

Reoccurrence of Financial Restatements: The Effect of Auditor Change, Management Turnover and Improvement of Internal Control

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This study attempts to provide empirical evidence on the associations between the reoccurrence of financial restatements and auditor turnover/choice, management replacement, and improvement of internal controls. Our findings show a negative relationship between the probability of reoccurrence of firms' financial restatements and (1) change to a Big 4 auditor, (2) replacement of CEO/CFO, and (3) improvement on internal controls. Moreover, we find that better stock market performance of non-reoccurrence firms is associated with a decrease in the probability of future restatements, which are affected by the change to a Big 4 auditor, replacement of CEO/CFO and improvement on internal controls.

INTRODUCTION

Financial restatements have grown rapidly in recent years. Restatements are serious corporate reporting failures which cause investors' concerns about the credibility of restated firms' financial reporting environment. As restatements generally report bad news such as profits turning to losses, overstatements of revenues or other accounting irregularities, the consequences of restatements are often severe (Palmrose et al., 2004). Possible effects include negative market reactions, reduced reputational credibility, and concerns for internal control weakness (Kinney and McDaniel, 1989; Dechow et al., 1996; Anderson and Yohn, 2002; Palmrose et al., 2004). Moreover, restatements may lead to investors' concerns about the reporting environment of the firm such as auditor and management incompetency, management overrides of control systems, and the likelihood of uncorrected errors remaining in the financial statements. As a result, restatements are usually followed by auditor turnovers, manager turnovers and disclosures of internal control problems.

Considerable research has examined the likelihood of change of auditor, manager turnover and reporting internal control weakness following earnings restatements or fraud (Wallace, 2005; Thompson and McCoy, 2008; Arthaud-Day et al., 2006; Desai et al., 2006; Bizarro et al., 2011). This study extends prior studies to investigate whether the change of auditor, manager turnover, and improvement of internal controls are associated with a decrease in the probability of reoccurrence of financial restatements. We also examine whether a decrease in the probability of reoccurrence of financial restatement is associated with an increase in firms' market performance.

Our sample consists of 460 earnings restatements reported in the years of 2003 and 2004, including 282 firms with no reoccurrence of financial restatement in the subsequent three years and 178 firms with at least one financial restatement in the subsequent three-year period. We find a negative relationship between the probability of reoccurrence of firms' financial restatements and (1) the change to a Big 4 auditor, (2) replacement of CEO/CFO, and (3) improvement on internal controls. Moreover, we find that non-reoccurrence firms have better market performance than reoccurrence firms over a three-year period after the initial restatement. Furthermore, better post-restatement market performance is found to be associated with a decrease in the probability of reoccurrence of financial restatement, which is affected by the change to a Big 4 auditor, replacement of CEO/CFO and improvement on internal controls.

LITERATURE AND HYPOTHESES DEVELOPMENT

Restatements have caused significant reaction from the stock market, auditor turnover, manager turnover, and concerns for internal controls material weaknesses (ICMW). Turnover indicates poor management, management incompetency, or intentionally attempting to defraud investors (Bischoff et al., 2008). Turnover also reveals auditors' incompetency in detecting all material accounting misstatements due to increased difficulty that auditors face involving collusion or management overrides of control systems (Hennes, 2012). Moreover, turnover mirrors investors' perception of the credibility of financial statements to undermine their confidence and decisions (Dechow et al., 1996).

Hennes et al. (2012) provide direct evidence on the determinants of auditor turnover surrounding a restatement. They find that auditor dismissal is more likely for restatement firms with non-Big 4 auditors than for firms with Big 4 auditors. They also find that restatements classified as irregularities result in a higher likelihood of auditor dismissal than restatements classified as errors.

Anderson et al. (2004) address that reputable auditors can be employed to provide assurance on outside investors of the credibility of financial disclosures. Auditor-monitoring can improve the quality of accounting earnings by minimizing the difference between a client's reported economic circumstances and the unobservable underlying economic situation of the client (Wallace, 1980). In other words, audit quality generally is viewed as a function of the auditor's ability to detect material misstatements and require correction of material misstatements (DeAngelo, 1981; Turner and Sennetti, 2001), as well as to reduce information asymmetry between managers and stakeholders by providing reasonable assurance that the financial statements are free of material misstatements (Becker et al., 1998). Thus auditors play a critical role of corporate governance in monitoring a firm's financial reporting process (Ashbaugh and Warfield, 2003).

Audit firm size is usually assumed as a surrogate for audit quality (Turner and Sennetti 2001). Namely, big audit firms represent high audit quality and non-big audit firms represent low audit quality. Prior research has documented that Big 4 auditors provide higher-quality audits than Non-Big 4 audit auditors (DeAngelo, 1981; Teoh and Wong, 1993), and high-quality audits receive high-fee premiums for their services (Francis and Wilson, 1988; Simunic and Stein, 1987; DeFond, 1992). Big auditors are found to provide superior audit quality and therefore enjoy better reputations than small auditors (Balvers et al., 1988; Beatty, 1989; Clarkson and Simunic, 1994; Datar et al., 1991; Teoh and Wong, 1993). Francis and Yu (2009) show that Big 4 auditors are better at detecting material problems in financial statements. In essence, larger audit offices have more accounting professionals as well as personnel with more exposure to publicly traded clients. In addition, larger audit firms highlight their industry specialization and leadership in more sectors than do smaller offices.

The evidence summarized above has demonstrated a positive association between auditor turnover and financial restatement, as well as a positive association between audit size and audit quality. With an important inclination in firms' choice of Big 4 auditors after financial restatements, auditor turnover becomes visible to help avoid future financial restatements. Thus, a tendency to avoid the reoccurrence of financial restatements following change of auditor to Big 4 auditor is anticipated.

H1: Change to a Big 4 auditor is associated with a decrease in the probability of reoccurrence of financial restatement.

Financial restatements have also been demonstrated to lead to potential consequences on manager turnover. An accounting restatement could be the first indication that accounting fraud has occurred. As a result, restatements are usually followed by change in chief executive officer (CEO) or other top managers (Land, 2010). Empirical studies have documented the relation between management turnover (CEO/CFO) and financial restatement (Hennes et al., 2008; Desai et al., 2006; Agrawal et al., 1999). In general, the dismissal of management in response to restatement is the result of failing to adhere to GAAP (Desai et al., 2006).

Land (2010) examine whether certain restatement characteristics are more likely to have chief executive officer (CEO) turnover within a year of the restatement announcement. The results of an analysis of 230 US firms that restate earnings during 1996-1999 indicate that firms with more severe restatements (as measured by magnitude and duration), and with larger negative market reactions, are more likely to have a change in CEO. These findings suggest that financial accounting problems can influence management turnover decisions.

Hennes et al. (2008) re-examine the relationship between restatements and CEO/CFO turnover. They use a sample of restatements from 2002 to 2006 and consider a thirteen-month around the restatement announcement as a turnover window. Their result shows that the percentage of restating firms experiencing turnover in the 13-month surrounding the restatements (six months before to six months after) is 49 % (64 %) for CEOs (CFOs) for the irregularities sample, but only 8 percent (12 %) for the errors sample.

Desai et al. (2006) examine management turnover (CEO, chairman and president) and subsequent re-hiring of displaced managers at firms that restated their earnings (GAAP violations) within 24 months surrounding the restatement announcements during 1997 and 1998. They find that 60% of the firms experience a turnover in chairman, CEO or president, compared to only 35% of the matched firms. Moreover, only 15% of displaced managers of the sample firms secure a comparable position at another public firm, compared to 27% of displaced managers at the control firms. Those findings contribute to the belief that penalties are imposed on the top managers in firms with financial restatement.

Agrawal and Cooper (2007) indicate that firms have motivation to take actions in an attempt to improve their weak governance to restore investor trust as result of the force of the market's perception of the severity of the restatement. Firms also have incentive to make governance structure changes (including turnover of and improvements in the characteristics of boards of directors, audit committees, and top management) as new management or directors may bring help to remediate the negative event (Agrawal and Cooper, 2007). In other words, new management or directors will be capable of carrying high value reputational capital and experience in remediating the negative event. Similarly, Farber (2005) and Wilson (2008) suggest that governance and personnel changes hasten the restoration of financial reporting credibility after allegation of fraud or restatements.

Based upon the existing literature, manger turnover after restatement indicates a significant enhancement in the governance mechanism, and appears to help avoid future restatement. Accordingly, a propensity to avoid reoccurrence of financial restatements following manger turnover is expected.

H2: CEO/CFO change is associated with a decrease in the probability of reoccurrence of financial restatement.

Financial restatements also present reporting failures and have been demonstrated to lead to potential consequences concerning internal controls material weaknesses (ICMW). Internal controls material weaknesses over financial reporting in turn could result in material misstatements in the financial statements not being prevented or detected (PCAOB 2007). Consequently, Sarbanes-Oxley (SOX) Act requires that a material control weakness be reported if there is a remote probability that a material error could result as a consequence of the control weakness (PCAOB 2007).

Empirical evidence indicates that ICMW has an increased likelihood of financial restatement (Bizarro et al., 2011) and results in negative market reaction (Hammersley et al., 2008). Bizarro et al. (2011) examine the association between the probability of a company restating its earnings and internal control material weakness based on a sample of 518 restating companies and 518 matching companies selected from the period of January 1, 2004 through December 31, 2005. They find that companies reporting material weaknesses in internal control are associated with a greater likelihood of restating their financial statements. We thus argue that improved internal control system is associated with less likelihood of future financial restatement.

H3: Improved internal control is associated with a decrease in the probability of reoccurrence of financial restatement.

Hennes et al. (2012) investigate auditor changes around restatement announcements and the market reactions to auditor dismissals. They posit that auditors may be incapable of detecting all material accounting misstatements regardless of the cause. Consistent with their prediction, they report positive market reaction to the dismissal of the incumbent auditor and argue that the positive market reaction is driven by firms which eventually appoint a Big 4 auditor as the successor. They contribute this notably positive market reaction to the benefits gained by firms from re-establishing reporting credibility. The evidence suggests that change to a Big 4 auditor is associated with an increase in firms' market performance.

The notion that management turnover (CEO/CFO) implies an attempt to improve firms' governance mechanisms suggests an increases in firms' financial performance. This is supported by study that finds governance structures to be positively associated with various measure of future accounting performance (Gompers et al., 2003). Following this logic, we argue that manager turnover improves firms' market performance. Similarly, improved internal controls which strengthen firms' governance mechanisms thus improve firms' market performance.

In summary, this study intends to further test a negative association between restating firms' future financial performance and the probability of future restatement; an association can be explained by auditor change, management turnover and improved internal control systems.

H4: Decrease in the probability of reoccurrence of financial restatement is associated with an increase in market returns.

SAMPLE AND REGRESSION MODELS

The restatement sample is retrieved from Audit Analytics database. The initial sample consists of 563 restatements including 349 firms with no reoccurrence of restatement and 214 firms with at least one reoccurrence of restatement in the subsequent three years following the initial restatements in 2003 and 2004. The data for Big 4/Non-Big 4 auditors, management replacement (CEO/CFO), and ICMW are also retrieved from Audit Analytics database. We further delete firms which have restatements in both years of 2003 and 2004 (15 observations). Restatements which we are unable to obtain the required data from COMPUSTAT (71 observations) and CRSP (17 observations) are also deleted. Our final sample therefore is comprised of 460 financial restatements of which 282 have no reoccurrence of restatement while the other 178 have at least one reoccurrence of restatement in the subsequent three-year window following the initial announcements of restatements.

Logit regression model is used to test the associations between the probability of future financial restatement and (1) change of auditor to a Big 4 auditor, (2) CEO/CFO turnover, and (3) improved internal controls. The three models are given as followings:

$$\text{REOCCU} = \beta_0 + \beta_1 \Delta\text{AUDIT} + \beta_2 \text{ICMW} + \beta_3 \text{LEVERAGE} + \beta_4 \text{GROWTH} + \beta_5 \text{InSIZE} + \beta_6 \text{ROA} + \varepsilon \quad (1)$$

$$\text{REOCCU} = \beta_0 + \beta_1 \Delta\text{CEO/CFO} + \beta_2 \text{AUDIT} + \beta_3 \text{ICMW} + \beta_4 \text{LEVERAGE} + \beta_5 \text{GROWTH} + \beta_6 \text{InSIZE} + \beta_7 \text{ROA} + \varepsilon. \quad (2)$$

$$\text{REOCCU} = \beta_0 + \beta_1 \Delta\text{ICMW} + \beta_2 \text{AUDIT} + \beta_3 \text{LEVERAGE} + \beta_4 \text{GROWTH} + \beta_5 \text{InSIZE} + \beta_6 \text{ROA} + \varepsilon. \quad (3)$$

where

REOCCU	= 1 if the firm has at least one reoccurrence of financial restatement in the subsequent three-year window period following the initial restatement announcement, and 0 otherwise;
ΔAUDIT	=1 if the firm appoints a Big 4 auditor as the successor within a year after the initial restatement, and 0 otherwise;
$\Delta\text{CEO/CFO}$	= 1 if the firm changes CEO/CFO within a year after the initial restatement, and 0 otherwise;
ΔICMW	= 1 if the firm reports ICMW in the year of initial restatement but shows improvement by reporting no ICMW in the subsequent year, and 0 otherwise;
AUDIT	= 1 if the firm is a client of a Big 4 auditing firm at the time of the restatement, and 0 otherwise;
ICMW	= 1 if the firm discloses a material internal control weakness at the time of the restatement, and 0 otherwise;
LEVERAGE	= total debt (short term debt plus long-term debt) deflated by total assets;
GROWTH	= current year's earnings from continuing operations minus prior year's earnings from continuing operations scaled by total assets;
InSIZE	= the natural logarithm of the book value of total assets;
ROA	= net income divided by the book value of total assets;
ε	= residual term.

Next, we test the associations between firms' financial performance and the probability of reoccurrence of financial restatement, with a focus on the impact of managerial changes after an initial financial restatement. We use a two-stage regression to test our hypothesis. In particular, in the first stage of regression, we estimate the probability of reoccurrence of restatement by employing an ordered logistic model. Then, in the second stage of regression, we regress the firm performance (market returns) on the predicted probability of future restatement and control variables. The two-stage regressions employed in this study are as follows:

STAGE ONE:

$$\text{Prob}(\text{REOCCU}) = \beta_0 + \sum \beta_1 * \text{Changes} + \sum \beta_2 * \text{Control Variables} + \varepsilon$$

where

REOCCU	= 1 if the firm has at least one reoccurrence of financial restatement in the subsequent three-year window period following the initial restatement announcement, and 0 otherwise;
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Changes:

ΔAUDIT	=1 if the firm appoints a Big 4 auditor as the successor within a year after the initial restatement, and 0 otherwise;
$\Delta\text{CEO/CFO}$	= 1 if the firm changes CEO/CFO within a year after the initial restatement, and 0 otherwise;
ΔICMW	= 1 if the firm reports ICMW in the year of initial restatement but shows improvement by reporting no ICMW in the subsequent year, and 0 otherwise.

STAGE TWO:

$$\Delta\text{CAR} = \beta_0 + \beta_1 * \text{Prob}(\text{REOCCU}) + \sum \beta_2 * \text{Control Variables} + \eta$$

where
 ΔCAR

= the improvement in firm's market performance by comparing the first year, second year and third year ex-post CAR with the one year ex-ante CAR.

Prob(REOCCU)

= the predicted probability of future restatement estimated from the first-stage regression model.

RESULTS

Table 1 provides the industry distribution of the sample firms using two-digit standard industrial codes (SIC). For Non-Reoccurrence sample in Panel A, Business Services accounts for the largest portion of the sample with 14 % (39 out of 282). It is followed by Chemicals & Allied Prods Manufacturing with 10 % (27 out of 282) and Electronic & Other Electrical Equipment Manufacturing with 9 % (24 out of 282) of the total observations. For Reoccurrence sample in Panel B, Business Services also has the largest concentration of reoccurrence with 23 % (41 out of 178), followed by Communications with 9 % (15 out of 178) and Industrial & Commercial Machinery Manufacturing with 8 % (14 out of 178) of the total observations.

TABLE 1
INDUSTRY DISTRIBUTION FOR 2-DIGIT STANDARD
INDUSTRIAL CODES (SIC) INDUSTRY

Panel A - Non-Reoccurrence Sample		
Non-Reoccurrence		
2-digit Standard Industrial Codes (SIC)	#	Industry Description
01	1	Agricultural Production - Crops
10	2	Metal Mining
12	1	Coal Mining
13	10	Oil & Gas Extraction
14	1	Mining & Quarrying - Non-metallic Minerals
16	1	Heavy Construction - except Building
20	3	Food & Kindred Products Manufacturing
23	2	Apparel & Other Finished Products - Manufacturing
26	2	Paper & Allied Products Manufacturing
27	1	Printing Publishing & Allied Industries
28	27	Chemicals & Allied Prods Manufacturing
29	1	Petroleum Refining & Related Industry Manufacturing
30	2	Rubber & Miscellaneous Plastics Manufacturing
31	1	Leather & Leather Products Manufacturing
32	2	Stone Clay Glass & Concrete Products Manufacturing
33	3	Primary Metal Industries Manufacturing
34	3	Fabricated Metal Products Manufacturing
35	12	Industrial & Commercial Machinery Manufacturing
36	24	Electronic & Other Electrical Equipment Manufacturing
37	2	Transportation Equipment Manufacturers
38	14	Measuring & Analyzing Instruments Manufacturers
39	2	Miscellaneous Manufacturing Industry
40	1	Railroad Transportation
41	1	Local/Suburban Transit & Hwy Passenger

42	1	Motor Freight Transportation/Warehouse
45	2	Transportation by Air
48	18	Communications
49	16	Electric Gas & Sanitary Services
50	3	Wholesale Trade - Durable Goods
51	3	Wholesale Trade - Nondurable Goods
54	2	Food Stores
56	2	Apparel & Accessory Stores
58	6	Eating & Drinking Places
59	2	Miscellaneous Retail
60	18	Depository Institutions
61	4	Non-Depository Credit Institutions
62	3	Security & Commodity Brokers
63	10	Insurance Carriers
64	1	Insurance Agents Brokers & Services
65	1	Real Estate
67	6	Holding & Other Investment Offices
70	1	Hotels Rooming Houses & Camps
72	1	Personal Services
73	39	Business Services
78	2	Motion Pictures
79	3	Amusement & Recreation Services
80	4	Health Services
83	1	Social Services
87	7	Engineering & Accounting & Management Services
99	3	Non-classified Establishments

Total 282

Panel B - Reoccurrence Sample

Reoccurrence

2-digit Standard Industrial Codes (SIC)	#	Industry Listing
10	4	Metal Mining
13	7	Oil & Gas Extraction
17	1	Construction - Special Trade Contractors
20	3	Food & Kindred Products Manufacturing
27	1	Printing Publishing & Allied Industries
28	7	Chemicals & Allied Prods Manufacturing
30	2	Rubber & Miscellaneous Plastics Manufacturing
33	1	Primary Metal Industries Manufacturing
34	2	Fabricated Metal Products Manufacturing
35	14	Industrial & Commercial Machinery Manufacturing
36	6	Electronic & Other Electrical Equipment Manufacturing
37	3	Transportation Equipment Manufacturers
38	8	Measuring & Analyzing Instruments Manufacturers
41	1	Local/Suburban Transit & Hwy Passenger
42	1	Motor Freight Transportation/Warehouse
45	3	Transportation by Air
48	15	Communications

49	8	Electric Gas & Sanitary Services
50	2	Wholesale Trade - Durable Goods
51	2	Wholesale Trade - Nondurable Goods
52	1	Building Materials & Hardware
55	1	Automotive Dealers & Service Stations
56	1	Apparel & Accessory Stores
58	3	Eating & Drinking Places
59	3	Miscellaneous Retail
60	6	Depository Institutions
61	4	Non-Depository Credit Institutions
62	1	Security & Commodity Brokers
63	6	Insurance Carriers
67	6	Holding & Other Investment Offices
70	1	Hotels Rooming Houses & Camps
72	1	Personal Services
73	41	Business Services
75	2	Auto Repair Services & Parking
78	1	Motion Pictures
79	4	Amusement & Recreation Services
87	5	Engineering & Accounting & Management Services
Total	178	

Table 2 provides descriptive statistics for both samples (Non-Reoccurrence and Reoccurrence). In Panel A, the mean Δ AUDIT is 0.2340 for Non-Reoccurrence sample, and is 0.1292 for Reoccurrence sample. The difference is positive and significant at 1% level ($t=2.79$, $p=0.0055$). It suggests that Non-Reoccurrence firms tend to change to a Big 4 auditor after a financial restatement more than Reoccurrence firms.

The Non-Reoccurrence sample has a higher mean CEO/CFO turnover (0.2270) than the Reoccurrence sample (0.1124). The difference is positive and significant at 1% level ($t=3.12$, $p=0.0019$), suggesting that Non-Reoccurrence firms have higher CEO/CFO turnover than Reoccurrence firms. The mean Δ ICMW is 0.1489 for Non-Reoccurrence sample, whereas it is 0.0449 for Reoccurrence sample. The difference is positive and significant at 1% level ($t=3.53$, $p=0.0005$). The result indicates that Non-Reoccurrence firms show more improved internal controls than Reoccurrence firms.

For the control variables, the mean ICMW for the Non-Reoccurrence sample is 0.1809, and it is 0.4011 for the Reoccurrence sample. The difference is significant at 1% level ($t=-5.35$, $p=0.0001$). It suggests that less Non-Reoccurrence firms disclose internal control material weakness in the restatement year than their counterparts. We do not find that the other control variables show any significant difference between Reoccurrence and Non-Reoccurrence groups. Panel B and Panel C of Table 2 provide additional descriptive statistics for the Non-Reoccurrence and Reoccurrence groups.

TABLE 2
DESCRIPTIVE STATISTICS FOR SAMPLE CHARACTERISTICS

Panel A- Variable Comparisons between Non-Reoccurrence and Reoccurrence						
Variable	Non-Reoccurrence		Reoccurrence		t-statistic	p-value
	N	Mean	N	Mean		
REOCC	282	0.0000	178	1.0000		
Approaches						
ΔAUDIT	282	0.2340	178	0.1292	2.79***	0.0055
ΔCEO/CFO	282	0.2270	178	0.1124	3.12***	0.0019
ΔICMW	282	0.1489	178	0.0449	3.53***	0.0005
Control Var						
ICMW	282	0.1809	178	0.4011	-5.35***	0.0001
AUDIT	282	0.6525	178	0.6461	0.14	0.8886
LEVERAGE	282	0.2822	178	0.2923	-0.36	0.7181
GROWTH	282	0.9488	178	0.3474	0.58	0.5642
InSIZE	282	6.1268	178	6.4126	-1.19	0.2351
ROA	282	-0.1308	178	-0.1149	-0.22	0.8290

Panel B – Non-Reoccurrence Sample						
Variable	N	Mean	Median	Standard Deviation	1 st Percentile	99 st Percentile
REOCC	282	0.0000	0.0000	0.0000	0.0000	0.0000
ΔAUDIT	282	0.2340	0.0000	0.4241	0.0000	1.0000
ΔCEO/CFO	282	0.2269	0.0000	0.4196	0.0000	1.0000
ΔICMW	282	0.1489	0.0000	0.3566	0.0000	1.0000
ICMW	282	0.1808	0.0000	0.3855	0.0000	1.0000
AUDIT	282	0.6524	1.0000	0.4770	0.0000	1.0000
LEVERAGE	282	0.2821	0.2190	0.2944	0.0000	1.3947
GROWTH	282	0.9488	0.9580	3.8163	-0.6565	3.9010
InSIZE	282	6.1268	6.0091	2.6542	0.5999	13.5966
ROA	282	-0.1307	0.0044	0.5838	-1.9729	0.2552

Panel C – Reoccurrence Sample						
Variable	N	Mean	Median	Standard Deviation	1 st Percentile	99 st Percentile
REOCC	178	1.0000	1.0000	0.0000	1.0000	1.0000
ΔAUDIT	178	0.1292	0.0000	0.3363	0.0000	1.0000
ΔCEO/CFO	178	0.1123	0.0000	0.3166	0.0000	1.0000
ΔICMW	178	0.0449	0.0000	0.2077	0.0000	1.0000
ICMW	178	0.4011	0.0000	0.4915	0.0000	1.0000
AUDIT	178	0.6460	1.0000	0.4795	0.0000	1.0000
LEVERAGE	178	0.2922	0.2383	0.2866	0.0000	1.5204
GROWTH	178	0.3473	0.0696	1.9180	-0.6549	17.3672
InSIZE	178	6.4126	6.2891	2.2652	1.7188	11.7099
ROA	178	-0.1148	0.0058	0.9963	-1.5037	0.2252

The sample contains 282 firm-year observations of restatements that have no reoccurrence of their financial restatement in the subsequent three years following restatements announcement and 178 firm-year observations of restatements that have at least one reoccurrence of financial restatement in the subsequent three years following restatements announcement. Variables are defined as follows:

REOCCU	=1 if the firm has at least one reoccurrence of financial restatement in the subsequent three-year window period following the initial restatement announcement, and 0 if the firm has no reoccurrence;
Δ AUDIT	=1 if the firm appoints a Big 4 auditor as the successor after restatement, and 0 otherwise;
Δ CEO/CFO	= 1 if the firm changes CEO/CFO within one year after the initial restatement, 0 otherwise;
Δ ICMW	= 1 if the firm discloses ICMW in the restatement year and shows improvement by reporting no ICMW in the subsequent year, and 0 otherwise;
AUDIT	= 1 if the firm is a client of a Big 4 auditing firm at the time of the restatement, and 0 otherwise;
ICMW	= 1 if the firm discloses ICMW at the time of the restatement, and 0 otherwise;
LEVERAGE	= total debt (short term debt plus long-term debt) deflated by total assets;
GROWTH	= current year's earnings from continuing operations minus prior year's earnings from continuing operations scaled by total assets;
InSIZE	= the natural logarithm of the book value of total assets;
ROA	= net income divided by the book value of total assets.

Table 3 reports market-adjusted cumulative abnormal returns (CAR) in several window periods and a comparison of the difference between the Non-Reoccurrence and Reoccurrence firms. For both Non-Reoccurrence and Reoccurrence firms, returns are calculated for four windows of time. The first is the pre-restatement window period ($CAR_{y-1,0}$), which runs one year before restatement announcement date. The second is the post-first-year window period ($CAR_{0,y+1}$), which covers the first year after restatement announcement date. The third is the post-second-year window period ($CAR_{y+1,y+2}$), which includes the second year after restatement announcement date. The fourth and the last one is the post-third-year window period ($CAR_{y+2,y+3}$), which covers the third year after restatement announcement date.

TABLE 3
DESCRIPTIVE STATISTICS FOR CUMULATIVE ABNORMAL RETURNS OF NON-REOCCURRENCE VS. REOCCURRENCE

CAR	Min	25%	Mean	Median	75%	Max
<u>Non-Reoccurrence</u>						
CAR _(y-1,0)	-2.0879	-0.1859	0.1161	0.1073	0.3623	2.7030
CAR _(0,y+1)	-1.7350	-0.0942	0.1887	0.0914	0.3883	4.7221
CAR _(y+1,y+2)	-1.7882	-0.1902	-0.0115	0.0160	0.1905	1.5568
CAR _(y+2,y+3)	-1.6801	-1.1881	-0.0366	-0.0011	0.2076	2.2093
<u>Reoccurrence</u>						
CAR _(y-1,0)	-1.0741	-0.1753	0.1839	0.1059	0.4419	3.6006
CAR _(0,y+1)	-1.2407	-0.1152	0.0894	0.0771	0.2909	1.8808
CAR _(y+1,y+2)	-1.4185	-2.2223	-0.0146	-0.0088	0.2282	1.3037
CAR _(y+2,y+3)	-1.8736	-0.2504	-0.1326	-0.1095	0.2154	0.9687

CAR_(y-1,0) is the one-year cumulative abnormal return which runs one year before announcement day.

CAR_(0,y+1) is the one-year cumulative abnormal return which runs one year after announcement day.

CAR_(y+1,y+2) is the one-year cumulative abnormal return which runs between the dates of one year after announcement day and two years after announcement day.

CAR_(y+2,y+3) is the one-year cumulative abnormal return which runs between the dates of two years after announcement day and three years after announcement day.

CARs are calculated using the Eventus software with CRSP data.

Table 4 presents the frequency and statistical comparison of Reoccurrence vs. Non-Reoccurrence groups on change of auditor to a Big 4 auditor, CEO/CFO turnover, and improvement on internal controls. The results show that Non-Reoccurrence firms have statistically higher means on all three variables (Δ AUDIT, Δ CEO/CFO and Δ ICMW), suggesting that Non-Reoccurrence firms are more likely to switch to a Big 4 auditor, change CEO/CFO and improve internal control systems after a financial restatement. We find evidence to support that (1) the choice of Big 4 auditors as successors is associated with a lower likelihood of future financial restatements, (2) replacement of CEO/CFO is more likely to be associated with Non-Reoccurrence firms, and (3) Improved internal controls may help avoid reoccurrence of financial restatements.

TABLE 4
UNIVARIATE ANALYSES

Changes	Non-Reoccurrence	Reoccurrence	z-test
	0 N=282	1 N=178	
Δ AUDIT	66 (23%)	23 (12%)	2.76 (0.0056)***
Δ CEO/CFO	64 (23%)	20 (11%)	3.09 (0.0002)***
Δ ICMW	42 (15%)	8 (4%)	3.48 (0.0005)***

*** Indicates significance at 1 percent level;

** indicates significance at 5 percent level;

* indicates significance at 10 percent level.

Table 5 contains the correlations coefficients among all variables. Panel A displays the Spearman correlation, and Panel B displays the Pearson correlations. We find a negative relationship between reoccurrence of restatement (REOCC) and (1) the switch to a Big 4 auditor (Δ AUDIT), (2) management replacement (Δ CEO/CFO), and (3) improved internal controls (Δ ICMW). This provides preliminary evidence that change of auditors (Big 4), management turnover (CEO/CFO), and improved internal controls are likely to help avoid future financial misstatements. Furthermore, we find that the probability of future restatements is positively associated with disclosure of ICMW. From the correlation coefficients among those *Changes* variables (Δ AUDIT, Δ CEO/CFO, Δ ICMW), none of these correlations appears to be large enough to present collinearity problems.

TABLE 5
SPEARMAN AND PEARSON CORRELATION COEFFICIENTS

Panel A - Spearman Correlation Statistics									
	REOCC	Δ AUDIT	Δ CEO/CFO	Δ ICMW	ICMW	AUDIT	GROWTH	LEVERAGE	INSIZE
Δ AUDIT	-0.1292 ^a								
	0.0055								
Δ CEO/CFO	-0.1444 ^a	-0.0178							
	0.0019	0.7028							
Δ ICWN	-0.1627 ^a	-0.0472	0.0699						
	0.0005	0.3116	0.1341						
ICMW	0.2427 ^a	0.0292	0.1106 ^a	0.2961 ^a					
	0.0001	0.5320	0.0177	0.0001					
AUDIT	-0.0065	-0.2405 ^a	0.0283	-0.0472	0.1607 ^a				
	0.8886	0.0001	0.5447	0.3116	0.0005				
GROWTH	0.0423	0.0311	0.0394	-0.0176	0.0561	0.0601			
	0.3646	0.5058	0.3981	0.7054	0.2302	0.1981			
LEVERAGE	0.0236	0.0488	-0.0548	0.0690	0.0405	-0.0170	-0.0454		
	0.6128	0.2959	0.2407	0.1390	0.3865	0.7148	0.3304		
INSIZE	0.0707	-0.0412	-0.0824 ^c	-0.0248	0.0136	0.1563 ^a	-0.0028	0.3204 ^a	
	0.1297	0.3773	0.0773	0.5946	0.7707	0.0008	0.9522	0.0001	
ROA	0.0228	0.0398	-0.0956 ^b	-0.0251	-0.0343	0.1003	0.2741 ^a	-0.0080	0.2867 ^a
	0.6254	0.3934	0.0402	0.5907	0.4626	0.0314	0.0001	0.8641	0.0001

Panel B - Pearson Correlation Statistics

	REOCC	ΔAUDIT	ΔCEO/CFO	ΔICMW	ICMW	AUDIT	GROWTH	LEVERAGE	INSIZE
ΔAUDIT	-0.1292 ^a 0.0055								
ΔCEO/CFO	-0.1444 ^a 0.0019	-0.0178 0.7028							
ΔICWN	-0.1627 ^a 0.0005	-0.0472 0.3116	0.0699 0.1341						
ICMW	0.2427 ^a 0.0001	0.0292 0.5320	0.1106 ^b 0.0177	0.2961 ^a 0.0001					
AUDIT	-0.0065 0.8886	-0.2405 ^a 0.0001	0.0283 0.5447	0.0658 0.1583	0.1607 ^a 0.0005				
GROWTH	-0.0269 0.5642	-0.0155 0.7397	0.0992 ^b 0.0333	-0.0181 0.6974	0.0828 ^c 0.0763	-0.0602 0.1970			
LEVERAGE	0.0168 0.7181	0.0420 0.3688	-0.0236 0.6130	0.0812 ^c 0.0817	0.0767 0.1004	-0.0059 0.8988	-0.0538 0.2492		
INSIZE	0.0554 0.2351	-0.0378 0.4178	-0.0779 ^c 0.0952	-0.0157 0.7363	0.0182 0.6970	0.1541 ^a 0.0009	-0.0794 ^c 0.0889	0.1767 ^a 0.0001	
ROA	0.0101 0.8290	0.0305 0.5137	-0.0096 0.8365	0.0072 0.8760	0.0443 0.3426	0.0580 0.2138	-0.0232 ^b -0.0232	-0.0148 0.7509	0.2722 ^a 0.0001

^a Indicates significance at 1 percent level;

^b indicates significance at 5 percent level;

^c indicates significance at 10 percent level.

In Table 6, we present regression results where the probability of reoccurrence of financial restatement is regressed on the *changes* and control variables. In particular, we are interested in whether there is a negative coefficient on the *changes* variables, namely switch to a Big 4 auditor (ΔAUDIT), management turnover (ΔCEO/CFO), and improved internal controls (ΔICMW). We find that all three *Changes* variables included in the regression model have coefficient β_i which are negative and highly significant at $p < 0.01$. Our findings provide evidence to show that switching to Big auditors, change of CEO/CFO, and improved internal controls are associated with a decrease in the probability of future financial restatements. The results are consistent with our predictions of H1-H3.

TABLE 6
PROBIT REGRESSION ANALYSES

$$\text{Prob(ReOCCU)} = \beta_0 + \sum \beta_1 * \text{Changes} + \sum \beta_2 * \text{Control Variables} + \varepsilon$$

IV	All	Model (1)	Model (2)	Model (3)
Intercept	-0.3221 (0.3389)	-0.8747 (0.0035)	-0.7365 (0.0191)	-0.6262 (0.0362)
Changes				
ΔAUDIT	-1.1905*** (0.0001)	-0.8008*** (0.0036)		
ΔCEO/CFO	-1.1252*** (0.0004)		-1.0501**** (0.0004)	
ΔICMW	-2.4435*** (0.0001)			-1.3245*** (0.0010)
Control Variables				
AUDIT	-0.4467** (0.0432)		-1.2413 (0.2673)	-0.0200 (0.3226)
ICMW	2.0246*** (0.0001)	1.1778*** (0.0001)	1.3195*** (0.0001)	
LEVERAGE	0.0908 (0.8064)	-0.0436 (0.9004)	-0.1700 (0.6345)	0.1489 (0.6660)
GROWTH	-0.0123 (0.3902)	-0.0109 (0.4304)	-0.0080 (0.5738)	-0.0066 (0.6221)
lnSIZE	0.0336 (0.4481)	0.0376 (0.3731)	0.0441 (0.3022)	0.0408 (0.3265)
ROA	-0.0073 (0.9552)	-0.0293 (0.8235)	-0.0428 (0.7415)	-0.0054 (0.9666)
Adj-R ²	0.11	0.09	0.10	0.09
n	460	460	460	460

*** Indicates significance at 1 percent level;

** indicates significance at 5 percent level;

* indicates significance at 10 percent level.

To test the associations between restated firms' market performance and reoccurrence of financial restatement, with a focus on the impact of switch to a Big 4 audit, managerial changes and improved internal controls after a financial restatement, we use a two-stage regression to test the associations. In particular, in the first stage of regression, we estimate the probability of reoccurrence of restatement by employing an ordered logistic model. Then, in the second stage of regression, we regress the improvement of restated firms' market performance (ΔCAR) on the predicted probability of reoccurrence of restatement and control variables. ΔCAR measures the improvement in firm's market performance by comparing the first year, second year and third year ex-post CAR with the one year ex-ante CAR.

Table 7 presents the regression results. Consistent with our prediction of H4 and the results from the univariate analyses, the estimated coefficients of REOCCU are all significantly negative in three window periods. As expected, market-adjusted returns are also negatively associated with the three *Changes* variables (ΔAUDIT , $\Delta\text{CEO/CFO}$, and ΔICMW). Overall, these findings provide evidence consistent with our hypotheses that the choice of Big 4 auditors, management turnover, and improved internal controls are associated with a decrease in the probability of future restatement; the decrease in the probability of future restatement is associated with better firms' market performance.

TABLE 7
TWO-STAGE REGRESSION ANALYSES

STAGE ONE:

$$\text{Prob(ReOCCU)} = \beta_0 + \sum \beta_1 * \text{Changes} + \sum \beta_2 * \text{Control Variables} + \epsilon$$

STAGE TWO:

$$\Delta\text{CAR} = \beta_0 + \beta_1 * \text{Prob(ReOCCU)} + \sum \beta_2 * \text{Control Variables} + \eta$$

	REOCCU		ΔCAR		
			ΔCAR _{y+1}	ΔCAR _{y+2}	ΔCAR _{y+3}
Intercept	-0.3221 (0.3389)		-0.1429 (0.3943)	-0.3287 (0.0279)	-0.1387 (0.3551)
P(ReOCCU)			-0.1711** (0.0518)	-0.0608* (0.0794)	-0.3094** (0.0592)
<i>Changes</i>					
ΔAUDIT	-1.1905*** (0.0001)				
ΔCEO/CFO	-1.1252*** (0.0004)				
ΔICMW	-2.4435*** (0.0001)				
<i>Control Variables</i>					
AUDIT	-0.4467** (0.0432)	0.0094 (0.9237)	0.0109*** (0.0110)		-0.0165 (0.8466)
ICMW	2.0246*** (0.0001)	-0.1538 (0.2378)	-0.0512 (0.6574)		-0.0364 (0.7599)
LEVERAGE	0.0908 (0.8064)	-0.1255 (0.4693)	-0.0826 (0.6015)		-0.2336 (0.1382)
GROWTH	-0.0123 (0.3902)	-0.5958*** (0.0001)	-0.4692*** (0.0003)		-0.2865** (0.0280)
lnSIZE	0.0336 (0.4481)	0.0117 (0.5647)	0.0295* (0.0987)		0.0324* (0.0703)
ROA	-0.0073 (0.9552)	-0.1076 (0.2748)	-0.0413 (0.7281)		-0.3307*** (0.0045)
Adj-R ²	0.11	0.03	0.03		0.03
n	460	460	460		460

$$\Delta\text{CAR}_{y+1} = \text{CAR}_{(0,y+1)} - \text{CAR}_{(y-1,0)}$$

$$\Delta\text{CAR}_{y+2} = \text{CAR}_{(y+1,y+2)} - \text{CAR}_{(y-1,0)}$$

$$\Delta\text{CAR}_{y+3} = \text{CAR}_{(y+2,y+3)} - \text{CAR}_{(y-1,0)}$$

*** Indicates significance at 1 percent level;

** indicates significance at 5 percent level;

* indicates significance at 10 percent level.

CONCLUSION

This study is to investigate the associations between the reoccurrence of financial restatements and auditor turnover (choice of Big 4/non-Big 4 auditors), management replacement (CEO/CFO), and improvement of internal controls. In particular, we examine the probability of firms' reoccurrence of

financial restatement in the subsequent three years following an initial restatement announcement and its association with change of auditor, management turnover, and improvement of internal controls. This study also investigates the association between restated firms' stock market performance and the probability of firms' future restatement, with a focus on the role of auditor choice, management turnover and improvement of internal controls.

We contend that the quality of auditors, management and internal control systems is critical in decreasing the probability of restatement reoccurrence within organizations; a decrease in the probability of future restatement should be positively associated with firms' stock market performance. Accordingly, we hypothesize a negative association between the probability of firms' reoccurrence of financial restatement and (1) the choice of Big 4 auditors, (2) replacement of CEO/CFO, and (3) improvement on internal control systems. Positive associations between stock market performance and (1) change to a Big 4 auditor, (2) replacement of CEO/CFO, and (3) improvement on internal controls are also expected.

Our findings appear to support of all our hypotheses. Moreover, we find that non-reoccurrence firms, relative to reoccurrence firms, have significantly higher market adjusted returns over a three-year period after restatement announcement. We also find that decrease in the probability of reoccurrence of financial restatement is associated with an increase in stock market returns.

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