

Working Paper Series No.2011-1

**Do Firms Adopt More Conservative Earnings
Reporting Strategies after Restatements?**

by

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February, 2011

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Abstract

This paper investigates a firm's reporting behavior in restoring a damaged reputation after announcing restatements. We argue that improving earnings quality to a more conservative level should be a firm's priority to restore financial statement credibility after experiencing restatement. This paper also tries to empirically show the linkage between restatement firms' incentive and earnings strategy in the post-announcement period. We thus argue that firms experiencing severe restatement tend to adopt even more conservative accounting principles. The results of this study find that restatement firms barely adopt similar levels of conservatism to control firms after suffering from restatements. However, if firms restate financial statements because of overstating assets/revenues or understating liabilities/expenses, these restatements lead firms to adopt a more conservative accounting policy than control firms and firms involved in a minor restatement. This tendency is especially pronounced in the year of the restatement announcement. The conservatism level of restatement firms declines to no difference from control firms as time moves on. This research finds that restatement firms continuously adopt an aggressive accounting strategy in the pre-announcement period, but a constraint of earnings management exists as time closes to the year of announcement. Combined with the finding of conservative accounting strategy after restatement, our evidence suggests that restatement firms have a reversal of discretionary accruals behavior in the pre- and post-announcement period, especially for firms with severe restatements.

1. Introduction

From earlier research on determinants of restatements, current research has focused on their economic consequences and subsequent reputation restoring behavior. These studies assert that firms bear heavy costs for restatements. These costs include a decrease in future earnings (Ahmed and Goodwin, 2007), an increase in cost of capital (Hribar and Jenkins, 2004), negative market reactions (Palmrose et al., 2004), and high frequencies of delisting or bankruptcy (Palmrose and Scholz, 2004). Managers and auditors of restatement firms suffer from higher litigation risks and turnovers (Palmrose et al., 2004; Desai et al., 2006). The above studies show that restatements impair a firms' reputation and lead restatement-related parties to suffer from substantial penalties.

Several empirical studies then attempt to examine how firms work to restore a damaged reputation after restatements. Using sample firms identified in Accounting and Auditing Enforcement Releases (AAERs), where firms are partially related to restatement, Farber (2005) indicates that AAER firms increase outside director percentage after the Securities and Exchange Committee (SEC) detects fraud. His finding also shows that the market reacts positively to this corporate governance enhancement. Cheng and Farber (2008) find that restatement firms reduce option-based compensations of chief executive officers (CEOs); and this change leads to lower stock return volatility and subsequent improvements in operating performance. Thus, restatement firms have incentives to restore their reputation impairment via improving certain mechanisms such as corporate governance or contracts.

Poor earnings quality (i.e. errors or irregularities) causes firms to restate financial statements, and further, suffer from economic consequences. Although the improvements in corporate governance or contracts are important mechanisms, they are not intended to rectify financial reporting problems. After experiencing restatement, enhancing the quality of financial statements should be firms' priority and a more direct way to restore financial statement credibility. The first research purpose of this paper is thus to examine whether the earnings strategy of restatement firms changes in the post-announcement period. Since restatement firms commonly encounter significant changes in monitoring, contracting or litigation costs, this paper hypothesizes that, compared to control firms, restatement firms tend to adopt a more conservative accounting reporting strategy to restore their financial report reputation.

Although prior studies have documented firms' behavior to rebuild their reputation after restatement, they rarely examine the relationship between the consequences of restatements and subsequent behavior. The second research purpose of this paper is to fill the gap by investigating the relation between economic consequences encountered by restatement firms and their earnings strategy in the post-announcement period. Since material and severe restatements result in serious economic consequences (Palmrose et al., 2004; Palmrose and Scholz, 2004), this paper argues that firms experiencing severe restatements may adopt more conservative accounting strategies than firms with no or minor restatements.

This work identifies 137 pairs of restatement and control firms from 1995 through 2004 in Taiwan. Prior research indicates that discretionary accruals positively relate to restatement probability (Lee et al., 1999 and Jones et al., 2008). Based on these findings, the current study uses discretionary accruals as a proxy for conservatism levels. This study further adopts two categories of variables as a proxy for the severity of restatements, i.e., restatement income effects and restatement attributes. The empirical results find little evidence that restatement firms adopt a more conservative accounting policy after suffering from restatements. However, when considering the nature and attributes of restatement, the evidence indicates that firms with severe restatement adopt a more conservative accounting strategy than firms with no or minor restatements following restatement.

This work undertakes three additional tests to strengthen the conclusion. First, we use cumulated abnormal returns (CAR) to measure the economic consequences of restatements. Findings show that restatement firms with more negative market reaction decrease their discretionary accruals in the post-announcement period, consistent with the main results. Next, we try to control for the impact of possible "big bath" strategy adopted by the new management after restatement. The results still support the hypothesis that firms with material restatements lower their discretionary accruals in the post-announcement period. Finally, we investigate how discretionary accruals behave before firms' restatements announcements, and observe a reversal in discretionary accruals after restatement. Our empirical evidence indicates that firms with severe restatements experience aggressive discretionary accruals, although in a decreasing manner, in the pre-announcement period. The reporting strategy in the year of announcement, however, is similar to that of control firms.

This study contributes to extant restatement studies in three ways. First, we provide a direct examination of the financial statement to explain restatement firms' behavior in restoring their reputation in earnings quality. Farber (2005), Cheng and Farber (2008) find that restatement firms rebuild their impaired reputation by improving corporate governance or contracts. We take the research one step further by providing direct evidence of improvements in financial reporting quality for restatement firms. Second, this paper provides empirical evidence for the theoretical linkage between economic consequences encountered by restatement firms and their earnings strategies in the post-announcement period. Firms with a higher degree of restatement severity issue even more conservative financial statements. Finally, this paper examines the reporting behavior of restatement firms before and after the restatement announcement, and depicts the change in discretionary accrual patterns following the restatement.

The remainder of this paper is structured as follows. Section 2 discusses restatement studies to date and develops the research hypotheses. Section 3 explains the sampling process and research models. Empirical findings as well as interpretations are presented in Section 4. Section 5 concludes this paper.

2. Theoretical Background and Hypotheses Development

Prior studies on restatements can be broadly categorized into pre-announcement issues and post-announcement issues. The former probes into the causes and determinants of restatements (Kinney et al., 2004; Agrawal and Chadha, 2005; Burns and Kedia, 2006; Efendi et al., 2007). Research evidence indicates that poor mechanisms, such as corporate governance or compensation contracts, increase the probability of restatements. Nevertheless, as long as financial statements are associated with errors or irregularities and are detected, they have to be restated, regardless of whichever mechanism is at work. Prior research also shows that higher (discretionary) accruals lead to restatements, and even to fraudulent reports (Lee et al., 1999; Jones et al., 2008).

Post-announcement issues primarily relate to investigations of economic consequences of restatements. The argument is that restatement firms bear heavy costs both from legal and market perspectives. These costs include increase in cost of capital (Hribar and Jenkins, 2004), negative market reactions (Palmrose et al., 2004), higher frequencies of bankruptcy or delisting (Palmrose and Scholz, 2004), decrease in future earnings (Ahmed and Goodwin, 2007), and decrease in information content of earnings (Wilson, 2008). Managers and auditors of restatement firms also suffer from higher litigation risk, subsequent turnovers, and poor employment prospects (Palmrose and Scholz, 2004; Desai et al., 2006). The above studies suggest that severe adverse consequences from restatements might provide incentives for firms to make every effort to restore market confidence and the damaged reputation in the post-announcement era.

Research on post-announcement issues has recently turned to how firms work to restore their impaired reputation. Farber (2005) investigate the association between credibility of the financial reporting system and quality of corporate governance. He argues that fraud firms should improve corporate governance to restore a damaged reputation. Results indicate that fraud firms increase the percentage of outside directors after being detected by SEC and investors value this improvement. Cheng and Farber (2008) find that firms are more likely to reduce CEOs' option-based compensation following the restatement. A significant shift from option-based compensation to salary reduces management's incentives to take excessively risky investments, leading to lower stock return volatility and operating performance improvement.

While the above studies examine how firms work to restore investors' trust from

the perspectives of corporate governance and compensation contracts, the main concern of this study is that poor earnings quality causes restatements, and adverse economic consequences. Poor mechanisms do not necessarily lead to restatements, but errors or irregularities do, if detected. We conjecture that restatement firms should view improving earnings quality as a priority in the post-announcement period. Ball and Shivakumar (2005) suggest conservatism can be regarded as a means to enhance usefulness or quality of financial statements. Examining initial public offerings (IPOs) in the UK, Ball and Shivakumar (2008) find that these firms report earnings in a more conservative way because of stricter monitoring by auditors, boards, market participants and regulators. Prior studies also find that managers and auditors facing higher litigation risk adopt a conservative accounting or auditing strategy (Cahan and Zhang, 2006; Chung and Wynn, 2008). Taken together, this research predicts that restatement firms facing significant changes in monitoring, contracting or litigation risk have stronger incentives to adopt a more conservative accounting strategy after restatements. Hypothesis 1 is thus developed as follows:

H₁: Restatement firms' reporting strategy tends to be more conservative in the post-announcement period compared to that of control firms.

The second research question explores the relationship between economic consequences encountered by restatement firms and their earnings strategy in the post-announcement period. Many prior restatement studies provide evidence that subsequent penalties are associated with the nature and attributes of the restatement. Palmrose and Scholz (2004) find that firms restating core earnings or more accounting items are more likely to face higher litigation risks. Palmrose et al. (2004) discover that firms overstating net income or having a large number of account groups linked to restatement have a bigger negative market reaction to the restatement announcement. Similarly, Wilson (2008) finds that the duration of the loss in earnings information content is longer for restatements made to correct revenue recognition errors and for restatements incurring larger negative market reaction. Hennes et al. (2008) indicate that restatements linked to irregularities, compared to those related to errors, typically lead to higher management turnover. Based on the above finding, we argue that firms with a higher degree of severity in restatements have a stronger incentive to restore their impaired reputation. Hypothesis 2 is thus developed as follows.

H₂ : Firms with a higher degree of severity in restatements are inclined to adopt a more conservative accounting strategy than firms with no or minor restatements.

3. Research Design

This section first discusses the sample selection process for restatement firms and matched control samples and then discusses the empirical models used to test the hypotheses.

3.1 Sample Selection

This work first screens the Taiwan Economic Journal (TEJ) database for all interim and annual restatements announced by firms listed in the Taiwan Stock Exchange and the Gre-Tai Securities Market from 1995 to 2004.¹ The sample period ends in 2004 because we need a three-year period to investigate the earnings strategy after restatement announcement. Since one firm may make more than one announcement during the sample period, similar to Palmrose et al. (2004), this research restricts the sample to contain only the first restatement announcements, for a total of 254 first time restatement announcements.

[Insert Table 1]

In the second part of the sample selection process, as indicated in Panel A of Table 1, two IPO observations are deleted since they may have different earnings strategies (Teoh et al., 1998; Ball and Shivakumar, 2008). This study then eliminates eighteen and fifteen restatements reflecting only GAAP-to-GAAP and entity changes, respectively. Next, we delete ten restatements involving only audit opinion changes, twenty-nine without financial statement data, and one without restatement information. Finally, we delete forty-three restatements without an appropriate matched control firm. The final sample consists of 137 first-time announcement firms.

Panel B of Table 1 shows the distribution of restatement firms by year. The larger

¹ The TEJ contains a large number of data items, such as macroeconomic-, company-, and market-related information. The database covers all public companies in Taiwan. Functionally, the database is similar to a combination of COMPUSTAT and the Center for Research in Security Prices (CRSP) data on U.S. companies. The following five types of restatements are excluded from the database: (1) accounts reclassification resulting from segment division, (2) unavailable information about restatements resulting from mergers and acquisitions, (3) accounts reclassification resulting from changes in industry definitions (4) changes in owners' equity resulting from adoption of Taiwan's Statement of Financial Accounting Standards No. 34 and No. 36, related to accounting for financial instruments, and (5) reclassification of minority interest from liabilities to owners' equity resulting from the adoption of SFAS No. 7, related to accounting for consolidated financial statements

concentration of sample firms appeared during the period from 1998 to 2002, especially in 1999 (18.24%), 1998 (13.87%), and 2002 (13.87%), consistent with the peak period of misstatements in Taiwan (Lin and Chang, 2009). Panel C reports the industry distribution of sample firms. Firms in construction and food industries tended to have a higher percentage of restatements during the sample period, although the percentage difference between the sample and the entire market was statistically insignificant.

[Insert Table 2]

Table 2 shows the restatement characteristics of the 137 restatement firms. Panel A indicates that about 87% of the restatements involve only one restatement reason and the total number of reasons is 166. Among them, overstating assets/revenues (19.88%) and understating liabilities/expenses (21.69%) are considered as serious restatement cases and are commonly seen in fraud cases (Panel B). Beside these two restatement reasons, other reasons or items that have net income effect account for one-third of the total reasons (33.13%).

Panel C of Table 2 shows the distribution of restated net income. The restatement sample consists of 83 (22) overstatement (understatement) firms. On average, the sample firms overstate net income about 2.1% of total assets, and the largest overstatement exceeds more than half of total assets.

Panel D of Table 2 shows other restatement characteristics. More than half of sample firms (58.4%) restate their core earnings (*CORE*), whereas nearly 80% restate their non-core earnings (*NONCORE*).² The test of difference in the mean values between *CORE* (0.584) and *NONCORE* (0.796) is significant (un-tabulated), consistent with the view that firms in Taiwan manipulate non-core earnings by misreporting long-term investment activities. Finally, on average, the sample firms restate two quarterly or annual financial statements (*BOOKS*).

The current study employs a matched sample research design to investigate the proposed hypotheses. We first select firms without any restatements announced three years before and three years after the sample period. We then match each restatement

² Following Palmrose et al (2004), components of core earnings include net sales, cost of goods sold, unrealized related party transactions, and operating expenses. Components of non-core earnings include non-operating revenues, non-operating expenses, taxes, gains (losses) from discontinued operations, extraordinary gain or loss, and cumulative effect of changes in accounting principles. The sum of firms restating core and non-core earnings is greater than the total sample of 137 as 60 firms restate both items.

firm based on the following criteria: (1) The common stock of control firms is traded in the same stock exchange. (2) Control firms are similar in size in terms of total assets (within 30% allowance). (3) Financial data and auditor opinions are available over the sample period. (4) Control firms are in the same industry. If multiple control firms are identified as a result of the above procedures, we then choose the one with the closest return on assets to that of the restatement firm.³ The final matched samples contain 274 (137 paired) firms.⁴

3.2 Research Models

This section first explains the proxy used to detect firms' behavior in adopting a conservative accounting policy. Prior studies indicate that restatement items are typically related to aggressive recognition of revenues, biased recognition of costs or expenses, or wrong accounting treatments for in-process research and development (Cheng and Farber, 2008; Gleason et al., 2008). Several studies also document that discretionary accruals are positively related to the probability of restatements (Lee et al., 1999; Jones et al. 2008; Givoly et al., 2007). Jones et al. (2008) find that various measures of discretionary accruals are significantly related to fraudulent financial statements, and these measures also associate with the magnitude of restatements. Cahan and Zhang (2006) use discretionary accruals to measure the level of conservatism. Based on the above evidence, this work uses discretionary accruals as a proxy for detecting firms' earnings manipulation behavior. We examine whether restatement firms restore impaired reputation by improving the quality of discretionary accruals in the post-announcement period.⁵

This investigation conjectures that restatement firms adopt a more conservative reporting strategy in the post-announcement period, suggesting that the earnings quality of restatement firms will improve after restatement. We thus proceed to discuss how we define 'improvement of earnings quality' via discretionary accruals. Discretionary

³ While matching firm performance, control firms with extreme returns on assets are excluded. One control firm's return on assets is considered extreme when it exceeds the 12% difference allowance.

⁴ The matched sample *t*-test indicates that size, proxied by total assets and net sales, and performance, proxied by return on assets and earning per share, do not differ significantly between the sample and control firms

⁵ Basu (1997) also develops a commonly used model to investigate the existence of conservatism. The model interprets conservatism by arguing that earnings reflect 'bad news' more quickly than 'good news', which is contingent on certain economic events. The Basu (1997) model is not adopted in this paper because conditional conservatism may not fully interpret the nature of managers' discretionary behavior, which is the main emphasis in restatement research (Givoly et al., 2007)

accruals involve two implications. The first is related to biased earnings. Discretionary accruals that approach to zero, or decreased absolute values of discretionary accruals (Teoh et al., 1998) imply improved earnings quality. The second implication relates to aggressive earnings. In this perspective, earnings quality improvements can be detected from the decreased level of discretionary accruals (Cahan and Zhang, 2006). For example, firms recognizing unrealized loss on investment in a timely manner following restatement indicate earnings quality improvement. Based on the above argument, this study predicts a decreased level of discretionary accruals after restatements.

Jones et al. (2008) indicate that the Dechow and Dichev (2002) model and the modified model (McNichols, 2002) have better predictability for restatements studies. This research employs these two accrual models to estimate discretionary accruals. Similar to Ball and Shivakumar (2006), we define total accruals (*TACC*) as income before extraordinary items less cash flows from operating activities (Hribar and Collins, 2002).⁶ This study then obtains the values for each variable through post-restated financial statement numbers. Finally, we estimate the following coefficients for each TEJ industry code.

$$TACC_t = \theta_0 + \theta_1 CFO_{t-1} + \theta_2 CFO_t + \theta_3 CFO_{t+1} + \eta \quad (DD)$$

$$TACC_t = \theta_0 + \theta_1 CFO_{t-1} + \theta_2 CFO_t + \theta_3 CFO_{t+1} + \theta_4 \Delta REV_t + \theta_5 GPPE_t + \eta \quad (M)$$

Where

CFO_t is cash flow from operating activities,

ΔREV_t is the change in net sales, and

GPPE_t is the gross property, plant, and equipment,

All variables in the above two models are scaled by average total assets.

We use the coefficients estimated from Equation (DD) and Equation (M), multiplied by variables obtained from pre-restated financial statement numbers as the pre-restated prediction for each firm-year observation. We then compute the discretionary accruals (labeled as *DA_DD* or *DA_M*) as the difference between the actual (pre-restated) and predicted (pre-restated) *TACCs*. One constraint of the above

⁶ We do not use changes in working capitals because data are not available in the TEJ restatement database.

two models is that they ignore the loss recognition asymmetry, which could cause misspecification of discretionary accruals. We rectify this problem by adopting the Ball and Shivakumar (2006) model (BS Model) to estimate discretionary accruals. The BS model considers the role of accrual accounting in the asymmetrical timely recognition of gains and losses by adding two additional variables, $DCFO_t$ and ADJ_CFO_t , as follows:

$$TACC_t = \theta_0 + \theta_1CFO_{t-1} + \theta_2CFO_t + \theta_3CFO_{t+1} + \theta_4DCFO_t + \theta_5DCFO_t*ADJ_CFO_t + \eta \quad (BS)$$

Where,

$DCFO_t$ is equal to 1 if ADJ_CFO_t is negative, and 0 otherwise,

ADJ_CFO_t is the difference between CFO_t and $MEDIAN_CFO_{jt}$ for industry j, and

$MEDIAN_CFO_{jt}$ is the median of CFO_t in industry j in year t.

The discretionary accruals estimated using the BS model is named as DA_BS . Although the empirical section presents the results from all three models, this analysis focuses on the BS model as it emphasizes the role of conservatism in accruals recognition.

We now proceed to develop the research models to examine the differences in discretionary accruals between restatement and control firms in the announcement year and three years after the announcements. Following Palmrose et al. (2004), Palmrose and Scholz (2004) and Wilson (2008), this work adopts two categories of variables to proxy for restatements severity. The first category relates to restatement income effects, which include the amount of restated net income, a core earnings restatement or not, and a non-core earnings restatement or not. The current study predicts that firms overstating net income have a greater tendency in adopting a conservative earnings strategy to address a possible negative reaction from investors. We further conjecture that firms restating the components of earnings, especially core earnings, may suffer larger reputation impairments, and therefore are motivated to adopt conservative accounting principles.

The second category relates to restatement characteristics, which include the severity of restatement, restatements with multiple reasons, and the number of financial statements restated. Since overstating performance or understating poor financial

situation are commonly found in fraud cases, restatements are considered serious when they involve overstating assets/revenues and understating liabilities/expenses. We predict these firms may suffer from more serious reputation impairments. The multi-reason restatements may be caused by numerous errors and/or manipulations, and are considered more complicated in nature. Further, market participants may lose faith in firms' financial statements if earnings have been misstated for a long time. We thus expect that these firms are likely to adopt more conservative accounting policies. The regression models are then developed as follows.

$$DA = \alpha_0 + \alpha_1 RESTATE + \alpha_2 AMT + \alpha_3 CORE + \alpha_4 NONCORE + \alpha_5 LEV + \alpha_6 CFO + \alpha_7 BIGN + \alpha_8 SIZE + \alpha_9 GROWTH + \alpha_{10} AGE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (1)$$

$$DA = \beta_0 + \beta_1 RESTATE + \beta_2 SERIOUS + \beta_3 MULTI + \beta_4 BOOKS_D + \beta_5 LEV + \beta_6 CFO + \beta_7 BIGN + \beta_8 SIZE + \beta_9 GROWTH + \beta_{10} AGE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (2)$$

Where,

DA is discretionary accruals estimated from the DD, McNichols and BS models, namely *DA_DD*, *DA_M*, or *DA_BS*,

RESTATE is equal to 1 if a restatement firm, and 0 otherwise,

AMT is the amount of net income restated during the restatement period, scaled by total assets at the end of the restatement announcement year. The amount of net income restated is the difference between the net income originally reported minus the net income after restatement.

CORE is equal to 1 if restatements are related to any component of core earnings, and 0 otherwise,

NONCORE is equal to 1 if restatements are related to any component of non-core earnings, and 0 otherwise,

SERIOUS is equal to 1 if restatements are related to overstating assets/revenues or understating liabilities/expenses, and 0 otherwise,

MULTI is equal to 1 if restatements are caused by multiple reasons, and 0 otherwise,

BOOKS_D is equal to 1 if the number of financial statements restated (*BOOKS*) is

more than 1, and 0 otherwise,

LEV is total liabilities divided by total assets,

CFO is cash flow from operating activities divided by average assets,

BIGN is equal to 1 if firms are audited by a Big-N accounting firm, and 0 otherwise,

SIZE is the natural logarithm of total assets,

GROWTH is the change of net sales divided by the previous year's net sales,

AGE is the natural logarithm of the number of years since a firm is founded, and

YEAR and *INDUSTRY* are a set of dummy variables that represent various years and industries separately.

To support Hypothesis 1, we predict that the coefficient of *RESTATE* should be significantly negative. Similarly, significant and negative coefficients of *AMT*, *CORE*, *NONCORE*, *SERIOUS*, *MULTIPLE*, and *BOOKS_D* are consistent with the prediction of Hypothesis 2 that firms experiencing material restatement adopt a more conservative accounting strategy than firms with no or minor restatements.

In terms of control variables, *LEV* is commonly used to control for solvency or bankruptcy risk. Palmrose and Scholz (2004) show that firms restating core earnings have higher frequencies of subsequent bankruptcy. Empirical evidence also indicates a significant correlation between debt ratio and earnings manipulation (Defond and Jiambalvo, 1994; Cahan and Zhang, 2006). Subramanyam (1996) documents a negative correlation between accruals and cash flow from operating activities. Firms with lower *CFO* are less willing to adopt more conservative accounting methods. To control for the above confounding effect, we place *CFO* in the model as a control variable.

Prior empirical evidence indicates that firms audited by Big-N firms have lower discretionary accruals. This implies that they adopt less aggressive earnings management behavior (Francis et al., 1999). Larger firms receive more public attention while engaging in restatement. Therefore, larger firms or firms audited by Big-N firms are motivated to restore their impaired reputation by adopting conservative accounting

principles. Thus, we add *BIGN* and *SIZE* as the control variables.

A firm's growth may negatively correlate to the firm's internal control structure and accounting system. Similarly, new public companies may not have the chance to properly set up the above mechanism (Matsumoto, 2002; Abbott et al., 2004). *GROWTH* and *AGE* are thus added to control for the undue impact from the reasons mentioned above. Finally, this study controls for the effects of various industries (*INDUSTRY*) and years (*YEAR*).

4. Empirical Results

This section presents descriptive statistics with preliminary data diagnosis. We then discuss and analyze the regression results from discretionary accruals estimated via the Ball and Shivakumar (2006) model (*DA_BS*), and also provide plausible implications for the results. Finally, this work conducts necessary robustness tests to strengthen the conclusions.

4.1 Descriptive Statistics

[Insert Table 3]

Panel A of Table 3 summarizes the descriptive statistics of the paired sample. The table reveals that restatement firms have significantly lower discretionary accruals in the post-announcement period for all three measures of discretionary accruals. Compared to that of control firms, restatement firms have significantly higher debt ratio, and are less willing to hire a Big-N auditor. However, the results show no significant differences in cash flow from operating activities (*CFO*), firm size (*SIZE*), sales growth (*GROWTH*), and firm age (*AGE*) between the paired samples.

Panel B of Table 3 presents the correlation matrix with Pearson (Spearman) correlation coefficients showing below (above) the diagonal. Most of the variables are correlated at the 1% significance level; however, the coefficients themselves do not indicate critical economic influence. Un-tabulated variance inflation factors suggest that the regressions are free from serious collinearity problems.

[Insert Figure 1]

To examine if restatement firms show different patterns for discretionary accruals in the pre- and post-announcement periods, this research aggregates discretionary

accruals for restatement firms in the third and second years prior to the restatement announcement and splits them into five groups. Group 5 (1) has the biggest (lowest) aggregated discretionary accruals. We then obtain the mean values for each group in each year of pre- and post-announcement period. Figure 1 depicts the trend of discretionary accruals over the pre- and post-announcement period for both sample firms (Panel A) and control firms (Panel B). In Panel A, the discretionary accrual in Group 5 is 0.090 three years before the restatement, which drops sharply to 0.044 in the year just before the restatement announcement. The result is consistent with prior research on the constraints of earnings management (Barton and Simko, 2002). The discretionary accrual is below 0 in the year of restatement announcement, and keeps going further down in the following years. A similar picture can be mapped to Group 3 and 4. However, the discretionary accruals in Group 2 and 1 are negative in the years before restatement, showing no obvious trend in the following years. The graph shows that restatement firms are inclined to adopt a conservative reporting strategy after the restatement announcement, especially for firms with higher discretionary accruals. Panel B outlays the characteristics of discretionary accruals for control firms, demonstrating no apparent trend before and after the restatement. Figure 1 assures that, compared to the control firms, the sample firms manipulate earnings through discretionary accruals before restatements, but rectify their reporting strategy to be more conservative after the restatement announcement.

[Insert Figure 2]

Following the observation in Figure 1, this work further breaks the sample into various subsamples with different characteristics to examine whether the conclusion sustains. Figure 2 exhibits discretionary accrual patterns for the full sample in Panel A, firms overstating net income in Panel B and firms overstating assets/revenues or understating liabilities/expenses in Panel C over the period of three years before and after the restatement announcement. The figure indicates that, for the overall sample, restatement firms have lower discretionary accruals after restatement, whereas control firms have a flatter pattern over the observation period. This holds true for both subsamples except the trend is more apparent. On the contrary, control firms show no significant change in discretionary accrual patterns over the same period. This implies that while restatement firms, regardless of which characteristics they possess, seemingly manipulate earnings before restatement, they nevertheless adjust their accounting policy

to be more conservative after the restatement announcement. The discretionary accruals in all three panels notably reach the lowest level in the year of restatement announcement, suggesting that the reporting strategy for restatement firms is the most conservative in the event year.

4.2 Results of Multivariate Analyses

Table 4 and Table 5 report the regression results for Model 1 and Model 2. This study presents the discretionary accruals estimated from the Ball and Shivakumar (2006) model (*DA_BS*) in Panel A, and the other two measures of discretionary accruals, *DA_DD* and *DA_M* are shown in Panel B and C separately. We also report regression results for the year of restatement announcement ($t = 0$) and three other intervals to observe the pattern of firms' reporting strategy after restatement. The three intervals include periods from the year of announcement to one year (0, 1), two years (0, 2) and three years (0, 3) after the restatement, respectively.

[Insert Table 4]

Panel A of Table 4 indicates no significant relationship between restatement announcement (*RESTATE*) and discretionary accruals (*DA_BS*) in any interval, suggesting that both restatement firms and controls firms do not differ in financial reporting strategy after restatement in the year of and the years subsequent to restatement. The evidence does not support Hypothesis 1. The association between the magnitude of restatements (*AMT*) and discretionary accruals (*DA_BS*) is significantly negative, although it decreases as the interval expands (from -1.388 in the year of restatement to -0.460 three years after the restatement announcement). This result indicates that firms overstating net income adopt a more conservative accounting policy. Moreover, the level of conservatism declines over time, consistent with the pattern shown in Figure 2. However, the current study fails to document the significant relationship between components of core earnings (*CORE*) or non-core earnings (*NONCORE*) and discretionary accruals in any intervals, contradictory to previous studies. We reckon the reason might be that investors in Taiwan place more emphasis on the bottom line than on the information provided by earnings components. Hypothesis 2 is supported for restatement firms that overstated their net income.

[Insert Table 5]

This section discusses how alternative measures of restatement severity, i.e., restatement attributes, affect discretionary accruals after restatement. Panel A of Table 5 indicates that the *RESTAT* coefficient is negative but insignificant in any interval, similar to the result from Model 1. Panel A also indicates that firms overstating assets/revenues or understating liabilities/expenses (*SERIOUS*) significantly relate to lower discretionary accruals (*DA_BS*) in the year of restatement announcement (t value = -2.24, significant at the 5% level). However, the significance disappears in other intervals, suggesting that these firms adopt a more conservative reporting strategy only in the announcement year. Firms that have multiple restatement reasons (*MULTI*) are negatively correlated with discretionary accruals as expected, but do not reach statistical significance. Neither do we find that firms restating more financial statements (*BOOKS_D*) result in lower discretionary accruals after restatement. In summary, Hypothesis 2 is supported when using overstating assets/revenues or understating liabilities/expenses to proxy for the severity level of restatements.

The results for control variables are similar in both Table 4 and Table 5. The debt ratio (*LEV*) negatively relates to discretionary accruals. This implies that higher bankruptcy risk causes stricter monitoring from both investors as well as government, which might force firms to report conservative earnings (Watts, 2003). Consistent with Subramanyam (1996), this study finds that larger firms (*SIZE*) have lower discretionary accruals. Firms with high growth potential (*GROWTH*) have greater discretionary accruals, consistent with Abbott et al. (2004). All other control variables (*BIGN*, *AGE*) are not influential to discretionary accruals. In Table 4 and Table 5, we also report two other measures of discretionary accruals: *DA_DD* and *DA_M*, in Panel B and Panel C, respectively. Both measures tell a similar story to that of *DA_BS*.

To sum up, restatement firms typically do not adopt a more conservative reporting strategy after restatements. This may be due to lower costs and penalties imposed on restatement firms in Taiwan. In fact, there is virtually no penalty on either voluntary restatements or restatements mandated by regulators. Law enforcement is evidently less effective in Taiwan (Chen et al., 2008). Even in fraudulent cases, lawsuits brought against companies, managers or auditors are not as common as those in western countries. However, in the case of more severe restatements, e.g., firms that overstate net income or firms that overstate assets/revenues or understate liabilities/expenses, restatements do make firms adopt a more conservative accounting policy. This tendency

is especially apparent in the year of restatement announcement. Figure 2 shows that discretionary accruals of restatement firms remain lower than those of control firms one to three years after restatement announcements, but the difference is not significant. This also means that restatement firms have similar discretionary accruals to those of control firms. Additional tests further show that restatement firms, compared with control firms, aggressively manipulate discretionary accruals in the pre-announcement period, and this behavior leads to restatements.

4.3 Additional Tests

The current research extends its examination to three additional relevant issues. First, we use market reaction to restatement announcement as a direct proxy for severity level. The market reaction also serves as a measure for the economic consequences of restatements. Second, this work controls for a possible omitted variable, management turnover. Third, we investigate whether the restatement sample adopts aggressive accounting policies before restatement announcement as we conjecture.

Prior research indicates that firms experiencing heavy penalties and economic costs imposed by restatement have stronger incentives to improve their damaged reputation. Palmrose et al. (2004), Palmrose and Scholz (2004) suggest that material restatements lead to higher litigation risk and more negative market reaction. We conjecture that market reaction to restatement announcement might be a more comprehensive and direct way to measure the extent of penalties, economic costs, and reputation loss. Following Palmrose et al. (2004), this study computes market-adjusted cumulated abnormal returns (*CAR*), where the observation period is from one day before the announcement ($t = -1$) to one day after the announcement ($t = 1$). We identify the first date of restatement announcements from various media sources, and find that only 82 out of 137 restatement firms have exact event dates. The final sample size further reduces to 61 pairs due to incomplete market data, which is the main reason why we do not make this test one of our main research designs. The research model is as follows:

$$DA = \gamma_0 + \gamma_1 RESTATE + \gamma_2 CAR + \gamma_3 RESTATE * CAR + \gamma_4 LEV + \gamma_5 CFO + \gamma_6 BIGN + \gamma_7 SIZE + \gamma_8 GROWTH + \gamma_9 AGE + \delta * YEAR + \lambda * INDUSTRY + \varepsilon \quad (3)$$

Where,

CAR is the market-adjusted cumulative abnormal return from day -1 to day 1,

where day 0 is the date the restatement is announced.

We expect the association between market reaction to restatements and discretionary accruals to be significantly positive. Restatement firms should have stronger incentive to restore their reputation, so we predict that the coefficient of $RESTATE*CAR$ positively relates to discretionary accruals, for example, $\gamma_2 + \gamma_3$ or γ_3 significantly and positively relates to DA .

The mean (median) of CAR is -2.646 (-1.405) percent for restatement firms and -1.888 (-1.951) percent for control firms. The differences do not reach significance level in both means and medians tests, which might imply a contagion effect of restatements as documented by Gleason et al. (2008). We further find that the market reacts more negatively to firms with severe restatement announcement. Firms overstating net income and assets/revenues or understating liabilities/expenses suffer from cumulated abnormal returns of -3.721 percent and -4.272 percent, respectively.

[Insert Table 6]

Table 6 shows multivariate regression results. We detect that the link between market reaction to restatements and discretionary accruals is positive in the restatement sample ($\gamma_2+\gamma_3$). Although the significance is marginal, the result is similar to the main findings, i.e., the coefficient of $\gamma_2+\gamma_3$ decreases as intervals extend.⁷

This work brings in management turnover to control for a possibly omitted variable in the second test. Prior research documents that restatements cause management dismissal (Desai et al., 2006; Hennes et al., 2008). Management turnover is considered as the factor that presses a successive manager to take a big bath, which is related to both discretionary accruals (dependent variable) and restatements (independent variable). Due to incomplete management turnover data available in TEJ, our sample size is reduced from 137 pairs to 122 pairs. The sample analysis shows that 30% of restatement firms experience management turnover in the year of restatement, nonetheless, only 13.11% of control firms do. The difference is significant in both means and medians tests at the 1 percent significance level, consistent with the findings in prior work (Desai et al., 2006; Hennes et al., 2008). We redo our regression analyses by adding one

⁷ We also use data in $t = 1, 2, \text{ or } 3$ to run regressions, respectively. The results indicate that $\gamma_2+\gamma_3$ are all insignificant for each year. Therefore, we ascribe that the results of Table 6 might be limited by a small sample size.

dummy variable (*TURNOVER*), which equals 1 for firms that have management change, to the Model 1-3, separately. We present the results for the year of restatement announcement as having no significant association between restatement severity and DA in the other intervals.

[Insert Table 7]

Table 7 shows that after considering the impact of management turnover, the magnitude of restatement amount (*AMT*) and the severity level of restatements (*SERIOUS*) remain as major explanations for the change of discretionary accruals in the announcement year. The relation between market reaction to restatements (*CAR*) and discretionary accruals remains significant at the 5% level (F value = 4.04), consistent with the results in Table 6. Management turnover does not seemingly have material effect on model specification.

The last section focuses on issues relevant to the post- and pre-announcement period and investigates whether restatement firms employ a more aggressive accounting policy before restatement announcements. Following Jones et al. (2008), this research tests two models (Model A1 and A2), using *RESTATE* and *AMT* as dependent variables, respectively. We further replace *RESTATE* by *SER_O* and *MULTI_O* (Model A3 and A4) to proxy for different levels of restatement severity. Then we use *CAR* as another measure for the severity level of restatements (Model A5). The above empirical models are summarized as follows:

$$RESTATE = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A1)$$

$$AMT = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A2)$$

$$SER_O = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A3)$$

$$MULTI_O = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A4)$$

$$CAR = \varphi_0 + \varphi_1 RESTATE + \varphi_2 DA + \varphi_3 RESTATE \cdot DA_BS + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A5)$$

Where,

ROA is income from continuing operations divided by average total assets,

SER_O is equal to 2 if restatements are associated with overstating assets/revenues or understating liabilities/expenses, 1 if restatements are linked to other reasons, and 0 otherwise, and

MULTI_O is equal to 2 if restatements are caused by multiple reasons, 1 if caused by a single reason, and 0 otherwise.

We conduct the Probit Model and the Ordinary Least Squares (OLS) Model for Model A1 and A2, respectively and predict a positive φ_2 in Model A1 and A2. We conduct the Ordered Probit Model for Model A3 and A4 and anticipate that aggressive discretionary accruals are associated with serious or complex restatements, i.e. a positive φ_2 in Model A3 and A4. Finally, we predict a negative $\varphi_2 + \varphi_3$ in Model A5, which is an OLS Model.

[Insert Table 8]

Table 8 shows the regression results during a three year interval before the restatement announcement to one year before the announcement (-3, -1). Empirical results are all consistent with our predictions, supporting our sample that more aggressive accounting policies cause (material) restatement. The results also suggest a reversal of discretionary accrual behavior in the pre- and post-announcement period. Table 8 documents a positive relationship between *DA* and *AMT* in the pre-announcement period, whereas Table 4 reveals a negative relationship between *AMT* and *DA* in the post-announcement period. This result is consistent with the pattern shown in Figure 2.

5. Conclusion

The current study investigates firms' reporting strategy in restoring damaged reputation after restatement announcements. Restatements lead to adverse economic consequences and significant changes in monitoring, contracting and litigation costs. We thus argue that improving earnings quality by adopting a more conservative reporting policy should be firms' first priority to restore financial statement credibility after experiencing restatements. Since material and severe restatements are considered to

cause more adverse economic consequences, we further argue that firms experiencing a higher degree of restatement severity are inclined to adopt even more conservative accounting principles after restatements.

This work identifies 137 pairs of restatement and control firms from 1995 to 2004 for all listed and over-the-counter traded firms in Taiwan. Discretionary accruals are used as a proxy for the level of conservatism. The results show no difference in employing accounting conservatism after restatements for both sample and control firms. This may be due to lower costs and penalties imposed on restatement firms in Taiwan. However, in cases where the degree of restatement severity is higher, restatement firms adopt more conservative accounting principles following restatement announcements. This tendency is especially pronounced in the year of restatement announcement. The level of conservatism after restatement declines to no difference between sample and control firms as time moves on.

This research extends the analysis to include results from the pre-announcement period, and finds a reversal in discretionary accruals over the observation period. Continual and aggressive discretionary accruals exhibit in the pre-announcement period, but a constraint of earnings management evidences as the announcement year approaches. The apparent intersection of the two samples' discretionary accruals appears just before restatements, suggesting that restatement firms adopt more conservative accounting principles in the post-announcement period, particularly in the announcement year. This conclusion is especially true for firms with a higher degree of restatement severity.

Our conclusions and implications of the empirical results might not be able to generalize to other capital markets, because different market and legal regimes operate in Taiwan. We suggest that future studies focus on examining the operating and market performance after firms work to re-build their reputation. Prior research indicates that conservatism may mitigate agency problems, such as earnings management or over investment. Firms with restatement resulting from these agency problems might achieve better performance after adopting a more conservative reporting strategy.

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Table 1 Sample Selection Process and Sample Distribution

Panel A: Sample selection process

Number of first-time restatement announcements between 1995 and 2004	254
Less	
Initial public offering	2
Reflecting only GAAP-to-GAAP changes	18
Reflecting only entity changes	15
Reflecting only auditing opinion changes	10
Lack of information about restatement	1
Firms without auditor or financial statement data	28
Firms without an available matched control firm	43
Final Sample	137

Panel B: Distribution of restatement firms by years

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
N	12	8	3	19	25	18	14	19	9	10	137
%	8.76	5.84	2.19	13.87	18.24	13.14	10.22	13.87	6.57	7.30	100

Panel C: Distribution of restatement firms by industry

Industry code	Industry description	Sample		Market ^a		A / B
		N (A)	%	N (B)	%	
1200	Foods	10	7.30	26	1.84	38.46
1300	Plastics	1	0.73	29	2.05	3.45
1400	Textile and Fiber	12	8.76	62	4.39	19.35
1500	Electric and Machinery	3	2.19	77	5.45	3.90
1600	Electric Appliances	2	1.46	15	1.06	13.33
1700	Chemicals and Pharmaceuticals	5	3.65	91	6.44	5.49
2000	Steel	4	2.92	41	2.90	9.76
2300	Electronic Computer	69	50.36	877	62.11	7.87
2500	Construction	19	13.87	64	4.53	29.69
2600	Transportation	1	0.73	27	1.91	3.70
2700	Tourism	1	0.73	12	0.85	8.33
2900	Trading and Merchandising	2	1.46	22	1.56	9.09
9900	Others	8	5.84	69	4.89	11.59
Total		137	100	1,412	100	9.70

Note:

- a. The number of firms in each industry is the sum of firms listed in the TSE and the Gre-Tai Securities Market based on 2004.

Table 2 Characteristics of Restatements

Panel A: Number of restatement reasons

Number(s)	Number of firms	%	Sum	%
1	119	86.86	119	71.68
2	10	7.30	20	12.05
3	5	3.65	15	9.04
4	3	2.19	12	7.23
Total	137	100	166	100

Panel B: Types of restatement reasons

Type	Restatement reasons	Number of firms	%
1	Overstating assets or revenues	33	19.88
2	Understating liabilities or expenses	36	21.69
3	Other than item 1 or 2 (net income affected)	55	33.13
4	Reclassification (not net income affected)	24	14.46
5	Following the restatement reasons of the subsidiary's	10	6.02
6	Taxes	3	1.81
7	Other	5	3.01
Total		166	100

Panel C: Amount of net income restated ^a

	Mean	Std. Dev.	Min.	1 st Q	Median	3 rd Q	Max.
<i>AMT</i>	0.021	0.072	-0.047	0.000	0.001	0.011	0.553
<i>AMT</i> > 0	0.037	0.089	0.000	0.002	0.006	0.022	0.553
<i>AMT</i> < 0	-0.008	0.012	-0.047	-0.006	-0.003	-0.001	-0.000

Panel D: Other restatement characteristics ^b

	Mean	Std. Dev.	Min.	1 st Q	Median	3 rd Q	Max.
<i>CORE</i>	0.584	0.495	0	0	1	1	1
<i>NONCORE</i>	0.796	0.405	0	1	1	1	1
<i>BOOKS</i>	2.058	1.802	1	1	1	2	15

Note:

a. *AMT* is the difference between the net income originally reported and the net income after restatement over the restatement period, scaled by total assets in the year of restatement announcement. Positive (negative) *AMT* means overstating (understating) net income. In our sample, 83 firms overstated net income, 22 understated net income, and 32 had no effect in net income.

b. *CORE* equals 1 if restatements are associated with restating any component of core earnings, and 0 otherwise. *NONCORE* equals 1 if restatements are associated with restating any component of non-core earnings, and 0 otherwise. *BOOKS* is the number of financial statements restated.

Table 3 Descriptive Statistics ^{a, b}

Panel A: Distributional statistics

	Mean	Std. Dev.	Lower Quartile	Median	Upper Quartile	Test of difference in ^c	
						Mean	Median
<i>DA_BS</i>							
Restatement	-0.021	0.112	-0.063	-0.007	0.040	-2.580**	4.730**
Control	-0.005	0.079	-0.044	0.004	0.046	(0.010)	(0.030)
<i>DA_DD</i>							
Restatement	-0.023	0.115	-0.068	-0.010	0.038	-2.456**	3.710*
Control	-0.008	0.080	-0.049	0.003	0.042	(0.014)	(0.054)
<i>DA_M</i>							
Restatement	-0.017	0.100	-0.045	-0.008	0.036	-3.546***	6.313***
Control	0.001	0.065	-0.029	0.008	0.040	(0.000)	(0.000)
<i>LEV</i>							
Restatement	0.490	0.238	0.330	0.461	0.607	4.845***	4.730**
Control	0.429	0.158	0.324	0.425	0.520	(0.000)	(0.030)
<i>CFO</i>							
Restatement	0.051	0.122	-0.006	0.046	0.106	-1.093	0.869
Control	0.059	0.119	0.000	0.053	0.117	(0.275)	(0.351)
<i>BIGN</i>							
Restatement	0.687	0.464	0	1	1	-2.794***	NA
Control	0.764	0.425	1	1	1	(0.005)	NA
<i>SIZE</i>							
Restatement	15.114	1.275	14.206	15.071	15.914	-0.216	0.097
Control	15.132	1.305	14.241	15.028	15.782	(0.829)	(0.756)
<i>GROWTH</i>							
Restatement	0.142	0.582	-0.102	0.061	0.259	-0.410	0.035
Control	0.156	0.484	-0.068	0.071	0.266	(0.682)	(0.852)
<i>AGE</i>							
Restatement	2.986	0.549	2.639	3.045	3.401	0.988	0.190
Control	2.953	0.508	2.565	3.045	3.367	(0.324)	(0.663)

Panel B: Correlation matrix ^d

	<i>RESTATE</i>	<i>LEV</i>	<i>CFO</i>	<i>BIGN</i>	<i>SIZE</i>	<i>GROWTH</i>	<i>AGE</i>
<i>RESTATE</i>	1.000	0.105***	-0.047	-0.087***	-0.003	-0.043	0.037
<i>LEV</i>	0.149***	1.000	-0.392***	-0.140***	0.168***	-0.143***	0.147***
<i>CFO</i>	-0.034	-0.314***	1.000	0.152***	-0.090***	0.079**	-0.131***
<i>BIGN</i>	-0.087***	-0.135***	0.153***	1.000	0.136***	0.098***	-0.225***
<i>SIZE</i>	-0.007	0.096***	-0.011	0.151***	1.000	0.015	0.187***
<i>GROWTH</i>	-0.013	-0.083***	0.070**	0.040	0.037	1.000	-0.149***
<i>AGE</i>	0.031	0.160***	-0.108***	-0.223***	0.127***	-0.179***	1.000

Note:

*, ** and *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

a. The descriptive statistics are provided on the basis of paired observations in the year of and three years after the restatement announcement. A few restatement and control firms are delisted in the post-announcement period; the sample is therefore including

only 1,036 observations, which is slightly less than the complete set of observations ($137 \times 2 \times 4 = 1,096$).

b. Variables definition: *DA_DD* is discretionary accruals which are the residuals estimated from Dechow and Dichev (2002) model. *DA_M* is discretionary accruals which are the residuals estimated from McNichols (2002) model. *DA_BS* is discretionary accruals which are the residuals estimated from Ball and Shivakumar (2006) model. *LEV* is total liabilities divided by total assets. *CFO* is cash flow from operating activities divided by beginning total assets. *BIGN* is equal to 1 if audited by a Big-N firm, and 0 otherwise. *SIZE* is natural logarithm of total assets. *GROWTH* is the change in net sales divided by the previous year's net sales. *AGE* is the natural logarithm of number of years since founded. *RESTATE* is equal to 1 if a restatement firm, and 0 otherwise

c. *t* tests and Wilcoxon rank-sum tests are used to test the differences in means and medians, respectively. The last two columns report the *t* value and Chi-square statistics, respectively, followed by *p* value in the parentheses.

d. Correlations matrix is presented with Pearson (Spearman) correlations coefficients showing below (above) the diagonal.

Table 4 Regression results of relationship between restatement income effects and discretionary accruals in post announcement period ^a

$$DA = \alpha_0 + \alpha_1 RESTATE + \alpha_2 AMT + \alpha_3 CORE + \alpha_4 NONCORE + \alpha_5 LEV + \alpha_6 CFO + \alpha_7 BIGN + \alpha_8 SIZE + \alpha_9 GROWTH + \alpha_{10} AGE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (1)$$

Panel A: Discretionary accruals estimated by Ball and Shivakumar (2006) Model

(*DA BS*)

Variables	Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	—	-0.003 (-0.14)	0.008 (0.52)	0.004 (0.30)	0.004 (0.40)
<i>AMT</i>	—	-1.388*** (-5.96)	-0.809** (-2.51)	-0.572** (-2.09)	-0.460** (-2.01)
<i>CORE</i>	—	0.002 (0.09)	-0.007 (-0.55)	-0.006 (-0.61)	-0.007 (-0.76)
<i>NONCORE</i>	—	0.009 (0.42)	0.003 (0.19)	0.002 (0.22)	0.003 (0.27)
<i>LEV</i>	?	-0.121*** (-2.68)	-0.187*** (-5.40)	-0.189*** (-7.68)	-0.186*** (-9.93)
<i>CFO</i>	—	-0.015 (-0.23)	-0.074* (-1.80)	-0.090*** (-2.72)	-0.080*** (-2.82)
<i>BIGN</i>	—	-0.011 (-0.88)	-0.001 (-0.15)	-0.005 (-0.59)	-0.010 (-1.46)
<i>SIZE</i>	?	-0.012*** (-2.77)	-0.013*** (-4.37)	-0.010*** (-4.24)	-0.009*** (-4.15)
<i>GROWTH</i>	+	0.038*** (3.57)	0.031*** (2.99)	0.039*** (3.89)	0.042*** (4.55)
<i>AGE</i>	?	-0.001 (-0.11)	-0.003 (-0.29)	0.005 (0.73)	0.010 (1.62)
<i>Intercept</i>	?	0.287*** (3.50)	0.280*** (4.90)	0.246*** (5.24)	0.241*** (5.43)
N		274	540	792	1,036
Adj. <i>R</i> ²		0.528	0.357	0.325	0.307

Table 4 Regression results of relationship between restatement income effects and discretionary accruals in post announcement period ^a (cont.)

Panel B: Discretionary accruals estimated by Dechow and Dichev (2002) Model
(*DA DD*)

Variables	Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	—	0.005 (0.19)	0.009 (0.55)	0.006 (0.52)	0.006 (0.52)
<i>AMT</i>	—	-1.389*** (-5.67)	-0.820** (-2.57)	-0.582** (-2.14)	-0.465** (-2.04)
<i>CORE</i>	—	0.001 (0.06)	-0.004 (-0.31)	-0.005 (-0.49)	-0.004 (-0.46)
<i>NONCORE</i>	—	0.002 (0.10)	0.000 (0.03)	0.000 (0.02)	0.000 (0.00)
<i>Intercept</i>	?	0.300*** (3.77)	0.297*** (5.19)	0.277*** (5.86)	0.258*** (5.80)
N		274	540	792	1,036
Adj. R^2		0.534	0.367	0.335	0.318

Panel C: Discretionary accruals estimated by McNichols (2002) Model (*DA M*)

Variables	Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	—	-0.001 (-0.05)	0.009 (0.68)	0.005 (0.50)	0.001 (0.10)
<i>AMT</i>	—	-1.405*** (-5.98)	-0.790** (-2.35)	-0.559** (-1.98)	-0.425* (-1.79)
<i>CORE</i>	—	0.004 (0.21)	-0.002 (-0.18)	-0.005 (-0.52)	-0.004 (-0.46)
<i>NONCORE</i>	—	0.004 (0.20)	-0.004 (-0.35)	-0.003 (-0.30)	-0.002 (-0.26)
<i>Intercept</i>	?	0.172** (2.33)	0.195*** (3.84)	0.191*** (4.70)	0.172*** (4.36)
N		274	540	792	1,036
Adj. R^2		0.534	0.320	0.268	0.246

Note:

*, **, *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests. *t* statistics are presented in the parentheses.

a. *YEAR* and *INDUSTRY* are a set of dummy variables which represent various years and industries, respectively. All other variables are as defined in Tables 2 and 3. Control variables in Panel B and C are omitted. Statistics for *YEAR* and *INDUSTRY* are also omitted for simplicity.

Table 5 Regression results of relationship between restatement characteristics and discretionary accruals in post announcement period ^a

$$DA = \beta_0 + \beta_1 RESTATE + \beta_2 SERIOUS + \beta_3 MULTI + \beta_4 BOOKS_D + \beta_5 LEV + \beta_6 CFO + \beta_7 BIGN + \beta_8 SIZE + \beta_9 GROWTH + \beta_{10} AGE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (2)$$

Panel A: Discretionary accruals estimated by Ball and Shivakumar (2006) Model

Variables	Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	—	-0.008 (-0.47)	0.002 (0.18)	-0.001 (-0.07)	0.001 (0.11)
<i>SERIOUS</i>	—	-0.043** (-2.24)	-0.014 (-1.15)	-0.012 (-1.21)	-0.011 (-1.24)
<i>MULTI</i>	—	-0.063 (-1.03)	-0.047 (-1.33)	-0.030 (-1.15)	-0.033 (-1.54)
<i>BOOKS_D</i>	—	0.027 (1.04)	0.006 (0.40)	0.003 (0.31)	0.005 (0.54)
<i>LEV</i>	?	-0.186*** (-3.59)	-0.217*** (-6.56)	-0.207*** (-8.79)	-0.198*** (-10.86)
<i>CFO</i>	—	-0.023 (-0.36)	-0.079* (-1.93)	-0.093*** (-2.80)	-0.081*** (-2.77)
<i>BIGN</i>	—	0.004 (0.22)	0.003 (0.30)	-0.001 (-0.15)	-0.008 (-1.10)
<i>SIZE</i>	?	-0.017*** (-3.09)	-0.014*** (-4.33)	-0.011*** (-4.28)	-0.009*** (-4.24)
<i>GROWTH</i>	+	0.053*** (3.92)	0.038*** (3.16)	0.043*** (3.94)	0.044*** (4.60)
<i>AGE</i>	?	0.027 (1.48)	0.011 (0.99)	0.015 (1.64)	0.018** (2.35)
<i>Intercept</i>	?	0.260*** (3.18)	0.267*** (4.77)	0.238*** (5.08)	0.208*** (5.11)
N		274	540	792	1,036
Adj. R ²		0.280	0.256	0.267	0.272

Table 5 Regression results of relationship between restatement characteristics and discretionary accruals in post announcement period ^a (cont.)

Panel B: Discretionary accruals estimated by Dechow and Dichev (2002) Model

Variables \ Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	— -0.006 (-0.36)	0.003 (0.26)	0.002 (0.22)	0.003 (0.41)
<i>SERIOUS</i>	— -0.041** (-2.08)	-0.014 (-1.08)	-0.012 (-1.14)	-0.010 (-1.16)
<i>MULTI</i>	— -0.070 (-1.15)	-0.053 (-1.50)	-0.036 (-1.37)	-0.037* (-1.71)
<i>BOOKS_D</i>	— 0.028 (1.07)	0.006 (0.42)	0.003 (0.28)	0.003 (0.29)
<i>Intercept</i>	? 0.278*** (3.47)	0.287*** (5.14)	0.270*** (5.73)	0.226*** (5.58)
N	274	540	792	1,036
Adj. R^2	0.294	0.269	0.279	0.284

Panel C: Discretionary accruals estimated by McNichols (2002) Model

Variables \ Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	— -0.014 (-0.89)	-0.001 (-0.13)	-0.004 (-0.54)	-0.005 (-0.87)
<i>SERIOUS</i>	— -0.036* (-1.86)	-0.011 (-0.88)	-0.005 (-0.55)	-0.002 (-0.20)
<i>MULTI</i>	— -0.057 (-0.96)	-0.045 (-1.29)	-0.033 (-1.31)	-0.035* (-1.65)
<i>BOOKS_D</i>	— 0.030 (1.18)	0.006 (0.40)	0.003 (0.26)	0.001 (0.11)
<i>Intercept</i>	? 0.151** (2.01)	0.189*** (3.80)	0.188*** (4.62)	0.146*** (4.17)
N	274	540	792	1,036
Adj. R^2	0.227	0.196	0.195	0.205

Note:

*, **, *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests. *t* statistics are presented in the parentheses.

a. *SERIOUS* is a dummy variable which equals to 1 if restatements are associated with overstating assets/revenues or understating liabilities/expenses, and 0 otherwise. *MULTI* is a dummy variable which is equal to 1 if restatements are caused by multiple reasons, and 0 otherwise. *BOOKS_D* is a dummy variable which is equal to 1 if *BOOKS* is more than 1, and 0 otherwise. All other variables are as defined in Tables 3 and 4. Control variables in Panel B and C are omitted. Statistics for *YEAR* and *INDUSTRY* are also omitted for simplicity.

Table 6 Regression results of relationship between market reaction for restatement and discretionary accruals in post announcement period ^a

$$DA = \gamma_0 + \gamma_1 RESTATE + \gamma_2 CAR + \gamma_3 RESTATE * CAR + \gamma_4 LEV + \gamma_5 CFO + \gamma_6 BIGN + \gamma_7 SIZE + \gamma_8 GROWTH + \gamma_9 AGE + \delta * YEAR + \lambda * INDUSTRY + \varepsilon \quad (3)$$

Variables	Interval Exp. Sign	(0)	(0,1)	(0,2)	(0,3)
<i>RESTATE</i>	—	-0.024 (-1.06)	-0.016 (-1.34)	-0.016* (-1.84)	-0.014* (-1.85)
<i>CAR</i>	+	-0.000 (-0.16)	0.001 (0.74)	0.001 (1.10)	0.002** (2.18)
<i>RESTATE*CAR</i>	+	0.009* (1.88)	0.004 (1.40)	0.003 (1.41)	0.002 (0.93)
<i>LEV</i>	?	-0.102 (-0.95)	-0.164*** (-2.99)	-0.167*** (-4.61)	-0.154*** (-6.15)
<i>CFO</i>	—	0.061 (0.33)	-0.046 (-0.50)	-0.066 (-0.90)	-0.037 (-0.68)
<i>BIGN</i>	—	0.029 (0.74)	0.031 (1.34)	0.020 (1.14)	0.016 (1.10)
<i>SIZE</i>	?	-0.001 (-0.05)	-0.003 (-0.43)	-0.004 (-0.93)	-0.003 (-0.61)
<i>GROWTH</i>	+	0.051** (1.99)	0.033** (2.16)	0.035** (2.59)	0.035*** (2.92)
<i>AGE</i>	?	0.070* (1.68)	0.041 (1.59)	0.046** (2.42)	0.049*** (3.15)
<i>Intercept</i>	?	-0.261 (-0.98)	-0.034 (-0.25)	0.031 (0.31)	-0.014 (-0.16)
$\gamma_2 + \gamma_3^b$	+	0.009* (3.51)	0.005* (3.49)	0.004** (4.56)	0.004** (6.29)
N		122	240	350	456
Adj. R^2		0.373	0.300	0.335	0.352

Note:

*, **, *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests. *t* statistics and *F* statistics are presented in the parentheses.

a. The dependent variable is discretionary accruals estimated by Ball and Shivakumar (2006) model (*DA_BS*). *CAR*(in %) is the cumulated abnormal return over announcement days (-1, 1). All other variables are as defined in Tables 3 and 4. Statistics for *YEAR* and *INDUSTRY* are omitted for simplicity.

b. $\gamma_2 + \gamma_3 = 0$ tests the relationship between market reactions of restatements and discretionary accruals.

Table 7 Regression results after controlling management turnover ^a

$$DA = \alpha_0 + \alpha_1 RESTATE + \alpha_2 AMT + \alpha_3 CORE + \alpha_4 NONCORE + \alpha_5 LEV + \alpha_6 CFO + \alpha_7 BIGN + \alpha_8 SIZE + \alpha_9 GROWTH + \alpha_{10} AGE + \alpha_{11} TURNOVER + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (1a)$$

$$DA = \beta_0 + \beta_1 RESTATE + \beta_2 SERIOUS + \beta_3 MULTI + \beta_4 BOOKS_D + \beta_5 LEV + \beta_6 CFO + \beta_7 BIGN + \beta_8 SIZE + \beta_9 GROWTH + \beta_{10} AGE + \beta_{11} TURNOVER + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (2a)$$

$$DA = \gamma_0 + \gamma_1 RESTATE + \gamma_2 CAR + \gamma_3 RESTATE \cdot CAR + \gamma_4 LEV + \gamma_5 CFO + \gamma_6 BIGN + \gamma_7 SIZE + \gamma_8 GROWTH + \gamma_9 AGE + \beta_{11} TURNOVER + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (3a)$$

Variables	Model Exp. Sign	(1a)	(2a)	(3a)
<i>RESTATE</i>	—	-0.005 (-0.22)	-0.004 (-0.20)	-0.018 (-0.78)
<i>AMT</i>	—	-1.348*** (-5.87)		
<i>CORE</i>	—	0.007 (0.34)		
<i>NONCORE</i>	—	0.012 (0.56)		
<i>SERIOUS</i>	—		-0.051** (-2.50)	
<i>MULTI</i>	—		-0.076 (-1.24)	
<i>BOOKS_D</i>	—		0.040 (1.51)	
<i>CAR</i>	+			-0.000 (-0.03)
<i>RESTATE*CAR</i>	+			0.009* (1.90)
<i>TURNOVER</i>	—	-0.023 (-1.30)	-0.045* (-1.94)	-0.043 (-1.05)
<i>Intercept</i>	?	0.239** (2.55)	0.258*** (2.78)	-0.209 (-0.71)
$\gamma_2 + \gamma_3^b$	+			0.008** (4.04)
N		244	244	110
Adj. R^2		0.553	0.336	0.406

Note:

*, **, *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests. *t* statistics and F statistics are presented in the parentheses.

a. The dependent variable is discretionary accruals estimated by Ball and Shivakumar (2006) model (*DA_BS*). *TURNOVER* is a dummy variable which is equal to 1 if firms undergo management turnover during the announcement year, and 0 otherwise. All other variables are as defined in Tables 3, 4, and 5. Statistics for control variables, *YEAR* and *INDUSTRY* are omitted for simplicity.

b. $\gamma_2 + \gamma_3 = 0$ tests the relationship between market reactions of restatements and discretionary accruals.

Table 8 Regression results of relationship between discretionary accruals and restatement in prior announcement period ^a

$$RESTATE = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A1)$$

$$AMT = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A2)$$

$$SER_O = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A3)$$

$$MULTI_O = \varphi_0 + \varphi_2 DA + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A4)$$

$$CAR = \varphi_0 + \varphi_1 RESTATE + \varphi_2 DA + \varphi_3 RESTATE \cdot DA_BS + \varphi_4 ROA + \varphi_5 LEV + \varphi_6 BIGN + \varphi_7 SIZE + \delta \cdot YEAR + \lambda \cdot INDUSTRY + \varepsilon \quad (A5)$$

	(A1)	(A2)	(A3)	(A4)	(A5)
<i>RESTATE</i>					-0.269 (-0.41)
<i>DA_BS</i>	2.262** (2.56)	0.087** (2.52)	3.255*** (4.03)	3.093*** (3.49)	-13.64 7 (-1.38)
<i>RESTATE*DA_BS</i>					-19.85** 0 (-2.21)
<i>ROA</i>	-1.654** (-2.10)	-0.080*** (-3.16)	-2.350*** (-3.37)	-1.925*** (-2.61)	25.459*** (3.72)
<i>LEV</i>	1.249*** (4.09)	-0.001 (-0.14)	0.775*** (3.17)	1.118*** (4.40)	-0.671 (-0.26)
<i>BIGN</i>	-0.242** (-2.17)	-0.003 (-0.85)	-0.249** (-2.49)	-0.214** (-2.11)	-1.576** (-2.06)
<i>SIZE</i>	0.036 (0.88)	0.004** (2.57)	0.077** (1.98)	0.062* (1.81)	-0.157 (-0.54)
<i>Intercept</i>	-1.046 (-1.43)	-0.047* (-1.92)	1.469	1.163	-0.185 (-0.04)
<i>Intercept</i>			2.331	2.702	
$\varphi_2 + \varphi_3$ ^b					-33.49*** 7 (21.16)
N	752	752	752	752	
Adj. R^2		0.063			
Pseudo R^2	0.033		0.030	0.036	

Note:

*, **, *** indicate significant at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests. The values below the coefficients (in parentheses) are *t* statistics in OLS models, *z* statistics in Probit and Ordered Probit models.

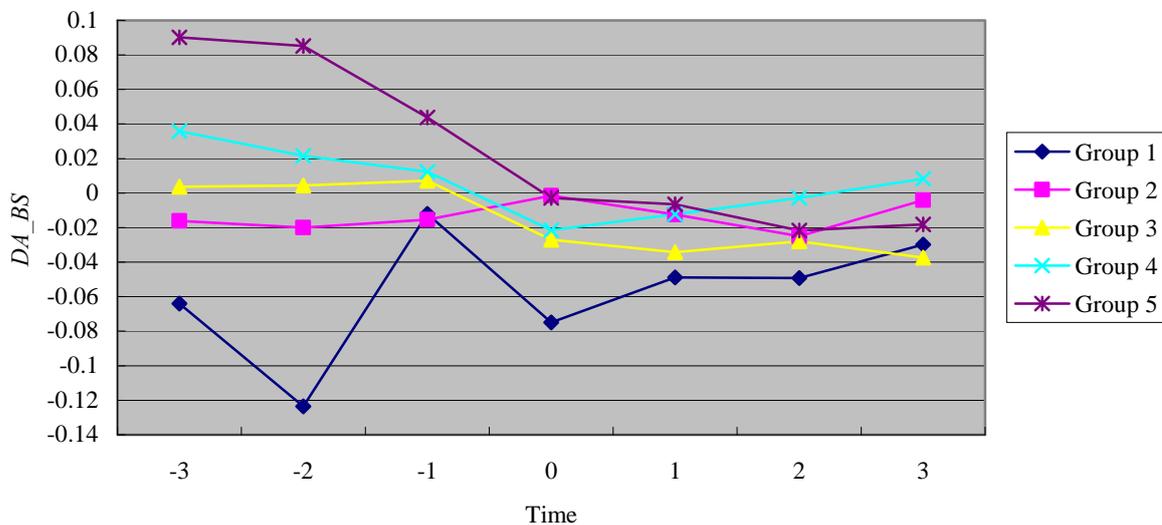
a. The interval of the regression model is (-3, -1). *ROA* is income from continuing operations divided by average total assets. *SER_O* is equal to 2 if restatements are associated with overstating assets/revenues or understating liabilities/expenses, 1 if

restatements are linked to other reasons, and 0 otherwise. *MULTI_O* is equal to 2 if restatements are caused by multiple reasons, 1 if caused by single reason, and 0 otherwise. All other variables are as defined in Tables 3, 4, 5, and 6. Statistics for control variables, *YEAR* and *INDUSTRY* are omitted for simplicity.

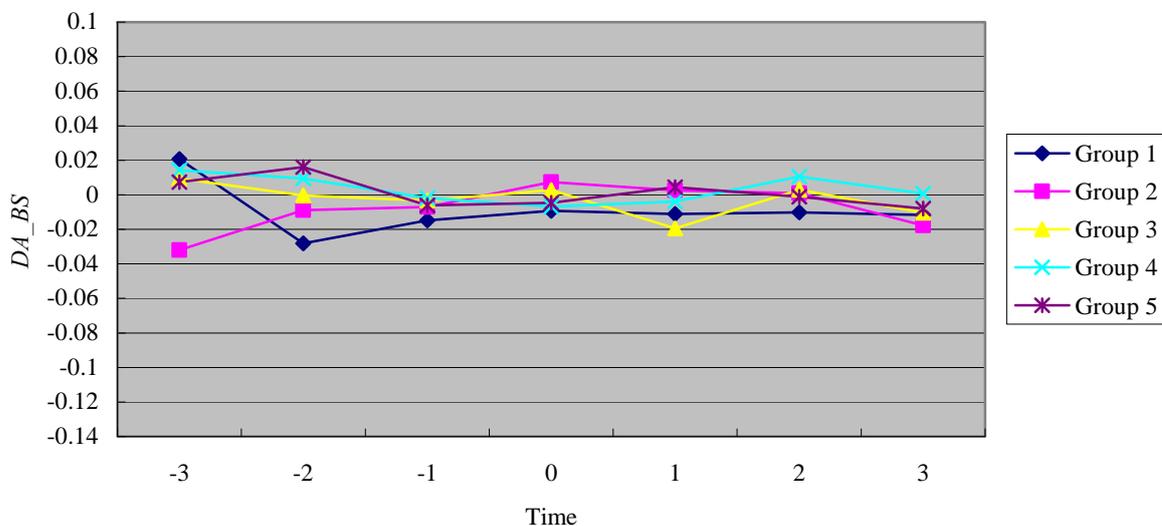
b. $\varphi_2 + \varphi_3 = 0$ tests the relationship between market reaction of restatements and discretionary accruals.

Figure 1 Trend of discretionary accruals: grouped by the discretionary accruals level of the restatement firms prior to restatements^a

Panel A: Restatement firms



Panel B: Control firms

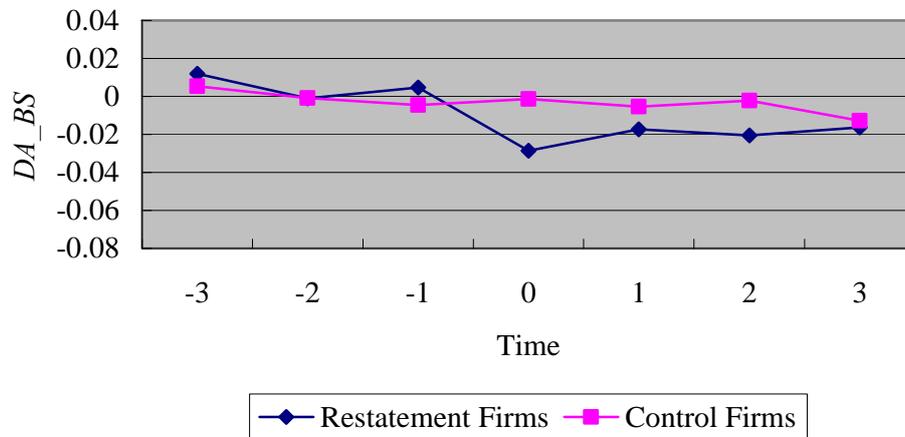


Note:

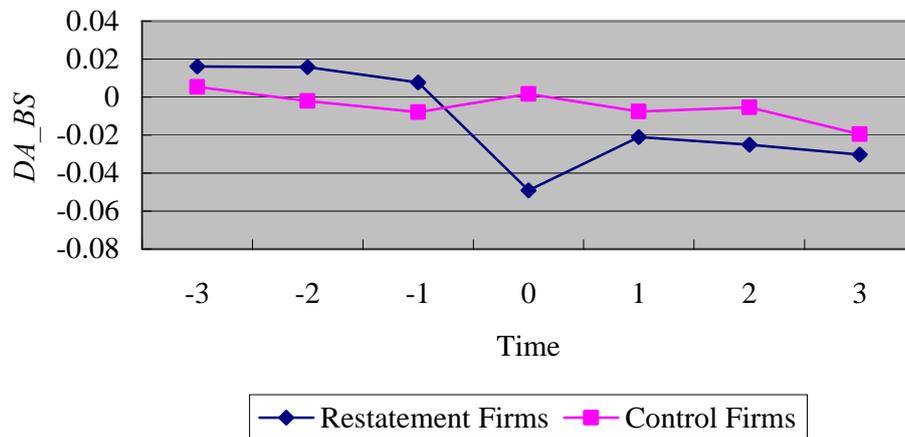
a. Discretionary accruals are estimated from Ball and Shivakumar (2006) model (DA_{BS}). We separate our restatement sample into 5 groups based on the aggregate discretionary accruals in the third and second years prior to restatement announcement. Group 5 (1) has the biggest (lowest) aggregated discretionary accruals.

Figure 2 Trend of discretionary accruals for firms with severe restatements ^a

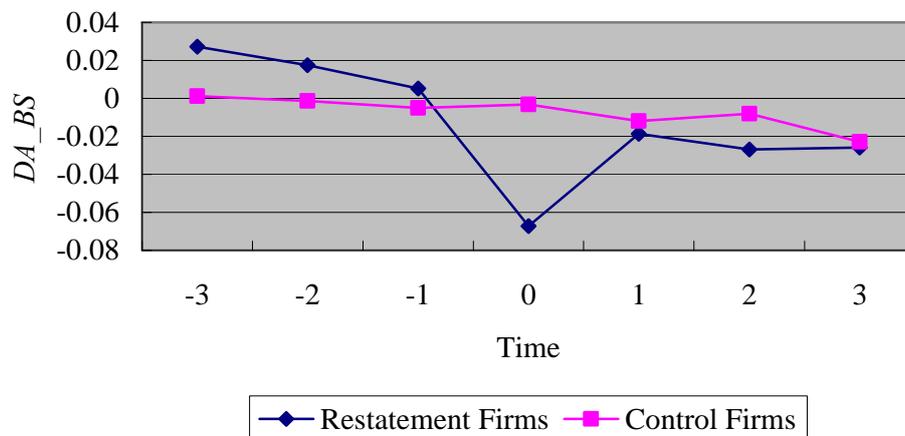
Panel A: Full sample



Panel B: The subsample of firms that overstate net income



Panel C: The subsample of firms that overstate assets/revenues or understate liabilities/expenses



Note:

a. Discretionary accruals are estimated from Ball and Shivakumar (2006) model

(DA_{BS}).