The impact of high insider ownership on SOX 404 internal controls

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Abstract

Purpose – *This study aims to investigate the effect of high insider ownership on firms' internal controls over financial reporting. In particular, it examines how high insider ownership affects the likelihood of an adverse Sarbanes–Oxley Act Section (SOX Section 404) opinion and its subsequent remediation.*

Design/methodology/approach – *Tests of hypotheses use ineffective controls and remediation models. The initial tests in this study use ineffective internal controls over financial reporting probit regression models to investigate how high insider ownership affects the ex-post likelihood of an adverse 404 opinion. Two remediation models – a multinominal probit regression and probit regression model – are used to investigate the effect of high insider ownership on the likelihood of successfully remediating an adverse 404 opinion.*

Findings – *Results show that while the ex-ante likelihood of an adverse SOX Section 404 auditor's internal control opinion increases with high insider ownership, high insider ownership firms are more likely to remediate ineffective 404 controls. This study rationalizes these diverse findings by asserting that prior to an adverse 404 opinion, entrenched managers avoid internal control financial reporting oversight and monitoring. After an adverse opinion, however, and within the context of an imminent and explicit value reducing 404 opinion, powerful high insider owner managers are motivated to remedy ineffective controls.*

Originality/value – *This research synthesizes existing streams of literature on insider ownership and the effectiveness of internal control over financial reporting quality to provide new information on the effects of high insider ownership on firms' internal controls.*

Keywords *Internal controls, SOX 404, Sarbanes Oxley, High insider ownership*

Paper type *Research paper*

1. Introduction

An important provision of the 2002 Sarbanes–Oxley Act (SOX) (US) is that firms and their external auditors assess and provide opinions on the effectiveness of internal controls. Extant studies across numerous research contexts have investigated the efficacy of this requirement (Ashbaugh-Skaife *et al.*, 2009; Clinton *et al.*, 2014; Doyle *et al.*, 2007a, 2007b; and others).

A substantial body of research also exists on the effects of insider ownership, including contending hypotheses asserting that high insider ownership (HIO) induces entrenchment or alignment of interest effects. A general inference from these diverse findings is that the financial effects of HIO is conditional on the context within which they exist.

Entrenchment hypotheses assert that at levels of HIO where managers have more power to direct firm actions, there is an increased likelihood of implementing practices toward enhancing their entrenched positions to the detriment of the firm. For example, Attig *et al.* (2006) note that owners of stocks may have selfish agendas and to increase the probability of advancing them, they are more likely to implement poor information disclosure practices when they are simultaneously in a position of control as exists with HIO. Alignment of

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interest studies support the contrasting notion that as insider-owners acquire or purchase more stock, their interest becomes more closely aligned with those of outside shareholders resulting in favorable effects on corporate performance (McConnell *et al.*, 2008). Jensen and Meckling (1976) argue that managerial ownership reduces agency costs by fostering an alignment of interest between the firm's owners and managers. Warfield *et al.* (1995) similarly asserts that because shareholding managers' personal wealth is linked to the value of the firm they manage, the greater the proportion of share-based compensation received, the greater the motivation to increase the value of the firm they manage.

This study adds to these streams of literature by investigating the impact of HIO on financial reporting internal control quality. Results show that the likelihood of an adverse SOX Section 404 auditor's internal control opinion increases with HIO. In contrast to these initial findings, however, we further document that HIO firms are more likely to successfully remediate ineffective controls. Our initial findings support the theory of high insider owners as entrenched managers with the general implication being a lack of sufficient board and external stockowner power to monitor manager's discretion in internal control decisions (Yammeesri and Herath, 2010). Subsequent findings suggest, however, that when confronted with the costly value reducing consequences of an adverse 404 opinion, incentives associated with entrenched managers give way to alignment of interest incentives as powerful high insider owners are more motivated and better able to remedy publicly divulged financial reporting control deficiencies.

This study adds to the existing body of literature as follows. First our study provides additional information regarding the effect of insider ownership on financial reporting internal control. Existing research supports contending assertions that insider ownership either promotes or discourages optimal corporate performance. Hence an important implication of these studies is that the effects of insider ownership are conditional on the context within which they exist. Using the internal control context of the regulatory framework prescribed by SOX, we provide new information incremental to the current body of insider ownership literature. In particular, this study extends prior woks by empirically investigating if and how high-ownership manager incentives differ and affect attitudes and behaviors towards internal controls before and after the disclosure of an adverse SOX 404 opinion.

In addition, it is widely asserted that the SOX of 2002 was the most significant accounting legislation enacted since SEC 1934, and the efficacy of this legislation since its passing has been the subject of much research and debate. In light of the substantial costs associated with its implementation application and enforcement, studies have examined the costs and benefits of section 404 over the years since its implementation (Ribstein, 2002; Berger *et al.*, 2005; Romano, 2005, etc.). This study provides further evidence on the efficacy of Sarbanes–Oxley to promote and emphasize the implementation and application of effective internal controls over financial reporting (IFCR). Results of our study suggest that Sarbanes–Oxley has had a beneficial effect on financial reporting quality as Section 404 adverse internal control opinions motivate heretofore indifferent and entrenched high ownership managers, to address ineffective internal controls.

1.1 Internal controls over financial reporting

ICFR may be defined as:

> A process designed by, or under the supervision of the company's principal executive and financial officers or persons performing similar functions, and effected by the company's board of directors, management, and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles [. . .] (Auditing Standard No 2, PCAOB [Public Company Accounting Oversight Board], 2004, para. 7).

Prior research documents the benefits of effective ICFR, including but not limited to lower cost of debt, reduced forecast and management errors and more efficiency in investment decisions (Ashbaugh-Skaife *et al.*, 2009; Feng *et al.*, 2009; Costello and Wittenberg-Moerman, 2011; Cheng *et al.*, 2013; Clinton *et al.*, 2014). Effective 2002, Section 302 of the SOX requires that firms, assess and document the effectiveness of their internal control practices. If managers find a material weakness in their firms' internal controls, they are obligated to disclose the material weakness and the material changes in internal controls. Hence, Section 302 relies on managers' judgment and discretion in identifying and reporting material weakness in ICFR. Section 404 of the SOX became effective in 2004. While Section 404 also requires that managers document, test and report on the effectiveness of their firms' internal controls and issue annual statements on the material weakness similar to Section 302, it significantly contrasts from 302 by adding the requirement that auditors also test and issue a separate opinion on whether the company has maintained effective or ineffective internal controls in their financial reporting. If there is a material weakness, the auditor provides an adverse opinion on internal controls. In concert with Section 404, the Public Company Accounting Oversight Board (PCAOB) issued Auditing Standard No. 2 to provide insight on auditing IFCR.

In 2007, Auditing Standard No. 2 was replaced with Auditing Standard No. 5. The latter standard defines *material weakness* as a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis PCAOB (Public Company Accounting Oversight Board), 2015. SOX requires that both significant and material weakness must be reported to the audit committee. Additionally, all material weakness must be disclosed in company SEC filings even if only one such weakness is discovered. Hence, the presence of one material weakness warrants an adverse SOX 404 auditor opinion on firms' ICFR.

In juxtaposition with these initiatives, The Committee of Sponsoring Organizations of the Treadway Commission COSO (Committee of Sponsoring Organizations of the Treadway Commission), 2006 composed an integrated framework for instituting and maintaining effective ICFR. Cormier *et al.* (2010) assert that managers' willingness to disclose information reduces principal-agency costs. A foundational component of the COSO framework is tone at the top which asserts that effective internal controls begin with senior executive leadership. Indeed, if top management is indifferent or opposed to its implementation and maintenance, it is probable that even the most comprehensive system of internal controls will be ineffective. Auditing Standard 5 acknowledges this top down approach by prescribing a top-down risk-based audit approach and updated this focus on risk by issuing Auditing Standard No. 12 (AS12). In light of the prominence ascribed to senior executives in fostering effective ICFRs, how HIO effects CEO behavior in this regard is an important consideration.

1.2 High insider ownership

Extant studies on how insider ownership affects corporate outcomes have produced mixed results. Morck *et al.* (1988), investigate the relation between ownership structure and corporate value using Tobin's *Q* as a proxy for corporate value. They found that Tobin's *Q* rises when insider owners' outstanding shares of stock increases from 0 to 5 per cent, falls after 5 per cent and rises again after 25 per cent. Mørck *et al.* attribute this behavior to costs related to entrenched managers, which gives way to benefits as the alignment of interest converges. Neumann and Voetmann (2003) observe that the statistical relationship between management ownership and firm performance takes the form of a bell-shaped curve. Similar to Morck *et al.*, they attribute their findings to managers taking advantage of shared ownership at lower levels of ownership resulting in positive abnormal returns but succumbing to entrenchment effects at higher levels evidenced by the declines in stock

performance. McConnell and Servaes (1990) also observe a non-monotonic relation between ownership structure and corporate value and attribute their findings to alignment of interest benefits at lower levels of ownership that succumb to entrenchment effects at higher levels.

Cheung and Wei (2006) analyze insider ownership by testing its impact on corporate performance and find a significantly positive relationship. However, when they introduce agency-cost reducing mechanisms, termed *adjustment cost*, they find no relation between insider ownership and corporate performance. Similarly, when ownership structure is treated as an endogenous variable, Demsetz and Villalonga (2001), find no relation between ownership structure and firm performance.

McConnell *et al.* (2008) document that insider ownership affects firm performance specifically by finding that a causal relation exists between the fractions of shares held by corporate insiders and the value of the firm. They also observe that firm value increases with HIO at first but eventually decreases at a certain point as insiders own more shares. A key insight in the McConnell *et al.* (2008) study is that firm outcomes are affected by the level of shares of insider owners.

Attig *et al.* (2006) note that high insider owners of stocks with selfish agendas are more likely to implement poor information disclosure practices when they are simultaneously in a position of control as exists with HIO. Houmes and Chira (2015) document that when CEO ownership is high, stock returns increase (decrease) for high (low) price to earnings firms. They theorize that for low P/E firms, low stock returns reflect the inability of boards and outside shareholders to influence poorly performing entrenched management. For high P/E firms, boards and outside shareholders are less likely to intervene because higher reruns reflect value-creating managers.

2. Hypotheses and their motivations

2.1 High insider ownership and ineffective controls over financial reporting

Managers' incentive to tolerate ineffective ICFR involves a tradeoff on the expected benefits of effective internal controls, such as described in several studies (Doyle *et al.*, 2007a, 2007b; Beneish *et al.*, 2008; Ashbaugh-Skaife *et al.*, 2009) and the adverse costs documented in others (Bushee, and Leuz, 2005; Wintoki, 2007). Such incentives may also vary in scope. For instance, when managers' interests are more inclined to increasing their control over operations with as minimal monitoring as possible, they are more likely to adopt policies and procedures that minimize the monitoring of their governance structures such as in ineffective ICFR. According to the Committee of Sponsoring Organizations, "tone at the top" is the basis of effective internal controls adherence COSO (Committee of Sponsoring Organizations of the Treadway Commission), 1992. Also, COSO's internal controls integrated framework emphasizes management's role as the foundation of effective ICFR, and also underscores this in one of its principles stating, "management establishes, with board oversight, structures, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives" COSO (Committee of Sponsoring Organizations of the Treadway Commission), 2013. Skaife *et al.* (2013) find that firms who disclose ineffective internal controls attributed to weak tone at the top tend to be firms whose managers' attitudes and direction contribute to lower financial reporting quality. These findings are in concert with PCAOB's Auditing Standard No. 5 top-down risk-based audit approach and the emphasis on the importance of the tone at the top as foundational in steering firms toward effective internal control objectives under monitoring by auditors. In firms where there is ineffective ICFR, managers are more likely to have discretion over accounting choices, estimates and methods because of limited monitoring on policies and procedures (Hogan and Wilkins, 2008) making it more attractive for managers seeking more governance discretion.

HIO entrenchment effect assertions support the position that at levels of HIO, where CEOs have more power to direct firm actions, there is an increased likelihood of implementing practices toward enhancing their entrenched positions, therefore powerful CEOs in high insider owned firms might engage in ineffective internal controls in the short term to gain other benefits (Mattingly *et al.*, 2008). For instance, Cohen *et al.* (2008) document an association between earnings quality and managerial gains on stock options. They show that when external monitoring such as with auditors under SOX is reduced, managers show positive gains in unexercised stock options in relation to income-increasing accrual-based earnings management. Also, in contrast with insider ownership alignment of interest assertions, entrenchment effect theories alternately submit that with increasing insider-ownership stock levels, entrenched HIO CEOs are less subject to disciplinary action thereby creating an atmosphere for ineffective ICFR. McConnell *et al.* (2008) demonstrate this relation in their study on the link between changes in insider ownership and changes in stock price over a six-day interval for a period of six years. They document that firm value declines when HIO thresholds are exceeded.

Powerful CEOs in high insider owned firms are less likely to be affected by the threat of independent boards and outside shareholders for poor firm outcomes because of the power and influence afforded to the CEOs as stockholders with significant holdings. Skaife *et al.* (2013), who investigate whether CEOs and other higher level management benefit from firms' ineffective ICFR find that insider managers gain higher payoffs from insider trading than do insider managers of firms with effective ICFR and these insider trading gains are increased by internal controls deficiencies attributed to the tone at the top, thus signifying that powerful CEOs are more likely to benefit from ineffective ICFR particularly when they deliberately set the culture for ineffective internal controls. Furthermore, while 404 requires that firms assess and report on the effectiveness of their internal controls, it is important to note that SOX does not mandate that firms improve their internal controls. Because controls are, at least in the short run, costly to apply and their future financial benefits uncertain, managers with competing entrenchment incentives could be reluctant to implement and maintain. In addition, because the ex-post costs of publicly disclosing and addressing ineffective controls is also costly as investors impound, heretofore, unknown control deficiencies into the value of the firm, even informed managers with knowledge of ineffective controls should be reluctant to voluntarily disclose.

We, therefore, assert that relative to other managers, powerful and entrenched managers of HIO firms are more likely to successfully avoid monitoring and eschew controls resulting in an ineffective ICFR 404 opinion. This study, therefore, posits the following hypothesis:

H1. High insider ownership increases the likelihood of an adverse 404 auditor's opinion.

2.2 High insider ownership and 404 remediations

To reiterate, this study initially asserts that, *ceteris paribus*, entrenchment incentives for HIO CEOs result in decreased corporate governance effectiveness as proxied for by an adverse 404 opinion. The realization of these opinions are, however, costly to manager–owners as the public disclosure of an adverse opinion that explicitly and publicly documents heretofore unknown ineffective controls has value reducing consequences (Ashbaugh-Skaife *et al.*, 2009; De Franco *et al.*, 2005) and the greater the ownership the more costly the opinion to the HIO manager. Hence adverse 404 opinions create significant economic incentives for powerful HIO managers to exert their influence to remedy ineffective controls. Although managers could foresee these ex-post value-reducing effects, in the absence of an explicit adverse opinion that may or may not ever occur, as per our first hypothesis, ineffective controls related to CEOs' entrenchment incentives prevail. We further conjecture, however, that the public issuance of an adverse 404 opinion alters these same managers' motivations to affect and remedy ineffective controls. That is, prior to their public disclosure,

ineffective controls are unobservable. In the wake of an adverse 404 opinion, however, value-reducing wealth incentives motivate entrenched influential HIO managers that were heretofore either indifferent or opposed to emphasizing controls to remedy publicly disclosed deficiencies as investors impound new information into the price of the firm.

Prior research reports a negative association between ineffective controls over financial repeating and stock returns (Hammersley *et al.*, 2007; Ogneva *et al.*, 2007; Dhaliwal *et al.*, 2011*)*. Hu *et al.* (2013) report among other things that ineffective internal controls have a direct effect on a firm's market value and cost of capital. Ashbaugh-Skaife *et al.* (2008) similarly report that the disclosure of material weaknesses in internal controls from 404 opinions increases the firm's cot of equity. Ashbaugh-Skaife *et al.* (2009) report a statistically significant mean (median) three-day buy and hold abnormal return of −0.76 per cent (−0.41 per cent) centered on the first day an internal control deficiency is disclosed in SEC filings. In an earlier paper De Franco *et al.* (2005) find cumulative size – adjusted returns of −0.81 per cent for firms reporting internal control deficiencies during 2003-2004. Results of this paper similarly show a contemporaneous inverse relation between the occurrence of an adverse 404 opinion and long window stock returns. In particular, for the sample of firms used in this study, the mean unreported market adjusted annual return for firms in the year of an adverse Section 404 disclosure is –4.45 per cent. When CEOs own at least 10 per cent of their firms, annual returns are −5.7 per cent. Hence, the adverse personal wealth consequences from an adverse opinion to an owner-manager creates new and significant financial incentives to remedy and this incentive increase with the level of ownership. In light of the immediate and significant value reducing effect of an adverse 404 opinion, powerful HIO shareholding managers with personal wealth at stake have explicit and urgent motivation to remedy auditor specified internal control deficiencies. We, therefore, posit:

H2. High insider ownership increases the likelihood of remediating an adverse 404 auditor's opinion.

3. Sample and methodology

3.1 Sample

Our initial sample consists of panel data from the files of the North American Compustaat and Execucomp database from year 2004, the year in which auditors first reported on the effectiveness of ICFR under Section 404 to year 2016. We initially classify firms as having ineffective ICFR if they received an adverse auditor's opinion on their internal controls, under SOX Section 404. Hence, to be included in our sample, data showing the firm received a Section 404 opinion stating that internal controls were either ineffective (a material weakness) or effective (no material weakness) must be available. The number of firm year observations with these internal control opinions is 26,413. Our models also include CEO percentage of shares owned data. Including data for percentage of CEO shares owned and our models' controls reduces the sample to 7,230 firm year observations. All continuously measured variables are winsorized at the 1 and –99 per cent levels, and all models use robust standard errors clustered around gvkey (1,468 firms) to reduce inter-firm correlations.

3.2 Methodology

Tests of hypotheses use ineffective controls and remediation models. Our initial tests use ineffective ICFR probit regression models to investigate how HIO affects the ex-post likelihood of an adverse 404 opinion (*H1*). The dependent variable is equal to one if the firm receives an adverse 404 opinion and zero otherwise. Additional remediation models test how insider ownership effects the likelihood of successfully remediating an adverse 404 opinion (*H2*). In particular, two remediation models: a multi-nominal probit regression and

probit regression model are used. Using a multinominal probit regression approach enables concurrent comparisons between firms that are able to remediate ineffective ICFR and firms that are not able to remediate ineffective ICFR with our benchmark effective control firms sample. To augment this multinominal approach, we restrict our sample to include only those firms that receive an adverse 404 opinion and regress a binary dependent variable equal to one if the firm successfully remediates ineffective controls and zero otherwise on control variables and our insider ownership variables of interest. We use Hausman tests to evaluate the appropriateness of our models. In accordance with these tests, all our models include year and industry (two-digit SIC industry code) fixed effects. This section describes these models and the variables included therein.

Our descriptions begin with a discussion of the dependent variable included in our ineffective ICFR models followed by the models' control variables and rationales for their inclusion. We conclude this description with an explanation of our HIO variables of interest. Finally, we describe our remediation tests including the dependent variable used to identify firms that successfully or unsuccessfully remedy adverse 404 opinions. We conclude this section with a formal presentation of the empirical models used.

3.3 Dependent variable: ineffective internal controls over financial reporting models

Ashbaugh-Skaife *et al.* (2009) contend that a SOX 404 report process provides a mechanism for correctly identifying the incidence of internal control deficiencies. In particular, they use SOX 404 auditors' opinions to evaluate their effect on a firm's implied cost of equity. Similarly, Dhaliwal *et al.* (2011) use SOX 404 auditors' opinions on ICFR to assert that firms with material weaknesses in internal controls are impacted by higher costs of debt. Following Ashbaugh-Skaife *et al.* (2009) and Dhaliwal *et al.* (2011) this study uses probit regression and measures ineffective ICFR, indicated in this study as $ICFR_{it}$ as equal to one if firm *i* receives an adverse internal controls SOX 404 auditor's opinion in fiscal year *t* and zero otherwise. $ICFR_{it}$ is regressed on the following controls and variables of interest.

3.4 Control variables

Prior studies assert that large firms receive greater scrutiny and have more sophisticated and developed financial reporting. One aspect of this enhanced reporting quality may be effective controls. To control for the potential effect of a firm's size on results, we include the variable $lnTA_{it}$, and measure it as the natural log of the size of firm *i* in total assets for fiscal year *t*.

Skaife *et al.* (2013) find that firms whose tone at the top are misaligned with effective internal control objectives have greater information asymmetry. This is consistent with other studies that find that lower-quality internal controls affect the quality of disclosed information, and that firms who report internal controls deficiencies have lower quality information in comparison to firms who do not (Doyle *et al.*, 2007a, 2007b; Ashbaugh-Skaife *et al.*, 2008; Feng *et al.*, 2009; Altamuro and Beatty, 2010; Li *et al.*, 2012). To control for the potential effects of information asymmetry on results (Chiang and Venkatesh, 1988) we further include the log of firm *i*'s common shares traded in fiscal year *t* ($INFSM_{it}$).

Firms that have undergone a merger and acquisition tend to have more complex transactions, making them more likely to have internal control deficiencies (Ashbaugh-Skaife *et al.*, 2008; Feng *et al.*, 2009). Also restructuring activities that occur with mergers and acquisitions involve the integration of the acquired firm's procedures, culture and operations by the acquiring firm. This situation is likely to make the firm susceptible to reduced internal controls quality (Ashbaugh-Skaife *et al.*, 2008). This study controls for the potential effects of mergers and acquisitions on ICFR of by including MA_{it}, an indicator variable equal to one if firm *i* reports a merger and acquisition in Compustat in fiscal year *t* and zero otherwise.

Associations between market to book ratio and firm value have been made by earlier studies (Miller, 2005; Benson and Davidson, 2009; Houmes *et al.*, 2013). Other studies include market to book ratio as a control variable potentially affecting ineffective ICFR (Ge and McVay, 2005; Wintoki, 2007). We, therefore, include market to book ratio, MB_{it}, measured as the price per share of common equity of firm *i* in fiscal year *t* divided by the book value per share of firm *i* in the same fiscal year *t*.

Prior studies associate firms susceptible to litigation with ineffective ICFR (Rice *et al.*, 2015). Such studies argue that the disclosure of internal control deficiencies are likely to open up the firms to potential class action law suits, making them potential targets for investigations and rendering their managers potentially culpable to deliberately leading their firms to maintaining ineffective internal control practices leading to subsequent disclosures (Rice *et al.*, 2015). To control for litigation risk this study includes an indicator variable, LIT_{it}, equal to one if the firms operates in SIC codes 2833 – 2836, 3600 – 3674, 5200 – 5961 or 7370 – 7374 in fiscal year *t* and zero otherwise (Ashbaugh-Skaife *et al.*, 2008).

Prior studies document a negative relation between operating performance and the likelihood of an adverse 404 opinion. (Defond and Francis, 2005; Doyle *et al.*, 2007a, 2007b; Feng *et al.*, 2015). Li *et al.* (2012) report that return on assets is associated with both the existence of material weaknesses in internal controls as well as their remediation. Following Feng *et al.* (2015) this study measures operational performance using ROA_{it}, return on assets, as firm *i*'s net income in period *t* divided by firm *i*'s total assets also in fiscal year *t*.

Financially distressed firms may have incentives to avoid or eschew reporting constraints imposed by internal controls and prior studies document an inverse relation between the probability of an adverse 404 opinion and a firm's Z score. We control for this possibility by including measures for financial distress and liquidity; the Altman Z score; (Z_{it}) and current ratio (CR_{it}). Please see equation 3, in Appendix for Z score calculation

Prior studies assert that dividend paying firms require reporting regimes that support long-term dividend payment strategies which may induce greater financial reporting oversight (Ashbaugh-Skaife *et al.* (2009). To control for this potential effect on our results, we include a dummy variable equal to one and zero otherwise for firms that made a dividend payment during fiscal year *t* (DP_{it}).

Feng *et al.* (2015) investigate the association between ineffective internal control over financial reporting and inventory management. They find among other things that firms with ineffective controls have lower inventory turnover ratios. To control for inventory effects on our results, we include the variable, $INVT_{it}$, equal to the firm's total inventory divided by its total assets.

In anticipation of future adverse financial reporting quality and or financial performance outcomes, knowledgeable managers with HIO may reduce their ownership share. To control for managers anticipatory trades, we include the variable, $DIFSRE_{it}$, and measure it as the year *t* less year *t-1* difference in the percentage of shares owned by the CEO. Finally, this study controls for the potential effects of other factors on results that our models' control variables may not capture by including stock returns ($RET_{it,}$) equal to firm *i*'s end of fiscal year stock returns with dividends reinvested in fiscal year *t* (Huang *et al.*, 2008).

3.5 Variables of interest: high insider ownership

The SEC defines company insiders as stockowners who own more than 10% of the common stock outstanding[1]. Accordingly, this study identifies HIO as firms with CEOs who own at least 10 per cent of their firm's common stock and empirically measures this by assigning an indicator variable, $HIO10_{it-1}$, equal to one if firm *i* has a CEO who owns at least 10% of the common stock outstanding in fiscal year t – *1* and equal to zero otherwise. For robustness, additional levels of CEO ownership at the 15 per cent ($HIO15_{it-1}$) and 20 per

cent ($HIO20_{it-1}$) levels are included. In accordance with *H1*, we expect positive signs on these estimates.

3.6 Dependent variable: remediation models

We begin our tests for *H2* by using multinominal probit regression and measure our dependent variable according to three outcomes: firms that are, within one year, able to successfully remediate an adverse 404 opinion, firms that are within one year unable to successfully remediate an adverse 404 opinion and a benchmark group consisting of firms that did not receive an adverse 404 opinion. Estimates for our successful and unsuccessful remediation groups are then interpreted relative to our benchmark effective control group. For our successful (unsuccessful) remediation group a positive coefficient on our HIO variable would suggest that HIO increases the likelihood of successfully (unsuccessfully) resolving an adverse 404 opinion (*H2*).

To further augment the results of our multi-nominal regression tests, we reduce our sample to include adverse 404 opinion firms only and use probit regression using a binary dependent variable $Remed_{it}$ equal to one if the firm is, within the year following an 404 ineffective controls opinion, able to remediate and zero otherwise. A positive sign on our HIO variable would provide additional support for *H2*. All variables are defined in Table I. The overall models with controls used to test *H1* and *H2* are depicted as follows:

$$ICFR_{it} = \alpha_0 + \alpha_1 lnTA_{it} + \alpha_2 INFSM_{it} + \alpha_3 MA_{it} + \alpha_4 MB_{it} + \alpha_5 LIT_{it} + \alpha_6 ROA_{it} + \alpha_7 Z_{it} + \alpha_8 CR_{it} + \alpha_9 DP_{it} + \alpha_{10} INVT_{it} + \alpha_{11} DIFSRE_{it} + \alpha_{12} RET_{it} + \alpha_{13} HIO10_{it-1} + \varepsilon_{it} \quad (1)$$

$$Remed_{it} = \alpha_0 + \alpha_1 lnTA_{it} + \alpha_2 INFSM_{it} + \alpha_3 MA_{it} + \alpha_4 MB_{it} + \alpha_5 LIT_{it} + \alpha_6 ROA_{it} + \alpha_7 Z_{it} + \alpha_8 CR_{it} + \alpha_9 DP_{it} + \alpha_{10} INVT_{it} + \alpha_{11} DIFSRE_{it} + \alpha_{12} RET_{it} + \alpha_{13} HIO10_{it-1} + \varepsilon_{it} \quad (2)$$

Table I Variable definitions

$ICFR_{it}$	A variable equal to one if the firm receives an adverse internal controls SOX 404 auditor's opinion (COMPUSTAST variable auopic)
$Remed_{it}$	A variable equal to one if the firm is able to remediate ineffective controls within one year of an adverse 404 opinion controls and zero otherwise
$lnTA_{it}$	A variable indicating the log of size of firm i in total assets for fiscal year t
$INFSM_{it}$	A variable indicating the log of common shares traded of firm i in fiscal year t
MA_{it}	An indicator variable equal to one if firm i reports a merger and acquisition in fiscal year *t* and zero otherwise
MB_{it}	A variable measured as the price per share of common equity of firm i in fiscal year *t* divided by the book value per share of firm i in fiscal year t
LIT_{it}	A variable equal to one if the firms operates in SIC codes 2833 – 2836, 3600 – 3674, 5200 – 5961, or 7370 – 7374 in fiscal year *t* and zero otherwise
ROA_{it}	A variable. indicating return on assets measured as firm i's net income in period *t* divided by firm i's total assets also in fiscal year t
Z_{it}	A variable indicating firm i's Altman Z Score for fiscal year t
CR_{it}	A variable indicating firm i 's current ratio in fiscal year t
DP_{it}	A dummy variable equal to one and zero otherwise for firms that made a dividend payment during fiscal year t
$INVT_{it}$	A variable equal to the firm i's total year *t* divided by its total assets
$DIFSRE_{it}$	A variable equal to the firm i's year *t* less year t-1 difference in the percentage of shares owned by the CEO
RET_{it}	A variable indicating firm i's end of fiscal year stock returns with dividends reinvested in fiscal year t
$HIO10_{it-1}$	A variable equal to one if firm i has a CEO who owns at least 10% of common stock in fiscal year *t* – 1 and equal to zero otherwise
$HIO15_{it-1}$	A variable equal to one if firm i has a CEO who owns at least 15% of common stock in fiscal year *t* – 1 and equal to zero otherwise
$HIO20_{it-1}$	A variable equal to one if firm i has a CEO who owns at least 20% of common stock in fiscal year *t* – 1 and equal to zero otherwise

4. Results

4.1 Descriptive statistics

Table II shows Pearson's correlations for model variables. These univariate tests show that HIO is positively related with the likelihood of an adverse 404 opinion. In addition, HIO decreases with the size of the firm and HIO firms are less likely to pay dividends or engage in merger and acquisition activity. HIO companies report higher ROAs and market to book ratios. Table III provides the differences in means between firms identified with ineffective ICFR and firms with effective ICFR for the variables of interest and control variables in our sample. Firms with ineffective ICFR report lower ROAs (ROA_{it}), market to book ratios (MB_{it}), current ratios (CR_{it}), and stock returns (RET_{it}). Ineffective ICFR firms tend to be smaller ($lnTA_{it}$) and are less likely to pay dividends (DP_{it}) and more likely to experience financial duress (Z_{it}). In addition, ineffective ICFR firms are more likely to be managed by HIO ($HIO10_{it-1}$) managers.

4.2 Ineffective internal controls over financial reporting models – control variables

Table IV displays the results of our ineffective controls – HIO tests for *H1*. Regarding controls, findings show that $lnTA_{it}$ is negative and statistically significant, consistent with the predicted direction suggesting that larger firms with greater scrutiny and more sophisticated and highly developed financial reporting are less likely to incur an adverse 404 opinion. Findings also show that the likelihood of ineffective controls decrease with lower information asymmetry. ROA_{it} is negative and significant at ($p < 0.005$), consistent with the predicted direction implying that high operational financial performance reduces the probability of an adverse 404 opinion. CR_{it} is negative, consistent with the predicted symbol suggesting more liquid firm are less likely to receive an adverse 404 opinion. Also dividend paying firms are less likely to have ineffective internal controls. Finally, results also show the predicted negative association between stock returns and an adverse 404 opinion.

4.3 Ineffective internal controls over financial reporting models – high insider ownership variable of interest

Table IV further displays the results of our HIO variables of interest. For robustness, to our primary HIO 10 per cent measure, we include results at the HIO 15 and 20 per cent levels. Findings show that *HIO* is positive and statistically significant across all these measures consistent with our study's predictions for *H1*. HIO firms are more likely to have ineffective ICFR implying further that powerful CEO's in HIO firms with financial reporting discretion may be less inclined to subject their operations to the additional scrutiny and expanded levels of monitoring required to maintain effective ICFR. Additionally, this finding is consistent with the COSO's internal controls integrated framework, which identifies top management as the foundational basis of effective ICFR COSO (Committee of Sponsoring Organizations of the Treadway Commission), 2013, and supports prior literature that tie firms' maintenance or lack thereof of internal controls to corporate culture as established by top management (Ogneva *et al.*, 2007; Ge and McVay, 2005).

4.4 Multinominal and probit regression remediation models

Table V reports results comparing the respective ex-ante HIO characteristics between:

- firms with ineffective controls that were able to successfully remediate versus firms with effective controls; and
- firms with ineffective controls that were not able to successfully remediate versus firms with effective controls.

Table II Pearson's correlations for model variables

Variables	$ICFR_{it}$	$lnTA_{it}$	$INFSM_{it}$	MA_{it}	MB_{it}	LIT_{it}	ROA_{it}	Z_{it}	CR_{it}	DIP_{it}	$INVT_{it}$	$DIFSRE_{it}$	RET_{it}	$HIO10_{it-1}$
$ICFR_{it}$	1													
$lnTA_{it}$	−0.086 (0.000)	1												
$INFSM_{it}$	−0.060 (0.000)	0.651 (0.000)	1											
MA_{it}	−0.010 (0.295)	0.155 (0.000)	0.076 (0.000)	1										
MB_{it}	−0.023 (0.020)	−0.008 (0.430)	0.074 (0.000)	0.047 (0.000)	1									
LIT_{it}	0.027 (0.005)	−0.149 (0.000)	0.116 (0.000)	−0.066 (0.000)	0.048 (0.000)	1								
ROA_{it}	−0.100 (0.000)	0.027 (0.005)	0.035 (0.000)	0.057 (0.000)	0.263 (0.000)	0.038 (0.000)	1							
Z_{it}	−0.051 (0.000)	−0.292 (0.000)	−0.130 (0.000)	−0.065 (0.000)	0.258 (0.000)	0.141 (0.000)	0.453 (0.000)	1						
CR_{it}	−0.023 (0.031)	−0.389 (0.000)	−0.197 (0.000)	−0.117 (0.000)	−0.055 (0.000)	0.177 (0.000)	0.062 (0.000)	0.536 (0.000)	1					
DIP_{it}	−0.074 (0.000)	0.379 (0.000)	0.070 (0.000)	−0.009 (0.349)	0.017 (0.091)	−0.185 (0.000)	0.111 (0.000)	−0.069 (0.000)	−0.181 (0.000)	1				
$INVT_{it}$	−0.012 (0.213)	−0.168 (0.000)	−0.093 (0.000)	−0.046 (0.000)	−0.038 (0.000)	0.146 (0.000)	0.033 (0.000)	0.083 (0.000)	0.100 (0.000)	0.002 (0.774)	1			
$DIFSRE_{it}$	0.011 (0.288)	0.020 (0.057)	0.019 (0.063)	0.013 (0.217)	−0.035 (0.000)	0.007 (0.484)	−0.015 (0.153)	−0.055 (0.000)	−0.020 (0.074)	0.011 (0.056)	−0.019 (0.0678)	1		
RET_{it}	−0.057 (0.000)	−0.003 (0.745)	−0.028 (0.007)	−0.025 (0.013)	0.194 (0.000)	0.013 (0.201)	0.189 (0.000)	0.130 (0.000)	−0.008 (0.500)	−0.026 (0.012)	0.004 (0.734)	−0.068 (0.000)	1	
$HIO10_{it-1}$	0.024 (0.014)	−0.111 (0.000)	−0.130 (0.000)	−0.034 (0.000)	0.027 (0.006)	−0.018 (0.056)	0.050 (0.000)	0.117 (0.000)	0.026 (0.031)	−0.024 (0.011)	0.050 (0.000)	−0.217 (0.000)	0.002 (0.860)	1

Table III Ineffective–effective control firms' difference in means

Variables	Ineffective ICFR Variable means	Predicted difference	Effective ICFR Variable Means	Difference	P-value Difference in means (two-tailed)
$InTA_{it}$	7.09	<	7.852	−0.766	0.000
$INFSM_{it}$	18.47	<	18.919	−0.446	0.000
MA_{it}	0.51	<	0.54	−0.027	0.295
MB_{it}	2.57	<	2.97	−0.402	0.020
LIT_{it}	0.27	>	0.213	0.06	0.005
ROA_{it}	0.00	<	0.047	−0.045	0.000
Z_{it}	3.33	<	4.423	-1.089	0.000
CR_{it}	2.28	<	2.489	−0.212	0.031
DP_{it}	0.40	<	0.598	−0.196	0.000
$INVTA_{it}$	0.09	<	0.101	−0.008	0.213
$DIFSRE_{it}$	−0.01	<	−0.056	0.048	0.288
RET_{it}	2.16	<	14.589	-12.43	0.000
$HIO10_{it-1}$	0.11	>	0.077	0.034	0.014
$HIO15_{it-1}$	0.08	>	0.05	0.032	0.005
$HIO20_{it-1}$	0.05	>	0.033	0.021	0.020

Table IV The relation between ineffective ICFR (adverse 404 auditors' opinions) and HIO variables of interest

Variables	Predicted sign	HIO10	HIO15	HIO20
Constant		1.912 (0.009)	1.843 (0.012)	1.900 (0.009)
$InTA_{it}$	−	−0.082 (0.036)	−0.087 (0.028)	−0.087 (0.028)
$INFSM_{it}$	−	−0.077 (0.046)	−0.071 (0.066)	−0.074 (0.056)
MA_{it}	+	0.041 (0.543)	0.043 (0.526)	0.039 (0.568)
MB_{it}	−	−0.020 (0.068)	−0.020 (0.052)	−0.020 (0.062)
LIT_{it}	+	0.242 (0.053)	0.244 (0.052)	0.243 (0.052)
ROA_{it}	−	−1.255 (0.001)	−1.259 (0.001)	−1.257 (0.001)
Z_{it}	−	−0.013 (0.267)	−0.014 (0.253)	−0.013 (0.274)
CR_{it}	−	−0.062 (0.013)	−0.064 (0.011)	−0.063 (0.011)
DIP_{it}	−	−0.174 (0.016)	−0.182 (0.013)	−0.179 (0.014)
$INVT_{it}$	−	−0.716 (0.109)	−0.742 (0.106)	−0.700 (0.118)
$DIFSRE_{it}$	−	0.017 (0.642)	0.017 (0.641)	0.016 (0.668)
RET_{it}	−	−0.003 (0.002)	−0.003 (0.002)	−0.003 (0.002)
$HIO10_{it-1}$	+	0.200 (0.048)	.	
$HIO15_{it-1}$	+		0.317 (0.006)	
$HIO20_{it-1}$	+			0.282 (0.042)
Fixed-year and industry effects		Yes	Yes	Yes
Prob>Chi^2		0.000	0.000	0.000
Pseudo R^2		0.166	0.168	0.166
Observations		N = 7,230	N = 7,230	N = 7,230

Note: $ICFR_{it} = \alpha_0 + \alpha_1 InTA_{it} + \alpha_2 INFSM_{it} + \alpha_3 MA_{it} + \alpha_4 MB_{it} + \alpha_5 LIT_{it} + \alpha_6 ROA_{it} + \alpha_7 Z_{it} + \alpha_8 CR_{it} + \alpha_9 DP_{it} + \alpha_{10} INVT_{it} + \alpha_{11} DIFSRE_{it} + \alpha_{12} RET_{it} + \alpha_{13} HIO_{it-1} + \varepsilon_{it}$

Hence estimates should be interpreted as showing the respective associations between HIO on successfully and unsuccessfully remediating a 404 opinion relative to firms with effective internal controls. Findings show that relative to our benchmark effective controls sample, HIO firms are more likely to successfully remediate ineffective controls. In particular, firms that successfully (unsuccessfully) remediate report positively significant (insignificant) coefficients across all levels of HIO relative to firms with effective controls. Finally, for our sample of ineffective control firms only, we use a probit regression to supplement our multinominal

Table V Multinomial probit regression results comparing successful and unsuccessful remediation of ineffective ICFR with effective control firms across levels of HIO

Variables	*Remediate vs Effect. Controls HIO10*	*No Remediate vs Effect. Controls HIO10*	*Remediate vs Effect. Controls HIO15*	*No Remediate vs Effect. Controls HIO15*	*Remediate vs Effect. Controls HIO20*	*No Remediate vs Effect. Controls HIO20*
Constant	−0.076 (0.974)	−0.044 (0.974)	−0.131 (0.875)	−0.090 (0.945)	−0.004 (0.997)	−0.130 (0.921)
$lnTA_{it}$	−0.088 (0.146)	−0.147 (0.055)	−0.090 (0.138)	−0.148 (0.054)	−0.090 (0.141)	−0.148 (0.052)
$INFSM_{it}$	−0.095 (0.113)	−0.088 (0.271)	−0.091 (0.124)	−0.085 (0.278)	−0.101 (0.106)	−0.083 (0.289)
MA_{it}	0.066 (0.478)	−0.042 (0.749)	0.073 (0.437)	−0.040 (0.760)	0.062 (0.510)	−0.037 (0.776)
MB_{it}	−0.011 (0.458)	−0.006 (0.741)	−0.012 (0.405)	−0.006 (0.740)	−0.011 (0.430)	−0.006 (0.742)
LIT_{it}	0.230 (0.039)	0.177 (0.274)	0.228 (0.039)	0.178 (0.276)	0.224 (0.043)	0.177 (0.275)
ROA_{it}	−1.957 (0.000)	−1.045 (0.215)	−1.980 (0.000)	−1.046 (0.215)	−1.963 (0.000)	-1.044 (0.216)
Z_{it}	0.006 (0.749)	−0.018 (0.573)	0.006 (0.760)	−0.019 (0.559)	0.006 (0.719)	−0.019 (0.544)
CR_{it}	−0.084 (0.017)	−0.114 (0.083)	−0.086 (0.015)	−0.113 (0.086)	−0.088 (0.011)	−0.113 (0.088)
DIP_{it}	−0.196 (0.055)	−0.325 (0.029)	−0.210 (0.040)	−0.324 (0.030)	−0.210 (0.040)	−0.326 (0.029)
$INVT_{it}$	−0.560 (0.179)	−0.295 (0.647)	−0.509 (0.229)	−0.296 (0.647)	−0.500 (0.234)	−0.290 (0.654)
$DIFSRE_{it}$	0.010 (0.866)	−0.018 (0.785)	0.011 (0.846)	−0.014 (0.824)	0.004 (0.940)	−0.010 (0.868)
RET_{it}	−0.003 (0.021)	−0.005 (0.027)	−0.003 (0.023)	−0.005 (0.006)	−0.003 (0.019)	−0.009 (0.006)
$HIO10_{it}$	0.401 (0.006)	−0.055 (0.831)				
$HIO15_{it}$			0.570 (0.000)	−0.011 (0.945)		
$HIO20_{it}$					0.509 (0.004)	0.114 (0.712)
$Prob>Chi^2$	0.000		0.000		0.000	
$Pseudo\ R^2$	0.052		0.053		0.051	
Observations	7,230		7,230		7,230	

Notes: $Remed_{it} = \alpha_0 + \alpha_1 lnTA_{it} + \alpha_2 INFSM_{it} + \alpha_3 MA_{it} + \alpha_4 MB_{it} + \alpha_5 LIT_{it} + \alpha_6 ROA_{it} + \alpha_7 Z_{it} + \alpha_8 CR_{it} + \alpha_9 DP_{it} + \alpha_{10} INVT_{it} + \alpha_{11} DIFSRE_{it} + \alpha_{12} RET_{it} + \alpha_{13} HIO_{it-1} + \varepsilon_{it}$

remediation tests by assigning a binary dependent variable equal to one to denote a successful remediation and zero otherwise. Results in Table VI show that the likelihood of successfully remediating an adverse 404 opinion increases with HIO (*H2*).

5. Robustness

We evaluate the robustness of our results with the following additional tests. To avoid clutter we do not report these results formally[2]. Initially, we rerun our primary probit model as depicted in Table IV [equation (1)] using fixed effects logit regressions. Results of these regressions are quantitatively similar to our main findings. In particular, all of our $HIO10_{it-1}$, $HIO15_{it-1}$ and $HIO20_{it-1}$ insider ownership coefficients variables of interest are significant at the $p = 0.056$, $p = 0.009$ and $p = 0.047$ levels, respectively. Similar to our additional tests for equation (1) we also rerun our multinomial model using a logit regression remediation model [equation (2), Table V]. Findings once again document that relative to our benchmark effective controls sample, HIO firms are more likely to successfully remediate an adverse internal control opinion than non-HIO firms as all of the HIO_{it-n} coefficients remain significantly positive.

6. Conclusion

This study examines the relation between ineffective ICFR and HIO, to determine if HIO affects a firm's likelihood of having ineffective ICFR. Our study further investigates the effect of insider ownership on successful remediation of an adverse 404 opinion. Results provide evidence that while the occurrence of an adverse opinion increases with HIO, HIO firms are more likely to successfully remediate 404 ineffective controls opinions. We theorize that prior to an adverse 404 opinion entrenched managers avoid internal control financial reporting oversight and monitoring. After an adverse opinion, however, and within the context of an imminent and explicit value reducing 404 opinion, powerful high insider owner managers are motivated to remedy ineffective controls.

Table VI The relation between successfully remediating ineffective ICFR and HIO variables of interest

Variables	*Predicted Sign*	*HIO10*	*HIO15*	*HIO20*
Constant		-1.211 (0.432)	-1.470 (0.347)	-1.239 (0.425)
$InTA_{it}$	–	0.121 (0.278)	0.111 (0.321)	0.106 (0.340)
$INFSM_{it}$	–	0.007 (0.941)	0.024 (0.810)	0.014 (0.889)
MA_{it}	+	0.192 (0.330)	0.209 (0.304)	0.159 (0.414)
MB_{it}	–	0.027 (0.416)	0.025 (0.442)	0.025 (0.451)
LIT_{it}	+	0.126 (0.616)	0.112 (0.655)	0.084 (0.737)
ROA_{it}	–	−0.494 (0.629)	−0.482 (0.638)	−0.476 (0.642)
Z_{it}	–	0.065 (0.076)	0.065 (0.078)	0.067 (0.067)
CR_{it}	–	0.063 (0.378)	0.057 (0.424)	0.063 (0.373)
DIP_{it}	–	0.262 (0.249)	0.231 (0.311)	0.248 (0.273)
$INVT_{it}$	–	0.083 (0.941)	0.212 (0.848)	0.362 (0.740)
$DIFSRE_{it}$	?	0.061 (0.537)	0.062 (0.540)	0.054 (0.585)
RET_{it}	–	0.005 (0.058)	0.005 (0.064)	0.005 (0.074)
$HIO10_{it}$	+	0.565 (0.057)		
$HIO15_{it}$	+		0.794 (0.023)	
$HIO20_{it}$	+			0.074 (0.071)
Fixed Year and Industry Effects		Yes	Yes	Yes
Prob>Chi^2		0.030	0.019	0.050
Pseudo R^2		0.139	0.145	0.132
Observations		N = 276	N = 276	N = 276

Note: $Remed_{it} = \alpha_0 + \alpha_1 InTA_{it} + \alpha_2 INFSM_{it} + \alpha_3 MA_{it} + \alpha_4 MB_{it} + \alpha_5 LIT_{it} + \alpha_6 ROA_{it} + \alpha_7 Z_{it} + \alpha_8 CR_{it} + \alpha_9 DP_{it} + \alpha_{10} INVT_{it} + \alpha_{11} DIFSRE_{it} + \alpha_{12} RET_{it} + \alpha_{13} HIO_{it-1} + \varepsilon_{it}$

From a standard setting perspective, results of this study provide support for the implementation of the internal control assessment provisions of Sarbanes Oxley. From a corporate governance policy making perspective, results further suggest that internal auditors, external auditors, boards, as well as investors, and other stakeholders should consider the potential agency effects of HIO on firms' corporate governance quality and practices.

Limitations of the study include the sole reliance on 404 opinions as a proxy for effective controls. Although Compustat contains a substantive database on SOX 404 auditor's opinions, more explicit descriptions of the sources of ineffective or materially weak controls as they for example relate to managements' assertions and within a HIO could potentially provide additional insight. Future HIO studies could also include examinations of firms who disclose ineffective ICFR versus firms who fail to disclose and what if any effect these findings would have on the likelihood of a successful remediation. Additional HIO SOX 404 studies could also examine the effect of senior managers' stock option compensation on CEO incentives to avoid 404 scrutiny as well as remediating adverse 404 opinions (Essid, 2012).

Notes

1 Section 12 of The Securities and Exchange Act of 1934 defines an insider as the company's officers and directors and any beneficial owners of more than ten percent of a class of the company's equity registered under Section 12 of the Act.

2 Findings of all robustness tests are available upon request.

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Appendix. Z-Score

We calculate Z-score using Altman (1968) bankruptcy model as follows:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + .999X_5 \quad (3)$$

where;
X_1 = working capital/total assets;

X_2 = retained earnings/total assets;

X_3 = earnings before interest and taxes/total assets;

X_4 = market value of equity/total liabilities; and

X_5 = sales/total assets.

Except for the variable market value of equity, which was estimated by multiplying price per share and common shares outstanding at the end of fiscal year, all the variables to estimate factors X1-X5 in equation (3) are obtained from the Compustat database.

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