Review*, 63(4), 642–656.
- Liu, L. X. (2009). Historical market-to-book in partial adjustment model of leverage. *Journal of Corporate Finance*, 15(5), 602–612. <https://doi.org/10.1016/j.jcorpfin.2009.07.003>
- Nikkei. (2023). Download center. <https://indexes.nikkei.co.jp/en/nkave/index?type=download>
- O’Connell, V. (2007). Dealing with panel data in accounting and managerial finance research. *International Journal of Managerial Finance*, 3(4), 372–389. <https://doi.org/10.1108/17439130710824370>
- Peterson, K., Schmardebeck, R., & Wilks, T. (2015). The earnings quality and information processing effects of accounting consistency. *The Accounting Review*, 90(6), 2483–2514. <https://doi.org/10.2308/accr-51048>
- Peterson, K., Schmardebeck, R., & Wilks, T. (2022). *Accounting change and misstatement risk* [Working Paper]. <https://doi.org/10.2139/ssrn.3745418>
- Pincus, M., & Wasley, C. (1994). The incidence of accounting changes and characteristics of firms making accounting changes. *Accounting Horizons*, 8(2), 1–24.
- Public Company Accounting Oversight Board. (2008). *Auditing standard No. 6.: Evaluating consistency of financial statements*. https://pcaobus.org/oversight/standards/archived-standards/pre-reorganized-auditing-standards-interpretations/details/auditing-standard-no-6_1834
- Public Company Accounting Oversight Board. (2017). *AS 3105: Departures from unqualified opinions and other reporting circumstances*. <https://pcaobus.org/oversight/standards/auditing-standards/details/AS3105>
- Shuto, A., & Kitagawa, N. (2011). The effect of managerial ownership on the cost of debt: Evidence from Japan. *Journal of Accounting, Auditing & Finance*, 26(3), 590–620. <https://doi.org/10.1177/0148558X11401553>
- Sweeney, A. (1994). Debt-covenant violations and managers’ accounting responses. *Journal of Accounting and Economics*, 17(3), 281–308. [https://doi.org/10.1016/0165-4101\(94\)90030-2](https://doi.org/10.1016/0165-4101(94)90030-2)
- Tsalikis, J., & Seaton, B. (2008). The international business ethics index: Japan. *Journal of Business Ethics*, 80(2), 379–385. <https://doi.org/10.1007/s10551-007-9427-z>
- Verbeek, M. (2008). *A guide to modern econometrics* (3rd ed.). John Wiley & Sons Ltd.
- Watts, R., & Zimmerman, J. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review*, 53(1), 112–134.

- Watts, R., & Zimmerman, J. (1986). *Positive accounting theory*. Prentice Hall.
- Watts, R., & Zimmerman, J. (1990). Positive accounting theory: A ten year perspective. *The Accounting Review*, 65(1), 131–156.
- Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105(3), 581–606. <https://doi.org/10.1016/j.jfineco.2012.03.005>
- Yamada, K. (2019). Inter-firm relationships and leverage adjustment. *Research in International Business and Finance*, 50, 381–391. <https://doi.org/10.1016/j.ribaf.2019.06.006>