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Internal Control Weakness and Managerial Myopia: Evidence from SOX Section 404 Disclosures

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Abstract

Problem/ Relevance: Managerial myopia is an important issue of interests to academics, practitioners, and regulators as managers have been condemned for their obsession with short-term earnings and myopic investment decisions that sacrifice firms' long-term value for shareholders. This article contributes by examining whether the quality of firms' internal controls over financial reporting (ICFR) is associated with managerial myopia.

Research Objective/ Questions: The purpose of this study is to examine whether managers in firms reporting material internal control weaknesses (ICW) under Section 404 of the Sarbanes-Oxley Act (SOX) of 2002 engage in myopic behaviors more than those in firms without reporting ICW.

Methodology: The study uses the logit regression model to investigate a sample obtained from Compustat for the period of 2005-2013.

Major Findings: The study finds a positive association between internal control weaknesses reported by auditors under Section 404 of the SOX and managerial short-termism which is measured by the probability of cutting R&D expenses in the current year from the previous year.

Implications: Whereas prior studies mostly examine the impact of internal controls on accounting quality, this study demonstrates the implication of internal controls beyond financial reporting quality by showing an association between internal control quality and managerial myopia. Future research may further investigate the association between firms' financial reporting quality and managerial investment decisions.

Keywords: internal control; internal control over financial reporting; internal control weakness; Sarbanes-Oxley Act (SOX) Section 404; managerial myopia; managerial short-termism

Introduction

The purpose of this study is to examine whether the quality of firms' internal controls over financial reporting (ICFR) is associated with managerial myopia or managerial short-termism. Specifically, I examine whether managers in firms reporting material internal control weaknesses (ICW) under Section 404 of the Sarbanes-Oxley Act (SOX) of 2002 engage in myopic behaviors more than those in firms without reporting ICW. Internal controls over financial reporting are the policies and procedures that firms use to ensure financial statements are reliable (Skaife et al.,

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2013). Internal controls are designed to ensure that managers pursue organizations' objectives diligently and that the board of directors can monitor those objectives on behalf of shareholders (COSO, 2011).

The Sarbanes-Oxley Act requires firms to periodically evaluate and report the quality of their internal controls over financial reporting. For the purpose of enhancing the quality of external financial reporting provided by public companies (Coates and Srinivasan, 2014), Section 404 of the SOX requires firms' external auditors to issue independent opinions on the effectiveness of internal controls in the annual report.

Firms reporting internal control weaknesses under Section 404 are considered to have ineffective ICFR. The Public Company Accounting Oversight Board's (PCAOB) Auditing Standards No. 2 states that the existence of a material internal control weakness requires both the independent auditor and management to conclude that internal control over financial reporting is not effective. Moreover, the PCAOB's Auditing Standards No. 5 states that a material weakness is 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. Internal control weaknesses caused by poor control environment and insufficient financial reporting procedures result in high risk of material intentional and/or unintentional error in financial statements (AICPA 1995).

Prior studies document positive outcomes of maintaining effective ICFR such as high financial reporting quality (Doyle et al., 2007). That is, internal control weaknesses decrease the quality of financial information provided to external users. Erroneous financial reporting resulted from ineffective internal control can increase information asymmetry that can be taken advantage of by insiders (Skaife et al., 2013). Additionally, effective ICFR play an internal governance role in mitigating agency problems and lead to lower cost of equity and debt (Ashbaugh-Skaife et al., 2009; Kim et al., 2011; Gao and Jia, 2016). While previous studies mostly examine the impact of firms' internal control on financial reporting quality, little is known about whether firms' internal control effectiveness affects managerial myopic behaviors.

To fill this gap in the literature, this study addresses the following research question: is the quality of firms' internal controls over financial reporting related to manager's myopic activities? Specifically, the study attempts to fill the gap in the literature by addressing the following research question: is there a positive association between internal control weaknesses and managers' myopic R&D activities? Managerial myopia or managerial short-termism refers to reducing long-term investments such as research and development (R&D) to meet or beat short-term earnings targets at the expense of long-term growth (Chen et al., 2015). Managerial myopia occurs when managers are concerned with the current market value of their firms and capital markets incorrectly price current earnings (Cheng et al., 2007; Mavruk, 2011).

Prior studies find that managerial myopia can be caused by agency conflicts and informational problems between outside shareholders and managers. Agency problems can motivate managerial short-termism because of employment concerns, poorly designed equity incentives, CEO contractual protection, or takeover threats (Stein, 1988; Graham et al., 2005; Chen et al., 2015). In addition, information problems can cause short-termism as managers exploit their information advantage to fool capital markets through signaling (Dallas, 2012). Especially, information asymmetry problems with respect to R&D, which is susceptible to managerial myopia, are high because the current and future outcomes related to R&D are greatly uncertain (Hillier et al., 2011).

I posit that internal control weaknesses are significantly associated with managerial myopia through information asymmetry and agency conflicts. Particularly, I hypothesize a positive association between ICW reported by auditors under Section 404 of the SOX and managerial short-termism which is measured by the probability of cutting R&D expenses in the current year

from the previous year. Such a positive association would suggest that managers in firms reporting internal control weakness are more likely to engage in myopic behaviors. Because ineffective internal controls can worsen information asymmetry and agency problems, firms with ineffective ICFR are likely to exhibit higher managerial myopia. Internal control problems can provide managers with more opportunities to engage in myopic behaviors because firms with ineffective internal controls do not have sufficient prevention and detection systems in place.

Effective internal controls result in high financial reporting quality which, in turn, enhances investment processes by reducing information asymmetry between managers and outside suppliers of capital and providing better monitoring. Furthermore, effective ICFR lead to lower cost of capital, which, in turn, can discourage cutting R&D expenses.

High-quality financial information arising from effective ICFR can help boards and shareholders to better monitor firms' investment decisions. In other words, managers in firms with poor-quality internal controls have more opportunities to engage in myopic behaviors due to ineffective monitoring and control. In sum, acting as firms' internal governance mechanisms, effective ICFR are likely to mitigate managerial myopia by reducing information asymmetry and agency problem. That is, ICFR can alleviate information asymmetry and agency problems associated with managerial myopic behaviors.

Using firms covered in Compustat database for the sample period of 2005-2013, I examine the association between material internal control weaknesses reported by auditors under Section 404 of the SOX and managerial short-termism. Consistent with the prediction, the findings suggest that firms reporting internal control weaknesses are more likely to exhibit managerial myopia. Using propensity score matching methodology in an attempt to alleviate potential endogeneity concerns yields similar results.

The study makes three main contributions. First, it contributes to accounting literature on internal control over financial reporting. Whereas prior studies mostly examine the impact of internal controls on accounting quality and information risk, this study demonstrates the implication of internal controls beyond financial reporting quality by documenting the economic consequence of ineffective internal controls. The study improves our understating of the role of internal controls in managerial investment decisions by showing that internal control quality is associated with managerial myopia.

Second, this paper contributes to finance literature on managerial myopia by identifying internal controls over financial reporting as one factor associated with managerial short-termism. Managerial myopia is an important issue of interests to academics, practitioners, and regulators (Chen et al., 2015) as managers have been condemned for their obsession with short-term earnings and myopic investment decisions that sacrifice firms' long-term value for shareholders (Chen et al., 2015). In fact, Graham, Harvey, and Rajgopal (2005) survey a significant number of CFOs in the US and summarize that a majority of CFOs are interested in satisfying the short-term performance targets at the expense of long-term firm value. Thus, improving our understanding of the factors associated with managerial myopia is important and the current study contributes by documenting a relationship between internal controls and myopia.

Third, the literature on corporate investments in R&D and innovation also benefits from this study. R&D investments are crucial for advancing innovation, representing one of the most important investment decisions made by managers. The study shows that firms' internal control environments are related to the extent to which companies invest in R&D.

The following section discusses prior studies. The third and fourth sections present hypothesis development and method, respectively. The fifth and sixth sections discuss empirical findings and additional analyses, respectively. The last section concludes.

Literature Review

Internal Control Weakness

The primary purpose of the Sarbanes-Oxley Act of 2002 is to enhance the accuracy and reliability of financial disclosures issued by corporations. The main objective of Section 404 of the Sarbanes-Oxley Act is to notify investors about firms' internal control weaknesses that may lead to erroneous financial reports or increase managers' opportunity to manage earnings. Section 404 requires management to assess the firm's internal controls and external auditors to issue independent opinions over management's internal control reports. It also requires material internal control weaknesses to be disclosed in the auditor and management reports.

Extensive research has examined the effects of maintaining effective ICFR. In this section, I summarize four primary effects documented by prior studies. First, studies have shown that effective internal controls lead to higher financial reporting quality. That is, internal control weaknesses decrease the quality of financial information provided to external users. Ineffective internal controls can raise the possibility of material errors in accounting reporting (Kinney and McDaniel 1989). Empirically, many studies directly examine the association between ICFR and financial reporting quality. For example, Doyle, Ge, and McVay (2007) study whether ICFR are related to earnings quality which is measured by accruals quality. They posit and find that internal control weaknesses are likely to lead to lower accruals quality because ineffective internal controls potentially allow errors in accrual estimation. Ashbaugh-Skaife, Collins, Kinney, and LaFond (2008) examine whether internal control weaknesses adversely affect accrual quality which is a crucial component of reliable financial reporting. They conjecture and find that firms with weak internal controls are likely to display lower quality of accruals because managers in such firms are less able to estimate reliable accrual amounts or intentionally report biased accrual estimates. Furthermore, Chan, Farrell, and Lee (2008) find that firms reporting internal control weaknesses under Section 404 engage in more earnings management than other firms.

The second consequence of effective internal controls is lower information asymmetry between managers and investors. Erroneous financial reporting resulted from ineffective internal controls can increase information asymmetry. Studies provide empirical evidence that ICFR result in economic consequences through their effect on information asymmetry. For instance, Skaife, Veenman, and Wangerin (2013) find higher profitability of insider trading in ICW firms than in non-ICW firms because managers advantageously use information asymmetry problems in ICW firms to earn higher profits from insider trading. Studies also have found that firms with internal control deficiencies have significantly higher costs of capital because of higher information risk (Ashbaugh-Skaife, Collins, Kinney, and LaFond, 2009; Beneish, Billings, and Hodder, 2008; Hammersley, Myers, and Shakespeare, 2007). Furthermore, credit stakeholders in the private debt markets deem ICW as information risk when setting the prices of loan and raise costs of bank loans for ICW borrowers (Kim, Song, and Zhang, 2011).

Third, studies have found that effective internal controls play internal governance roles in mitigating agency problems. For example, Gao and Jia (2016) investigate whether ICFR function as internal governance mechanisms in reducing agency problems associated with corporate cash holdings and guard corporate resources. They posit and find that investors are likely to value cash assets less in firms with ICW than they do in firms without ICW because investors predict possible managerial myopic behaviors in the deployment of cash assets in ICW firms. Moreover, D'Mello, Gao, and Jia (2017) show that effective ICFR lead to more efficient internal capital markets by mitigating agency problem related to multi-segment firms. High-quality accounting information provided by effective ICFR can help boards and shareholders to better monitor management's investment decisions.

Lastly, prior studies have identified an efficient operation as one beneficial consequence of effective internal controls. For example, Feng, Li, and McVay (2009) find that, relative to firms with effective internal controls, those with ineffective internal controls issue less accurate guidance because managers in firms with internal control weaknesses are likely to use poor-quality internal management reports to prepare guidance. Additionally, firms with ineffective internal controls manage inventory ineffectively (Feng et al. 2015), make suboptimal operational decisions (Cheng et al., 2017) and make suboptimal acquisition decisions in mergers and acquisitions (Darrough et al., 2018).

Although these studies examine the effects of firms' internal control quality, there is little empirical evidence on its impact on managerial myopic investment behaviors. The current study fills this gap in the literature by examining whether managers in firms reporting material internal control weaknesses (ICW) under Section 404 of the Sarbanes-Oxley Act (SOX) of 2002 engage in myopic behaviors more than those in firms without reporting ICW.

Managerial Myopia

Managerial myopia or managerial short-termism describes managerial behavior to reduce long-term investments such as research and development (R&D) for the purpose of meeting or beating short-term earnings targets (Chen et al., 2015). Prior studies find that managerial myopia can be caused by agency conflicts and informational problems between outside shareholders and managers. For example, Mavruk (2011) examines whether firms' ownership structure, which can be used as a governance mechanism, affects managerial myopia. He reasons that a high ownership concentration helps outside shareholders to monitor managers and ensures lower information asymmetry. Consistent with his rationale, the findings show that firms' high ownership concentration decreases managerial myopia caused by agency costs arising from a separation of ownership and control. Furthermore, Chen, Huang, and Lao (2015) find that quarterly earnings guidance reduces managerial myopia likely through a reduction in information asymmetry and better monitoring of managers.

Other studies also argue that agency problems can motivate managerial short-termism because of employment concerns, poorly designed equity incentives, CEO contractual protection, or takeover threats (Stein, 1988; Graham et al., 2005; Chen et al., 2015) and information problems can cause short-termism as managers exploit their information advantage to fool capital markets through signaling (Dallas, 2012).

Hypothesis Development

Firms' effective internal controls over financing reporting help mitigate information asymmetry and agency conflicts between managers and shareholders. Effective ICFR have positive impact on firms' financial reporting quality and more reliable financial information reduces insiders' information advantage (Doyle et al., 2007; Ashbaugh-Skaife et al., 2009). Erroneous financial reporting resulted from ineffective internal controls can increase information asymmetry that can be taken advantage of by insiders (Skaife et al., 2013). Additionally, effective ICFR play an internal governance role in mitigating agency problems by supplying internal checks and balances and restraining managers' capability to expropriate shareholders (Bushman and Smith, 2001; Acharya et al., 2011; Gao and Jia, 2016). Effective internal controls also lead to lower cost of equity and debt (Ashbaugh-Skaife et al., 2009; Kim et al., 2011; Gao and Jia, 2016).

Short-termism can be caused by agency conflicts and informational problems between outside shareholders and managers. Managerial myopia occurs when managers are concerned with the current market value of their firms and capital markets incorrectly price current earnings

(Bushee, 1998; Cheng et al., 2007; Mavruk, 2011). According to agency theory, one reason why firms might behave myopically, engaging in underinvestment is the separation of ownership and control (Jensen and Meckling, 1976; Mavruk, 2011). Agency problems that motivate short-termism can be caused by employment concerns, poorly designed equity incentives, CEO contractual protection, or takeover threats (Stein, 1988; Graham et al., 2005; Chen et al., 2015).

Another possible reason for short-termism is information asymmetry between information held by insiders and that held by outside shareholders. Information asymmetry with respect to R&D is high because the current and future outcomes related to R&D are greatly uncertain (Hillier et al., 2011). Information problems can cause short-termism as managers exploit their information advantage to fool capital markets through signaling (Dallas, 2012).

Following prior studies, I posit that internal controls over financial reporting are associated with managerial myopia through the avenue of information asymmetry and agency conflicts between managers and outside shareholders. Particularly, I hypothesize a positive association between ICW and myopia which suggests that managers in firms with internal control weakness are more likely to engage in myopic behaviors.

Effective internal controls improve firms' financial reporting quality. High-quality accounting enhances investment processes by reducing information asymmetry between managers and outside suppliers of capital and providing better monitoring (Biddle and Hilary 2006; Biddle et al. 2009). Investors and boards of directors utilize accounting reports to track and monitor firms' investment decisions (Gao and Jia, 2016). High quality financial reporting enhances firms' access to external financing. Effective ICFR lead to lower cost of capital, which, in turn, can discourage cutting R&D expenses.

Effective ICFR can help boards and shareholders to better monitor firms' investment decisions by generating high-quality financial information. Conversely, poor-quality internal controls can prevent them from effectively monitoring firms' investment decisions and, thus, managers in firms with internal control problems can have more opportunities to engage in myopic behaviors. In sum, internal control weaknesses are likely associated with managerial myopia in a positive direction as ICW result in more information asymmetry and agency problems that can motivate managers to behave myopically.

In sum, the quality of internal controls over financial reporting is likely associated with managerial myopia in a negative direction as ineffective ICFR result in more information asymmetry and agency problems that can motivate managers to behave myopically. To proxy for the quality of ICFR, I use the disclosure required by the Section 404 of the SOX. A firm is considered to have ineffective internal control systems if internal control weaknesses are reported by auditors. To proxy for managerial myopia, I use R&D expenses. R&D expenses are good proxies to measure managerial myopia because of their conflicting implications for short-term and long-term performances (Cheng et al., 2007). Furthermore, R&D expenses are subject to managerial myopia because managers typically have significant flexibility to cut or delay R&D projects and information asymmetry surrounding R&D projects is high (Hillier et al., 2011; Cremers et al., 2017). I capture managerial myopia, employing the propensity of reducing R&D expenditures. In conclusion, I test the following hypothesis.

H: There is a positive association between internal control weaknesses and managers' myopic R&D activities.

Methodology

I use Compustat to obtain a sample for the period of 2005–2013. Utilities (SIC codes 4900–4949) and financial firms (SIC codes 6000–6999) are excluded from the sample (Demerjian et al., 2012).

Additionally, non-accelerated filers are excluded from the sample. Section 404 requirement for reporting auditors' opinions about firms' internal control is effective only for accelerated filers whose market capitalization is at least \$75 million. In this sample of likely accelerated filers, both ICW and non-ICW firms are required to have at least \$75 million market capitalization. Non-accelerated firms tend not to report internal control weaknesses because they are exempt from more strict oversight (Ge et al., 2016). Because of this potential bias, I estimate the regression, using a sample of likely accelerated filers. The final sample totals 27,633 firm-year observations.

The model employed to examine an association between internal control weaknesses and managerial myopia is the logit regression as follows (the firm subscripts are omitted for brevity):

$$\text{RDCut} = \beta_0 + \beta_1 \text{ICW} + \beta_2 \text{TobinQ} + \beta_3 \text{LnTA} + \beta_4 \text{LEV} + \beta_5 \text{FCF} + \beta_6 \text{PPE} + \beta_7 \text{ZSCORE} + \varepsilon \quad (1)$$

RDCut = 1 if R&D decreases for firm *i* in year *t* compared with the previous year and 0 otherwise

ICW = 1 if firm *i* reports internal control weaknesses in year *t* and zero otherwise

TobinQ = (price*common shares+liabilities) / total assets

LnTA = natural logarithm of total assets

LEV = total debt/total assets

FCF = cash flow from operations / total assets

PPE = PPE/total assets

ZSCORE = 1.2 (working capital/total assets) + 1.4 (retained earnings/total assets) + 3.3 (EBIT/total assets) + 0.6 (market value of equity/book value of total liabilities) + (sales/total assets)

As a dependent variable, I use the probability of cutting R&D expenses in the current year from the previous year to measure managerial myopia, following prior studies (Chen et al., 2015). RDCut is an indicator variable that equals 1 if a firm decreases R&D expenses in the current year compared with the prior year and 0 otherwise.

R&D expenses are good measures to examine managerial myopic behaviors because of their conflicting implications for short-term and long-term performances (Cheng et al., 2007). Cutting R&D increases short-term earnings because R&D expenditures are immediately expensed as incurred under US GAAP. On the other hand, sufficient investments in R&D are important for increasing long-term value of the firms for shareholders as they advance innovation. However, profits from R&D investments are realized only in the long-term. Such a long horizon affects managerial decisions. R&D is particularly subject to managerial myopia as managers typically have significant flexibility to cut or delay R&D projects to increase current earnings (Cremers et al., 2017). Moreover, information asymmetry with respect to R&D is high because the current and future outcomes related to R&D are greatly uncertain (Hillier et al., 2011). Reducing R&D investment can improve firms' stock price in the short term if investors employ earnings information to estimate firm value or erroneously understand the positive earnings surprises caused by a decrease in R&D spending (Cremers et al., 2017). Markets may not fully comprehend the implication of R&D investment cuts. Prior studies indicate that stock markets have limited ability to properly value R&D investments (Cohen et al., 2013).

The main variable of interest is ICW which measures the likelihood of reporting auditors' opinions that indicate firms' internal control weaknesses under Section 404 of the SOX. ICW is a dummy variable that is equal to 1 if auditors' opinions report firms' internal control weaknesses and 0 if an effective internal control over financial reporting is in place. A firm is considered to have ineffective internal control systems in a particular year if internal control weaknesses are reported by auditors. The hypothesis that internal control weaknesses are positively associated with managerial myopia suggests a positive relation between RDCut and ICW. Thus, a positive coefficient on ICW ($\beta_1 > 0$) is expected.

Following prior literature, I use several control variables that influence firms' investment decisions and managerial myopic behaviors (Cheng et al., 2007; Mavruk, 2011; Cheng et al.,

2017). TobinQ measures the firms' growth opportunities. It is predicted to have a negative coefficient as firms with higher growth opportunities are less likely to cut R&D expenses. The firms' size which is measured by natural logarithm of total assets captures the firms' cash constraints. Smaller firms tend to have more cash shortage problems as their accessibility to external capital is more limited. Thus, LnTA is expected to have a negative sign as smaller firms are more likely to cut their R&D spending due to cash shortage.

I also control for the firms' leverage. Firms with higher level of leverage tend to have more incentive to increase earnings in order to avoid breaching debt covenants. The predicted sign for coefficient on leverage (LEV) is positive. I also include free cash flow calculated as cash flows from operations divided by total assets in year t . This variable, FCF, proxies for the availability of funds and is expected to have a negative coefficient. Firms with sufficient funds are less motivated to cut R&D at the expense of long-term innovation plans. Firms' investment increases with asset tangibility (PPE) and, thus, the expected sign for coefficient on PPE is negative. Because firms with higher bankruptcy risk are more likely to cut R&D, I control for bankruptcy risk measured by Altman Z-score. The expected sign for the coefficient on ZSCORE is negative. I winsorize the variables at the 1% and 99% level to alleviate the effect of outliers. In addition, I estimate the regression with industry and year fixed effects to moderate omitted variable problems. Standard errors at the firm level are clustered.

Results

Table I shows descriptive statistics of regression variables, displaying mean, standard deviation, first quartile, median, and third quartile. Table II shows Pearson correlation among variables. Providing preliminary support for the hypothesis, it reports a significantly positive correlation between ICW and RDCut. Table III displays the results obtained from estimating the logit regression (1). The regression is estimated to test the hypothesis that there is a positive association between internal control material weaknesses and managerial myopia. I posit a positive association between internal control weaknesses and managerial short-termism because managers in firms with ineffective internal controls are more able to engage in myopic behaviors due to higher information risk. The dependent variable is a dummy variable that equals 1 if a firm decreases R&D expenses in the current year compared with the prior year and 0 otherwise. That is, it measures the probability of cutting R&D expenses in the current year from the previous year.

Table I. Descriptive statistics of regression variables

Variable	Mean	Std Dev	First quartile	Median	Third quartile
RDCut	0.13	0.33	0.00	0	0.00
ICW	0.04	0.2	0.00	0	0.00
TobinQ	2.64	7.45	0.93	1.38	2.28
LnTA	6.52	1.99	5.17	6.38	7.77
LEV	0.2	0.31	0.00	0.14	0.30
FCF	-0.03	0.32	-5.53	0.03	0.08
PPE	0.28	0.26	0.07	0.19	0.43
ZSCORE	0.1	12.81	0.25	1.36	2.28

Table II. Pearson correlations among variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)RDCut	1							
(2)ICW	0.0244	1						
(3)TobinQ	0.0044	-0.0117	1					
(4)LnTA	-0.0602	-0.0401	-0.3982	1				
(5)LEV	0.0006	0.002	0.3501	0.0586	1			
(6)FCF	-0.0397	-0.0134	-0.6332	0.4069	-0.3744	1		
(7)PPE	-0.1682	-0.0397	-0.0728	0.1402	0.122	-0.0638	1	
(8)ZSCORE	-0.053	-0.0082	-0.6089	0.2877	-0.435	0.693	0.0283	1

Correlation coefficients in bold are significant at 1% level.

In line with my prediction, the variable of interests, ICW, is significantly positive at the 1 percent level, suggesting that managers in firms reporting internal control problems are more likely to behave myopically. The coefficient is economically significant as well since the probability of cutting R&D expenditures increases by about 28% when ICW are reported. In general, control variables in the regression are signed as expected or insignificant.

Table III. Internal Control Weakness and Managerial Myopia

Dependent variable: the likelihood of cutting R&D expenses from the previous year

	Coef.	p-value
ICW	0.282	0.003
TobinQ	-0.051	0.000
LnTA	-0.076	0.000
LEV	0.252	0.006
FCF	-0.294	0.009
PPE	-1.206	0.000
ZSCORE	-0.013	0.000
N	27,633	
R ²	0.152	

Additional Analysis

While a strong positive relationship between internal control weakness and managerial myopia is found, the findings are potentially subject to two types of endogeneity: omitted variable issue and reverse causality. First, the documented relationship may be driven by correlated omitted variables. That is, certain firm characteristics influencing internal control quality can also affect disparities in managers' myopic behaviors. For instance, smaller firms may be more likely to have

internal control problems because they have less sophisticated accounting departments (Ragothaman and Cornelsen, 2017) and simultaneously engage in more myopic activities. Correlated omitted variables can cause the documented significant association between internal control quality and myopia to be insignificant. The second potential endogeneity problem is reverse causality. It is possible that firms with higher level of managerial myopia have more internal control problems.

To address these potential endogeneity issues, I employ propensity score matching technique. This methodology compares non-ICW firms matched on the probability of receiving ICW reports with ICW firms. Because all other dimensions of ICW firms and non-ICW firms are the same, any observed outcome can be attributed to ICW rather than to other variables. The primary benefit of propensity score matching is that it does not require a specific functional form nor appropriate exogenous instrumental variables (Lennox, Francis and Wang 2012).

To construct a matched sample of ICW and non-ICW firms, I first compute the probability (i.e., the propensity score) of reporting ICW, using all firm characteristics included in the main regression (1). Using the propensity scores obtained from the logistics estimation, I conduct a neighbor match without replacement. The maximum difference between the probability of the treatment firms and that of its matching firms is required to be 0.001 so that the control sample firms can be similar to the treatment sample firms. Using the propensity matched sample, I reestimate the regression (1) and continue to find a significantly positive coefficient on ICW (Table IV). Employing an alternative methodology commonly used to address potential endogeneity issues confirms the main findings although this technique cannot entirely remove such issues.

Table IV. Propensity Score Matching

Dependent variable: the likelihood of cutting R&D expenses from the previous year

	Coef.	p-value
ICW	0.283	0.028
TobinQ	-0.072	0.053
LnTA	0.008	0.873
LEV	-0.723	0.029
FCF	-0.564	0.126
PPE	-1.412	0.006
ZSCORE	-0.038	0.012
N	2,066	
R ²	0.120	

Conclusion

This study examines an association between the quality of ICFR and managerial myopia. ICFR are important internal governance mechanisms as they are designed to improve firms' financial reporting quality. I hypothesize that the quality of firms internal controls over financial reporting is associated with managers' myopic behaviors through its impact on information asymmetry and agency conflict. Effective internal controls lead to high financial reporting quality which, in turn, reduces information asymmetry between managers and outside suppliers of capital. Furthermore,

high-quality financial information arising from effective internal controls decreases agency conflicts between managers and shareholders by helping boards and shareholders to better monitor firms' investment decisions. In sum, as internal governance mechanisms, effective internal controls can mitigate information asymmetry and agency problems related to managers' myopic activities. In line with the hypothesis, the results suggest that firms with internal control weaknesses tend to exhibit more managerial myopia, compared to firms without internal control weaknesses.

The documented association between internal control quality and managerial myopia suggests that ICFR function as governance mechanisms. Playing internal governance roles, internal controls help to reduce agency costs between managers and owners and, in turn, decrease managers' myopic R&D activities. These findings are in line with the findings of Kim et al. (2011) who argue that ICFR function as internal governance mechanisms in reducing agency costs associated with corporate cash holdings. They assume that investors predict possible managerial myopic behaviors in the deployment of cash assets in ICW firms. Similarly, the current study assumes that, in ICW firms, managerial myopic activities in R&D expenditures are predicted. Furthermore, my findings are consistent with the findings of D'Mello et al. (2017) who claim that effective internal controls weaken agency costs related to multi-segment firms. They assume that effective internal controls can help boards and shareholders to better monitor management's investment decisions and, thus, internal capital allocations. Consistent with their assumption, this study shows that effective internal controls improve managers' investment decisions by reducing myopic R&D activities.

The findings in this study further relate to the strand of research arguing managerial myopia can be mitigated by governance mechanisms. For example, my findings are in line with the findings of Mavruk (2011) who documents that a governance mechanism, namely a firm's ownership structure, decreases managerial myopia. Taken together, the results of the current study emphasize the significance of internal control as an internal governance mechanism, complementing studies on a relation between managerial myopia and external governance.

This study further adds to the line of research showing the economic consequences of ICW disclosures of the SOX 404. The studies in this line of research assume that information asymmetry between managers and investors increase as a result of ICW (Kim et al., 2011; Beneish et al., 2008; Hammersley et al., 2007; Beneish et al., 2008; Ashbaugh-Skaife et al., 2009; Kim et al., 2011; Skaife et al., 2013). The current study also assumes and shows that poor-quality internal controls give managers more opportunities to engage in myopic behaviors through their impact on information asymmetry problems. Overall, this study is important as it documents the implication of ICW beyond financial reporting quality although Section 404 was implemented to enhance the quality of financial reporting presented by public companies.

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