

**DID JAPANESE-SOX HAVE AN IMPACT ON EARNINGS QUALITY AND
EARNING MANAGEMENT?**

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ABSTRACT: In this study we investigate whether Japanese SOX (J-SOX) impacted earnings quality and earning management for public firms in Japan. We compare a sample of 60 firms that disclosed material weaknesses (MW firms) with a paired sample similar on size and industry, focusing on accruals quality, accuracy of cash flow prediction, and discretionary accruals. Our results indicate accruals quality improves after the passage of J-SOX and forecast accuracy improves post-J-SOX for both out control firms and MW firms. There are differences in accruals management for MW firms and real management for control firms observed in the pre-and the post-J-SOX periods. We observe differences in accruals quality for both MN firms and the control firms. While earning management remains unchanged post-J-SOX period, both accruals and real management are changed after the passage of the J-SOX. While accrual management was observed even after the passage of the J-SOX, real management was not observed post-J-SOX.

Keywords: earnings quality; accruals quality; earnings management, accuracy for cash flow prediction, and J-SOX.

1 INTRODUCTION

This study examines whether internal controls regulation in Japan (J-SOX)¹ impacted earnings quality and earning management in Japan. We compare firms which disclosed a “material weaknesses” in their internal control reports (material weaknesses firms) with a paired (industry and size) sample (control sample) on earnings quality and earnings management in the pre-and post- J-SOX periods. Our results suggest REDO This study suggests the following. First, control firms improve accruals quality and both firms improve accuracy for cash flow prediction in the post of J-SOX period. The differences are observed in accruals quality between material weaknesses firms and control firms in the pre-and post-of the J-SOX period. Second, while earnings management for control firms are not observed in the pre-and post-of the J-SOX period, earnings management for material weaknesses firms, both accounting management and real management increase after the passage of J-SOX. Third, while accounting management for material weakness firms is observed even in the post of J-SOX period, real management for control firms is not observed in the post of J-SOX period.

This study contributes to the literature in the following three ways. First, this study provides results regarding whether J-SOX improved earnings quality. Second, this study provides evidence regarding changes in earnings management by focusing on whether the earnings management of the firms reflects managerial opportunism or better information. Epps and Guthrie (2008) find that material weaknesses allow opportunities for greater manipulation of earnings using discretionary accruals. However, managers may use discretionary accruals not only to manipulate earnings but also to increase the informativeness of earnings (Watt and Zimmerman 1985; Suda 2000; Leuz et al. 2003).

Prior studies regarding motives for earnings management and/or ways to detect earnings

¹ The Standard for Assessment and Audit for Internal Control over Financial Reporting (<http://www.fsa.go.jp/en/news/2007/20070420.pdf>) is not a simple Japanese version of SOX. However, since Japanese media calls it J-SOX, we use the terminology of J-SOX for the internal controls and reporting regulation in Japan.

management have been conducted both in Japan and the U.S.² This study examines whether the motives for earnings management of public firms in Japan changed from an opportunistic purpose to an informative purpose in the aftermath of J-SOX. Our results indicate some changes in earnings management and we employ the Nakashima (2010) approach to determine the motivation³.

Third, this study provides empirical evidence from Japan on earnings quality and managerial motives for earnings management. To date, not much evidence regarding the effect of internal control systems for public firms in Japan has been provided. Nakashima (2011) employed a sample of SEC-standard Japanese firms. If those prior findings are different from the results of this study, we may provide new evidence regarding how the specific environment in Japan impacts internal controls and corporate governance. While Japanese public firms are operated in an environment with weak investor protection and lower litigation risk (Leuz et al. 2003), SEC-standard Japanese firms are operated under the stricter U.S. GAAP. This requires them to disclose transparent information through accepting higher disclosure levels (Coffee, 1999) and under more precise investigation by SEC regulation and investors. Therefore, the U.S. market listing itself (Machuga and Teitel 2007) requires a more stringent level of corporate governance and this may make the attitude of SEC-standard Japanese firms (Machuga and Teitel 2007) relative to general public firms in Japan.

The remainder of this study proceeds as follows; Section 2 develops hypotheses; Section 3 shows the research design. Section 4 presents data and descriptive statistics. The final section

² Suda (2000, p.404-417) discusses empirical studies regarding the association between discretionary accruals and stock value changes as a way to find whether earnings management is opportunistic or informative purpose.

³ Based on Bissessur (2008, pp.77), “if abnormal accruals reflect earnings management, the ability of abnormal accruals to predict future cash flows should be affected by accrual quality. If abnormal accruals are used to reflect the firm’s business activity, the predictive power of abnormal accruals for future cash flows should remain unaffected by accrual quality, since managers used abnormal accruals to reflect their private information about future performance which is not affect by accruals quality,” Nakashima (2010) finds a way of recognizing whether earnings management is used to communicate their internal information or for opportunistic intention, by analyzing the association between accuracy for cash flow prediction and earnings management and the association between accruals quality and earnings management crossly at the same time.

summarizes and concludes this study.

2 HYPOTHESES DEVELOPMENT

Internal control systems are intended to prevent and find misstatements and errors in the process of financial statement preparation and reporting. Good internal control systems are expected to lead to more credible financial information disclosure. The regulation related to internal controls, Sarbanes-Oxley Act of 2002 (SOX) has been used in the U.S. since 2002. Many studies examine the usefulness of the SOX, including Lobo and Zhou 2006; Doyle et al. 2007; Ashbaugh-Skyfe et al. 2008. Doyle et al. (2007) and Ashbaugh-Skyfe et al. (2008) compare accruals quality of the firms which disclose internal control deficiencies with control firms and suggest that control firms have higher accruals quality.⁴

Doyle et al. (2007b)⁵ predict that weaknesses in internal controls have the potential to allow both intentional error (earnings management) and unintentional error (poor estimation ability) in accruals estimation to impact the reported financial statements. Doyle et al. (2007b) set up the hypothesis that material weaknesses in internal control are negatively associated with accruals quality. They investigate the relation between accruals quality and internal control deficiency using 705 firms that disclosed at least one material weakness from August 2002 to November 2005 and document that firms with weak internal controls over financial reporting generally have lower accruals quality using an accrual quality measure by the Dechow and

4 Dechow and Dichev (2002) focus on the association between firm innate characteristics and accruals quality. Dechow and Dichev (2002) suggest that it is important to recognize the relationship between observable firm characteristics and non observable estimation error. They find that operating cycles, firm size, sales volatility, OCF volatility, and the magnitude of accruals are determinants of accruals quality. Accruals quality decreases in two reasons; one is because managers change accruals intentionally through earnings management and the other is unintentional errors in making assumptions and estimates at uncontrollable organization which makes it hard to predict uncertain future. Dechow and Dichev (2002, p.53) mention that accruals quality is affected by management's intentional and unintentional errors, and that while management intent is unobservable, unavoidable estimation errors by firm characteristics is observable. Dechow and Dichev (2002) report that firms with the longer operating cycles, smaller size, greater sales volatility, OCF volatility, and greater frequent negative earnings have lower accruals quality. Thus, they indicate that to assess firm characteristics is the way to evaluate accruals quality.

5 Doyle et al. (2007b) suggest that account-specific material weakness includes; (1) Inadequate internal controls for accounting for loss contingencies, including bad debts; (2) deficiencies in the documentation of receivables securitization program; (3) No adequate internal controls over the application of new accounting principle or the application of existing accounting principle to new transactions. Also, they suggest that company-level material weakness includes senior management and an ineffective control environment.

Dichev's (2002) model and the McNichols' (2002) model.

Ashbaugh-Skaife et al. (2008) examine the determinants of accruals quality; internal control deficiency, business fundamentals and operating characteristics, investment in internal controls, GAAP accounting choices, accounting conservatism, and auditor quality. They find that characteristics related to inventory ratio, OCF volatility, sales volatility, rapid growth and conservative accounting choices are the determinants of accruals quality. Ashbaugh-Skaife et al. (2008) also document that firms reporting internal control deficiencies have lower accruals quality as measured by accrual noise and absolute accruals relative to firms not reporting internal control problems. Also, they report that internal control deficiency firms have significantly larger positive and larger negative abnormal accruals relative to control firms. They suggest that internal control weaknesses are more likely to lead to unintentional errors that add noise to accruals than intentional misstatements that bias earnings upward. Although the SOX is not designed to reform the financial reporting system in the U.S., the empirical studies provide evidence that financial reporting quality improved.

Internal controls regulation was enacted in 2008 in Japan. Suda et al. (2011a, 2011b) suggest that the attitude of managers in the public firms in the pre-J-SOX period changes more positively than during the post-J-SOX period. Therefore, we predict that estimation errors and accounting management by managers decreased and improve accruals quality. Cohen et al. (2008) suggest that public firms switched accounting earnings management to real transaction earnings management.

Also, Nakashima (2011) suggests that SEC-standard Japanese public firms change accounting management to real management in the post-SOX period as well as the public firms in the U.S. Thus, the investigation by external auditors and regulatory agency, and the threat of penalty and their good internal controls made the public firms restrain their accounting management. Nakashima (2012) suggests that the public firms in Japan which disclosed material

weaknesses engaged in more accounting management. Pan (2009) finds that Japanese firms engage in earnings management through the manipulation of real activities by employing a sample of 650 firms which report a small positive profit. We predict that the investigation by external auditors and regulatory agency oversight, combined with the threat of penalty led Japanese firms to restrain their accounting earnings management. Thus, we predict that public firms in Japan decreased their earnings management.

Bissessur (2008) mentions that if abnormal accruals reflect earnings management, the ability of abnormal accruals to predict future cash flows should be affected by accruals quality. However, if abnormal accruals are used to reflect the firm's business activity, the predictive power of abnormal accruals for future cash flows should remain unaffected by accruals quality, since management uses normal accruals to reflect their private information about future performance, which is not affected by accruals quality. Following Bissessur's (2008) rationale, when real management increases post-J-SOX, accruals quality declines. Thus, if real management declines in the post-J-SOX period, accruals quality improves. Therefore, we set up the following hypotheses.

H1: Internal controls regulation (J-SOX) does not impact on financial information quality.

Working H1a: there are differences in earnings quality for material weakness firms and control firms in the pre-and post J-SOX period.

Working H1b: There is a difference in earnings quality between material weakness firms and control firms.

Cohen et al. (2008, p.777) suggest that the decrease in accounting management in the post-SOX period comes from the decrease in income-increasing accounting management. The decrease in accounting management is due to increases in detection by investors, auditors, and regulatory pressure. In addition, managers' concerns about the negative image of a scandal increase.

In this study, we apply the Nakashima (2011) model, which can recognize whether the intention of earnings management is opportunistic or informative. A flowchart of the process to employ the model approach is provided in the Appendix. In Step 1, one observes whether there is a significant association between accruals quality and accuracy for cash flow prediction using a multivariate regression model where the dependent variable is prediction error. If there is no significant association between accruals quality and accuracy for cash flow prediction, earnings management reflects informativeness. But, if there is a significant association between the two, the earnings management reflects an opportunistic purpose.

In Step 2, a regression model is employed using accruals quality as the dependent variable. If there is no significant association between accruals quality and discretionary accruals, or between accruals quality and real management, the earnings management reflects informativeness. But, if there is a significant association between accruals quality and discretionary accruals, or between accruals quality and real management, the earnings management has an opportunistic purpose.

For Step 3, a regression model whose dependent variable is accruals quality is employed. When it is likely that discretionary accruals reflect opportunistic earnings management, the sign of accruals indicates the motivation. If the sign is positive, a decrease in accruals quality is likely. When it is likely that real management reflects opportunistic earnings management the sign of accruals is negative (positive), they increase (lower) accruals quality. If the sign of OCF volatility is negative (positive), they increase (lower) accruals quality.

Nakashima (2011) discusses the association between accuracy for future cash flows and accruals quality in the pre-and the post-SOX periods. She suggests that the association was observed in the pre-SOX period but that no association was observed in the post-SOX period using a sample of SEC standard Japanese firms.

We predict that since internal control systems work well at control firms and they can

prevent and detect opportunistic earnings management, control firms decrease opportunistic earnings management. Thus, there is no association between accuracy for cash flow prediction and accruals quality. Therefore, we investigate the following hypothesis.

H2: Accounting management and real management for material weakness firms and control firms do not change in the pre-and the post of the J-SOX periods in Japan.

Working H2a: A significant association between accuracy for cash flow prediction and accruals quality for material weakness firms and control firms in the pre-and the post-of the J-SOX periods can be observed.

Nakashima (2011) finds that accuracy for cash flow prediction is not associated with discretionary accruals after the passage of SOX and is significantly associated with real management. She also finds that discretionary accruals are not associated with accuracy for cash flow prediction in the pre-and post-of the SOX periods but real management is associated with accuracy for cash flow prediction in the pre- and the post-SOX periods. In addition, her evidence suggests that there was a significant association between discretionary accruals and accruals quality before the passage of SOX but a shift occurred post-SOX such that there was a significant association between real management and accruals quality. Although accruals quality is significantly associated with production costs in the pre- and the post-SOX periods, production cost increases accruals quality before the passage of the SOX but decreases accruals quality after the passage of SOX. She mentions that discretionary accruals reflect managers' information but production costs reflect opportunistic earnings management following her model.

Nakashima (2012) analyzes the firms which disclose material weaknesses and suggests that there is a significant association between accuracy for cash flow prediction and accrual

quality for material weakness firms. She reports that accounting management has been implemented for material weakness firms even after the passage of the J-SOX. Thus, we predict that earnings management for control firms has changed after the passage of the J-SOX and set up the following hypothesis.

Working H2b: The difference in the association of accruals quality, discretionary accruals, and abnormal production costs both for material weakness firms and control firms in the pre-and the post of the J-SOX periods can be observed.

Nakashima (2011) suggests that discretionary accruals do not reflect opportunistic earnings management but that abnormal production expenses reflect opportunistic management. Also, she suggests that accruals quality is significantly associated with production costs in the pre-and the post-SOX periods. Production costs in the pre-SOX period increase accruals quality but reduce accruals quality in the post-SOX period. Thus, Nakashima (2011) reports that if a significant association between accruals quality and cash flow prediction accuracy is observed earnings management reflects opportunism.

Dechow and Schrand (2004, p.7) mention that if implemented properly, accrual accounting should result in an earnings number that reflects the underlying economic variation in the company's operations. When it should smooth cash flow volatility which does not reflect a variation in underlying company performance, earnings quality can be improved. When accruals smooth out value-irrelevant changes in cash flows, earnings quality is reduced since accruals are used to hide value-relevant changes in cash flows. Following this rationale, earnings quality must be decreased if opportunistic earnings management is implemented through accruals.

Richardson et al. (2002) investigate accruals for the restatement firms and find that the restatement firms have very large accruals in the years of alleged manipulation. Nakashima (2011)

also suggests that accruals quality is significantly associated with negative accruals and accruals increase accruals quality. Thus, we set up the following working hypothesis.

Working H2c: A significant association between accruals quality and accruals for control firms is not observed.

Bedard (2006) suggests that earnings quality improved in the post-SOX period providing evidence that there was a decrease in the magnitude of unexpected accruals in their first internal control report. SEC standard Japanese firms have been required to comply with SOX regulation since 2006. SEC standard Japanese firms have been working on better organization of the internal controls following SOX regulation. Internal governance processes are established to maintain the credibility of firms' financial statements and safeguard against such behavior as earnings manipulation (Dechow et al. 1996, p.4). Dechow et al. (1996) examine the relationship between earnings manipulation and internal control deficiency for the firms subject to accounting Enforcement Actions (AAER) by the Securities and Exchange Commission. They show that accruals gradually increase as the alleged year of earnings manipulation approaches, and then experience a sharp decline. The increase in accruals is consistent with earnings manipulation. The subsequent accrual reduction is consistent with the reversal of prior accrual overstatements (Dechow et al. 1996). They find that AAER firms have greater accruals than control firms. Thus, they suggest that time-series plots of accruals of the AAER firms shows that they use earnings manipulation to overstate earnings. Dechow and Schrand (2004) point out those high accruals in absolute magnitude is a potential "opportunistically earnings management".

Based on the findings of prior studies that accrual information is an important determinant of earnings management (Dechow, Sloan and Sweeney, 1996; Richardson et al. 2002), we predict that accruals quality is significantly associated with accuracy for cash flow prediction and accruals

quality is significantly associated with positive accruals.

4 RESEARCH DESIGN

4.1. Sample of Material Weakness Firms

Our initial sample was comprised of 88 firms taken from EDINET. In June, 2009, we identified 57 firms which disclosed at least one material weakness in their internal control statements, and 9 firms which did not disclose the internal control statements. In June, 2010, we identified another 22 firms which disclosed at least one material weakness in the internal control statements.

We used the following process for sample selection to empirically analyze the firm characteristics of material weakness firms. We identified 4 firms which disclose material weaknesses in the internal control statements through EDINET both in June 2009 and June 2010, and 7 firms which delisted in April, 2012. Data was obtained from the Nikkei Economic Electronic Databank System (NEEDS). We identified 2 firms whose fiscal year ended in other than March, and 15 firms which did not have complete data from 1999 through 2009. Finally, we identified 60 firms whose fiscal year ended in March and disclose at least one material weakness in June, 2009 and in June, 2010. The process of sample selection is shown in the Table 1.

[Insert Table 1 Here]

Figure 2 provides a breakdown of material weakness firms by their listed market. The largest number of material weakness firms are 25 firms (36.67%) on JASDAQ, followed by 22 firms (35.0%) on the First Section of the Tokyo Stock Exchange, 6 firms (10.0%) on the Second Section of the Tokyo Stock Exchange and 6 firms (10.0%) on the Second Section of the Osaka Stock Exchange.

[Insert Figure 2 Here]

4.2. Accruals Quality Measures

Accruals quality is defined as the extent to which accruals map into past, current, and future cash flows, following Dechow and Dichev (2002), and computed as a standard deviation of the residuals estimated from firm-specific time-series regression. This study employs a measure to capture accruals quality estimated by the the McNichols (2002) model,⁶ which is an adaption of the Dechow and Dichev (2002) model and the Jones (1991) models.⁷

Initially, the models are estimated using data beginning with year 2001 and ending with year 2007 to generate a standard deviation of residuals for the year 2008. Next, we use data beginning with year 2002 and ending with year 2008 to generate a standard deviation of residuals for the year 2009. This process is repeated and the models are sequentially re-estimated until all standard errors of residuals over the four year holdout period are obtained (2001-2009).

$$\Delta WC_t = \beta_0 + \beta_1 OCF_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Sales_t + \beta_5 PPE_t + \varepsilon_t$$

4. 3. Cash Flow Prediction Models Specification

In order to compute accuracy for cash flow prediction, we employ the following regression:

$$OCF_{t+1} = \theta_0 + \theta_1 OCF_t + \theta_2 \Delta AR_t + \theta_3 \Delta INV_t + \theta_4 \Delta AP_t + \varepsilon_t$$

OCF_{t+1} = cash flows from operations at time t+1,

NI_t = net operating income at time t

ΔAR_t = change in accounts receivable at time t

ΔINV_t = change in inventory at time t

ΔAP_t = change in accounts payable at time t

ε_t = current disturbance term

We employ a multivariate time-series model (MULT) for one-year-ahead cash flow

6 McNichols (2002) asserts that economic and structural factors can cause variation in the precision of accruals estimates, regardless of the presence or absence of managerial discretion and that managerial expertise also influences the precision of estimation, even if other factors are held constant. That is, the link between accruals and cash flow realization in adjacent periods is affected by economic and structural factors, managerial expertise, and intentional managerial discretions.

7 In the Jones (1991) model, $\Delta WC_t = \beta_0 + \beta_1 \Delta Sales_t + \beta_2 PPE_t + \varepsilon_t$, $\beta_0 + \beta_1 \Delta Sales_t + \beta_2 PPE_t + \varepsilon_t$ are assumed to be nondiscretionary accruals, and ε_t , the residual from the equation represents discretionary accruals.

predictions to be estimated on a firm-specific basis, following Lorek and Willinger (1996).

One-year-ahead cash flow predictions are generated in an ex ante fashion through the two cash flows prediction models above. Initially, this model is estimated using data beginning with year 2001 and ending with year 2005 to generate cash flow prediction for the year 2006. Next, we use data beginning with year 2002 and ending with year 2006 to generate a cash flow prediction for the year 2007.

This process is repeated and the models are sequentially re-estimated until all one-year-ahead cash flow predictions over the four year holdout period are obtained (2001-2009). We evaluate forecast accuracy for each model using the mean absolute percentage forecast error.⁸ The mean absolute percentage error (MAPE) is computed as follows;

$$\text{MAPE} = \sum_{t=1}^n \frac{|e_t|}{|Y_t|}$$

e_t = estimation error in period t ,

Y_t = actual value at time t .

4.4 Earning Management Measures

Earnings management which falls within GAAP can be focused on three types of earnings management; conservative accounting, neutral accounting, and aggressive accounting (Dechow and Skinner 2000)⁹. Managers use their discretions not only in order to misstate their firms' performance for opportunistic purposes, but also to convey their inside information for informative purposes (Watt and Zimmaerman, 1986; Subramanyam 1996; Suda 2000; Leuz et al.

⁸ Forecast error metrics include the mean absolute error (MAE), the mean square error (MSE), the root mean square error (RMSE), and Theil's U other than MAPE. This study employs the MAPE following Loreck and Willinger's (1996) measure of forecast accuracy.

⁹ According to Dechow and Skinner (2000), conservative accounting includes overly aggressive recognition of a provision or reserve, overvaluation of acquired in-process R&D in purchase acquisitions, overstatement of restructuring charges and asset write-offs for accruals management, and delaying sales, accelerating R&D or advertising expenditure for real management. Neutral accounting includes earnings that result from a neutral operation of the process, such as income smoothing accounting (Suda 2007). Aggressive accounting includes the understatement of the provisions for bad debts and drawing down provisions or reserves in an overly aggressive manner for accruals management, and postponing R&D or advertising expenditures and accelerating sales for real management.

2003, p.510). This study uses discretionary accruals estimated by the Jones (1991) model each year cross-sectionally for all sample firms, using the following regression model.

$$\Delta WC_t = \beta_0 + \beta_1 \Delta SALES_t + \beta_2 PPE_t + \varepsilon_t$$

Managers can take real actions that affect cash flows by delaying or accelerating sales and accelerating or postponing R&D or advertising expenses (Dechow and Skinner 2000). We follow previous studies for methods to identify for real earnings management. However, it is difficult to document the extent to which managers engage in real management to manipulate earnings. Merely observing that a firm enters into a transaction that receives favorable accounting treatment is not evidence that the firm entered into the transaction just because of its accounting consequence (Dechow and Schrand 2004).

Graham et al. (2005) and Suda and Hanaeda (2007) find strong evidence that managers take real earnings management such as “decrease discretionary spending on R&D, advertising, and maintenance” to meet an earnings target much more than accounting management such as “book revenue now rather than next quarter” and “alter accounting assumptions.” Thus, following Roychowdhury (2006) and Cohen et al.(2008), this study focuses on production manipulation. Production costs manipulation includes reporting lower COGS by reducing production costs per unit to increase production. We estimate one proxy, abnormal production costs (abnPROD).

We compute abnormal production costs by subtracting the normal level of the sum of COGS and change in inventory from actual production costs. We estimate the normal level of production costs as the following equation.

$$\begin{aligned} PROD &= COG_t + \Delta INV_t \\ &= \alpha_0 + \alpha_1 Sales_t + \alpha_2 \Delta Sales_t + \alpha_3 \Delta Sales_{t-1} + \varepsilon_t \end{aligned}$$

4. 5. Test Hypothesis

In order to test hypothesis 1, we observe the time-series plot and test the estimated coefficients using t-tests. To test working hypothesis 2, we examine the association between

accruals quality estimating using the McNichols (2002) regression model and accuracy for cash flow prediction.

$$AQ = \beta_0 + \beta_1 MN + \beta_2 WC_t + \beta_3 OCF_t + \beta_4 LDEBT_t + \beta_5 OCFvolatility + \beta_6 SALESvolatility_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 SEGMENT_t + \beta_{10} SIZE + \beta_{11} GROWTH + \beta_{12} AGE_t + \beta_{13} AUDIT_t + \beta_{14} EM_t + \varepsilon_{t+1}$$

Where,

AQ =accruals quality;

ΔWC =accruals¹⁰: changes in working capitals,

Δ AccountReceivable+ Δ Inventory- Δ AccountPayable-

Δ TaxPayment + Δ Other assets (net);

OCF = cash flows from operating activities;¹¹

$LDEBT$ = long-term debt, Long Debt/Average Assets¹²;

$SALESvolatility$ = the standard deviation of sales, deflated by average assets,

$OCFvolatility$ = The standard deviation of cash flow operations, deflated by average assets;

$SIZE$ = log of total sales;

$AUDIT$ = audit quality: 1 if a firm engaged with one of the big four audit firms, and 0 otherwise;¹³

OC = operating cycle; the log of the average of {(360/Sales/Average Account Receivable) }+(360/Costs of Goods Sold/Average

10 ΔWC indicates working capital accruals but in this study we label this as accruals.

11 For OCF , we follow Yoshida (2005) and deduct the average in the year.

12 For $LDEBT$, we follow Yoshida (2005) and deduct the average in the year.

13 The Japanese Big Four are Azusa (affiliate of KPMG), Arata (affiliate of Pricewaterhouse), Shinnihon Yugen Sekinin Kansa Hojin (affiliate of Ernst & Young), Tohmatsu (affiliate of Deloitte Touche Tohmatsu). Since Misuzu (former ChuoAoyama) finished their operating as an accounting firm in July, 2007, Arata added to Japanese Big Four, instead of Misuzu. However, since the Japanese Big Four refers the auditing contract with SEC standard Japanese firms from 2006 through 2008, there is a possibility not to have an auditing contract before 2006 and there might be an accounting firm with a different contract in the sample, I have BIGN as AUDIT.

Inventory)});

$ROA = \text{Net income} / \text{Average Assets}$;

$EM = \text{Earning management measures}$,

Dechow and Dichev (2002) report that firms with greater sales volatility and OCF volatility have lower accruals quality by increasing estimation errors. The model for testing this hypothesis depends on the model of Lobo and Zhou (2006)¹⁴. There are common firm characteristics for material weakness firms such as higher sales volatility and higher OCF volatility.

To test H2(a), we estimate the following regression equation and examine the association between accuracy for cash flow prediction and accruals quality. Managers may follow an overall earnings management strategy and choose earnings management with lower costs. As they can choose less costly earnings management between accruals and real management, we put either earnings management into the model. We include the variables *LEV*, *SIZE*, and *AUDIT* as control variables.

$MAPE = \theta_0 + \theta_1 MN + \theta_2 \Delta WC_t + \theta_3 \Delta OCF_t + \theta_4 LDEBT_t +$
$\theta_5 OCFvolatility_t + \theta_6 SALESvolatility_t + \theta_7 OC_t + \theta_8 ROA_t + \theta_9 SEGMENT_t$
$+ \theta_{10} SIZE_t + \theta_{11} GROWTH_t + \theta_{12} AGE_t + \theta_{13} AUDIT_t + \theta_{14} AQ_t + \varepsilon_{t+1}$

5 DESCRIPTIVE STATISTICS

The sample used in this study is for the period 2001-2010 from the Nikkei Economic Electronic Databank System (NEEDS) based on the following criteria; (1) SEC standard firms, (2) the month in which the fiscal year ends is March or August, (3) not a financial institution. Panel A and Panel B of Table 2 provide descriptive statistics of material weakness firms and control firms for 2000-2007, 2001-2008, and 2002-2008 respectively.

¹⁴ Although we find no significant multicollinearity among our independent variables.

[Insert Table 2 Here]

The descriptive statistics indicate that the negative sign of OCF of material weakness firms in Japan is the same as the sign of OCF of material weakness firms in the U.S. (Ge and McVay 2005) and that they have smaller segments than the segments of Ge and McVay (2005). The statistics suggests that the material weakness firms in Japan are less complicated than the material weakness firms in the U.S. Moreover, OCF volatility and SALES volatility are similar to Ashbaugh-Skaife et al.'s (2008) OCF volatility and SALES volatility. Thus, the material weakness firms in Japan have similar features to the material weakness firms in the U.S.

6. Empirical Results

6.1. Empirical Results 1-H1:Earnings Quality

Figure 2 and Figure 3 show the time-series plot of accruals quality and accuracy for cash flow prediction, respectively. Figure 1 shows that while accruals quality of control firms improves, accruals quality of material weakness firms decline. Figure 2 shows that while accuracy for cash flow prediction of both firms declines in 2008, accuracy for cash flow prediction improves in 2009.

[Insert Figure 1 Here]

[Insert Figure 2 Here]

How does the accounting management change in the pre-J-SOX and the post-J-SOX periods for both types of firms? We group both sets of firms into the firms in the pre-J-SOX period and the firms in the post-of the J-SOX period respectively and examine whether there is a difference between the pre-SOX period and the post-SOX period. Our null hypothesis is that there is no difference in covariance for accounting management between the pre-SOX period and the post-SOX period. Table 3 reports the results and shows that while discretionary accruals can be rejected significantly at 0.5 level, PROD can be rejected significantly at 0.5 level. Thus, this

suggests that there are differences in DA for material weakness firms and PROD for control firms between the pre-SOX period and the post-SOX period.

[Insert Table 3 Here]

Next, we observe the difference between material weakness firms and control firms regarding earnings quality, and the objective of accounting management. Figure 1, Figure 2 and Table 4 provides evidence that accruals quality and accuracy for cash flow prediction of our control firms are better than those of material weakness firms. Accounting and real earnings management is lower for the control firms than for the material weakness firms. Table 5 presents the result of t-test for the difference between control firms and material weakness firms and shows that there is a difference in accruals quality for both firms.

[Insert Table 4 Here]

[Insert Table 5 Here]

6.2. Empirical Results 1-H1: Accruals Quality for Cash Flow Prediction and Accruals Quality

Table 6 shows the results for the determinants of accuracy for cash flow prediction. Panel A and Panel B of Table 6 show the results from the regression analyses where we include discretionary accruals (DA) and abnormal production costs (PROD) in the regression equation respectively. The coefficient (t-value) of accruals quality in 2001-2007 and 2002-2008 for material weakness firms is 3.044(2.745), 1.213(1.920), and significant at 1% level and at 5% level respectively. This suggests that accuracy for cash flow prediction of material weakness firms is associated with accruals quality.

On the other hand, the coefficient (t-value) of accruals quality in 2001-2007 and 2003-2009 for control firms is 2.085 (1.705), 4.499(3.688), significant at 10% level and at 1% level respectively. This suggests that accuracy for cash flow prediction of control firms is significantly associated with accruals quality. We observe there are significant associations between accuracy for cash flow prediction and accruals quality for 2001-2007 and 2002-2008 for

material weakness firms and for control firms in 2001-2007 and 2003-2009.

[Insert Table 6 Here]

6.3. Empirical Results 2-H2: Accounting Management and Accruals Quality

We examine whether the earnings management for each sample firm is accruals management or real management. Panel A and Panel B of Table 7 reports that the results from our regression with accruals quality as the dependent variable and discretionary accruals (DA) and abnormal production cost (PROD) as independent variables. Table 7 reports that the coefficients (t-values) of DA (2001-2007, 2002-2008, and 2003-2009) for material weakness firms are -0.037(-2.236), -0.167(-5.353), -0.079(-3.310) and significant at 5% level, 1% level, and at 10% level respectively; this supports H2(b). On the other hand, the coefficients (t-values) of DA (2001-2007, 2002-2008, and 2003-2009) for control firms are -0.044(-1.794), -0.040(-2.984), -0.076(-3.258) and significant at 1% level, 5% level, and at 10% level respectively, suggesting that this also supports H2(b).

The coefficient (t-value) of PROD (2002-2008) for material weakness firms is -0.056(-1.914) and significant at 1% level, supporting H2-2. The coefficient (t-value) of PROD (2001-2007) for control firms is -0.119(-4.649), and significant at 5% level, supporting H2(b). These results suggest that accuracy for cash flow prediction is significantly associated with accruals quality. Therefore, since accuracy for cash flow prediction is affected by accruals quality, it is likely that earnings management reflects opportunism.

[Insert Table 7 Here]

6.4 Empirical Results of H3: Accruals Quality and Accruals

Table 7 provides regression analyses results for material weakness firms and control firms. The coefficient (t-value) for WC for the material weakness observations are of mixed sign, -0.026(-1.948), 0.055(2.078), -0.055(2.642), respectively. On the other hand, the coefficient (t-value) for WC for our control firms are consistently negative, -0.143(-6.291), -0.041(-2.085),

respectively. This supports working hypothesis 2(c).

The coefficients (t-values) for DA for both material weakness firms and control firms are significantly negative. It is likely that firms manage accruals using WC and the accruals management is opportunistic. Although the coefficient (t-value) of DA (2003-2009) for our control firms is associated with AQ, WC is not associated with AQ. This suggests that (following the flowchart in our appendix) it is not likely that the accruals management for our controls firms has no opportunism. We suggest that since there are significant associations between DA and AQ both in the pre-J-SOX and the post-J-SOX periods, following the association between accruals quality and accuracy for cash flow prediction, it is likely that accruals management by material weakness firms reflects opportunism. On the other hand, we did not observe real management in the post-J-SOX period for our control firms. In addition, since the discretionary accruals for our control firms are not significantly associated with AQ, it is not likely that accruals management by using accruals for material weakness firms reflect no opportunism.

7 CONCLUSION AND FUTURE RESEARCH

We provide evidence from Japan by investigating earnings quality and accounting management in the pre-J-SOX and post-J-SOX periods by comparing material weakness firms and control firms. We find evidence of the following. First, surprisingly, while earnings quality for material weakness firms in the pre-and post-of the J-SOX periods do not improve, earnings quality for our control firms improves post-J-SOX. Accuracy of cash flow predictions for both sets of firms improves post-J-SOX. There are significant differences in accruals management and real management between the pre-J-SOX and the post- J-SOX periods, and differences in accruals quality between material weakness firms and controls firms.

Second, we observe significant associations between accruals quality and prediction errors for 2001-2007 and 2002-2008 for the material weakness firms and for 2001-2007 and

2003-2009 control firms are observed. Our further analyses suggest opportunism in the earnings management for both sets of firms. In addition, while material weakness firms continue to manage earnings opportunistically post-J-SOX, our control firms seem to change to manage earnings for informativeness post-J-SOX. Nakashima (2011) suggests that there is little earnings management post-J-SOX by analyzing discretionary accruals for SEC standard Japanese firms. in the post-of the J-SOX period. For our control firms, it is likely that accruals quality improves by avoiding real earnings management, and cash flow prediction accuracy improves.

This study has limitations by its use of the Nakashima (2011) approach to identifying opportunistic versus informativeness motivations for earnings management. Future research is needed to examine whether the Nakashima (2011) model is generalizable across other samples.

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Table 1: Sample Selection Procedure	
Firms which disclose material weaknesses in the Internal Control Statements -EDINET in July 2009.	57
Firms which do not disclose the Internal Control Statement -EDINET in June 2009.	9
Firms which disclose material weaknesses in the Internal Control Statements -EDINET in June 2010.	22
	88
Firms which disclose material weaknesses in the Internal Control Statements -EDINET in June 2009 and June 2010.	4
Firms which delisted in April, 2012.	7
Firms in which Nikkei NEEDS shows a closing month other than March.	2
The firms which do not have complete data from 2000 through 2009.	15
Firms which have a closing month of March and disclose material	60

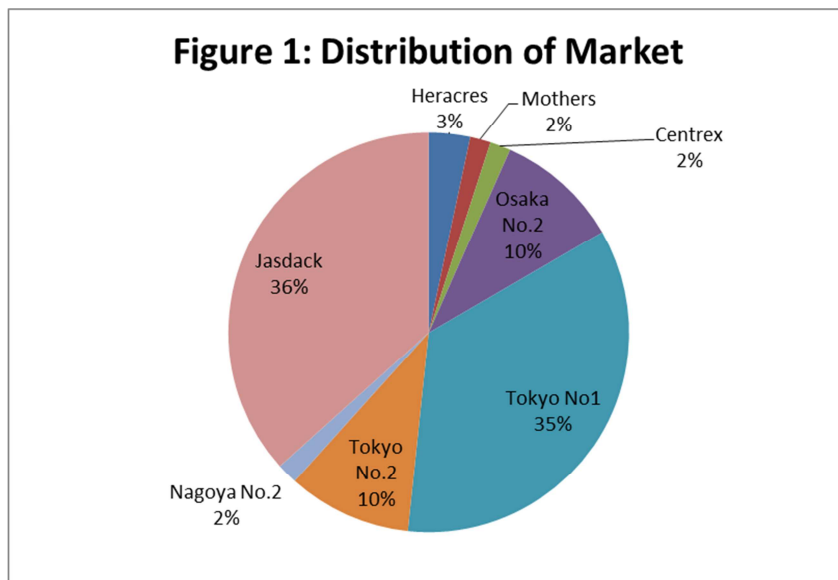


Figure 2 Time-Series Plot of Accruals Quality

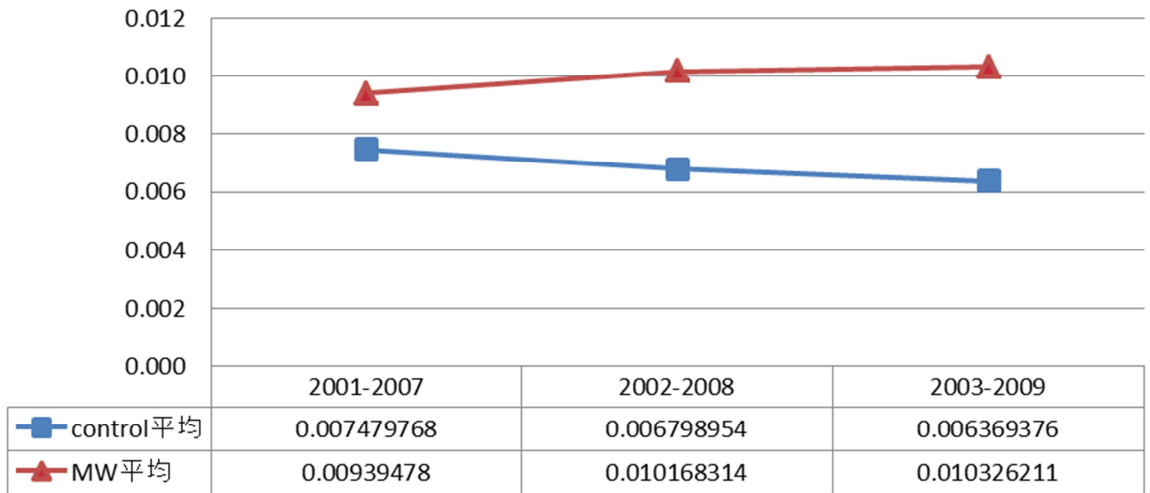
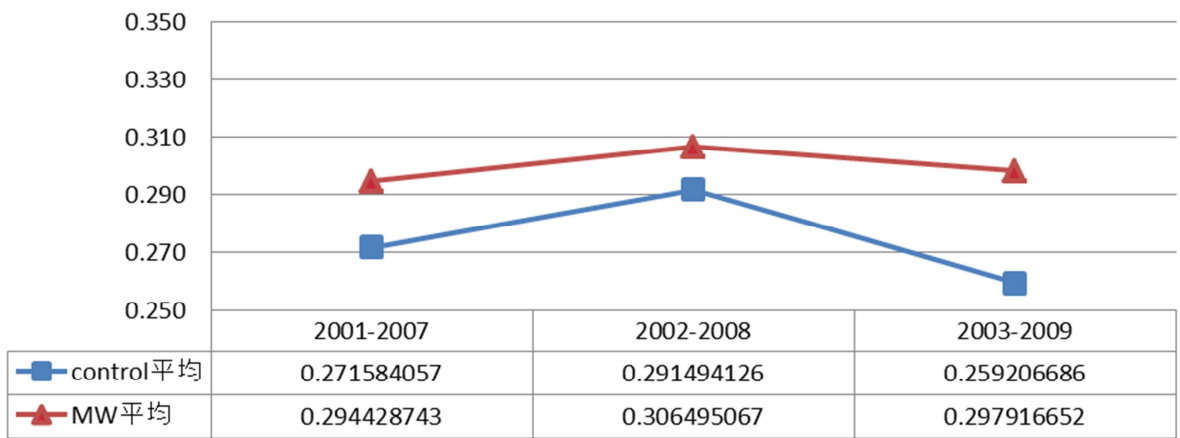


Figure 3 Time-Series Plot of Accuracy for Cash flows (MAPE)



Panel A : Material Weakness Firms										
	Before the Passage of J-SOX			Sign	After the Passage of J-SOX			t-value	significance	
	N	Mean	S.D.		N	Mean	S.D.			
<i>AQ</i>	1080	0.010	0.022	<	180	0.011	0.022	0.356	0.722	
<i>absAQ</i>	1080	0.008	0.016	<	180	0.008	0.021	0.576	0.564	
<i>DA</i>	1080	-0.001	0.055	<	180	0.007	0.058	1.894	0.059	*
<i>PROD</i>	1080	-0.001	0.048	<	180	0.003	0.055	0.948	0.343	
<i>MAPE</i>	1080	0.307	0.345	>	180	0.253	0.313	-2.126	0.034	
Panel B : Control Firms										
	Before the Passage of J-SOX			Sign	After the Passage of J-SOX			t-value	significance	
	N	Mean	S.D.		N	Mean	S.D.			
<i>AQ</i>	1080	0.007	0.014	<	180	0.007	0.014	0.528	0.598	
<i>absAQ</i>	1080	0.005	0.011	<	180	0.005	0.011	0.121	0.904	
<i>DA</i>	1080	0.000	0.037	<	180	0.003	0.033	1.148	0.251	
<i>PROD</i>	1080	-0.001	0.028	<	180	0.007	0.030	3.174	0.002	***
<i>MAPE</i>	1080	0.279	0.330	<	180	0.242	0.305	-1.419	0.156	

*, ** and *** indicate that significant at 0.1 level, 0.5 level and 0.01 level respectively.

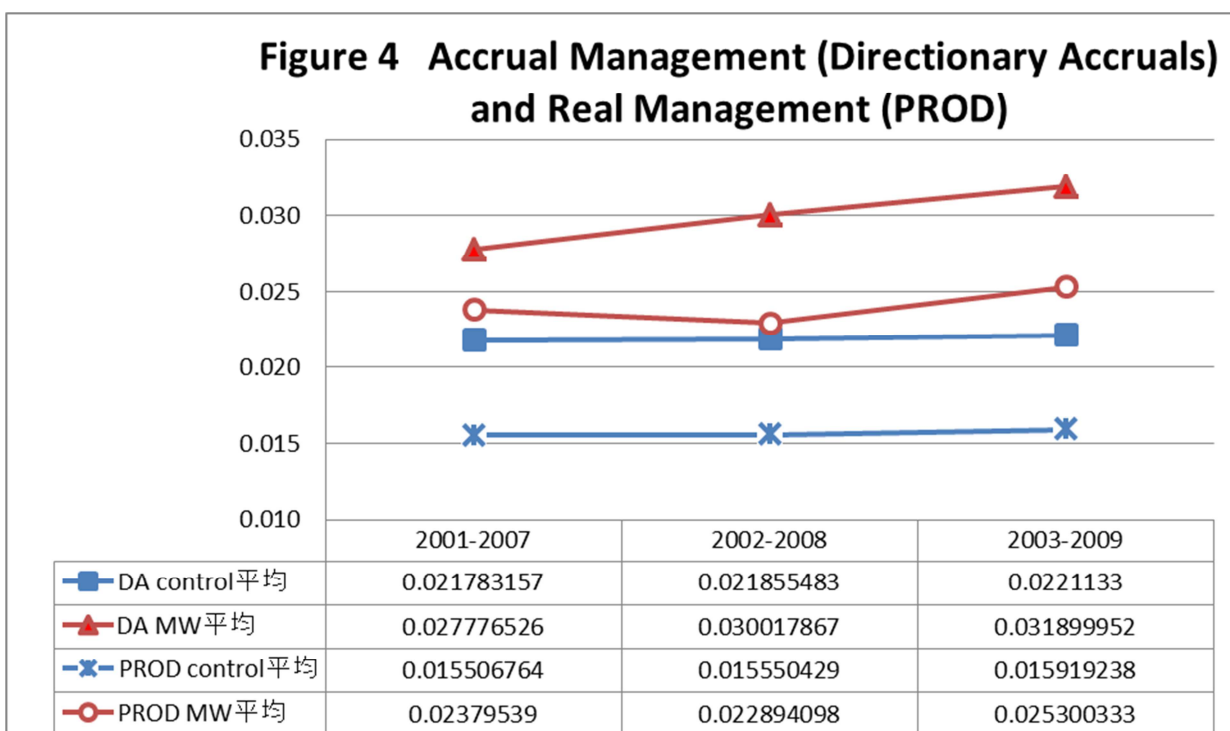


Table 5 t-test of Result for Material Weakness firms and Control Firms

Panel A : 2001-2007

	Material Weakness Firms			Sign	Controls Firms			t-value	significance
	N	Mean	S.D.		N	Mean	S.D.		
<i>ΔWC</i>	420	-0.009	0.095	<	420	-0.008	0.057	-0.240	0.811
<i>adjustOCF</i>	420	0.005	0.142	>	420	-0.004	0.064	1.191	0.234
<i>adjustDEBT</i>	420	-0.001	0.098	<	420	0.000	0.105	-0.058	0.954
<i>OCFvolatility</i>	420	0.040	0.066	>	420	0.032	0.048	2.130	0.033
<i>SALExvolatility</i>	420	0.146	0.228	>	420	0.115	0.178	2.154	0.032
<i>OC</i>	420	3.986	0.693	>	420	3.902	0.946	1.462	0.144
<i>ROA</i>	420	0.010	0.174	<	420	0.034	0.069	-2.581	0.010
<i>SEGMENT</i>	420	1.101	0.899	>	420	0.814	0.912	4.591	0.000
<i>SIZE</i>	420	10.060	1.733	<	420	10.176	1.721	-0.970	0.332
<i>GROWTH</i>	420	22.247	264.416	>	420	6.384	26.236	1.224	0.222
<i>AGE</i>	420	3.753	0.662	<	420	3.792	0.541	-0.947	0.344
<i>AUDIT</i>	420	0.567	0.496	<	420	0.767	0.423	-6.284	0.000
<i>MAPE</i>	420	0.294	0.337	>	420	0.272	0.334	0.986	0.325
<i>AQ</i>	420	0.009	0.016	>	420	0.007	0.017	1.715	0.087

Panel B : 2002-2008

	Material Weakness Firms			Sign	Controls Firms			t-value	significance
	N	Mean	S.D.		N	Mean	S.D.		
<i>ΔWC</i>	420	-0.003	0.084	>	420	-0.005	0.052	0.400	0.689
<i>adjustOCF</i>	420	0.005	0.141	>	420	0.000	0.064	0.600	0.549
<i>adjustDEBT</i>	420	-0.002	0.094	>	420	-0.006	0.100	0.492	0.623
<i>OCFvolatility</i>	420	0.038	0.060	>	420	0.032	0.048	1.629	0.104
<i>SALExvolatility</i>	420	0.139	0.204	>	420	0.117	0.181	1.703	0.089
<i>OC</i>	420	4.022	0.676	>	420	3.888	0.972	2.323	0.020
<i>ROA</i>	420	-0.003	0.184	<	420	0.036	0.070	-4.123	0.000
<i>SEGMENT</i>	420	1.146	0.894	>	420	0.810	0.916	5.371	0.000
<i>SIZE</i>	420	10.088	1.730	<	420	10.210	1.711	-1.033	0.302
<i>GROWTH</i>	420	8.131	74.732	>	420	4.938	20.059	0.846	0.398
<i>AGE</i>	420	3.785	0.622	<	420	3.819	0.521	-0.853	0.394
<i>AUDIT</i>	420	0.567	0.496	<	420	0.767	0.423	-6.284	0.000
<i>MAPE</i>	420	0.306	0.346	>	420	0.291	0.334	0.639	0.523
<i>AQ</i>	420	0.010	0.027	>	420	0.007	0.013	2.320	0.021

Panel C : 2003-2009

	Material Weakness Firms			Sign	Controls Firms			t-value	significance
	N	Mean	S.D.		N	Mean	S.D.		
<i>ΔWC</i>	420	-0.003	0.087	>	420	-0.005	0.050	0.309	0.757
<i>adjustOCF</i>	420	0.000	0.152	<	420	0.001	0.066	-0.092	0.927
<i>adjustDEBT</i>	420	-0.003	0.092	<	420	-0.006	0.101	0.398	0.691
<i>OCFvolatility</i>	420	0.038	0.061	>	420	0.033	0.050	1.408	0.159
<i>SALExvolatility</i>	420	0.143	0.216	>	420	0.118	0.199	1.746	0.081
<i>OC</i>	420	4.039	0.655	<	420	3.875	0.973	2.869	0.004
<i>ROA</i>	420	-0.017	0.209	>	420	0.037	0.067	-5.036	0.000
<i>SEGMENT</i>	420	1.190	0.888	>	420	0.818	0.921	5.965	0.000
<i>SIZE</i>	420	10.103	1.737	<	420	10.244	1.700	-1.190	0.234
<i>GROWTH</i>	420	6.325	72.720	>	420	4.909	20.609	0.384	0.701
<i>AGE</i>	420	3.810	0.592	<	420	3.844	0.504	-0.900	0.369
<i>AUDIT</i>	420	0.567	0.496	<	420	0.767	0.423	-6.284	0.000
<i>MAPE</i>	420	0.298	0.339	>	420	0.258	0.310	1.775	0.076
<i>AQ</i>	420	0.010	0.022	>	420	0.006	0.013	3.191	0.001

*, ** and *** indicate that significant at 0.1 level, 0.5 level and 0.01 level respectively.

Table 6: Determinants of Accuracy for Cash flows														
Panel A : Material Weakness Firms					Panel A : Material Weakness Firms					Panel A : Material Weakness Firms				
2001-2007	B	t-value	Sigfnificance		2002-2008	B	t-value	Sigfnificance		2003-2009	B	t-value	Sigfnificance	
(Constant)	0.341	1.711	0.088	*	(Constant)	0.521	2.536	0.012	**	(Constant)	0.471	2.055	0.041	**
<i>AWC</i>	0.974	3.544	0.000	***	<i>AWC</i>	1.130	3.743	0.000	***	<i>AWC</i>	1.031	3.465	0.001	***
<i>adjustOCF</i>	-0.754	-3.049	0.002	***	<i>adjustOCF</i>	-0.973	-3.595	0.000	***	<i>adjustOCF</i>	-0.898	-3.529	0.000	***
<i>adjustDEBT</i>	-0.227	-1.293	0.197		<i>adjustDEBT</i>	-0.050	-0.260	0.795		<i>adjustDEBT</i>	-0.053	-0.265	0.792	
<i>OCFvolatility</i>	0.836	2.861	0.004	***	<i>OCFvolatility</i>	0.250	0.776	0.438		<i>OCFvolatility</i>	-0.068	-0.206	0.837	
<i>SALESvolatility</i>	0.075	0.911	0.363		<i>SALESvolatility</i>	-0.055	-0.560	0.576		<i>SALESvolatility</i>	0.007	0.080	0.936	
<i>OC</i>	-0.015	-0.530	0.596		<i>OC</i>	-0.024	-0.857	0.392		<i>OC</i>	0.007	0.216	0.829	
<i>ROA</i>	0.621	3.780	0.000	***	<i>ROA</i>	0.408	2.399	0.017	**	<i>ROA</i>	0.522	3.437	0.001	***
<i>SEGMENT</i>	0.002	0.086	0.932		<i>SEGMENT</i>	0.008	0.396	0.692		<i>SEGMENT</i>	0.012	0.592	0.554	
<i>SIZE</i>	-0.006	-0.463	0.644		<i>SIZE</i>	-0.019	-1.334	0.183	**	<i>SIZE</i>	-0.026	-1.829	0.068	*
<i>GROWTH</i>	0.000	-0.904	0.366		<i>GROWTH</i>	0.000	1.535	0.126	**	<i>GROWTH</i>	0.000	0.832	0.406	
<i>AGE</i>	0.013	0.406	0.685		<i>AGE</i>	0.028	0.819	0.413		<i>AGE</i>	0.024	0.698	0.486	
<i>AUDIT</i>	-0.073	-1.827	0.068	*	<i>AUDIT</i>	-0.094	-2.276	0.023	**	<i>AUDIT</i>	-0.065	-1.578	0.115	
<i>AQ</i>	3.044	2.745	0.006	***	<i>AQ</i>	1.213	1.920	0.056	*	<i>AQ</i>	0.175	0.214	0.830	
Adjusted R ²		0.121			Adjusted R ²		0.098			Adjusted R ²		0.060		
F-value		5.425			F-value		4.518			F-value		3.074		
Panel B : Control Firms					Panel B : Control Firms					Panel B : Control Firms				
2001-2007	B	t-value	Sigfnificance		2002-2008	B	t-value	Sigfnificance		2003-2009	B	t-value	Sigfnificance	
(Constant)	0.396	2.321	0.021	**	(Constant)	0.404	2.405	0.017	**	(Constant)	0.628	3.720	0.000	***
<i>AWC</i>	1.247	2.552	0.011	**	<i>AWC</i>	1.770	3.518	0.000	***	<i>AWC</i>	1.431	3.079	0.002	***
<i>adjustOCF</i>	-2.113	-4.973	0.000	***	<i>adjustOCF</i>	-2.339	-5.466	0.000	***	<i>adjustOCF</i>	-1.490	-3.937	0.000	***
<i>adjustDEBT</i>	-0.130	-0.816	0.415		<i>adjustDEBT</i>	-0.155	-0.964	0.336		<i>adjustDEBT</i>	-0.018	-0.115	0.909	
<i>OCFvolatility</i>	-0.074	-0.219	0.827		<i>OCFvolatility</i>	-0.026	-0.080	0.936		<i>OCFvolatility</i>	-0.282	-0.900	0.368	
<i>SALESvolatility</i>	0.146	1.374	0.170		<i>SALESvolatility</i>	0.397	3.628	0.000	***	<i>SALESvolatility</i>	0.136	1.560	0.120	
<i>OC</i>	-0.030	-1.682	0.093	*	<i>OC</i>	-0.021	-1.266	0.206		<i>OC</i>	-0.023	-1.484	0.138	
<i>ROA</i>	0.188	0.601	0.548		<i>ROA</i>	0.493	1.573	0.117		<i>ROA</i>	0.493	1.652	0.099	*
<i>SEGMENT</i>	0.012	0.599	0.549		<i>SEGMENT</i>	-0.007	-0.334	0.738		<i>SEGMENT</i>	0.018	0.935	0.350	
<i>SIZE</i>	0.004	0.309	0.757		<i>SIZE</i>	0.001	0.082	0.935		<i>SIZE</i>	0.003	0.251	0.802	
<i>GROWTH</i>	-0.001	-0.753	0.452		<i>GROWTH</i>	0.001	0.630	0.529		<i>GROWTH</i>	-0.001	-0.745	0.457	
<i>AGE</i>	-0.022	-0.548	0.584		<i>AGE</i>	-0.021	-0.548	0.584		<i>AGE</i>	-0.098	-2.548	0.011	**
<i>AUDIT</i>	-0.011	-0.291	0.771		<i>AUDIT</i>	-0.025	-0.696	0.487		<i>AUDIT</i>	0.014	0.406	0.685	
<i>AQ</i>	2.085	1.795	0.073	*	<i>AQ</i>	0.763	0.501	0.617		<i>AQ</i>	4.499	3.688	0.000	***
Adjusted R ²		0.122			Adjusted R ²		0.166			Adjusted R ²		0.107		
F-value		5.467			F-value		7.413			F-value		4.845		

See Table 2 for Variable Definitions ;*, **, and *** indicate significance at p< 10 %, p< 5%, p<1%; t-value is based on White's (1980) standard error. Devendent variable is accuracy for cash flows.

Table 7: Determinants of Accruals Quality							Panel A : Material Weakness Firms							Panel A : Material Weakness Firms						
Panel A : Material Weakness Firms							Panel A : Material Weakness Firms							Panel A : Material Weakness Firms						
2001-2007	Accrual Management			Real Management			2002-2008	Accrual Management			Real Management			2003-2009	Accrual Management			Real Management		
	B	t-value	significance	B	t-value	significance		B	t-value	significance	B	t-value	significance		B	t-value	significance	B	t-value	significance
(Constant)	-0.005	-0.616		-0.005	-0.561		(Constant)	0.020	1.312		0.023	1.457		(Constant)	-0.012	-0.856		-0.012	-0.894	
<i>Δ</i> WC	-0.026	-1.948	*	-0.037	-3.048	***	<i>Δ</i> WC	0.055	2.078	**	-0.015	-0.643		<i>Δ</i> WC	0.055	2.642	***	0.020	1.095	
<i>adjustOCF</i>	0.014	1.254		0.012	1.071		<i>adjustOCF</i>	0.014	0.699		0.002	0.103		<i>adjustOCF</i>	0.004	0.258		-0.001	-0.049	
<i>adjustDEBT</i>	-0.012	-1.579		-0.013	-1.633		<i>adjustDEBT</i>	-0.008	-0.524		-0.011	-0.752		<i>adjustDEBT</i>	-0.023	-1.923	*	-0.025	-2.065	**
<i>OCFvolatility</i>	0.022	1.624		0.012	0.881		<i>OCFvolatility</i>	0.035	1.381		-0.015	-0.604		<i>OCFvolatility</i>	0.039	1.868	*	0.019	0.943	
<i>SALESvolatility</i>	0.005	1.452		0.006	1.654	*	<i>SALESvolatility</i>	-0.001	-0.080		0.001	0.069		<i>SALESvolatility</i>	0.011	2.083	**	0.013	2.271	**
<i>OC</i>	0.004	3.025	***	0.004	3.081	***	<i>OC</i>	0.002	0.749		0.002	0.949		<i>OC</i>	0.006	3.197	***	0.006	3.427	***
<i>ROA</i>	-0.003	-0.365		-0.003	-0.375		<i>ROA</i>	-0.023	-1.803	*	-0.019	-1.432		<i>ROA</i>	-0.014	-1.504		-0.011	-1.152	
<i>SEGMENT</i>	0.002	1.923	*	0.001	1.735	*	<i>SEGMENT</i>	0.002	1.230		0.002	1.109		<i>SEGMENT</i>	0.002	1.394		0.002	1.325	
<i>SIZE</i>	0.000	-0.451		0.000	-0.360		<i>SIZE</i>	0.000	0.082		0.000	0.167		<i>SIZE</i>	0.000	0.113		0.000	0.116	
<i>GROWTH</i>	0.000	0.016		0.000	-0.083		<i>GROWTH</i>	0.000	-0.732		0.000	-0.564		<i>GROWTH</i>	0.000	-0.913		0.000	-0.826	
<i>AGE</i>	0.001	0.795		0.001	0.604		<i>AGE</i>	-0.004	-1.434		-0.005	-1.779	*	<i>AGE</i>	-0.001	-0.529		-0.001	-0.612	
<i>AUDIT</i>	-0.010	-5.522	***	-0.009	-5.422	***	<i>AUDIT</i>	-0.012	-3.885	***	-0.012	-3.850	***	<i>AUDIT</i>	-0.006	-2.554	**	-0.006	-2.533	**
<i>DA</i>	-0.037	-2.236	**				<i>DA</i>	-0.167	-5.353	***				<i>DA</i>	-0.079	-3.310	*			
<i>PROD</i>				-0.004	-0.231		<i>PROD</i>				-0.056	-1.914	*	<i>PROD</i>				-0.009	-0.494	
Adjusted R ²	0.188			0.178			Adjusted R ²	0.138			0.085			Adjusted R ²	0.172			0.150		
F-value	8.450			7.973			F-value	6.159			4.009			F-value	7.678			6.679		
Panel B : Control Firms							Panel B : Control Firms							Panel B : Control Firms						
2001-2007	Accrual Management			Real Management			2002-2008	Accrual Management			Real Management			2003-2009	Accrual Management			Real Management		
	B	t-value	significance	B	t-value	significance		B	t-value	significance	B	t-value	significance		B	t-value	significance	B	t-value	significance
(Constant)	0.038	5.413	***	0.038	5.519	***	(Constant)	0.034	6.501	***	0.034	6.448	***	(Constant)	0.050	7.871	***	0.050	7.753	***
<i>Δ</i> WC	-0.143	-6.291	***	-0.140	-7.190	***	<i>Δ</i> WC	-0.041	-2.085	**	-0.060	-3.512	***	<i>Δ</i> WC	-0.031	-1.380		-0.065	-3.346	***
<i>adjustOCF</i>	0.088	5.036	***	0.082	4.735	***	<i>adjustOCF</i>	0.038	2.735	***	0.037	2.698	***	<i>adjustOCF</i>	0.048	3.189	***	0.048	3.161	***
<i>adjustDEBT</i>	-0.012	-1.770	*	-0.012	-1.871	*	<i>adjustDEBT</i>	-0.012	-2.331	**	-0.013	-2.513	**	<i>adjustDEBT</i>	-0.005	-0.795		-0.006	-1.037	
<i>OCFvolatility</i>	-0.017	-1.170		-0.020	-1.443		<i>OCFvolatility</i>	-0.008	-0.773		-0.008	-0.770		<i>OCFvolatility</i>	0.056	4.587	***	0.057	4.604	***
<i>SALESvolatility</i>	0.028	6.610	***	0.027	6.411	***	<i>SALESvolatility</i>	0.028	8.480	***	0.027	8.264	***	<i>SALESvolatility</i>	0.000	0.020		-0.001	-0.294	
<i>OC</i>	0.000	-0.185		0.000	0.040		<i>OC</i>	-0.001	-1.376		-0.001	-1.416		<i>OC</i>	-0.002	-2.735	***	-0.002	-2.620	***
<i>ROA</i>	-0.052	-3.953	***	-0.058	-4.526	***	<i>ROA</i>	-0.037	-3.653	***	-0.038	-3.754	***	<i>ROA</i>	-0.031	-2.585	***	-0.034	-2.852	***
<i>SEGMENT</i>	0.000	-0.438		0.000	-0.559		<i>SEGMENT</i>	0.000	0.688		0.000	0.702		<i>SEGMENT</i>	0.001	1.333		0.001	1.340	
<i>SIZE</i>	-0.002	-3.373	***	-0.002	-3.299	***	<i>SIZE</i>	-0.002	-5.280	***	-0.002	-5.298	***	<i>SIZE</i>	-0.002	-3.582	***	-0.002	-3.565	***
<i>GROWTH</i>	0.000	-1.071		0.000	-0.902		<i>GROWTH</i>	0.000	1.286		0.000	1.079		<i>GROWTH</i>	0.000	-1.023		0.000	-1.311	
<i>AGE</i>	-0.003	-2.058	**	-0.004	-2.227		<i>AGE</i>	-0.001	-1.105		-0.001	-1.017		<i>AGE</i>	-0.005	-3.456	***	-0.005	-3.408	***
<i>AUDIT</i>	0.001	0.746		0.001	0.715		<i>AUDIT</i>	0.001	1.178		0.001	1.225		<i>AUDIT</i>	0.000	0.049		0.000	0.185	
<i>DA</i>	-0.044	-1.794	*				<i>DA</i>	-0.040	-2.084	**				<i>DA</i>	-0.076	-3.258	***			
<i>PROD</i>				-0.119	-4.649	***	<i>PROD</i>				-0.015	-0.842		<i>PROD</i>				-0.032	-1.512	
Adjusted R ²	0.365			0.392			Adjusted R ²	0.408			0.402			Adjusted R ²	0.204			0.188		
F-value	19.514			21.795			F-value	23.170			22.688			F-value	9.264			8.454		

See Table 2 for Variable Definitions; *, **, and *** indicate significance at p < 10%, p < 5%, p < 1%; t-value is based on White's (1980) standard error. Dependent variable is accrual quality by estimating McNichols (2002)'s model.

APPENDIX: Flowchart for a Way to Recognize Whether Earnings Management Has Opportunism

