2014

The Role Of Independence In The Effectiveness Of Continuous Auditing

Dereck D. Barr
University of Mississippi

THE ROLE OF INDEPENDENCE IN THE EFFECTIVENESS OF CONTINUOUS AUDITING

A Dissertation
presented in partial fulfillment of requirements
for the degree of Doctor of Philosophy
in the E. H. Patterson School of Accountancy
The University of Mississippi

by

DERECK D. BARR

May 2014

ABSTRACT

In this study, I examine whether and how the frequency of internal audits (continuous vs. periodic), functional independence (separate vs. combined internal audit assurance and consulting functions), and the type of earnings management (accrual-based vs. real) affect internal auditors' perception of the likelihood managers will manipulate earnings. I find that earnings management is less likely when the internal audit function uses continuous auditing, regardless of the level of independence. However, the effect of independence is context-dependent such that internal auditors expect that real (accrual-based) earnings management is less likely when the internal audit function is independent (not independent), regardless of audit frequency. The findings of this study could be of importance to regulators, accounting researchers, and audit practice.

DEDICATION

This work is dedicated to my fiancé, Cory Pulliam, without whose limitless encouragement and love, sometimes impatience, but most of all his support I would have given up long ago.

ACKNOWLEDGMENTS

This journey would not have been possible without strong faith and thick skin, guidance from my committee, support from colleagues and faculty, encouragement from my family and closest friends, and financial support from The KPMG PhD Project and the AICPA. I would like to express my gratitude to my chair, Dr. Karl Wang, for allowing me freedom to pursue research that was a perfect marriage of my professional and academic experience. I would like to thank Dr. Kendall Bowlin, who has been a great mentor, friend, and is my first co-author. I would also like to thank Dr. Vicki Dickinson for sharing her knowledge, pushing me beyond my self-imposed limitations, and her unwavering support. Thanks to Dr. Rich Gentry, who freely offered useful nuggets of advice and support. I am indebted to Dr. Kelly Williams (it would have been a lonely journey without you and our pact), my fellow PhD students, and generous faculty (especially Mark, Dale, Michael, Annette, Stephanie, Kevin, Helen, Rachna, Aisha, Carolyn, Mitch, Rick, Morris and Sandra) who engaged me in both philosophical and jovial conversations instrumental in my development as both scholar and productive citizen of the academy, and who helped pilot test my instrument. I would be remiss if I did not thank my parents, siblings (especially Tiffany, who housed me at no charge), and closest friends (Marlon, Kavara, Alvin, Lawrence, Ernest, and William). They were my escape from the grind and always help to keep my feet on the ground. I am eternally grateful to the McNair Program for planting the PhD seed in my life as an undergraduate. Finally and most importantly, I would like to thank my fiancé, Cory Pulliam. He has always been a consistent supporter of my dreams—even when I lost sight of them or while I was at either a high or low point along this rollercoaster ride towards my goal.

TABLE OF CONTENTS

LIST OF TABLES

TABLE PAGE

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABM	Accrual-Based Earnings Management
AICPA	American Institute of Certified Public Accountants
CA	Continuous Auditing
CAE	Chief Audit Executive
COSO	Committee of Sponsoring Organizations of the Treadway Commission
EM	Earnings Management
IAF	Internal Audit Function
IAFREQ	Internal Audit Frequency (continuous vs. periodic)
IIA	Institute of Internal Auditors
INDEP	Independent (separate assurance and consulting functions)
NINDEP	Not Independent (combined assurance and consulting functions)
ORG_ID	Organizational Identification
PA	Periodic Auditing
REM	Real Earnings Management

CHAPTER I

INTRODUCTION

1.1 Research Questions

With the help of the internal audit function (IAF) and other divisions (e.g., accounting, operations); a significant number of firms have begun to implement continuous auditing (CA)[1] (PwC 2006). While this technology could increase the probability that auditors identify and report opportunistic behavior, e.g., earnings management, by managers (DeAngelo 1981a), specific involvement of the IAF during the development phase could present independence[2] concerns when the IAF subsequently uses CA in its assurance activities. Considering the IAF's dual role as provider of both assurance and consulting services to the firm (Institute of Internal Auditors (IIA) 2009) and the potential lack of independence when these functions are not properly segregated (Ahlawat and Lowe 2004), I examine the role that independence plays in the effectiveness of using CA to mitigate earnings management.[3] The presence (Chi et al. 2011) and focus of auditors (Burnett et al. 2012) during their evaluation of firm operating efficiency, related to *real* earnings management (Roychowdhury 2006); and financial reporting, related to *accrual-*

[1] I define continuous auditing as real-time audits of company data at the transaction level using technology.
[2] In the current study, I specifically focus on the notion of functional alignment of the IAF—such that auditors performing the assurance and consulting functions are segregated—as a means of increasing independence (Ahlawat and Lowe 2004).
[3] Healy and Wahlen (1999) define earnings management as managers' use of "judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes (e.g. bonuses) that depend on reported accounting numbers" (368). Earnings management may be *accrual-based* (e.g., adjusting accounting estimates) or *real* (e.g., adjusting the timing of operational decisions).

based earnings management (Prawitt et al. 2009) often dictates how managers decide to manipulate earnings to achieve a specific earnings target. In particular, various factors such as size of the IAF, complexity of the firm, and expertise of the IAF (Anderson et al. 2012), dictate whether and to what extent IAF assurance focuses on one type of earnings management or the other. Consequently, I also examine whether the type of earnings management (*accrual-based* vs. *real*) affects the role independence plays in the effectiveness of continuous auditing.

1.2 Motivation

Despite practitioners' and standards setters' assertions that more frequent audits could improve the quality of audit evidence (AICPA 2012; Gonzalez et al. 2012), continuous auditing (CA) research follows the fragmented approach of the broader auditing literature (Knechel et al. 2012, reviews this literature). Though audit quality should consider an assessment of the probability that an auditor will not only discover a breach in the accounting system, but also report any breach identified (DeAngelo 1981a, 1981b), the extant literature focuses on either discovery (e.g., Bedard and Biggs 1991; Krishnan 2003) or on the probability of reporting (e.g., Ashbaugh et al. 2003; Abbott et al. 2007). In this study, I employ a more holistic approach by examining the joint effects of continuous auditing, surrogate for the probability of discovery, and functionally separating the IAF into assurance and consulting functions, surrogate for the probability of reporting, on earnings management.

While auditor independence is a nuanced construct (e.g., Schneider et al. 2006; Christopher et al. 2009; Knechel and Sharma 2012), the primary focus is typically on the separation of assurance and consulting activities by the auditor. Because the IAF is often involved in the development of continuous auditing technology and subsequently uses that technology during its

assurance activities, I specifically focus on the notion of functional alignment of the IAF—such that auditors performing the assurance and consulting functions are segregated—as a means of increasing independence (Ahlawat and Lowe 2004). On the one hand, the internal audit standards do not restrict (IIA 2009) and both the IAF and firm management prefer the internal auditor provide both assurance and consulting activities. The idea is that serving in this dual role increases the value of the IAF to the firm (Bou-Raad 2000). On the other hand, this functional separation could help to address a potential social pressure threat from management (Brody and Lowe 2000), a self-review threat that results from potentially reviewing your own work (Church and Schneider 1992; Brody and Kaplan 1996), or an economic conflict of interest especially related to incentive compensation or other benefits from the firm (Dezoort et al. 2001; Schneider 2003) that could affect the likelihood internal auditors report breaches in the accounting system they identify.

The specific breach in the accounting system that I explore in this study is earnings management. In general, the implication is that higher quality auditors are associated with lower levels of earnings management (Watkins et al. 2004) and the prior accounting research acknowledges two distinct types: *accrual-based* and *real*. Recent studies examine the relationship between the types of earnings management because *real* earnings management is harder for outsiders to identify (Schipper 1989; Commerford et al. 2013) and presents greater long-term costs to stakeholders because it has negative consequences on future cash flows (Cohen and Zarowin 2010). While managers often prefer *real* earnings management (Graham et al. 2005), they generally either trade-off between the two types of earnings management (e.g., Cohen et al. 2008) or use the two as substitutes (Zang 2011). Studies examining the effect of continuous auditing on earnings management, all in the internal audit setting, solely focus on

real earnings management (Brown et al. 2007). This is likely because internal auditors generally perform more operational than financial audits (Gramling et al. 2004). However, internal audit assurance activities also affect financial reporting components such as financial statement evaluation (Prawitt et al. 2011; Christ et al. 2011) and *accrual-based* earnings management (Prawitt et al. 2009).

1.3 Methodology

This paper reports the results of a 2 x 2 x 2 between-subjects experiment that manipulates (1) the frequency of audits (continuous vs. periodic), (2) the level of independence (separate vs. combined assurance and consulting functions), and (3) the setting (*accrual-based* vs. *real* earnings management). In an internal audit setting, 173 practicing[4] internal auditors assessed the likelihood managers will adjust earnings to achieve an annual bonus in a hypothetical case scenario.

1.4 Results

Contrary to Schwartz and Young (2002) but consistent with prior CA literature, I find that internal auditors expect earnings management to be less likely when the IAF uses continuous auditing overall and within both the *ABM* and *REM* settings. I also find that effect of independence is context-specific. Specifically, internal auditors expect *ABM* to be less likely when the IAF is *not* independent, consistent with Church and Schneider (1992). Alternatively, in

[4] Participants in this study are practicing internal auditors representing a cross-section of large (two Fortune 500 companies), medium (one company), and small (one company) publicly-traded companies domiciled in the United States; 11 different industries, and all regions of the U.S. Participants were obtained through personal relationships with prior employers, internal audit colleagues, 13 local chapters of the Institute of Internal Auditors, and the Association of College and University Auditors.

the *REM* setting, internal auditors expect *REM* to be less likely when the IAF is independent, consistent with Plumlee (1985). Finally, I find that overall and within both earnings management settings, independence does not incrementally affect internal auditors' assessment of the likelihood of earnings management incremental to increased audit frequency. I also conduct several supplemental analyses to rule out alternative explanations for the primary findings.

1.5 Contributions

This study complements and builds on prior research in several ways. First, contrary to prior experimental auditing research, I focus on how joint effects of the probability of discovering (increased audit frequency) and the probability of reporting (auditor independence) affect the two general types of earnings management (as in prior archival research) rather than examining the strategic interaction between the auditor and the manager. Taken together, the findings of the current study suggest that more frequent audits help to deter earnings management, but increasing auditor independence differentially affects each type of earnings management. These findings are consistent with both anecdotal and empirical research on the IAF. *Real* earnings management involves the timing and or magnitude of operating decisions while *accrual-based* earnings management involves judgment related to choosing an accounting method to reach a desired level of earnings. However, *ABM* is easier for an outsider to identify, usually within generally accepted accounting principles, and is relatively transparent in the year of the change (Francis et al. 2005). Because the IAF typically has a fundamental knowledge of firm operations—based on repeated interactions with management and observations of operations—it is plausible this knowledge is sufficient to mitigate concerns that the IAF may not report *real* earnings management, regardless of frequency of audits and the separation (or lack thereof) of

the assurance and consulting functions. Alternatively, it is plausible that independence is less important in an internal auditor's assessment of the likelihood of *accrual-based* earnings management. Depending upon factors such as the size and quality of the IAF and the industry of the firm (Prawitt et al. 2009), increased audit frequency could improve the likelihood the IAF detects *accrual-based* earnings management. However, even though the IAF is considered an industry specialist and a firm insider (Francis 2004), it is plausible that as compared to operational knowledge of the firm, the auditor previously serving in a consulting role in the development of continuous auditing (CA) is essential in this setting.

Furthermore, though increasing numbers of internal audit functions (IAF) plan to implement CA in the near future, the likely impact of this audit practice on the auditor's ability to constrain management behavior is unclear. The extant literature examining CA is primarily in the accounting information systems domain (see Brown et al. 2007); however, only recently have studies emerged in auditing research. In addition, this paper contributes to the debate over the cost versus benefits tradeoff in implementing continuous auditing (Handscombe 2012).

Finally, although this study focuses on the IAF, there are implications for external auditors and accounting standard setters (Vasarhelyi et al. 2010), who both have an interest in continuous auditing. For example, to assist in the transition to CA and to improve audit efficiency, the AICPA has developed several white papers that provide guidance on the importance of CA and how both internal and external auditors can leverage existing technology to automate the components of the audit process, e.g. inventory counts (Zhang et al. 2012). The current study provides experimental evidence related to specific conditions where CA is most effective. However, as noted by the AICPA (2012), use of CA by the external auditor may require modification of auditing standards by the PCAOB that will allow a shift of tasks away from

traditional manual sampling and testing and change the definition of what constitutes impaired independence.

1.6 Organization of the Dissertation

The remainder of the paper is organized as follows: Section II presents a review of the literature and develops the hypotheses. Section III provides a summary of the experimental approach, while Section IV discusses the associated findings. Section V provides conclusions and implications for future research.

CHAPTER II

LITERATURE REVIEW

2.1 Earnings Management

Detecting and deterring earnings management is an important objective of audit practice, and the prior accounting research acknowledges two distinct types. In this section, I discuss the definitions of and relationship between *accrual-based* and *real* earnings management. Prior archival studies operationalize each type of earnings management in various ways. However, each rely wholly or in part on the fundamental definitions provided by Healy and Wahlen (1999). I use these definitions to develop my dependent measures. I also review the strategic manner in which managers use the two forms of earnings management, which has been of interest to researchers and corporate stakeholders (Commerford et al. 2013).

2.1.1 Definitions of Earnings Management

Healy and Wahlen (1999) define earnings management as managers' use of "judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes (e.g. bonuses) that depend on reported accounting numbers" (368). They also describe two forms of earnings management. The first form involves choosing an accounting method that results in desired levels of earnings, referred to as *accrual-based* earnings management (*ABM*), and the second involves the timing and/or magnitude of operating decisions to reach desired earnings, referred to as *real* earnings management (*REM*)

(Francis et al. 2005). The former is relatively transparent in the year of the change and is typically the focus of the external auditor and regulators (Brown and Pinello 2007). The latter, which contributes to operating decisions and ultimately affects future cash flows, is harder for an outsider (e.g., the external auditor) to identify (Schipper 1989).

Prior research focuses heavily on detecting whether and when earnings management takes place. This prior research generally falls into two categories: broad measures of earnings management (i.e., measures based on total accruals) and samples of firms suspected to have motivation to manage earnings. On the whole, these studies find evidence that firms manage earnings to "window-dress financial statements" for several reasons including upcoming public securities' offerings (e.g., Cohen and Zarowin 2010), the effect earnings have on managers' compensation (Cohen et al. 2008; Cohen et al. 2010) and the fact that the level of earnings in part affects managers' job security (e.g., Francis et al. 2005).

2.1.2 Accrual-Based Earnings Management (ABM)

One method of managing earnings to temporarily boost or reduce income is manipulation of accruals (e.g. allowance for doubtful accounts). Accruals are components of earnings distinguishable from real activities manipulation in that they do not directly affect current cash flows but their construction requires a great deal of managerial discretion (Public Companies Accounting and Oversight Board (PCAOB) 2011). Accounting research provides evidence that accounting accruals are related to management's incentives (e.g., Healy 1985; Jones 1991). Prior earnings management studies also infer that the use of accruals reflects opportunistic behavior by mangers to achieve specific short-term earnings targets, for example from analysts (Jensen and Meckling 1976; DeAngelo 1988). Archival studies examine this opportunistic financial reporting by examining whether earnings or accruals differ from expectation in a

manner favored by managers' incentives (see Francis et al. 2005, for a review). These studies demonstrate apparent earnings management; however, the conclusions are often criticized because of methodological difficulties (e.g. poor incentive proxies, omitted correlated variables (Libby et al. 2002)). These studies also use data from post-audited financial statements. This data represents the output of negotiations between managers and auditors—making it difficult to distinguish manager vs. auditor contributions and whose reporting incentives prevailed (Nelson et al. 2002). Experimental studies address these criticisms by holding contextual and firm variables constant and by manipulating incentives and assessing treatment effects rather than attempting to measure unexpected accruals. These studies also allow the researcher to clearly examine manager and auditor incentives before annual audits take place (Libby et al. 2002). In this study, I take the latter approach.

2.1.3 Real Earnings Management

An alternative method of managing earnings to temporarily boost or reduce income is manipulation of real activities (e.g., research and development, overproduction to lower cost of goods sold, price discounts to increase sales). *Real* earnings management (*REM*) is a relatively new research area but not new in practice. Arguably, *REM* imposes greater long-term costs on the firm and its shareholders than *ABM* because it has negative consequences on future cash flows – which has implications on long-term firm value (Cohen and Zarowin 2010). Earlier literature reviews of earnings management include general discussions of what *REM* means and how it may exist (Healy and Wahlen 1999; Schipper 1989) but the *REM* literature generally begins with Roychowdhury (2006). Like archival studies of *ABM*, *REM* studies are subject to similar criticisms related to factors such as poor incentive proxies and omitted correlated variables. Only recently, however, have experimental studies examining *REM* emerged (e.g.

Hunton et al. 2008).

2.1.4 Relationship Between Accrual-Based and Real Earnings Management

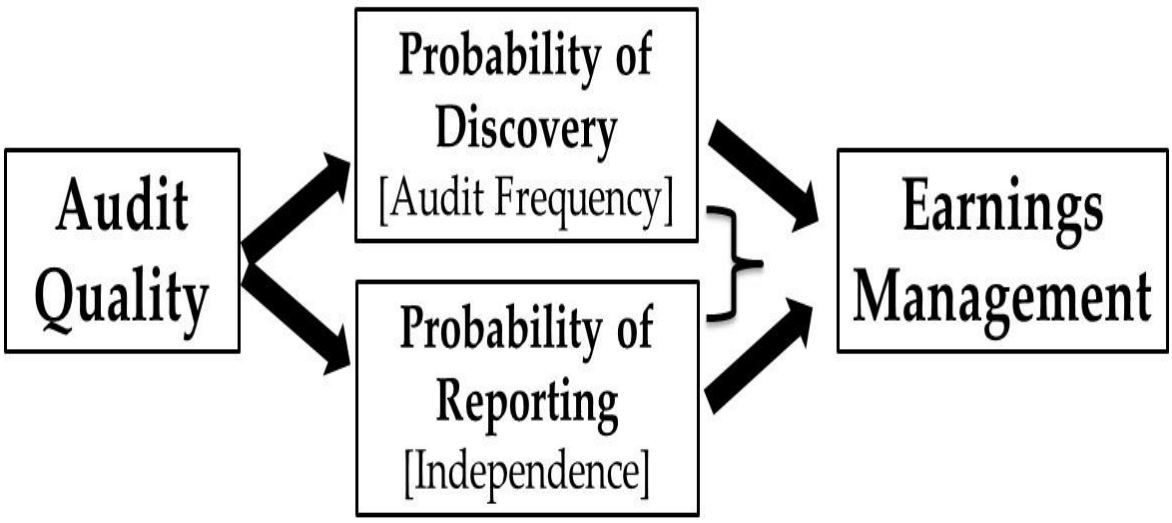
Accounting research reflects the external audit focus on *ABM* (e.g., Chen et al. 2010; Prawitt et al. 2009). These studies suggest that presence (Brown and Pinello 2007), quality (Chen et al. 2011), and or industry-specialization (Bedard and Biggs 1991) of the external auditor is associated with lower levels of *accrual-based* earnings management. In practice, while it is clear that earnings management exists, there is also evidence that managers prefer *REM* (which could have negative long-term consequences) (Graham et al. 2005; Roychowdhury 2006) over *ABM* (which is within-GAAP accounting choices). Factors such as the effectiveness of corporate governance (e.g., internal and or external audit quality) and regulatory scrutiny (Brown and Pinello 2007; Prawitt et al. 2009) also affect how managers chose to report earnings. However, less is known about auditors' perception of and response to management's use of *REM* when they become aware of it (Commerford et al. 2013).

Recent archival studies examine the relationship between *ABM* and *REM* and propose that managers trade-off between the two forms of earnings management in various contexts (Cohen and Zarowin 2010; Geiger and Rama 2006), such as after passage of the Sarbanes-Oxley Act of 2002 (Cohen et al. 2008), after issuance of seasoned equity offerings (Cohen and Zarowin 2010), or in the presence of high quality external auditors (e.g., Chi et al. 2011; Burnett et al. 2012). Managers may also use the two forms of earnings management as substitutes throughout the year Zang (2011). To my knowledge, no experimental studies examining this relationship current exist.

2.2 Audit Quality

While not the primary focus of the current study, I discuss audit quality as a theoretical framework from which I derive my two primary variables of interest – continuous auditing and internal auditor independence. A comprehensive view of the audit process (See Figure A) should consider not only the likelihood that the auditor will detect any breaches in the accounting system (e.g., earnings management) but also the likelihood the auditor will report what he or she identifies (DeAngelo 1981a, 1981b). While prior auditing research extensively examines the notion of audit quality in an earnings management context, it does so using a fragmented approach (see e.g., Watkins et al. 2004; Knechel et al. 2012) focusing on either the probability of discovery or on the probability of reporting as a proxy for the broader construct of audit quality. In the current study, I examine both the probability that an internal auditor will discover and report instances of opportunistic behavior (e.g., earnings management). The result is a more comprehensive view of auditing.

Figure A: Theoretical Framework



In Section 2.3, I discuss continuous auditing from a historical, theoretical, and practical perspective. In Section 2.4, I discuss independence and discuss the theoretical interaction between continuous auditing and independence in Section 2.5.

2.3 Continuous Auditing (CA)

Most corporations have a significant and growing number of electronically generated and processed transactions (PwC 2006). Initially performed at AT&T Corporation during the late 1980s (Vasarhelyi and Halper 1991), CA is one response to better analysis, control, and accuracy of internal and external reporting based on those electronically generated transactions (Teeter and Brennan 2010). In addition, the age of big data makes the the incremental cost of verifying more transactions relatively small, especially since most CA procedures are automated (Alles et al. 2002).

Currently used more so by the internal audit function (IAF), CA allows the auditor to efficiently and effectively respond to management's desire for greater assurance in this environment. A 2000 survey of internal auditors in several countries indicated nearly one-half the 364 respondents use some form of continuous monitoring software[5]. Respondents listed fraud detection, control self-assessment, and locating duplicate transactions among the most popular uses (Glover et al. 2000, p. 6). In addition, PricewaterhouseCoopers' *State of the Internal Audit Profession Study* found that more chief audit executives[6] pursue CA as a means to 1) shorten audit cycles and 2) respond more timely to changes in risk and control (PwC 2006). However,

[5] In the 1998 survey of the same population, that trend was only 24%. The report also indicated 10-20% of respondents use an internally created software for some tasks – presenting a need for more customizable software tools (Glover et al. 2000, p. 6).

[6] A term used to identify the top internal auditor in a company. This position is analogous to partner in an external audit firm and generally has officer status within the company.

actual implementation of CA often falls short in comparison to perceived widespread acceptance and desire for implementation for various reasons including firms' perceptions of the ease of use, availability of technological resources, and managerial support (Gonzalez et al. 2012). To that end, this study offers both practitioners and researchers additional settings where CA could be more effective.

External stakeholders, such as audit practitioners and standards setters, assert that more frequent audits could increase the likelihood that an auditor discovers opportunistic behavior by management throughout the year rather than at year-end (AICPA 2012). For example, the AICPA Assurance Services Executive Committee's Emerging Assurance Technologies Task Force recently updated the Wood Report (Canadian Institute of Chartered Accountants (CICA) 1999) and will create a series of white papers to offer insights into best practices and challenges related to continuous auditing (AICPA 2012). The Committee is also charged with creating data standards that will assist external auditors and other IAFs in transitioning to continuous auditing (Zhang et al. 2012). One of the barriers identified in the report is the potential need for revision of PCAOB auditing standards that will allow both the financial reporting and the assurance (auditing) models to 1) be more in line with the technological advances in business, in general and 2) shift from the current historical view to one this is more real time (e.g., continuous auditing). The Institute of Chartered Accountants in Australia, for example, recognizes this need and provided a written response to PCAOB Rulemaking Docket Matter No. 34: *Concept Release on Possible Revisions to PCAOB Standards Related to Reports on Audited Financial Statements* and included a white paper[7] that highlights how auditors in Australia have been able to

[7] The Institute of Chartered Accountants in Australia elicited the assistance of the Rutgers Continuous Auditing and Reporting Lab at Rutgers, The State University of New Jersey in the development of their white paper titled *Continuous Assurance for the Now Economy* (Vasarhelyi et al. 2010).

revolutionize the audit process using technology and the associated benefits (Vasarhelyi et al. 2010). Further, within the Committee of Sponsoring Organizations (COSO) of the Treadway Commission—a joint initiative of the American Accounting Association, AICPA, Financial Executives International, Institute of Management Accountants, and the IIA—framework for internal control are following components: the control environment, risk assessment, control activities, information and communication, and monitoring. COSO endorses and recommends CA as a means to ensure a firm properly monitors its internal control and enterprise risk environments. COSO asserts that when implemented and functioning properly, CA can enhance the efficiency and effectiveness of the entire internal control system (COSO 2009, 2013).

2.3.1 Continuous Auditing and the Audit Process

Use of CA by the IAF continues to rise while use by external auditors has not noticeably increased. One reason for this lag is because many firms are protective of their data and, therefore, reluctant or unwilling to allow comprehensive and ongoing access to systems by outside parties, including external auditors. This ongoing access also presents potential independence issues for both the IAF and the external auditor (AICPA 2012). Internal Auditors typically have more flexibility in audit time budgets (Kuhn Jr and Sutton 2010). However, the audit universe[8] often exceeds the available audit hours. Essentially, the combination of firm size and IAF personnel determine how much of the auditable units the IAF can review in any particular year. As a result, many of a company's functional areas may receive audits once per year or even as infrequently as once every five years. Despite these limitations on internal auditors, both intensity in regulatory pressure and increasing corporate complexity warrant more and more timely assurance (Warren Jr. and Smith 2006).

[8] For this study, the audit universe defines the scope of corporate operations, information systems, financial processes and controls, etc. expressly identified in the internal audit charter as available for audit.

2.3.2 Hypothesis Development

Prior research examining whether auditors' use of CA helps to deter earnings management is both limited and inconclusive[9]. On one hand, this research suggests that CA helps to constrain earnings management (Brown et al. 2007). On the other hand, the literature suggests that periodic auditing is more effective[10] (Schwartz and Young 2002). This prior research[11] employs a fragmented approach in that it focuses on the strategic interaction between the auditor and the manager's incentives and how that interaction affects the manager's decision to or not to manage earnings. This research finds that the potential audit efficiencies achieved by CA could have both functional and dysfunctional behavioral impacts on managers' decisions.

In the current study, I build on and reconcile this prior research by examining the role the internal audit function (IAF)—one of the other cornerstones of the corporate governance framework (Cohen et al. 2004; Gramling et al. 2004)—plays in mitigating both *accrual-based* and *real* earnings management. I also examine two factors associated with the auditor (audit

[9] Prior research on CA largely focuses on the importance of CA and discusses hypothetically (or post-implementation) how businesses can use CA to become more efficient, or summarizes the literature on one or more of those topics (Rezaee et al. 2002; Brown et al. 2007; Hunton and Rose 2010)[9]. A considerable amount of audit literature does, however, assess the use of information technology by auditors and the effect of IT on auditors' judgments (e.g. Messier 1995; O'Donnell and David 2000; Dowling and Leech 2007) and auditors' perceptions of need for technology in the audit process (e.g. Fischer 1996; Janvrin et al. 2008; Vasarhelyi et al. n.d.). Only one study (Hunton et al. 2008) specifically examines the audit-related effects of CA on managers.

[10] Schwartz and Young (2002) examine the interactive effect of frequency of interaction (continuous/random matching of auditors and managers) and verification (absent/present) on managers' truthful reporting of private information in an intra-firm (analog to internal auditing), multi-period setting. They find that verification and continuous matching each increased the relative frequency of honest reporting by managers. However, the interaction was only significant in the first of forty rounds. They argue that once managers form a reputation, that reputation affects how the auditor perceives the manager in the future and provides no additional audit efficiency.

[11] Hunton et al. (2008), the lone experimental study examining CA and earnings management, examine the extent to which continuous monitoring interacts with long-term and short-term performance-contingent incentive horizons to yield potential functional and dysfunctional effects on managers' willingness to use REM to achieve an earnings target. Seventy-two corporate managers participate in a between-subjects experiment that manipulates monitoring frequency (CA vs. periodic auditing) and incentive horizon (long vs. short). The authors measure REM in two ways: 1) managers' willingness to change quality control expenditures and 2) managers' willingness to continue or discontinue a hypothetical project. Three important findings emerge from this study. First, as predicted the authors find a negative relationship between REM and CA when the manager is motivated by short-term incentives, which is a functional result of implementing CA.

frequency and independence) rather than focus on the strategic interaction between the auditor and manager.

As previously mentioned, DeAngelo (1981a, 1981b) indicates more competent auditors (operationalized in this study as performing more frequent audits) provide higher quality assurance. While no prior studies have examined the effect of CA on *ABM*, internal audit assurance activities have been shown to mitigate *ABM* (Prawitt et al. 2009) and other financial reporting components such as financial statement evaluation (Prawitt et al. 2011). In addition, use of the IAF as a management training ground (Christ et al. 2011) is associated with measures of *ABM*. Specifically, Prawitt et al. (2009) find that higher quality IAF are associated with lower levels of *ABM*. While no prior studies have examined the relationship between CA and *ABM*, there is some evidence that CA decreases the likelihood of *REM* [12]. One distinct advantage the IAF has over the external auditor is significant institutional knowledge, garnered through more operational than financial type assurance activities (associated with *REM*), of the firm. Because the IAF generally performs more and arguably more effective operational audits (Christ et al. 2011), it is plausible that there could be differential effects of CA in the deterrence of *accrual-based* vs. *real* earnings management.

To the degree that management perceives the frequency of internal audits as a deterrent, opportunistic behavior (e.g., earnings management) should decline. This suggests the following hypotheses stated in the null form. *Ceteris paribus*,

H1: There is no difference in *continuous*, relative to *periodic*, auditing in deterring earnings management.

H1a: There is no difference in *continuous*, relative to *periodic*, auditing in deterring *accrual-based* earnings management.

[12] The authors use the term continuous monitoring; however, they focus on the IAF's use of CA and how that affects managerial decisions rather than on management's use of the automated software to monitor their division's actions. This is an example of the need for clarity between CA and continuous monitoring.

H1b: *Continuous*, relative to *periodic*, auditing is more effective in deterring *real* earnings management.

2.4 Auditor Independence

As the cornerstone within the corporate governance framework with direct links to the other three[13], an independent[14] internal audit function (IAF) is critical (Salterio 1994). While the Sarbanes-Oxley Act (2002) precludes external auditors from providing both assurance and consulting to their public clients for perceived lack of independence, internal audit standards highlight the added value that providing both to the firm offer (IIA 2013).

In the current study, I predict that a separation between auditors who provide consulting and assurance activities increases the perception of independence (Ahlawat and Lowe 2004)[15]. In so doing, I acknowledge that providing both assurance and consulting services could differ when considering the internal vs. the external audit setting (e.g., Schneider et al. 2006; Christopher et al. 2009; Knechel and Sharma 2012). One concern that drives regulators to insist upon restricting the external auditor from providing both consulting and assurance to their audit clients is the notion that providing both increases their economic bond (Ashbaugh et al. 2003). This suggests that the additional revenue from the non-audit (consulting) services could decrease the auditor's

[13] The primary components of the corporate governance framework include the audit committee, senior management, the internal audit function (IAF), and the external auditor (Gramling et al. 2004). Relationships between and among these components are critical to the successful implementation and maintenance of internal controls over operations and financial reporting. It is important to examine how the IAF contributes to corporate governance because it, unlike the external auditor, uniquely serves as a direct resource within the framework.

[14] Because independence is a nuanced construct, I specifically define it in this study as the functional separation between the assurance and consulting activities within the IAF.

[15] Ahlawat and Lowe (2004) examine whether outsourcing the IAF affects the independence (and objectivity) of the internal auditor using an experiment. They provide a corporate acquisition scenario to 35 in-house (e.g., work for various publicly-traded companies) and 31 outsourced (e.g., work for a Big 4 accounting firm) internal auditors (recruited through a local chapter of the IIA). Participants were randomly assigned the role of internal auditor for either the buyer or the seller in a hypothetical acquisition of a target division. The authors measure advocacy in two ways, participants' assessment of 1) the likelihood of inventory obsolescence and 2) likelihood of inventory write-down. The results indicate that significant advocacy existed in the judgments of both in-house and outsourced internal auditors. However, the extent of advocacy was less severe in the case of outsource auditors. These findings appear to reinforce the supposition that independence in practice is essentially a myth (Morgan 1988).

willingness to report audit findings to management.

The internal audit setting presents a unique situation. By definition, the IAF is expected to be an assurance and a consulting activity, e.g., advisory and related client service activities. Both managers and internal audit standards suggest that this dual role adds value to the firm in the areas of corporate governance, risk management, and internal control (IIA 2009, 2013). However, serving in this dual role could present threats to auditor independence such as a social pressure threat, from management; an economic interest threat, especially if incentive compensation or other benefits are received from the firm; or a self-review threat, auditor potentially reviewing their own work (Stewart and Subramaniam 2010)[16].

First, the social pressure threat suggests that since the internal auditor works for the firm he or she also audits, there could be pressure to side with management (e.g., Brody and Lowe 2000; Ahlawat and Lowe 2004) when there is no clear delineation between the consulting and assurance activities of the IAF. Second, the threat of economic-related conflicts of interest suggests when the internal auditor receives incentive compensation or other benefits from the firm, and the receipt of those incentives are based on firm performance (Dezoort et al. 2001) and or internal audit activity (Schneider 2003), that compensation could affect the likelihood internal auditors report breaches in the accounting system they identify. Finally, the self-review threat specifically applies to the setting in this study. This threat suggests when the internal auditor consults with management on a particular project, like the development of continuous auditing, then subsequently either audits or uses the output of the project, independence is impaired. The

[16] Stewart and Subramaniam (2010) reference several mitigating factors noted in prior literature that can act as safeguards against these perceived threats to independence. Those factors include organizational position and corporate policy statements which "increase the status of internal auditors in the organization, a strong and supportive governance environment, appropriate incentive schemes which reward objectivity, the use of teams, and adequate supervision of staff" (332).

audit literature is inconclusive on the implications of this threat. On one hand, the literature suggests that independence, and the related concept of objectivity, is impaired when they have prior involvement in the design of internal controls related to a particular project (Plumlee 1985; Brody and Kaplan 1996)[17] like the development of continuous auditing. On the other hand, the literature suggests prior involvement is not a significant determinant of future ability to be independent (Church and Schneider 1992).

2.4.1 Hypothesis Development

In the current study, I build on the prior research by investigating a setting where internal auditors' independence could be impaired. I argue that functionally aligning the IAF such that internal auditors conduct either assurance or consulting activities results in greater independence (Ahlawat and Lowe 2004). This alignment allows auditors to focus on their specific role, to approach either the consulting or assurance activity objectively, and could specifically mitigate the social pressure and self-review threats. While I hold compensation constant in this study, this alignment does not address the potential for economic-related conflicts of interest because the IAF as a whole, regardless of the function role, would be eligible for any incentive compensation (Dezoort et al. 2001).

I also examine the differential effects of independence on *accrual-based* vs. *real* earnings management. No prior research provides theoretical predictions on any differential effects. As previously indicated in the discussion of audit frequency, internal auditors typically perform more operational (related to *real* earnings management) than financial audits (Gramling et al.

[17] In an internal control review task, Plumlee (1985) finds when an internal auditor reviewed controls he previously designed perceived those controls to be stronger (and malfunctions less severe) than an internal auditor who had no involvement in the design phase. Brody and Kaplan (1996) and Brody and Lowe (2000) find similar results in a budgeting and an acquisition setting, respectively. On the other hand, Church and Schneider (1992) find opposite results in a task similar to Plumlee (1985). Their results suggest prior involvement is not a significant determinant of future ability to be independent and objective when reviewing an internal auditor's own prior work.

2004). During these audits, auditors develop independent knowledge of the firm and its processes that make them sufficiently qualified to make and assess decisions in that context. This independent knowledge also suggests that independence is less important in the *real* earnings management setting. Alternatively, while the IAF does have an effect on financial reporting and financial statement evaluation (Prawitt et al. 2011; Christ et al. 2011) and the knowledge of the operations of the firm is also critical, internal auditors are generally[18] less knowledgeable in this area and would need to rely on management more during assurance activities. Functional alignment is likely more critical in the *ABM* setting. This suggests the following hypotheses. *Ceteris paribus*,

H2: Earnings management will be less (more) frequent when the IAF has *separate* (*combined*) assurance and consulting functions.

H2a: *Accrual-based* earnings management will be less (more) frequent when the IAF has *separate* (*combined*) assurance and consulting functions.

H2b: *Real* earnings management will be no different when the IAF has *separate* vs. *combined* assurance and consulting functions.

2.5 Audit Frequency and Independence

In this study, I extend theory related to continuous auditing (CA) by examining whether and to what extent internal auditor independence incrementally improves the effectiveness of CA in deterring earnings management. Prior research on CA calls for studies examining the effectiveness of CA in new contexts (Brown et al. 2007). I answer this call and subsequently add to the literature by examining specific qualities of the internal audit function, audit frequency and auditor independence, rather than the strategic interaction between the one quality of the auditor

[18] Factors such as the size, industry, certifications, and management preferences could affect the amount of operational vs. financial assurance the IAF performs (Anderson et al. 2012). The argument here is that the more familiar the auditor is in a specific setting, it is less important if they are functionally independent within the IAF.

(audit frequency) and the manager (e.g., bonus incentive horizon). Continuous auditing technology is often developed internally, where the IAF serves as a consultant on a corporate-wide development team that includes divisions such as information technology, accounting, and operations (Handscombe 2012). The resulting technology is available for use by both the IAF (to assist in its assurance activities) and management (to facilitate its internal control monitoring role). This naturally occurring setting is ideal to test the interaction between audit frequency and independence.

2.5.1 Hypotheses Related to the Interaction of CA and Independence

I predict that the likelihood of earnings management will decrease in a setting where the IAF uses continuous auditing and has separate assurance and consulting functions. As previously discussed, more frequent audits increase the number of interactions auditors have with managers and subsequently the likelihood of detecting earnings management (DeAngelo 1981a). I argue that functional alignment of the IAF, when the CA technology has been developed in-house, incrementally improves the effectiveness of CA for at least two reasons. First, the auditor is likely to be more critical of the technology prior to use and will be more critical in the assessment of internal controls within the technology (Plumlee 1985). Second, as a provider of only assurance, the auditor generally has a different relationship with managers. The goal of assurance is to critically review a particular division or process, whereas, the goal of consulting is to advocate for and help to improve (specifically the internal controls) a particular division or process (Brody and Lowe 2000). Alternatively, I predict that the likelihood of earnings management will increase in a setting where the IAF uses continuous auditing and has combined assurance and consulting functions. This setting differs in that it incites cognitive dissonance in the mind of the auditor as he or she attempts to detach the consulting from the advocacy role,

when performing one role or the other. Prior research demonstrates that in this particular setting, traditional periodic auditing is more effective, regardless of functional alignment of the IAF (Schwartz and Young 2002). Furthermore, I predict that the likelihood of *ABM* and *REM* will decrease (increase) in a setting where the IAF uses continuous auditing and has separate (combined) assurance and consulting functions. I expect that CA alone will decrease the likelihood of earnings management and the consideration of independence, as previously described, increases the effectiveness of continuous auditing. This suggests the following hypotheses. *Ceteris paribus*,

H3: Earnings management will be less (more) frequent when the IAF uses *continuous* auditing and has *separate* assurance and consulting functions.

H3a: *Accrual-based* earnings management will be less (more) frequent when the IAF uses *continuous* auditing and has *separate* assurance and consulting functions.

H3b: *Real* earnings management will be less (more) frequent when the IAF uses *continuous* auditing and has *separate* assurance and consulting functions.

2.6 Summary

This chapter reviews and defines the variables examined in this study. In the context of this study, I specifically discuss continuous auditing, *accrual-based* and *real* earnings management, and independence. For each variable, I provide a contextual definition for this study, a historical background (where applicable), and review literature that guides both academic thought and practice and that help develop the hypotheses.

CHAPTER III

METHODOLOGY

I differentiate this study from prior research by examining two factors related to the internal audit function (IAF)—frequency of audits and independence—rather than the interaction between the IAF and managers' incentives. In addition, I separately measure *accrual-based* (*ABM*) and *real* (*REM*) earnings management to assess the effectiveness of continuous auditing (CA) in deterring earnings management in general and in both its forms. I elicit practicing internal auditors' assessments of the likelihood that managers will use *ABM* or *REM* to achieve a specific earnings target that, if met, results in the manager receiving an annual bonus. Although managers are better able to predict their responses to the hypothetical case, management's experience is limited to their own prior experience both with earnings manipulation and with the IAF. In addition, while external auditors do not currently use continuous auditing, some chief financial officers argue that the "rules-orientation of the FASB" has negatively affected the external audit profession such that local offices have less room to exercise discretion in their interactions with the audit client (Dichev et al. 2013; Nelson and Skinner 2013). Consequently, I ask auditors, rather than managers, to participate in the study for several other reasons that include: (1) internal auditors are in the best position to estimate how they would respond (e.g., how CA impacts the effectiveness of their audits) and have the second-best knowledge of overall firm management's response to IAF practices; (2) managers may not respond truthfully in estimating their behavior related to a practice that internal and external stakeholders may deem

unethical, though it is often legal; (3) internal auditors do not have management's direct incentives to bias their responses (Libby and Kinney 2000); and (4) internal auditors are not bound by the perceived restrictions of accounting and auditing standards.

The experimental instrument was developed based on prior research (e.g., Hirst 1994; Ahlawat and Lowe 2004), interviews with two chief audit executives of IAFs for publicly-traded companies, and several internal auditors at the manager level. The final instrument was examined by three additional chief audit executives for relevance and clarity. In addition, the instrument was pilot tested by three accounting faculty and 10 accounting Ph.D. students. Their helpful comments resulted in wording changes that better express the instructions, both experimental manipulations, and the dependent measures. After the modifications from the initial pilot test, 40 masters of accountancy students enrolled in an Internal/Operational Auditing course during the fall of 2013 participated in a second pilot test. Analysis of the data collected and feedback from participants resulted in minor wording changes and adjustments to the flow of the experiment and the manipulation checks.

3.1 Description of the Instrument and Experimental Tasks (The Case)

I adapt the case in this study from prior research (e.g, Hirst 1994; Libby and Kinney 2000). Participants learn that the primary financial goal of a hypothetical firm (Pulliam Manufacturing) is to increase profitability of dollars invested (See Appendix 1). I measure profitability at the division level and as return on investment (ROI). Managers receive an annual bonus when their division's ROI exceeds the company's cost of capital (fixed at 12%). Pulliam Manufacturing reduces a manager's divisional ROI for any significant internal audit findings reported to senior management.

The case first presents background information about the company, how the IAF assigns auditors to assurance and consulting engagements (the independence manipulation), and the audit methodology (the audit frequency manipulation). Next, the case presents, the division's ROI for the first half of the fiscal year (which is currently below the cost of capital at 10%) and the ROI projection for the full year (11%) if the manager does not manipulate the underlying accounting information for his/her division. Finally, the case presents options, randomly assigned as either *accrual-based* or *real* earnings management, the manager could undertake to slightly exceed the cost of capital to receive the bonus. Participants are made aware that if the manager chooses to manage earnings, it will be reflected in the next internal audit[19] as a variance from the budgeted and prior year amounts, require follow-up, and result in a reduction in divisional ROI.

3.2 Variable Definitions

3.2.1 Independent Variables

3.2.1.1 Continuous Auditing (*IAFreq*)

I manipulate audit frequency (*IAFreq*) at two levels between-subjects [continuous] vs. (periodic) to specifically test **H1** and **H3**. I operationalize audit frequency as follows:

> When the internal audit department performs assurance engagements, it does so on a **[continuous basis using automated software] (rotating basis**) such that divisions are audited **[continuously] (once every three years).** Any significant variances and control exceptions are reported **[continuously] (whenever the audit is complete)** to all divisional and senior management. The last audit of this division was **[yesterday] (last year**) and there were no significant findings.

I pattern the audit frequencies after the traditional and continuous auditing (e.g., Coderre et al. 2005) practices currently used by the IAF to measure the occurrence and timing of audits. The

[19] The audit frequency is daily in the continuous audit condition and every three years in the periodic auditing setting, which suggests the auditor may not identify the earnings management for another two years.

continuous auditing condition emphasizes the transactions-based audit with alerts when real-time transactions violate the pre-established controls. It also highlights the fact that senior management receives more timely reports from the IAF. In the periodic auditing condition, the hypothetical IAF reviews the same information, however, there exists a more significant delay in relaying any exceptions noted to senior management. I also indicate the previous audit of the division was the previous day (year), and there were no significant findings to ensure that participants focus on the upcoming audit, which could be either the next day or in two years. This design reinforces the continuous nature of more frequents audits designed to help deter opportunistic behavior by managers (see Appendix 2).

3.2.1.2 Independence (*Indep*)

I manipulate auditor independence (*Indep*) at two levels between-subjects, [separate] vs. (combined) consulting and assurance functions, to test **H2 and H3**. I operationalize independence as follows:

> Your department has **[separate] (combined)** assurance (e.g. audits) and consulting (e.g. special projects like developing new software) functions.

I operationalize independence as a separation between consulting and assurance functions for two reasons. First, while all management teams represent the IAF, functional alignment of roles (Ahlawat and Lowe 2004) in this study addresses the findings in prior studies that continuous verification by the same auditor limits the effectiveness of the audit (Schwartz and Young 2002). Second, one of the primary differences between internal and external auditors is the perceived potential for economic bonding—resulting in a lack of independence (Ashbaugh et al. 2003). Internal auditors are, in principle, economically bonded to the company for which they provide assurance and consulting service because the company employs them and may also pay incentive compensation (Dezoort et al. 2001). Rather than focus solely on the economic bond, I also

consider how serving in this dual role could present other threats to auditor independence such as a social pressure threat, from management; or a self-review threat, as the auditor could potentially review his or her own work (Stewart and Subramaniam 2010). Both IIA standards and internal audit research suggest the IAF can increase independence related to this duality of roles as provider of assurance and consulting services by functionally separating auditors who perform consulting (e.g. in the development of CA) and assurance (e.g. auditing using the CA technology) engagements within the IAF.

3.2.1.3 Dependent Variables

Participants assess the likelihood that a manager working for Pulliam Manufacturing would adjust accounting data using either a measure of *accrual-based* (*ABM*) (81 participants) or *real* (*REM*) (92 participants) earnings management for the second half of 2013 using a 10-point Likert-type scale (ranging from Very Unlikely to Very Likely).

In the *ABM* setting, participants assess whether managers would decrease the current estimate of bad debts expense by lowering the estimated uncollectible percentage on accounts receivable over 90-days due from 50 to 25 percent. To emphasize the amount of judgment required in *ABM*, participants also learn that collection patterns for prior years are inconclusive as support for the reduction in the allowance percentage. Participants see the following explanation for this option in the experimental materials.

> To increase the division's budgeted annual ROI above the 12% cost of capital, the manager could ***reduce bad debt expense*** for the second half of FY13. By reducing the allowance for uncollectible accounts percentage for accounts over 90-days due from 50% to 25% the division will significantly decrease the bad debt expense. Collection patterns for prior years are inconclusive as support for the reduction in the allowance percentage.

In the *REM* setting, participants assess whether managers would decrease quality control expenditures. To emphasize the cash flow effects related to *REM*, participants also learn that the

reduction in quality control expenditures will reduce product costs. With these lower costs, the price of products can be reduced and sales should increase. However, sales returns in future years are likely to increase as sales of defective products are returned. Participants see the following explanation for this option in the experimental materials.

> To increase the division's budgeted annual ROI above the 12% cost of capital, the manager could ***cut quality control expenditures*** for the second half of FY13. This will reduce product costs. With these lower costs, the price of products can be reduced and sales should increase. However, sales returns in future years are likely to increase as sales of defective products are returned.

Both earnings management options result in a significant increase in return on investment (ROI) such that the manager just beats[20] the cost of capital and will receive an annual bonus. To make both measures equally favorable, the earnings management options would provide the manager with the same expected ROI after proposed changes. The final phase of the experiment includes a Post-Experimental Questionnaire. Participants answer demographic and other classification questions in this section (See Appendix 1).

3.2.1.4 Supplemental Analyses

To rule out potential alternative explanations for the relationship between audit frequency and independence, I ask participants to indicate whether they perceive earnings management to be ethical, and I measure professional skepticism and organizational identification using psychological instruments used in prior auditing research. I also examine whether certain demographics (e.g., certifications, gender, age) affect this relationship. I make no *ex ante* predictions for these alternative measures.

[20] Though just beating an internal earnings target is inherently different than an external target (e.g., analyst forecast), the goal of earnings management is generally to manipulate earnings just enough to hit the target. Excessive manipulation could be more easily identifiable and result in more scrutiny than the manager desires (Healy 1985).

Specifically, I ask participants whether they perceive the proposed management action to be ethical[21]. This additional assessment could provide a potential explanation for how participants make the assessments related to the two primary dependent measures. As in Stefaniak et al. (2012), participants complete a modified version of the Bamber and Iyer (2007) *Organizational Identification Scale*. I modify these questions to relate them to Pulliam Manufacturing. These questions collectively examine how identifying with the firm affects the auditor's decisions. The questions include the following: (1) "If I worked for Pulliam Manufacturing, I would take *criticism* of Pulliam Manufacturing personally"; (2) "If I worked for Pulliam Manufacturing, I would be *interested in what others think* about Pulliam Manufacturing; and (3) "If I worked for Pulliam Manufacturing, I would take *compliments* of Pulliam Manufacturing personally." Participants respond to each question on a seven-point Likert-type scale with -3 being "Strongly Disagree" and 3 being "Strongly Agree". The aggregate score from the three questions comprises employer identification score (*Org_ID*). Furthermore, as in prior auditing research (e.g., Hurtt et al. 2008), participants complete a modified version (6 questions vs. the full 30 questions) of the *Hurtt Scale* (2010) as a measure of trait (or inherent) skepticism.

3.3 Instrument Validation and Pilot Testing

3.3.1 Instrument Validation and Pilot Test 1

The experimental instrument was developed based on prior research (e.g., Hirst 1994; Ahlawat and Lowe 2004), interviews with two chief audit executives of IAFs for publicly-traded companies, and several internal auditors at the manager level. The final instrument was examined by three additional chief audit executives for relevance and clarity. In addition, the

[21] For example, in the *accrual-based* earnings management setting I ask participants if they perceive the proposed decrease in bad debt expense is ethical. I do not use the terminology earnings management anywhere in the study.

instrument was pilot tested by three accounting faculty and 10 accounting Ph.D. students. Their helpful comments resulted in wording changes that better express the instructions, both experimental manipulations, and the dependent measures.

3.3.2 Pilot Test 2

After the modifications from the initial pilot test, 40 masters of accountancy students enrolled in an Internal/Operational Auditing course during the fall of 2013 participated in a second pilot test. Analysis of the data collected and feedback from participants resulted in minor wording changes and adjustments to the flow of the experiment and the manipulation checks.

3.4 Participants

Practicing internal auditors were identified through the professional relationships with chief audit executives of six publicly-traded companies, thirteen chapters of the Institute of Internal Auditors[22], and the Association of College and University Auditors. A total of 230 participants accessed the experimental instrument online through Qualtrics. Of those 230 participants, 17 indicated they were not currently practicing internal auditors,[23] 11 failed the independence manipulation check, 10 failed the audit frequency manipulation check, and 19 failed both manipulation checks. All were excluded from the analysis.[24] As noted in Panel A of Table 1, the primary analyses include 173 internal auditors with an average of 14.09 years of assurance experience. As indicated in Panel B of Table 1, 54.22% of the participants were female and 45.78% were male. All participants had at least a bachelor's degree, while 47.90% had a

[22] Participating local chapters include: Atlanta, Austin, Baltimore, Charlotte, Cincinnati, Los Angeles, Louisville, Madison (WI), Memphis, New Orleans, Northern California – East Bay, Philadelphia, and San Francisco.
[23] This only applies to the local chapters of the IIA. Academic, retired, and student members fall into this category.
[24] The 40 participants failing one or both manipulation checks spent a maximum of two minutes on the task as compared to an average of 10 minutes spent by those successfully completing both manipulation checks. There is a significant correlation between the time spent on the task and both the response to the dependent variable and answers to the manipulation check questions. Results are significantly different including these participants.

master's degree (untabulated) and participants were 50.60% staff, senior, and non-management supervisory auditors; 30.72% managers, directors, and non-chief audit executive vice presidents; and 18.67% chief audit executives. Of the participants, 88.48% had at least one certification (e.g., CPA, CIA, CISA) while 47.27% had multiple certifications[25]. Though participants represent a wide range of industries, the sample reflects significant participation from auditors in financial services (15.61%), government (12.72%), higher education (32.95%)[26], and transportation (10.98%).

TABLE 1: Descriptive Statistics

Panel A: Selected Mean Demographics (N = 173)[a]

Age	36 - 45 years
Years of Assurance Experience	14.09
Likelihood of Earnings Management[b]	6.19
Organizational Identification (OrgID) Score[c]	11.86
Professional Skepticism (Hurtt Score) [d]	29.04

[a]Total sample size based on the primary dependent variable (Likelihood of Earnings Management).
[b]Participants assessed the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1 (very unlikely) to 10 (very likely).
[c]Participants complete a modified version of the Bamber and Iyer (2007) scale which measures the level of identification with an organization. Potential scores range from 3 (very low OrgID) to 15 (very high OrgID).
[d]Participants completed a shortened version of the Hurtt (2010) scale which measures inherent skepticism. Potential scores range from 11 (low skepticism) to 31 (high skepticism).

[25] [a]The most frequent combination of certifications is CPA/CIA.
[26] Internal Auditors in higher education and government also indicated they had significant prior experience in a publicly-traded company. Responses to the dependent variable are not significantly different for these industries. The Association of College and University Auditors (ACUA) distributed to the instrument via email to members.

TABLE 1: Descriptive Statistics (continued)

Panel B: Number (Percentage) of Internal Auditors in Each Category

Gender	
Female	54.22
Male	45.78
Current Position	
Staff Auditors	13.25
Senior Auditors	30.72
Non-Management Supervisory Auditors	6.63
Managers & Senior Managers	15.66
Directors	13.86
Vice Presidents (non-CAE)	1.20
Chief Audit Executives (CAE)	18.67
Current Certification(s)	
Certified Internal Auditor (CIA)	8.48
Certified Public Accountant (CPA)	20.00
Certified Fraud Examiner (CFE)	3.03
Certified Information Systems Auditor (CISA)	6.06
Multiple Certifications	47.27
Other Business-Related Certification	3.64
None	11.52
Industry	
Construction	1.16
Financial Services	15.61
Government	12.72
Healthcare	9.25
Higher Education	32.95
Manufacturing	2.89
Retail	2.89
Technology	2.31
Transportation	10.98
Utilities	1.73
Other	7.51
Earnings Management Considered Ethical[a]	
Yes	17.86
No	82.14

[a]Participants were asked if they deemed either accrual-based or real earnings management (based on their random assignment) was ethical.

3.5 Summary

In this chapter I outline the methodology for this study. I conduct a 2 x 2 x 2 between-subjects, fully factorial experiment. I differentiate this study from prior research by examining two factors related to the internal audit function (IAF)—frequency of audits and independence—rather than the interaction between the IAF and managers' incentives. In addition, I separately measure *accrual-based* (*ABM*) and *real* (*REM*) earnings management to assess the effectiveness of continuous auditing (CA) in deterring earnings management in general and in both its forms. A useable sample of 173 practicing internal auditors assessed the likelihood that managers would use *ABM* or *REM* to achieve a specific earnings target that, if met, results in the manager receiving an annual bonus.

CHAPTER IV

RESULTS

4.1 Continuous Auditing (*IAFreq*)

Hypothesis 1 predicts no difference in the perceived likelihood that continuous, relative to periodic, auditing deters earnings management. However, Figure 1 and Panel B of Table 2 suggest that, inconsistent with my prediction, internal auditors expect earnings management to be less likely when the IAF uses continuous (5.71) relative to periodic (6.71) auditing ($p < .001$). Similarly, H1a predicts no difference in the perceived likelihood that continuous, relative to periodic, auditing deters *accrual-based* earnings management (*ABM*). Inconsistent with H2a, results in Figure 4 and Panel B of Table 3 indicate internal auditors expect *ABM* to be less likely when the IAF uses continuous (5.57) relative to periodic (6.82) auditing ($p = .008$).

However, consistent with my prediction in H1b, Figure 5 and Panel B of Table 4 indicate internal auditors expect *real* earnings management to be less likely when the IAF uses continuous (5.80) relative to periodic (6.60) auditing ($p = .060$). As indicated in Figure 2 and further examined in Table 5, I find that the likelihood of earnings management is significantly lower in the CA – ABM setting ($p = .026$) when compared to the other three settings (CA – REM, PA = ABM, and PA – REM).

Figure 1: Audit Frequency x Independence (Overall)

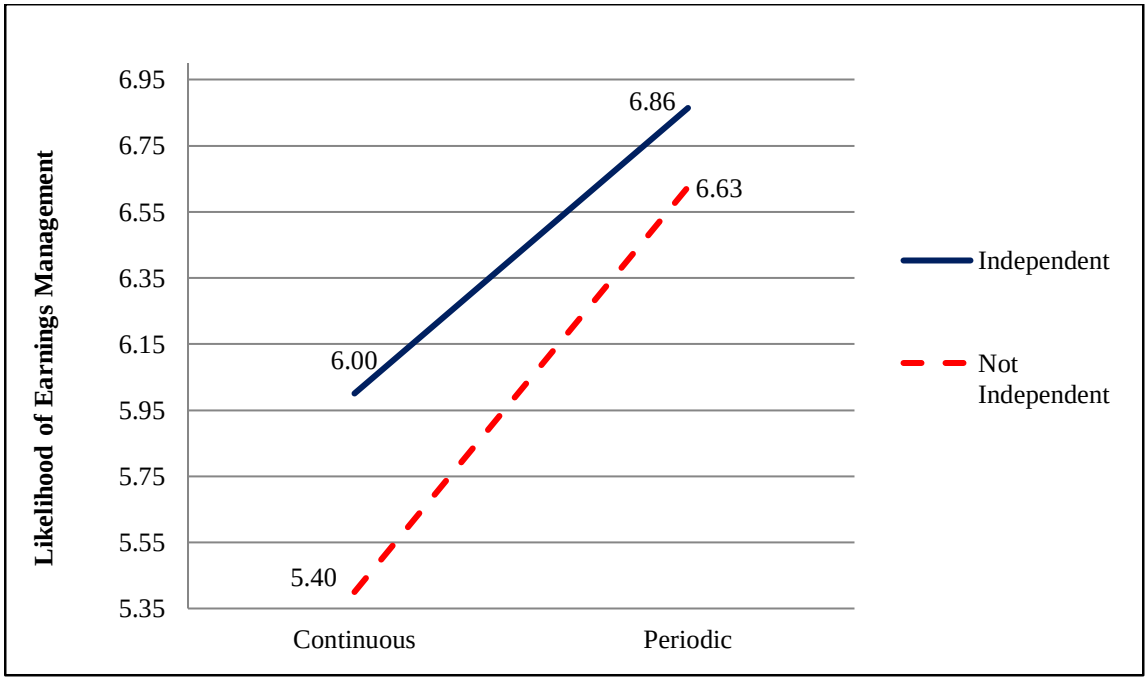
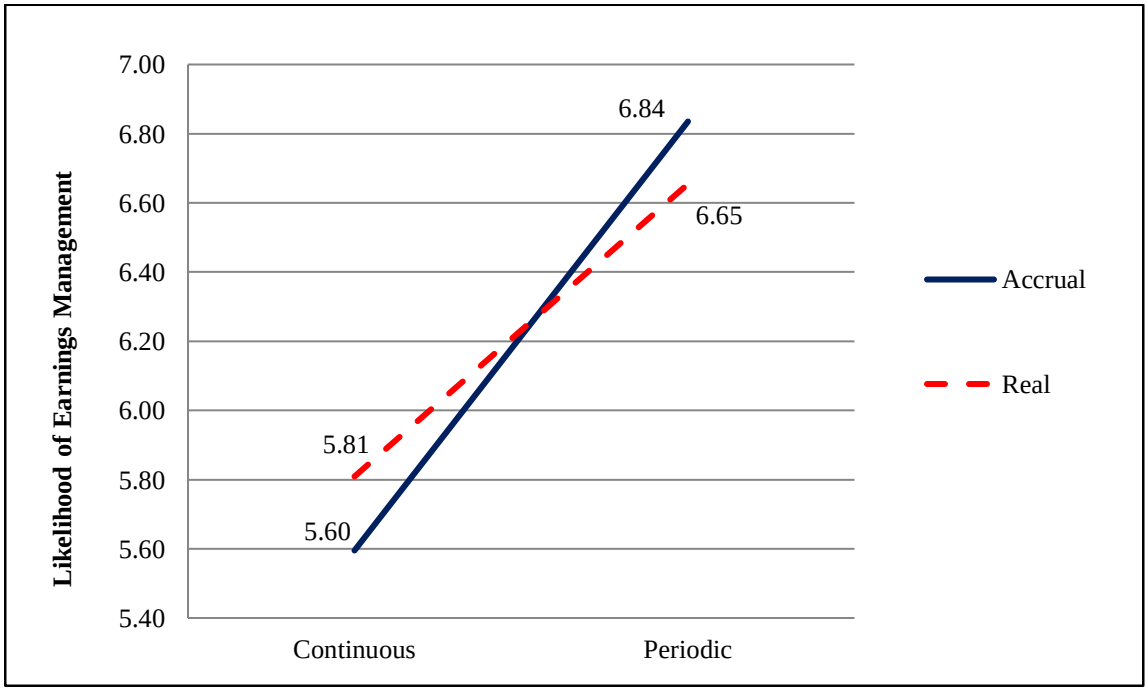


Figure 2: Audit Frequency x Earnings Management Type (Overall)



4.2 Independence (*Indep*)

Hypothesis 2 predicts earnings management will be less (more) likely when the IAF has separate (*Indep*) vs. combined (*NIndep*) assurance and consulting functions. While the results in Figure 1 and Panel B of Table 2 do not support this prediction (p = .187), I do find (as indicated in Figure 3) that the effect of *Indep* is context-dependent (Indep*EM_Setting, p = .037).

Inconsistent with H2a, Panels A and B of Table 3 indicates internal auditors perceive *accrual-based* earnings management to be lower when the IAF is not independent (p = .019). Results in Panels A and B of Table 4 for *real* earnings management are in the predicted direction of H2b, but this direction is not statistically significant (p = .581). In Table 5, I find a significantly lower likelihood of earnings management in the NIndep – ABM setting (p = .050), when compared to the other three settings (NIndep – REM, Indep –ABM, and Indep – REM), appears to drive the overall significance of the Indep x EM_Setting interaction.

Figure 3: Independence x Earnings Management Type (Overall)

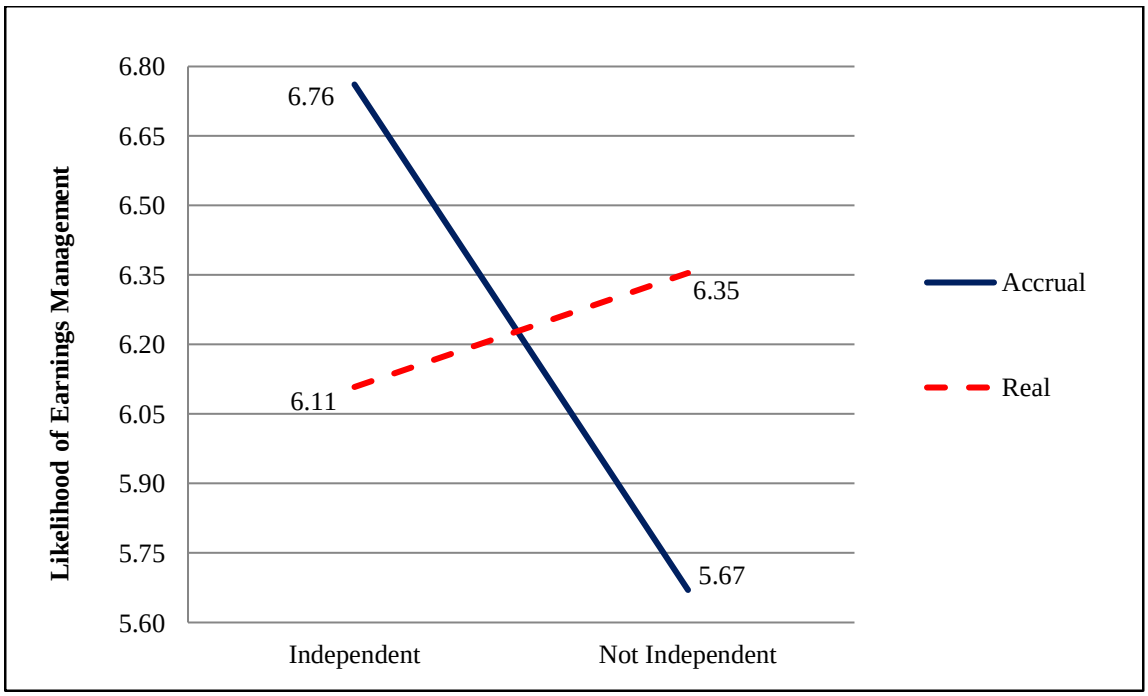


TABLE 2: Likelihood of Earnings Management (Overall)

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)

	Continuous	Periodic	Combined
Independent	6.00 (2.53) (n = 42)	6.86 (1.62) (n = 45)	6.43 (2.13) (n = 87)
Not Independent	5.40 (2.20) (n = 46)	6.63 (1.93) (n = 40)	6.01 (2.15) (n = 86)
Combined	5.70 (2.37) (n = 88)	6.74 (1.76) (n = 85)	6.22 (2.15) (N = 173)

Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq (*H1*)	1	46.55	10.721	< **.001**
Indep (*H3*)	1	7.63	1.758	.187
EM_Setting	1	0.01	.002	.961
IAFreq X Indep (*H4a*)	1	1.43	.329	.567
IAFreq X EM_Setting	1	1.67	.385	.536
Indep X EM_Setting	1	19.10	4.400	**.037**
IAFreq X Indep X EM_Setting	1	2.98	.686	.409
Between-subjects error	165	716.32		

Dependent Variable = Internal auditors' assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1 (very unlikely) to 10 (very likely)'s mean allocation of resource units
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.

Panel C: Planned Comparisons – Overall

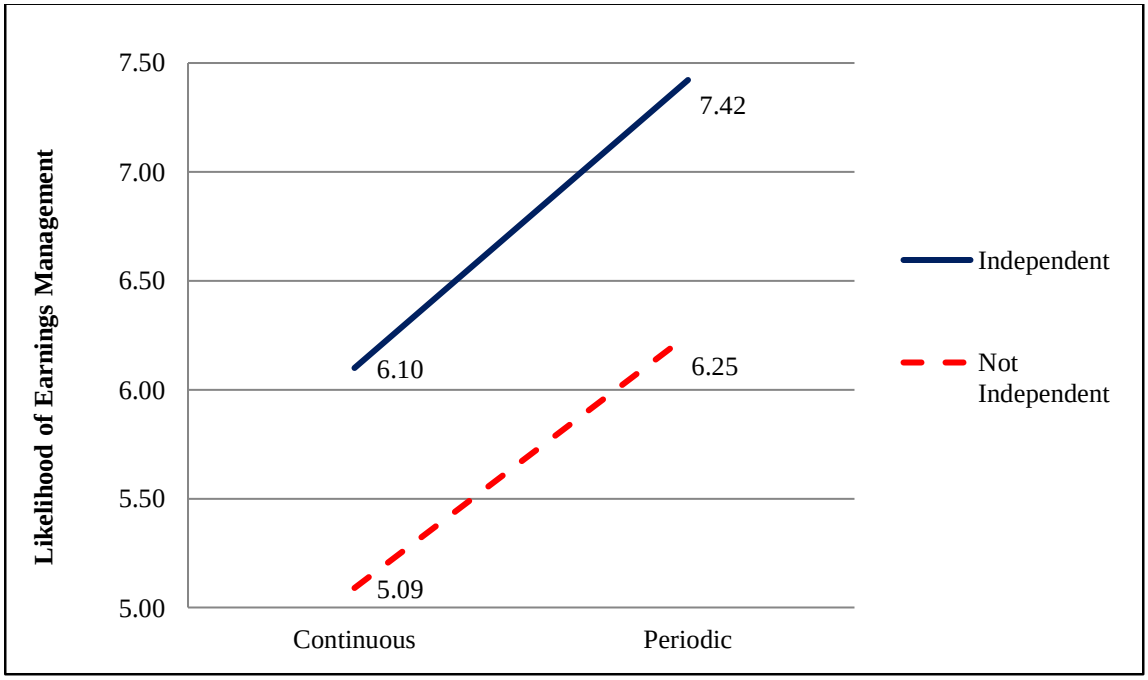
Contrasts	Mean Difference	Std. Error	*p-value*
CA*Indep < CA*NIndep	0.59	0.45	.191
CA*Indep < PA*Indep	-0.78	0.45	*.085*
CA*Indep < PA*NIndep	-0.63	0.46	.178
CA*NIndep < PA*Indep	-1.37	.44	**.002**
CA*NIndep < (CA*Indep, PA*Indep, PA*NIndep)	-3.16	1.08	**.004**

Where CA = Continuous Auditing, PA = Periodic Auditing; Indep = Independent, NIndep = Not Independent; and ABM = Accrual-based, REM = Real earnings management.

4.3 Continuous Auditing and Independence

Hypothesis 3 predicts that earnings management will be less (more) frequent when the IAF uses continuous auditing and has separate assurance and consulting functions (*IAFreq* x *Indep*). While Panel B of Table 2 does not support this prediction (p = .567), planned comparisons in Panel C of Table 2 suggest that the likelihood of earnings management is lower when the IAF uses continuous auditing and is not independent (5.41) than when the IAF uses periodic auditing and is independent (6.78) (p = .002) and when compared to the other three conditions (p = .004).

Figure 4: Audit Frequency x Independence (Accrual-Based)



Hypothesis 3a similarly predicts that *accrual-based* earnings management will be less (more) frequent when the IAF uses continuous auditing and has separate assurance and consulting functions (*IAFreq* x *Indep*). While Panel B of Table 3 does not support this prediction (p = .859), planned comparisons in Panel C of Table 3 suggest that the likelihood of *accrual-based* earnings management is lower when 1) the IAF uses continuous auditing and is independent (6.10) than when the IAF uses periodic auditing and is independent (7.42) (p = .047) and 2) when the IAF uses continuous auditing and is not independent (5.09) than when the IAF uses periodic auditing and is independent (7.42) (p < .001) and when compared to the other three conditions (p = .004).

TABLE 3: Likelihood of Earnings Management (Accrual-Based)

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)

	Continuous	**Periodic**	**Combined**
Independent	6.10 (2.45) (n = 20)	7.42 (1.30) (n = 19)	6.76 (2.06) (n = 39)
Not Independent	5.09 (2.05) (n = 22)	6.25 (2.17) (n = 20)	5.67 (2.16) (n = 42)
Combined	5.60 (2.28) (n = 42)	6.84 (1.88) (n = 39)	6.22 (2.17) (N = 81)

Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	31.03	7.43	**.008**
Indep	1	23.99	25.74	**.019**
IAFreq X Indep	1	0.13	0.03	.859
Between-subjects error	77	322.00		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.

Panel C: Planned Comparisons – Accrual-Based Earnings Management

Planned Contrasts	**Mean Difference**	**Std. Error**	***p-value***
CA*Indep < CA*NIndep	1.01	0.63	.114
CA*Indep < PA*Indep	-1.32	0.66	**.047**
CA*Indep < PA*NIndep	-0.15	0.65	.817
CA*NIndep < PA*Indep	-2.33	0.64	**<.001**
CA*NIndep < (CA*Indep, PA*Indep, PA*NIndep)	-4.49	1.53	**.004**

Where CA = Continuous Auditing, PA = Periodic Auditing; Indep = Independent, NIndep = Not Independent; and ABM = Accrual-based, REM = Real earnings management.

TABLE 4: Likelihood of Earnings Management (Real)

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)

	Continuous	Periodic	Combined
Independent	5.91 (2.65) (n = 22)	6.31 (1.69) (n = 26)	6.11 (2.16) (n = 48)
Not Independent	5.71 (2.33) (n = 24)	7.00 (1.62) (n = 20)	6.35 (2.11) (n = 44)
Combined	5.81 (2.46) (n = 46)	6.65 (1.568) (n = 46)	6.23 (2.17) (N = 92)

Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	16.27	3.63	**.060**
Indep	1	1.38	0.31	.581
IAFreq X Indep	1	4.54	1.01	.317
Between-subjects error	88	394.32		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.

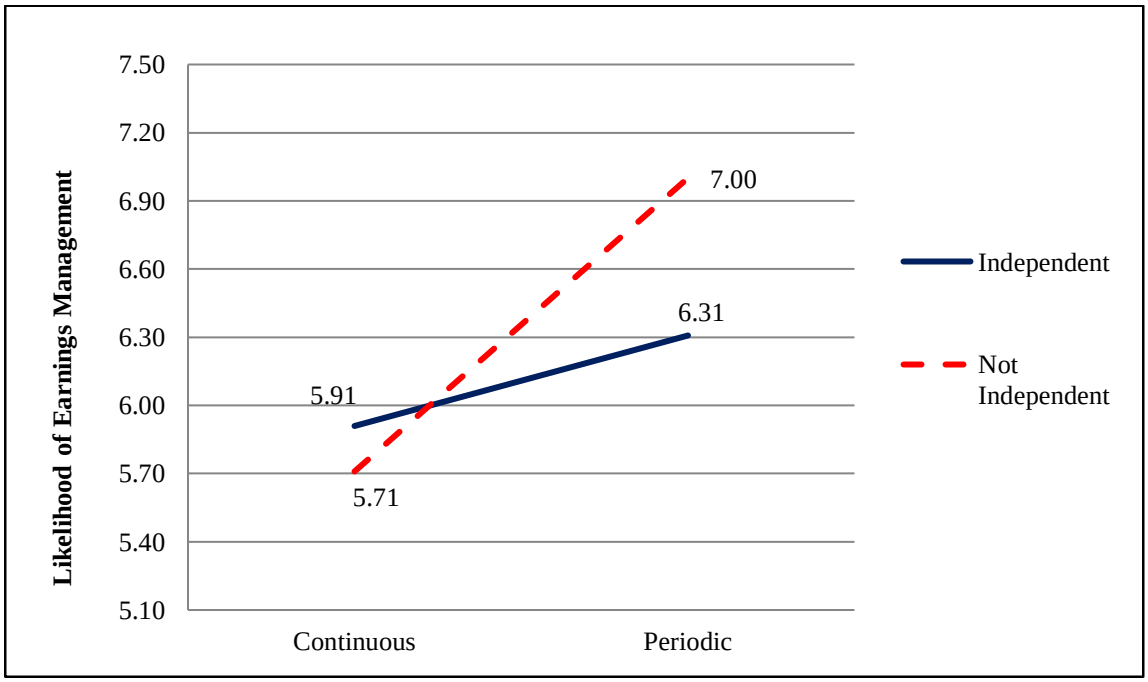
Panel C: Planned Comparisons – Real Earnings Management

Contrast	Mean Difference	Std. Error	*p-value*
CA*Indep < CA*NIndep	0.20	0.63	.749
CA*Indep < PA*Indep	-0.40	0.61	.517
CA*Indep < PA*NIndep	-1.09	0.65	*.099*
CA*NIndep < PA*Indep	-0.60	0.60	.320
CA*NIndep < (CA*Indep, PA*Indep, PA*NIndep)	-2.09	1.51	.169

Where CA = Continuous Auditing, PA = Periodic Auditing; Indep = Independent, NIndep = Not Independent; and ABM = Accrual-based, REM = Real earnings management.

Finally, hypothesis 3b predicts that *real* earnings management will be less (more) frequent when the IAF uses continuous auditing and has separate assurance and consulting functions (*IAFreq* x *Indep*). While Panel B of Table 4 does not support this prediction (p = .317), planned comparisons in Panel C of Table 4 suggest that the likelihood of earnings management is lower when the IAF uses continuous auditing and is independent (5.91) than when the IAF uses periodic auditing and is not independent (7.00) (p = .099).

Figure 5: Audit Frequency x Independence (Real)



Because the IAF is typically most familiar with the operations of the firm and is could be less reliant on management's assertions to identify audit findings, it is plausible that a lack of functional independence does not negate the effects of more frequent audits. This also suggests the IAF could potentially use this institutional knowledge to develop effective CA technology, with sufficient information systems-related expertise, independent of a corporate-wide team. Conversely, *accrual-based* earnings management involves judgment related to choosing an

accounting method to reach a desired level of earnings and is relatively transparent in the year of the change (Francis et al. 2005). It is plausible that effect of independence is more pronounced in this setting because internal auditors must rely more on management's assertions in the development of audit findings. In a setting where the IAF is involved in the development of CA technology, the knowledge obtained during that experience could prove beneficial during an assurance engagement.

TABLE 5: Planned Comparisons – Across Earnings Management Types

Contrasts	Mean Difference	Std. Error	*p-value*
CA – ABM < PA – ABM	-1.25	0.47	**.008**
CA – REM < PA – REM	-0.81	0.44	*.068*
CA – ABM < (PA – ABM, CA – REM, PA – REM)	-2.52	1.12	**.026**
CA – REM < (PA – REM, CA – ABM, PA – ABM)	-1.59	1.09	.145
CA – ABM = CA – REM	-0.23	0.45	.604
PA – ABM = PA – REM	0.21	0.46	.644
Indep – ABM < NIndep – ABM	-1.10	0.47	**.022**
Indep – REM < NIndep – REM	0.17	0.45	.704
Indep – ABM = Indep – REM	0.62	0.46	.180
NIndep–ABM < (NIndep–REM, Indep–ABM, Indep–REM)	-2.24	1.14	**.050**
CA*Indep – ABM < CA*Indep – REM	0.19	0.64	.767

Where CA = Continuous Auditing, PA = Periodic Auditing; Indep = Independent, NIndep = Not Independent; and ABM = Accrual-based, REM = Real earnings management.

4.4 Supplemental Analyses

To rule out potential alternative explanations for the relationship between audit frequency and independence, I ask participants to indicate whether they perceive earnings management to be ethical and I measure professional skepticism and organizational identification using psychological instruments used in prior auditing research. I also examine if selected demographic variables (e.g., gender, certification, industry) provide any alternative explanations

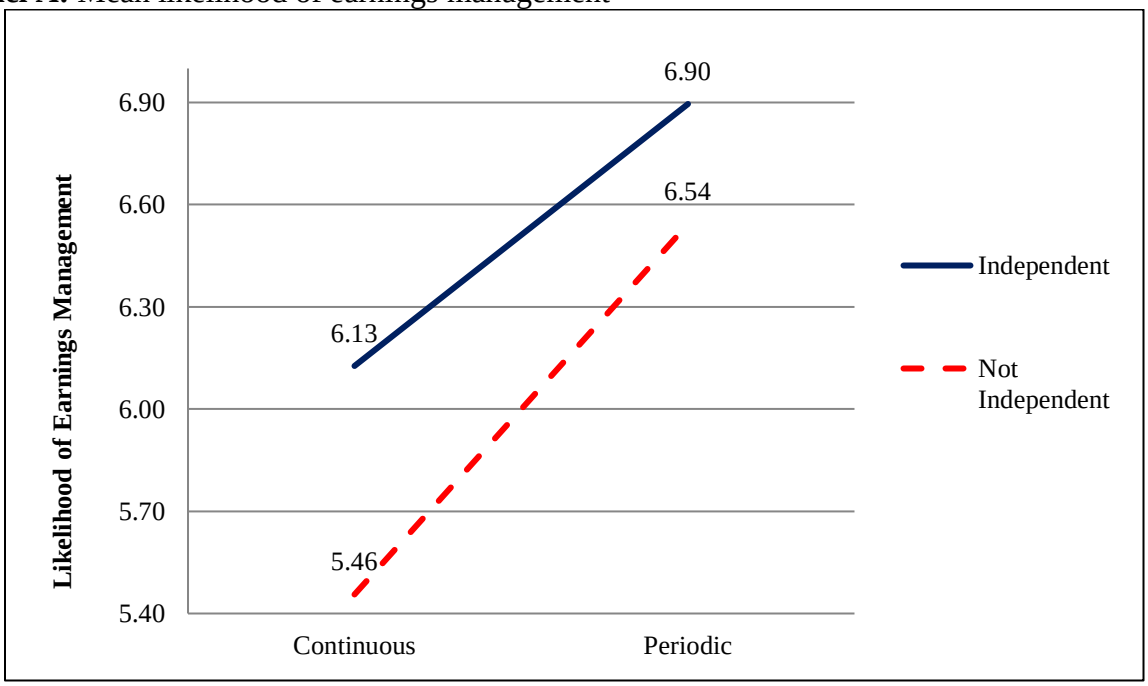
for the relationship between audit frequency and independence. For each variable I re-specify the overall and earnings management setting-specific analyses (tabulated as indicated below). I make no *ex ante* predictions for these alternative measures.

4.4.1 Perceived Ethical Nature of Earnings Management

In the Post-Experimental Questionnaire I ask participants whether they perceive earnings management (either accrual-based or real based upon their randomly assigned setting) as ethical. As indicated in Panel B of Table 1, 82.14% of internal auditors deem earnings management to be unethical. I examine if this evaluation impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management. As indicated in Panels A and B of Table 6 and in all prior analyses, I find that the likelihood of earnings management is lower in the continuous (5.80) vs. periodic (6.69) auditing setting (p = .004). In addition, the *Indep x EM_Setting* interaction is marginally significant (p = .087). I also find results (Tables 7 and 8) similar to the earnings management setting-specific findings in Tables 3 and 4, which indicate that the significance of *Indep* in the accrual-based earnings management setting drives the significance of the interaction (See Figure 6 and Figure 7 in Appendix 3).

TABLE 6: Likelihood of Earnings Management (Overall) – Ethics Covariate

Panel A: Mean likelihood of earnings management



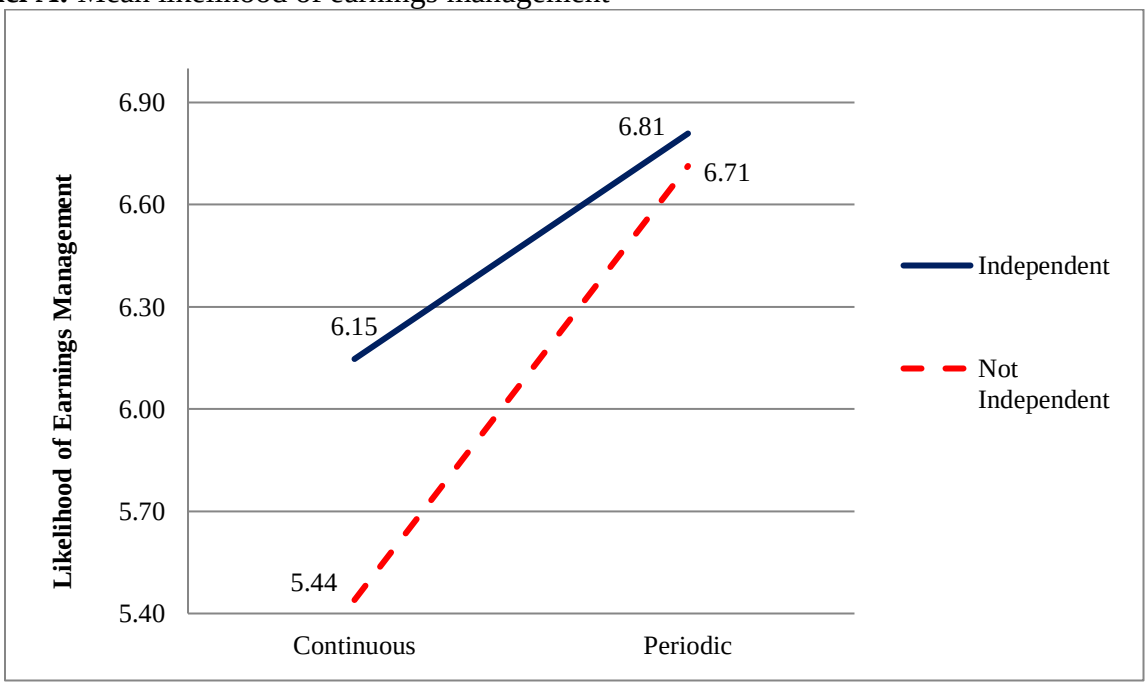
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	35.77	8.78	**.004**
Indep	1	10.85	2.66	*.105*
EM_Setting	1	1.78	0.44	.510
*EM_Ethical	1	27.95	6.86	*.010*
IAFreq X Indep	1	1.05	0.26	.613
IAFreq X EM_Setting	1	3.11	0.76	.384
Indep X EM_Setting	1	12.07	2.96	*.087*
IAFreq X Indep X EM_Setting	1	2.90	0.71	.400
Between-subjects error	159	647.67		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*EM_Ethical = Participants assessed whether they perceived earnings management to be ethical. Means are adjusted based on average response to whether earnings management is considered ethical at 1.88 (where 1 = Yes and 2 = No). This analysis only includes the 168 participants answering the question.

TABLE 9: Likelihood of Earnings Management (Overall) – Skepticism Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	38.44	9.30	**.003**
Indep	1	6.59	1.59	.209
EM_Setting	1	0.00	0.00	.993
*Skeptic	1	0.08	0.02	.889
IAFreq X Indep	1	3.82	0.93	.338
IAFreq X EM_Setting	1	5.83	1.41	.237
Indep X EM_Setting	1	13.23	3.20	*.076*
IAFreq X Indep X EM_Setting	1	0.77	0.77	.381
Between-subjects error	157	4.13		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Skeptic = Participants answered a modified version of the Hurtt Scale (2010). Participants were divided into high and low skeptics based on a median split (29.00). This analysis only includes the 166 participants answering the questions.

4.4.2 Professional Skepticism

Participants completed a modified version[27] of the *Hurtt Scale* (Hurtt 2010) which measures trait (or inherent) skepticism. Potential scores range from 11 (low skepticism) to 31 (high skepticism). As indicated in Panel A of Table 1, the average *Hurtt Scale* score was 29.04. To examine if *Skepticism* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management, I categorize participants, based on a median split (29.00), as either low or high skeptics. As indicated in Table 9, I do not find that professional skepticism, as measured in this study, is a significant predictor of the likelihood of earnings management in either the overall or earnings management setting-specific analyses.

4.4.3 Organizational Identification (*Org_ID*)

Because independence is a nuanced construct, as previously indicated, I also examine one additional way to operationalization that construct. In particular, I examine whether organization identification (Turner 1982)—the degree to which an internal auditor identifies with the company by which he or she is employed—enhances the effectiveness of using continuous auditing to mitigate the likelihood of earnings management[28]. I differentiate my analyses in this study from both Bamber and Iyer(2007) and Stefaniak et. al (2012), who also examine organizational identification. While I use the scale developed by Bamber and Iyer (2007), I

[27] The original version of the scale is 30 questions with five questions for each of 6 underlying factors (e.g., evidence search). Subsequent studies have used a 6 question version of the scale (using the question that loads highest on each factor) for brevity. No significant differences in using the modified vs. the full version of the scale were noted. Where skepticism is not the primary variable of interest in this study, I use the modified version.

[28] Though this experimental setting is hypothetical, prior psychology research suggests that participants' ability to join experimental groups, in particular when the group is natural for the participant (e.g., internal auditors in this study could easily picture how they feel about their current company and answer the *Organizational Identification Scale* (Bamber and Iyer 2007) questions accordingly). This research also suggests that identification is so powerful that it only requires minimal cues—such as assigning people to groups by "tribes" (Sherif et al. 1961), by issuing name badges or placing them in different rooms with different labels (Wilder 1990), or having people wear the same color (Worchel et al. 1998). Consequently, this allowed me to leverage participants' abilities to place themselves in a familiar and naturally setting and to control the experimental setting (Mackie and Cooper 1984; Abrams and Hogg 1990; Mullen 1992; Van Dick et al. 2004).

differentiate my study from theirs in that I use internal auditors, rather than external auditors, and measure their identification with the company by which they are employed, rather than external auditors' identification with the firm's largest audit client[29]. My supplemental analysis most resembles that of Stefaniak et al. (2012). Their study also uses an online experiment, requesnts participation from local chapters of the IIA, and use a hypothetical case scenario (rather than actual clients as in Bamber and Iyer (2007)). However, my study differs in that I do not also measure and compare the results with the extent of client identification of external auditors and my setting is different[30]. Several important findings from Stefaniak et al. (2012) are relevant to my study and guide my expectations in the current study. Organizational Identification was significantly higher for internal auditors than for external auditors at the $p < .001$ level. In isolation, this finding supports findings in prior auditing research that thought suggested by the PCAOB (Bamber and Iyer 2007), actual external auditor reliance on the internal audit function is lower because of the perception of inability to provide independent assurance to their firms (e.g., higher *Org_ID*) (see Bame-Aldred et al. 2013, for a review of the literature). However, contrary to this prior research, Stefaniak et al. (2012) suggest that internal auditors with higher levels of *Org_ID* are less lenient than external auditors (i.e., tend to support management's preferred position to a lesser extent)[31]. The prior auditing research presents two ways to interpret the implications of low (high) *Org_ID* and its association with auditor independence. On the one hand, internal auditor independence could be impaired when there is a significant psychological

[29] These two studies juxtapose client identification (external auditors) with Organizational Identification (internal auditors), but use the two interchangeably.

[30] The authors request participation from one local chapter of the IIA (in my study I have a cross-section of auditors, industries, and firms represented in that I use 15 chapters) and a list of practicing external auditors (I do not use external auditors but this is an area for future research). The primary dependent variable is the auditor's assessment of the likelihood that hypothetical company's information technology access controls could not prevent or quickly detect a material misstatement (Stefaniak et al. 2012).

[31] As in Bamber and Iyer (2007), Stefaniak et al. (2012) find that higher client identification for external auditors are associated with more leniency with the auditee. This also presents an area for future research.

attachment to his or her employer. In essence, the auditor could be more willing to protect the company (Thompson 1995). However, once attached, the auditor could have difficulty objectively evaluating information related to the company (e.g., the likelihood a manager will engage in earnings management) (Brewer 1999). The external auditor reliance literature follows this line of reasoning and, thus, suggests that auditors with low (high) *Org_ID* are also more independent (less independent). Alternatively, as previously indicated, Stefaniak et al. (2012) find that internal auditors with low (high) *Org_ID* were more (less) lenient in their willingness to accept a manager's assertion. This result suggests that auditors with high (low) *Org_ID* are also more independent (less independent). It is unclear which explanation is applicable and whether the context matters. Consequently, I make no *ex ante* predictions related to *Org_ID*.

In the current study, I measure *Org_ID* using a modified version of the Bamber and Iyer (2007) *Organizational Identification Scale*. I modify the original statements to relate them to Pulliam Manufacturing (the hypothetical company in the experiment). The statements include: (1) "If I worked for Pulliam Manufacturing, I would take *criticism* of Pulliam Manufacturing personally"; (2) "If I worked for Pulliam Manufacturing, I would be *interested in what others think* about Pulliam Manufacturing; and (3) "If I worked for Pulliam Manufacturing, I would take *compliments* of Pulliam Manufacturing personally." Participants respond to each question on a seven-point Likert-type scale with 1 being "Strongly Disagree" and 7 being "Strongly Agree". The aggregate score from the three questions constitute the *Org_ID* score. Potential scores range from 3 (very low *Org_ID*) to 15 (very high *Org_ID*), where lower *Org_ID* suggests higher independence. As indicated in Panel A of Table 1, the average *Org_ID*[32] score is 11.86.

I examine if *Org_ID* impacts the effectiveness of audit frequency and independence in

[32] Crohnbach alpha for my study is .70 whereas it is .80 in Stefaniak et al. (2012).

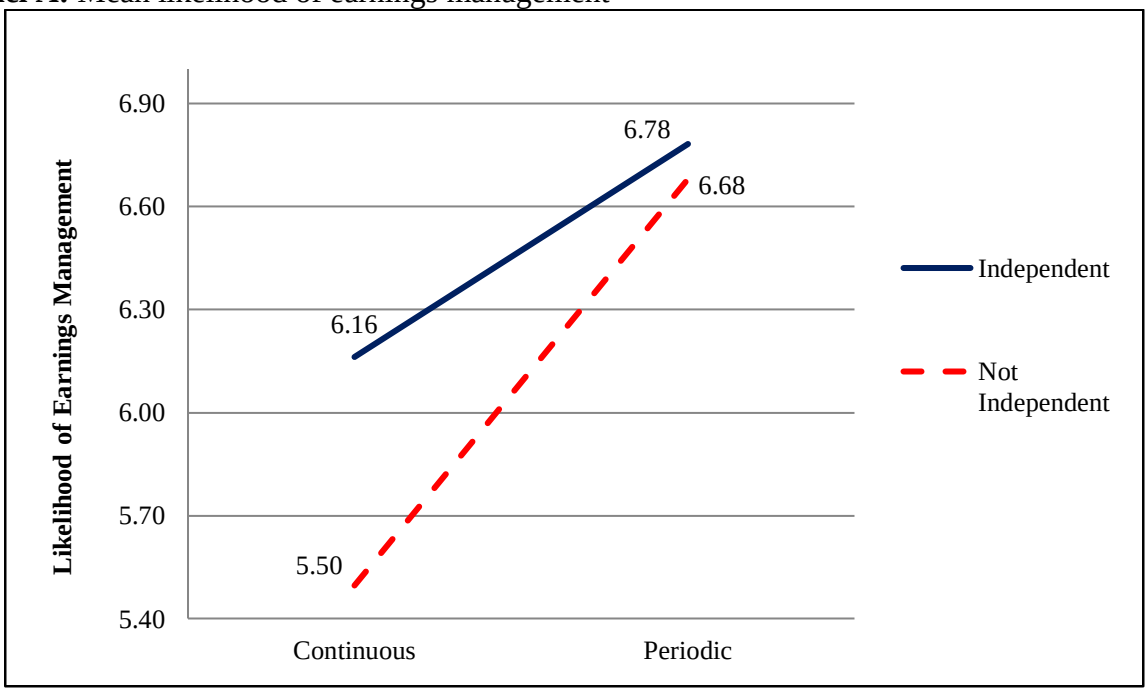
mitigating the likelihood of earnings management. In Panels A and B of Table 12, I find that *Org_ID* (measured as low or high organizational identification based on a median split (12.00)) is a significant predictor of the likelihood of earnings management overall (p = .018) [33], which suggests internal auditors with high (low) *Org_ID* perceive the likelihood of earnings management to be higher (lower). Controlling for *Org_ID* in respecifying the original ANOVA (see Panel B of Table 2) resulted in no change in the statistical significance of *IAFreq* (p = .004); however, the *IAFreq* x *EM_Setting* interaction became only moderately significant (p = .068). I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. In Panels A and B of Table 13 (in Appendix 3) for the *ABM* setting, I find that *Org_ID* (measured as previously indicated) is a significant predictor of the likelihood of *ABM* management (p = .035), internal auditors with high (low) *Org_ID* perceive the likelihood of *ABM* to be higher (lower). Controlling for *Org_ID* in respecifying the primary analyses in Table 3, I find that both *IAFreq* (p = .015) and *Indep* (p = .037) remain statistically significant, while the interaction (p = .907) does not. In Panels A and B of Table 14 (in Appendix 3) for the *REM* setting, I find that *Org_ID* (measured as previously indicated) is not a significant predictor of the likelihood of *REM* management (p = .195), suggesting there is no difference in the perceived likelihood of *REM* between internal auditors with high or low *Org_ID*. Controlling for *Org_ID* in respecifying the primary analyses in Table 4, I find that neither *IAFreq* (p = .169), *Indep* (p = .673), nor the interaction (p = .177) is statistically significant. These findings, however, do present an avenue for future research[34].

[33] As discussed further in Chapter 5, I respecify my analyses such that I replace *Independence* with *Org_ID*. As noted in Table 15, inconsistent with anecdotal evidence from external auditors and prior external audit reliance literature, but consistent with Stefaniak et al. (2012), I find that the likelihood of earnings management is lower in the low (5.88) vs. high (6.74) *Org_ID* setting (p = .017).

[34] In Appendix 3, I also control for independence (using the original measure of independences as a covariate) in the examination of the effect of organizational identification on the perceived likelihood of earnings management overall (Table 30 and Figures 22 and 23) and in the *accrual-based* (Table 31) and *real* (Table 32) earnings

TABLE 12: Likelihood of Earnings Management (Overall) – Organizational Identification Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	33.16	8.31	**.004**
Indep	1	6.05	1.52	.220
EM_Setting	1	0.55	0.14	.710
*Org_ID	1	22.87	5.73	*.018*
IAFreq X Indep	1	3.25	0.81	.368
IAFreq X EM_Setting	1	3.52	0.88	.349
Indep X EM_Setting	1	13.45	3.37	*.068*
IAFreq X Indep X EM_Setting	1	4.03	1.01	.316
Between-subjects error	157	626.20		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
* Org_ID = Participants are classified as either low or high Org_ID based on median score of 12.00.

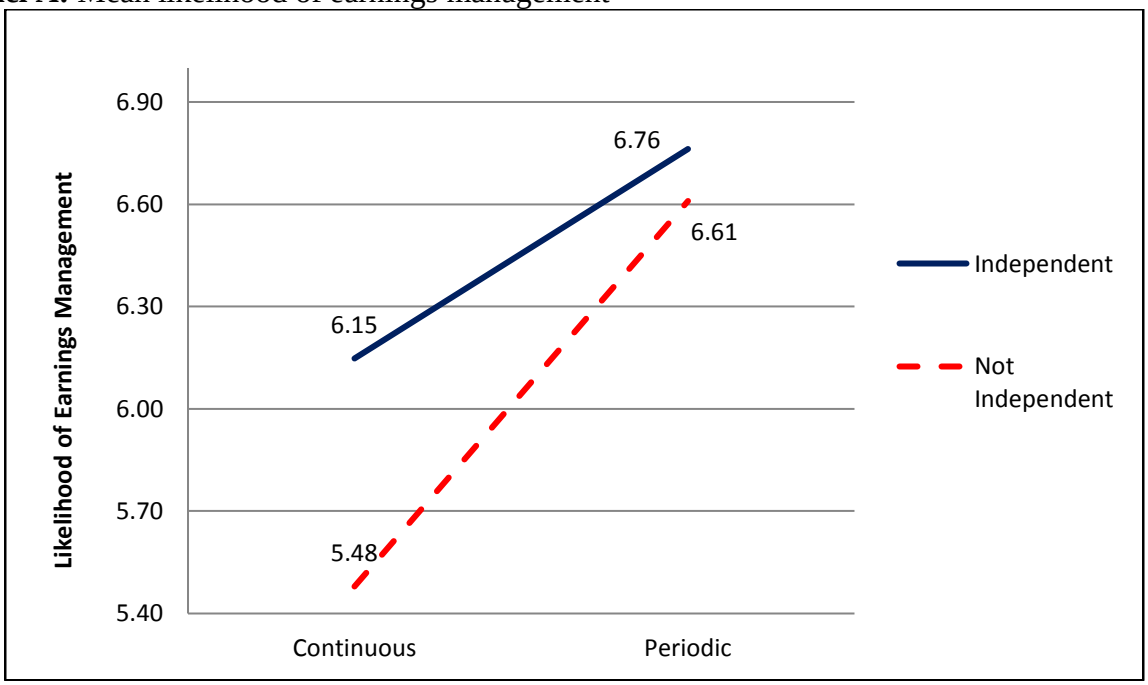
management settings. In these tests, I am specifically interested in whether participants' exposure to the independence manipulation could affect their level of organizational independence. While the overall results are similar to Tables 12, 13, and 14, independence is only a significant predictor (p = .033) in the *accrual-based* earnings management setting (See Panel B of Table 13). This presents an area for future research.

4.4.4 Gender

In the Post Experimental Questionnaire, participants indicated their gender. As indicated in Panel B of Table 1, 54.22% (45.78%) of the participants were female (male). I, thus, examine if *Gender* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management. In Panels A and B of Table 18, I find that *Gender* (measured as Male = 1 and Female = 2) is a marginally significant predictor of the likelihood of earnings management overall (p = .062), which suggests that female internal auditors perceive the likelihood of earnings management to be higher than do male internal auditors. Controlling for *Gender* in respecifying the original ANOVA (see Panel B of Table 2) resulted in no change in the statistical significance of *IAFreq* (p = .007); however, the *IAFreq* x *EM_Setting* interaction became only moderately significant (p = .075). I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. In Panels A and B of Table 19 (in Appendix 3) for the *ABM* setting, I find that *Gender* (measured as previously indicated) is a significant predictor of the likelihood of *ABM* management (p = .005), suggesting that female internal auditors perceive the likelihood of *ABM* to be higher than male internal auditors do. Controlling for *Gender* in respecifying the primary analyses in Table 3, I find that both *IAFreq* (p = .019) and *Indep* (p = .060) remain statistically significant, while the interaction (p = .661) does not. In Panels A and B of Table 20 (in Appendix 3) for the *REM* setting, I find that *Gender* (measured as previously indicated) is not a significant predictor of the likelihood of *REM* management (p = .980), suggesting there is no difference in the perceived likelihood of *REM* between female and male internal auditors. Controlling for *Gender* in respecifying the primary analyses in Table 4, I find that neither *IAFreq* (p = .191), *Indep* (p = .705), nor the interaction (p = .202) is statistically significant.

TABLE 18: Likelihood of Earnings Management (Overall) – Gender Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	31.223	7.503	**.007**
Indep	1	6.895	1.657	.200
EM_Setting	1	.520	.125	.724
*Gender	1	14.747	3.544	*.062*
IAFreq X Indep	1	2.745	.660	.418
IAFreq X EM_Setting	1	3.465	.833	.363
Indep X EM_Setting	1	13.373	3.214	*.075*
IAFreq X Indep X EM_Setting	1	6.327	1.520	.219
Between-subjects error	157	653.330		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Gender = Male (1) vs. Female (2).

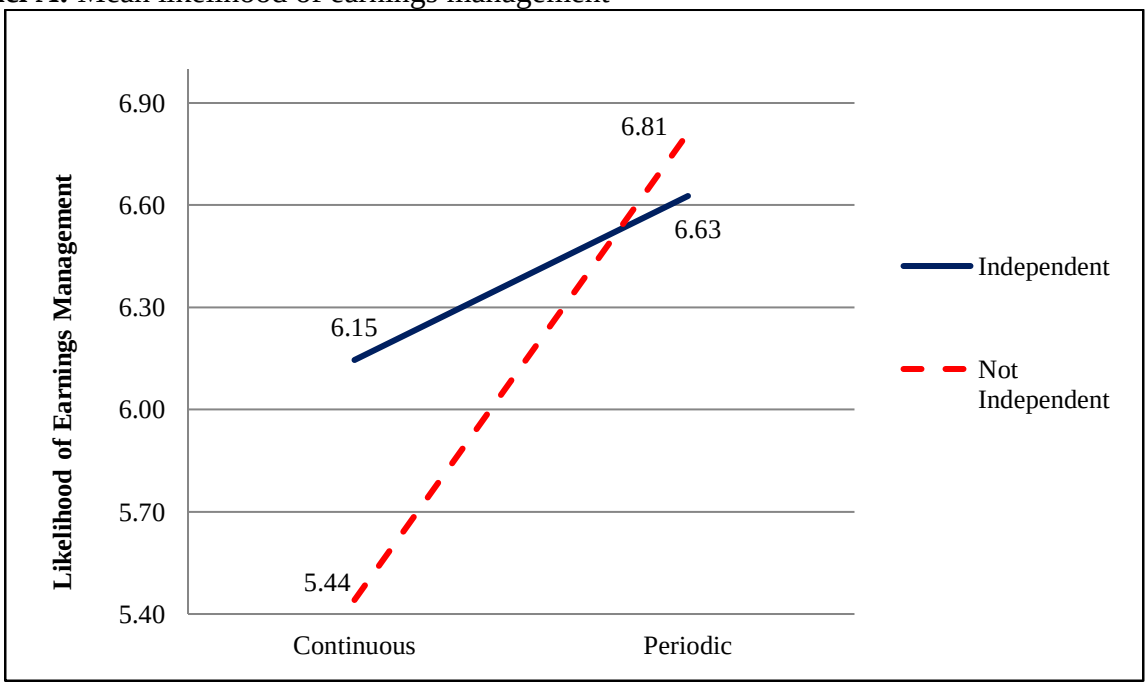
4.4.5 Years of Assurance Experience

In the Post Experimental Questionnaire, participants indicated the number of years they have in providing assurance services[35]. As indicated in Panel A of Table 1, participants have on average 14.09 years of assurance experience[36]. To examine if *Years of Assurance Experience* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management, I categorize participants as either low or high assurance experience based on a median split of 12.50 years. In Panels A and B of Table 21, I find that *Years of Assurance Experience* is not a significant predictor of the likelihood of earnings management overall (p = .979), likely because of less deviation from the mean number of years' experience. I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. As indicated in Panels A and B of Table 22 for the *ABM* setting, and Panels A and B of Table 23 (both in Appendix 3) for the *REM* setting, I find that *Years of Assurance Experience* (measured as previously indicated) is not a significant predictor of the likelihood of either *ABM* (p = .762) or *REM* management (p = .746).

[35] I do not ask participants to differentiate between internal and external audit assurance.
[36] I also ask participants about the number of years they have been in their current position (untabulated mean 7.05) and how many total years of business experience (untabulated mean 18.55) they have.

TABLE 21: Likelihood of Earnings Management (Overall) – Assurance Experience Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	34.67	8.46	**.004**
Indep	1	8.05	1.97	.163
EM_Setting	1	0.05	0.01	.913
*AUD_EXP	1	0.00	0.00	.979
IAFreq X Indep	1	2.75	0.67	.414
IAFreq X EM_Setting	1	7.28	1.78	.185
Indep X EM_Setting	1	11.36	2.77	*.098*
IAFreq X Indep X EM_Setting	1	2.20	0.54	.465
Between-subjects error	156	639.23		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*AUD_EXP = Participants divided into low (high) assurance experience based on median of 12.50 years.

4.4.6 Certification

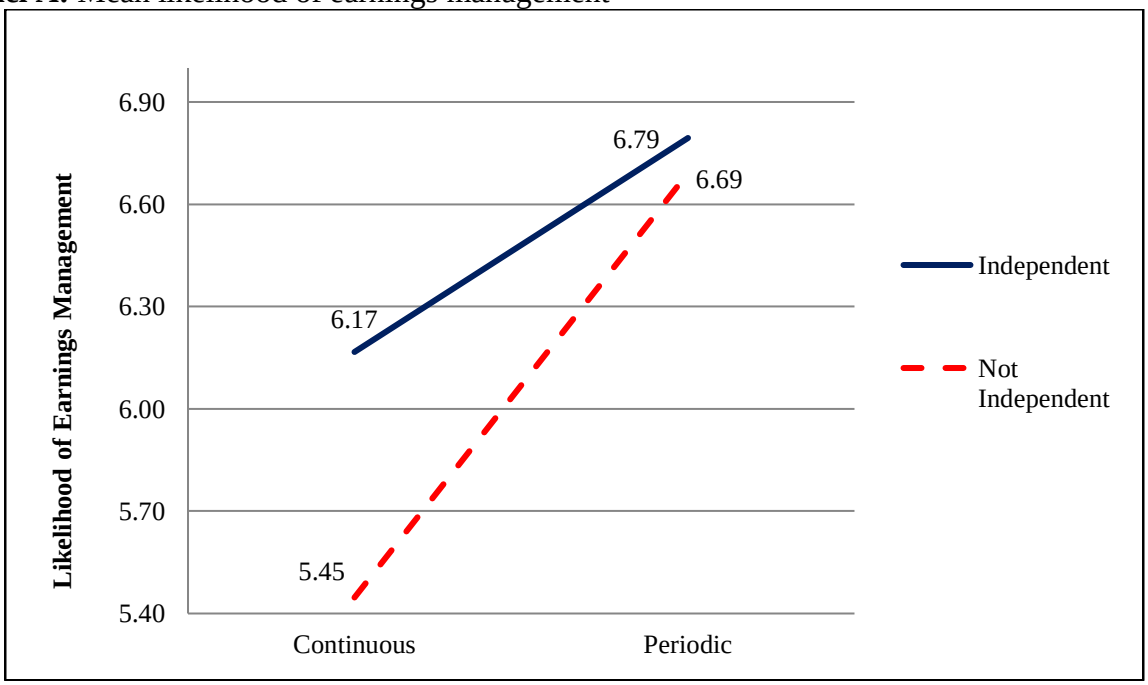
In the Post Experimental Questionnaire, participants indicated which certifications they currently held. As indicated in Panel B of Table 1, 88.48% of participants[37] held at least one certification. To examine if *Certification* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management, I categorize participants as either certified (1) or not certified (0). In Panels A and B of Table 24, I find that *Certification* is not a significant predictor of the likelihood of earnings management overall (p = .155), likely because of the significant number of participants with at least one certification[38]. I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. As indicated in Panels A and B of Table 25 for the *ABM* setting, and Panels A and B of Table 26 (both in Appendix 3) for the *REM* setting, I find that *Certification* (measured as previously indicated) is not a significant predictor of the likelihood of either *ABM* (p = .213) or *REM* management (p = .473).

[37] As indicated in Panel B of Table 1, 47.27% of the participants had multiple certifications (most commonly CPA/CIA). I also examine the effect of certifications on the perceived likelihood of earnings management and find similar results.

[38] I also examine whether the type of certification (e.g., CPA, CIA, PMP) affected the perceived likelihood of earnings management and find similar results.

TABLE 24: Likelihood of Earnings Management (Overall) – Certification Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	35.730	8.704	**.004**
Indep	1	6.916	1.685	.196
EM_Setting	1	.022	.005	.942
*Certification	1	8.366	2.038	.155
IAFreq X Indep	1	3.899	.950	.331
IAFreq X EM_Setting	1	6.076	1.480	.226
Indep X EM_Setting	1	10.799	2.631	*.107*
IAFreq X Indep X EM_Setting	1	3.941	.960	.329
Between-subjects error	156	640.409		

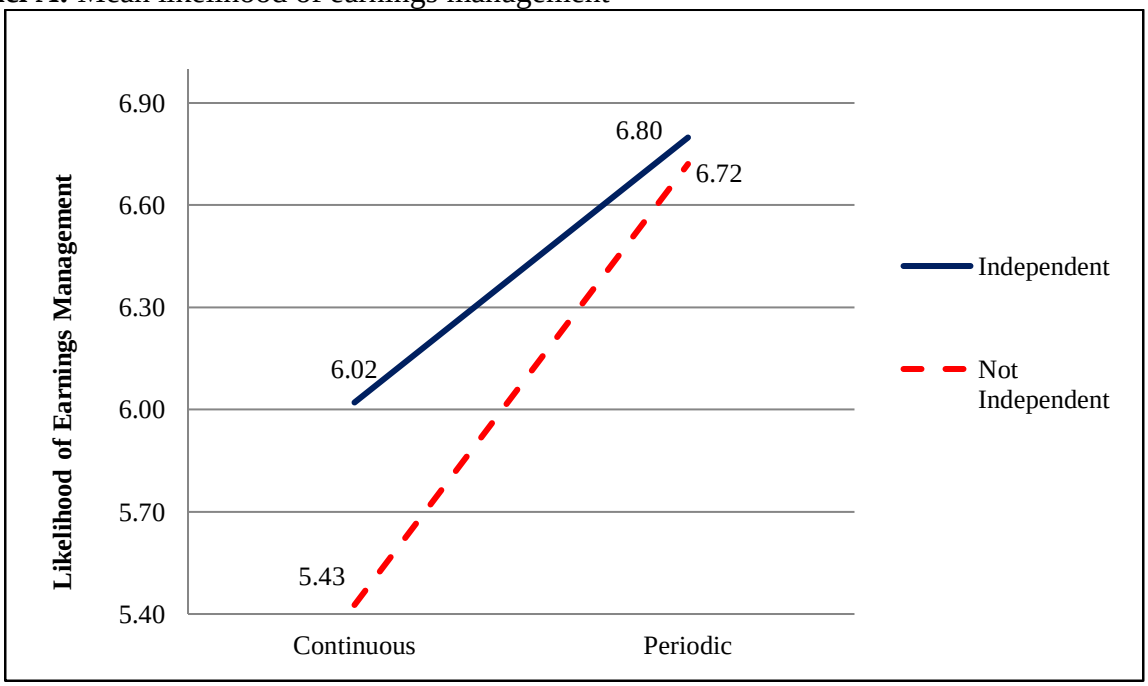
Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Certification = Dichotomous measure of whether participants report that they have (1) or do not have (0) a certification.

4.4.7 External Audit Experience

In the Post Experimental Questionnaire, participants indicated which certifications they currently held. In this analysis, I use participants who held a CPA license as a proxy for external audit assurance experience. Prior auditing research suggests there are differences in how external and internal auditors assess managers' decisions (e.g., earnings management) (e.g., Stefaniak et al. 2012; Bame-Aldred et al. 2013; Commerford et al. 2013). While this is not a perfect measure, internal auditors with solely a CPA license or who have a CPA license in conjunction with other licenses have at least two years of external audit experience. As indicated in Panel B of Table 1, 20.00% of participants held only a CPA certification, while another 19.14% (untabulated) held a CPA certification in conjunction with another certification (e.g., CPA/CIA). To examine if *External Audit Experience* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management, I categorize participants as either having (1) or not having (0) a CPA certification. In Panels A and B of Table 27, I find that *External Audit Experience* is not a significant predictor of the likelihood of earnings management overall (p = .617). I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. As indicated in Panels A and B of Table 28 for the *ABM* setting, and Panels A and B of Table 29 (both in Appendix 3) for the *REM* setting, I find that *External Audit Experience* (measured as previously indicated) is not a significant predictor of the likelihood of either *ABM* (p = .560) or *REM* management (p = .875).

TABLE 27: Likelihood of Earnings Management (Overall) – External Audit Experience Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	44.53	10.34	**.002**
Indep	1	4.69	1.09	.298
EM_Setting	1	0.22	0.05	.820
*EA_EXP	1	1.08	0.25	.617
IAFreq X Indep	1	2.70	0.63	.429
IAFreq X EM_Setting	1	3.87	0.89	.345
Indep X EM_Setting	1	17.11	3.97	**.048**
IAFreq X Indep X EM_Setting	1	1.41	0.33	.569
Between-subjects error	159	684.58		

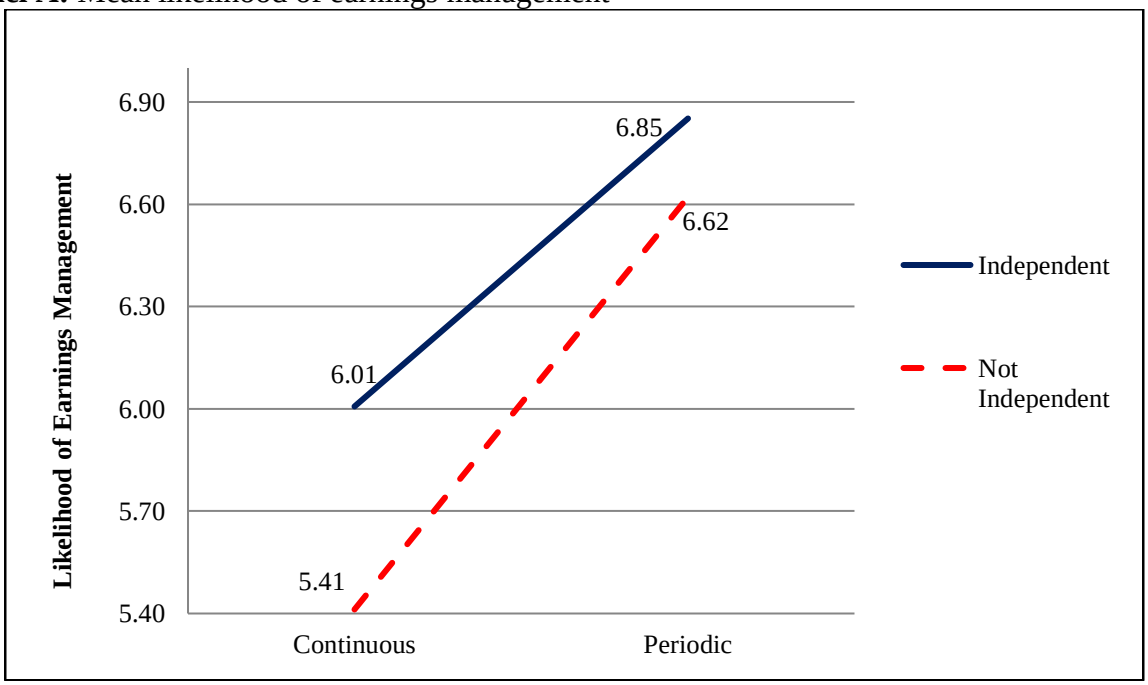
Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*EA_EXP = Dichotomous measure of whether participants report that they have (1) or do not have (0) external audit experience (proxied by only a CPA license).

4.4.8 Industry

In the Post Experimental Questionnaire, participants indicated the industry that most closely represents the firm by which they are employed. As indicated in Panel B of Table 1, these firms represent at least 11 different industries. Because continuous auditing requires a significant amount of technology and some assurance tasks are easier than others to automate (Brown et al. 2007), I am interested in whether *Industry* impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management. I categorize participants based on current position (dummy coded in the order presented in Panel B of Table 1).In Panels A and B of Table 33, I find that *Industry* is not a significant predictor of the likelihood of earnings management overall (p = .567). I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. As indicated in Panels A and B of Table 34 for the *ABM* setting, and Panels A and B of Table 35 (both in Appendix 3) for the *REM* setting, I find that *Industry* (measured as previously indicated) is not a significant predictor of the likelihood of either *ABM* (p = .801) or *REM* management (p = .618).

TABLE 33: Likelihood of Earnings Management (Overall) – Industry Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	45.000	10.321	**.002**
Indep	1	7.266	1.666	.199
EM_Setting	1	.020	.004	.947
*Industry	1	1.276	.293	.589
IAFreq X Indep	1	1.433	.329	.567
IAFreq X EM_Setting	1	1.541	.353	.553
Indep X EM_Setting	1	18.641	4.276	**.040**
IAFreq X Indep X EM_Setting	1	2.875	.659	.418
Between-subjects error	164	715.039		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Industry = Dummy Code that represents the industry that most closely represents participants' employer.

4.4.9 Title

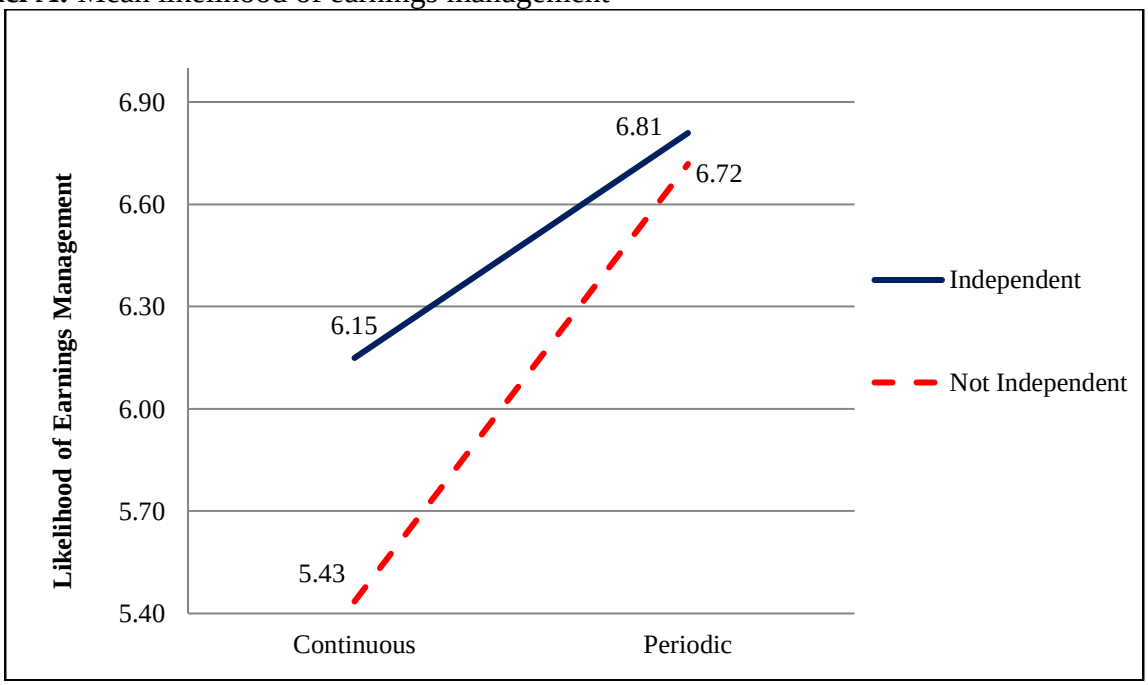
In the Post Experimental Questionnaire, participants indicated the title that most closely matched their current position in the firm by which they are employed. As indicated in Panel B of Table 1, 50.60% are staff, senior, and non-management supervisory auditors; 30.72% managers, directors (non-CAE), and vice presidents (non-CAE); and 18.67% were chief audit executives (CAE). Prior research suggests that auditors become less skeptical with more experience (Nelson 2009). As a result, I examine if the internal auditor's position (*Title*) impacts the effectiveness of audit frequency and independence in mitigating the likelihood of earnings management. I categorize participants based on current position (dummy coded in the order presented in Panel B of Table 1). In Panels A and B of Table 36, I find that *Title* is not a significant predictor of the likelihood of earnings management overall (p = .841). I also examine the aforementioned relationship specifically in the *ABM* and *REM* settings. As indicated in Panels A and B of Table 37 for the *ABM* setting, and Panels A and B of Table 38 (both in Appendix 3) for the *REM* setting, I find that *Title* (measured as previously indicated) is not a significant predictor of the likelihood of either *ABM* (p = .247) or *REM* management (p = .369).

4.5 Summary of Results

Taken together these findings suggest that more frequent audits help to deter earnings management, but auditor independence (separate vs. combined assurance and consulting functions) is most important in deterring *ABM*. These findings are consistent with both anecdotal and empirical research (e.g., Church and Schneider 1992) on the IAF. *Real* earnings management involves the timing and or magnitude of operating decisions (Francis et al. 2005).

TABLE 36: Likelihood of Earnings Management (Overall) – Title Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	38.646	9.350	**.003**
Indep	1	6.689	1.618	.205
EM_Setting	1	.002	.000	.984
*Title	1	.167	.040	.841
IAFreq X Indep	1	3.907	.945	.332
IAFreq X EM_Setting	1	6.074	1.470	.227
Indep X EM_Setting	1	13.534	3.275	*.072*
IAFreq X Indep X EM_Setting	1	3.132	.758	.385
Between-subjects error	157	648.900		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Title = Dummy Code that represents the position currently held by each participant.

CHAPTER V

CONCLUSION

5.1 Conclusion

This study examines the notion that continuous, relative to periodic, auditing helps to decrease the likelihood of earnings management. Because the internal audit function (IAF) often serves in a consulting role during the development of the continuous auditing technology, then subsequently uses it in its assurance role, I also examine whether functionally segregating these roles increases the probability of reporting any earnings management identified. I find that earnings management is less likely when the IAF uses continuous auditing. However, the effectiveness of functional alignment is context-specific. In the accrual-based (*ABM*) earnings management setting, I find that internal auditors expect *ABM* to be less likely when the IAF uses continuous auditing. However, contrary to my predictions I find that auditors expect *ABM* to be less likely when the IAF is not independent. Similarly, in the *real* earnings management (*REM*) setting, I find that internal auditors expect *REM* to be less likely when the IAF uses continuous auditing and when the IAF is independent. These findings are consistent with both anecdotal and empirical research on the IAF. This study complements archival research and contributes to auditing research, auditing standards development, and the debate over the feasibility vs. effectiveness of implementing continuous auditing in a firm.

5.2 Limitations

My study may suffer from limitations that are typical of experimental studies. For example, the design choices create a very specific context that does not include every important feature of auditing practice. These features, could affect the way in which auditors assess the likelihood of earnings management. Importantly, however, I argue that my setting captures the essential characteristics of both a hypothetical (continuous auditing) and traditional (periodic auditing) internal audit setting. In addition, this design allows me to also examine the effect of independence (measured as separate vs. combined assurance and consulting) on the effectiveness of continuous auditing while holding all else constant. Therefore, adding additional institutional features is unlikely to change that basic relationship that is the focus of this study.

5.3 Implications for Future Research

My results suggest many avenues for research in auditing and earnings management. Here I discuss two potential extensions. First, my study avoided mention of both the quality of the internal audit function and the impact that annual external audits may have on the effectiveness of continuous auditing. While I contribute to the prior literature that examines the effects of auditing on earnings management, I do not consider how the quality of the IAF in conjunction with external audit quality affect how managers use, shift between, or substitute *accrual-based* (*ABM*) and *real* (*REM*) earnings management. In an archival study, using both proprietary and publicly available archival data, future research could use a matched sample of firms to investigate if there is a moderation in the level of both *ABM* and *REM*, extending Prawitt et al. (2009), and whether managers either shift from *ABM* to the more costly *REM* (as in Cohen and Zarowin 2010; Geiger and Rama 2006) or use the two as substitutes (as in Institute of Internal Auditors (IIA) 2003) throughout the fiscal year. Second, as indicated in the supplemental

analyses and prior internal auditing research, there are other proxies for examining independence in the internal audit setting (e.g. outsourcing, organizational position, and corporate policy statements). While the operationalization in this study complemented the fact that the IAF helped to create the continuous auditing technology, it is plausible from the supplemental analyses that a different operationalization of independence could increase the effectiveness of continuous auditing in mitigating earnings management[39].

[39] See the results in Tables 15, 16, and 17, specifically.

BIBLIOGRAPHY

Bibliography

Abbott, L. J., S. Parker, G. F. Peters, and D. V. Rama. 2007. Corporate governance, audit quality, and the sarbanes-oxley act: Evidence from internal audit outsourcing. *The Accounting Review* 82 (4):803-835.

Abrams, D. E., and M. A. Hogg. 1990. *Social identity theory: Constructive and critical advances*. Vol. viii. New York, NY: Springer-Verlag Publishing.

Ahlawat, S. S., and D. J. Lowe. 2004. An examination of internal auditor objectivity: In-house versus outsourcing. *Auditing: A Journal of Practice & Theory* 23 (2):147-158.

Alles, M. G., A. Kogan, and M. A. Vasarhelyi. 2002. Feasibility and economics of continuous assurance. *Auditing: A Journal of Practice & Theory* 21 (1):125.

American Institute of Certified Public Accountants (AICPA). 2012. The Current State of Continuous Auditing and Continuous Monitoring. New York, NY.

Anderson, U. L., M. H. Christ, K. M. Johnstone, and L. E. Rittenberg. 2012. A Post-SOX Examination of Factors Associated with the Size of Internal Audit Functions. *Accounting Horizons* 26 (2):167-191.

Ashbaugh, H., R. LaFond, and B. W. Mayhew. 2003. Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review* 78 (3):611-639.

Bamber, E. M., and V. Iyer. 2007. Auditors' identification with their clients and its effect on auditors' objectivity. *Auditing: A Journal of Practice and Theory* 26 (2):1-24.

Bame-Aldred, C. W., D. M. Brandon, W. F. Messier, L. E. Rittenberg, and C. M. Stefaniak. 2013. A summary of research on external auditor reliance on the internal audit function. *Auditing: A Journal of Practice & Theory* 32 (Supplement 1):251-286.

Bedard, J. C., and S. F. Biggs. 1991. The effect of domain-specific experience on evaluation of management representations in analytical procedures. *Auditing: A Journal of Practice & Theory* 10 (Supplement):77-90.

Bou-Raad, G. 2000. Internal auditors and a value-added approach: The new business regime. *Managerial Auditing Journal* 15 (4):182-187.

Brewer, M. B. 1999. The psychology of prejudice: Ingroup love or outgroup hate? *Journal of Social Issues* 55 (3):429-429.

Brody, R. G., and S. E. Kaplan. 1996. Escalation of commitment among internal auditors. *Auditing: A Journal of Practice & Theory* 15 (1):1-15.

Brody, R. G., and D. J. Lowe. 2000. The new role of the internal auditor: Implications for internal auditor objectivity. *International Journal of Auditing* 4 (2):169-176.

Brown, C. E., J. A. Wong, and A. A. Baldwin. 2007. A review and analysis of the existing research streams in continuous auditing. *Journal of Emerging Technologies in Accounting* 4:1-28.

Brown, L. D., and A. S. Pinello. 2007. To what extent does the financial reporting process curb earnings surprise games? *Journal of Accounting Research* 45 (5):947-981.

Burnett, B. M., B. M. Cripe, G. W. Martin, and B. P. McAllister. 2012. Audit quality and the trade-fff between accretive stock repurchases and accrual-based earnings management. *The Accounting Review* 87 (6):1861-1884.

Canadian Institute of Chartered Accountants (CICA). 1999. Research Report: Continuous Auditing. Toronto, Canada: Combined Committee Representing the Canadian Institute of Chartered Accountants (CICA) and the American Institute of Certified Public Accountants (AICPA).

Chen, H., J. Z. Chen, G. J. Lobo, and Y. Wang. 2011. Effects of audit quality on earnings management and cost of equity capital: Evidence from China*. *Contemporary Accounting Research* 28 (3):892-925.

Chen, Q., K. Kelly, and S. E. Salterio. 2010. Does auditing deter potentially fraudulent earnings management? An experimental investigation. In *Working Paper Series*: SSRN eLibrary.

Chi, W., L. L. Lisic, and M. Pevzner. 2011. Is enhanced audit quality associated with greater real earnings management? *Accounting Horizons* 25 (2):315-335.

Christ, M. H., N. Y. Sharp, and D. A. Wood. 2011. Using the internal audit function as a management training ground: Effects on accounting risk and operational performance. In *Working Paper Series*: SSRN eLibrary.

Christopher, J., G. Sarens, and P. Leung. 2009. A critical analysis of the independence of the internal audit function: Evidence from Australia. *Accounting, Auditing & Accountability Journal* 22 (2):200-220.

Church, B. K., and A. Schneider. 1992. Internal auditor involvement in internal control system design: Is objectivity impaired? *Journal of Business Research* 8 (4):15-24.

Coderre, D., J. G. Verver, and J. D. Warren Jr. 2005. Continuous auditing: Implications for assurance, monitoring, and risk assessment. In *Global Technology Audit Guide*. Altamonte Springs: The Institute of Internal Auditors, 1-34.

Cohen, D., R. Mashruwala, and T. Zach. 2010. The use of advertising activities to meet earnings benchmarks: Evidence from monthly data. *Review of Accounting Studies* 15 (4):808-832.

Cohen, D. A., A. Dey, and T. Z. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83 (3):757-787.

Cohen, D. A., and P. Zarowin. 2010. Accrual-based and real earnings management activities

around seasoned equity offerings. *Journal of Accounting and Economics* 50 (1):2-19.

Cohen, J., G. Krishnamoorthy, and A. Wright. 2004. The corporate governance mosaic and financial reporting quality. *Journal of Accounting Literature* 23 (07374607):87-87.

Commerford, B. P., D. R. Hermanson, R. W. Houston, and M. F. Peters. 2013. Real earnings management: The auditor's perspective. In *Working Paper*. SSRN eLibrary.

Committee of Sponsoring Organizations (COSO). 2009. Guidance on Monitoring Internal Control Systems: Committee of Sponsoring Organizations of the Treadway Commision.

———. 2013. Internal Control-Integrated Framework: 2013. Altamonte Springs, FL: Committee of Sponsoring Organizations of the Treadway Commission.

DeAngelo, L. E. 1981a. Auditor independence, 'low balling', and disclosure regulation. *Journal of Accounting and Economics* 3 (2):113-127.

———. 1981b. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3):183-199.

———. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics* 10 (1):3-36.

Dezoort, F. T., R. W. Houston, and M. F. Peters. 2001. The impact of internal auditor compensation and role on external auditors' planning judgments and decisions. *Contemporary Accounting Research* 18 (2):257-281.

Dichev, I. D., J. R. Graham, C. R. Harvey, and S. Rajgopal. 2013. Earnings quality: Evidence from the field. *Journal of Accounting and Economics* 56 (2–3, Supplement 1):1-33.

Dowling, C., and S. Leech. 2007. Audit support systems and decision aids: Current practice and opportunities for future research. *International Journal of Accounting Information Systems* 8 (2):92-116.

Fischer, M. J. 1996. "Real-izing" the benefits of new technologies as a source of audit evidence: An interpretive field study. *Accounting, Organizations and Society* 21 (2/3):219-242.

Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39 (2):295-327.

Francis, J. R. 2004. What do we know about audit quality? *The British Accounting Review* 36 (4):345-368.

Geiger, M. A., and D. V. Rama. 2006. Audit firm size and going-concern reporting accuracy. *Accounting Horizons* 20 (1):1-17.

Glover, S. M., D. F. Prawitt, and M. B. Romney. 2000. The software scene. *Internal Auditor* 57

(4):49.

Gonzalez, G. C., P. N. Sharma, and D. Galletta. 2012. Factors influencing the planned adoption of continuous monitoring technology. *Journal of Information Systems* 26 (2):53-69.

Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40 (1–3):3-73.

Gramling, A. A., M. J. Maletta, A. Schneider, and B. K. Church. 2004. The role of the internal audit function in corporate governance: A synthesis of the extant internal auditing literature and directions for future research. *Journal of Accounting Literature* 23 (1):194-244.

Handscombe, K. 2012. Continuous Auditing From A Practical Perspective. Berkeley, CA: Caseware International.

Healy, P. M. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7 (1–3):85-107.

Healy, P. M., and J. M. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13 (4):365-383.

Hirst, D. E. 1994. Auditor Sensitivity to Earnings Management. *Contemporary Accounting Research* 11 (1):405-405.

Hunton, J. E., E. G. Mauldin, and P. R. Wheeler. 2008. Potential functional and dysfunctional effects of continuous monitoring. *Accounting Review* 83 (6):1551-1569.

Hunton, J. E., and J. M. Rose. 2010. 21st Century auditing: Advancing decision support systems to achieve continuous auditing. *Accounting Horizons* 24 (2):297-312.

Hurtt, R. K. 2010. Development of a scale to measure professional skepticism. *Auditing: A Journal of Practice & Theory* 29 (1):149-171.

Hurtt, R. K., M. Eining, and D. Plumlee. 2008. An experimental examination of professional skepticism. In *Working Paper Series*: SSRN eLlibrary.

Institute of Internal Auditors (IIA). 2003. Internal auditing: A safety net for those at the top. *Tone at the Top* 19 (August).

———. 2009. IIA position paper: The role of internal audit in enterprise risk management. Altamonte Springs, FL: Institute of Internal Auditors.

———. 2013. International Standards for the Professional Practice of Internal Auditing. Altamonte Springs, FL: Institute of Internal Auditors.

Janvrin, D., J. Bierstaker, and D. J. Lowe. 2008. An examination of audit information technology use and perceived importance. *Accounting Horizons* 22 (1):1-21.

Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4):305-360.

Jones, J. J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (2):193-228.

Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U. K. Velury. 2012. Audit quality: Insights from the academic literature. *Auditing: A Journal of Practice & Theory* 32 (Supplement 1):385-421.

Knechel, W. R., and D. S. Sharma. 2012. Auditor-provided nonaudit services and audit effectiveness and efficiency: Evidence from pre- and post-SOX audit report lags. *Auditing: A Journal of Practice & Theory* 31 (4):85-114.

Krishnan, G. V. 2003. Does big 6 auditor industry expertise constrain earnings management? *Accounting Horizons* 17 (Supplement):16.

Kuhn Jr, J. R., and S. G. Sutton. 2010. Continuous auditing in ERP system environments: The current state and future directions. *Journal of Information Systems* 24 (1):91-112.

Libby, R., R. Bloomfield, and M. W. Nelson. 2002. Experimental research in financial accounting. *Accounting, Organizations and Society* 27 (8):775-810.

Libby, R., and W. R. Kinney. 2000. Does mandated audit communication reduce opportunistic corrections to manage earnings to forecasts? *The Accounting Review* 75 (4):383-404.

Mackie, D., and J. Cooper. 1984. Attitude polarization: Effects of group membership. *Journal of Personality and Social Psychology* 46 (3):575-585.

Messier, J. W. F. 1995. *Research in and development of audit decision aids*. edited by R. Ashton, and A. Ashton. New York, NY: Cambridge University Press.

Morgan, G. 1988. Accounting as reality construction: Towards a new epistemology for accounting practice. *Accounting, Organizations and Society* 13 (5):477–485.

Mullen, B. R. C. 1992. Ingroup bias as a function of salience, relevance, and status: An integration. *European Journal of Social Psychology* 22 (2):103-122.

Nelson, M. W. 2009. A model and literature review of professional skepticism in auditing. *Auditing: A Journal of Practice & Theory* 28 (2):1-34.

Nelson, M. W., J. A. Elliott, and R. L. Tarpley. 2002. Evidence from auditors about managers' and auditors' earnings management decisions. *The Accounting Review* 77 (4):28.

Nelson, M. W., and D. J. Skinner. 2013. How should we think about earnings quality? A discussion of "Earnings quality: Evidence from the field". *Journal of Accounting and Economics* 56 (2–3, Supplement 1):34-41.

O'Donnell, E., and J. S. David. 2000. How information systems influence user decisions: A research framework and literature review. *International Journal of Accounting Information Systems* 1 (3):178-203.

Plumlee, R. D. 1985. The standard of objectivity for internal auditors: Memory and bias effects. *Journal of Accounting Research* 23 (2):683-699.

Prawitt, D. F., N. Y. Sharp, and D. A. Wood. 2011. Internal audit outsourcing and the risk of misleading or fraudulent financial reporting: Did Sarbanes-Oxley get it wrong? In *SSRN eLibrary*.

Prawitt, D. F., J. L. Smith, and D. A. Wood. 2009. Internal audit quality and earnings management. *The Accounting Review* 84 (4):1255-1280.

PricewaterhouseCoopers (PwC). 2006. PricewaterhouseCoopers 2006 State of the Internal Audit Profession Study: Continuous Auditing Gains Momentum. In *PwC Advisory*: PricewaterhouseCoopers.

Public Companies Accounting and Oversight Board (PCAOB). 2011. Statement on Proposed Amendments to Improve Transparency Through Disclosure of Engagement Partner and Certain Other Participants in Audits. Washington, D.C.: PCAOB.

Rezaee, Z., A. Sharbatoghlie, R. Elam, and P. L. McMickle. 2002. Continuous auditing: Building automated auditing capability. *Auditing-a Journal of Practice & Theory* 21 (1):147-163.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42 (3):335-370.

Salterio, S. 1994. Researching for accounting precedents: Learning, efficiency, and effectiveness. *Contemporary Accounting Research* 11 (1):515-542.

Schipper, K. 1989. Commentary on earnings management. *Accounting Horizons* 3 (4):91-102.

Schneider, A. 2003. An examination of whether incentive compensation and stock ownership affect internal auditor objectivity. *Journal of Managerial Issues* 15 (4):486-497.

Schneider, A., B. K. Church, and K. M. Ely. 2006. Non-audit services and auditor independence: A review of the literature. *Journal of Accounting Literature* 25 (07374607):169-211.

Schwartz, S. T., and R. A. Young. 2002. A laboratory investigation of verification and reputation formation in a repeated investment setting. *Contemporary Accounting Research* 19 (2):311-342.

Sherif, M., O. J. Harvey, B. J. White, W. R. Hood, and C. W. Sherif. 1961. *Intergroup conflict and cooperation: The Robbers Cave experiment*. Norman, OK: University of Oklahoma Book Exchange.

Stefaniak, Chad M., Richard W. Houston, and Robert M. Cornell. 2012. The effects of employer

and client identification on internal and external auditors' evaluations of internal control deficiencies. *Auditing: A Journal of Practice & Theory* 31 (1):39-56.

Stewart, J., and N. Subramaniam. 2010. Internal audit independence and objectivity: Emerging research opportunities. *Managerial Auditing Journal* 25 (4):328-360.

Teeter, R. A., and G. Brennan. 2010. Aiding the audit: Using the IT audit as a springboard for continuous controls monitoring. In *Working Paper Series*: SSRN eLlibrary.

Thompson, L. 1995. 'They saw a negotiation': Partisanship and involvement. *Journal of Personality and Social Psychology* 68 (5):839-853.

Turner, J. C. 1982. Towards a cognitive redefinition of the social group. In *Social Identity and Intergroup Relations*, edited by H. Tajfel. Cambridge, U.K.: Cambridge University Press, 15-40.

United States Public Laws. 2002. The Sarbanes-Oxley Act of 2002, Public Law 107-204 [H. R. 3763]. New York: Lexis-Nexis Congressional.

Van Dick, R., U. Wagner, J. Stellmacher, and O. Christ. 2004. The utility of a broader conceptualization of organizational identification: Which aspects really matter? *Journal of Occupational and Organizational Psychology* 77 (2):171-191.

Vasarhelyi, M. A., M. Alles, and K. T. Williams. 2010. Continuous Assurance for the Now Economy, edited by The Institute of Chartered Accountants in Australia.

Vasarhelyi, M. A., and F. B. Halper. 1991. The continuous audit of online systems. *Auditing: A Journal of Practice & Theory* 10 (1):110-125.

Vasarhelyi, M. A., S. Kuenkaikaew, J. Littley, and K. Williams. n.d. Continuous auditing technology adoption in leading internal audit organizations. In *Working Paper Series*: Rutgers University.

Warren Jr., J. D., and L. M. Smith. 2006. Continuous auditing: An effective tool for internal auditors. *Internal Auditing* 21 (2):27.

Watkins, A. L., W. Hillison, and S. E. Morecroft. 2004. Audit quality: A synthesis of theory and empirical evidence. *Journal of Accounting Literature* 23 (07374607):153-153.

Wilder, D. A. 1990. Some determinants of the persuasive power of in-groups and out-groups: Organization of information and attribution of independence. *Journal of Personality and Social Psychology* 59 (6):1202-1213.

Worchel, S., H. Rothgerber, E. A. Day, D. Hart, and J. Butemeyer. 1998. Social identity and individual productivity within groups. *British Journal of Social Psychology* 37 (4):389-413.

Zang, A. Y. 2011. Evidence on the trade-off between real activities manipulation and accrual-

based earnings management. *The Accounting Review* 87 (2):675-703.

Zhang, L., A. R. Pawlicki, D. McQuilken, and W. R. Titera. 2012. The AICPA Assurance Services Executive Committee Emerging Assurance Technologies Task Force: *The Audit Data Standards (ADS) Initiative*. *Journal of Information Systems* 26 (1):199-205.

LIST OF APPENDICES

APPENDIX 1: EXPERIMENTAL MATERIALS

The following experimental materials show all eight treatment conditions.

For the independent variables, the heading **"*Internal Audit Background"*** includes the assurance-only (independent) IAF condition in brackets [] and the combined assurance and consulting (not independent) IAF condition in parentheses (). The heading **"*Audits of Corporate Functions by the Internal Audit Department"*** includes the continuous auditing condition in brackets [] and the periodic auditing condition in parentheses ().

For the dependent variables, the Accrual-Based (ABM) and Real Earnings (REM) Management decisions are presented in succession within this instrument; however, only one decision is made per subject (ABM or REM), see below.

Potential Treatment Conditions (IV1 – IV2 – DV):

1. Continuous Auditing – Independent – Accrual-Based Earnings Management
2. Continuous Auditing – Not Independent – Accrual-Based Earnings Management
3. Continuous Auditing – Independent – Real Earnings Management
4. Continuous Auditing – Not Independent – Real Earnings Management
5. Periodic Auditing – Independent – Accrual-Based Earnings Management
6. Periodic Auditing – Not Independent – Accrual-Based Earnings Management
7. Periodic Auditing – Independent – Real Earnings Management
8. Periodic Auditing – Not Independent – Real Earnings Management

Instructions: This business decision making study is a critical portion of my dissertation. For the study, please read the following information carefully. After these instructions, you will make decisions based on a scenario and answer a short questionnaire. Please answer the questions fully and to the best of your abilities, given the limited amount of information provided. ***The study should take about 10-15 minutes to complete***. Please complete it in its entirety once you begin.

Privacy: Your participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. Your responses are anonymous and untraceable.

Incentive: In exchange for your participation, you have the option to participate in a drawing for one of ***five*** **(5)** electronic gift certificates from Amazon – *four* valued at $50, and *one* valued at $100. Any contact information provided will be kept in a separate file from your survey responses.

IRB Approval: This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482 or irb@olemiss.edu.

Please pay careful attention to all of the information provided. *There is no right or wrong answer. I am interested in your professional judgment.*

Informed Consent:
I have had the purposes and procedures of this study explained to me and have had the opportunity to ask questions. By selecting accept, you will be able to proceed with the survey, while rejection requires that you discontinue the survey.

- ☐ Accept (and continue survey)
- ☐ Reject (and exit survey)

Company Information: Pulliam Manufacturing, Inc. is an American global, publicly-traded, manufacturer. Pulliam's assets are valued in excess of $4 Billion and last year it reported revenue of $46 Billion and net income of approximately $5 Billion.

Pulliam grants divisional managers annual bonuses when the division's return on investment (ROI) exceeds 12% (Pulliam's current cost of capital). Expenses related to a long-term project (which began in 2011 and is expected to be completed in 2016) have a significant impact on ROI for a division you plan to audit, according to the aforementioned audits of corporate functions.

The division's ROI is reduced when there are significant internal audit findings reported to management.

Current Divisional ROI: Assume the following has been recorded for the division as of June 30, 2013. The table below shows the division's projected and actual ROI for the first half of FY13 (January – June). The table also shows the projected ROI for the full year if the manager makes no changes during the second half of the year.

	Projected ROI	Actual ROI
1st Half FY13	10%	10%
Full Year FY13	11%	?

Background on Your Internal Audit Department

On the next page, you will be asked to estimate a typical division manager's response to a set of circumstances prior to your next audit of his division. When making your estimate of the manager's response, assume the following about your internal audit department.

1. Internal Audit Department: Your department has **[separate*/ (combined)*** assurance (e.g. audits) and consulting (e.g. special projects like developing new software) functions.

2. Audits of Corporate Functions by the Internal Audit Department: Your department conducts assurance engagements on a **[continuous] (rotating)** basis such that divisions are audited **[at all times] (once every three years) [using automated software your department helped to create and that is available for corporate-wide use]**. Any significant variances and control exceptions are reported **[continuously] (whenever the audit is complete)** to all divisional and senior management. The last audit of this division was **[yesterday] (last year**) and there were no significant findings.

ACCRUAL-BASED EARNINGS MANAGEMENT

Manager's Options: To increase the division's budgeted annual ROI above the 12% cost of capital, the manager could reduce bad debt expense for the second half of FY13. By reducing the allowance for uncollectible accounts percentage for accounts over 90-days due from 50% to 25% the division will significantly decrease the bad debt expense. Collection patterns for prior years are inconclusive as support for the reduction in the allowance percentage.

The table below shows the projected impact on FY13 ROI if the manager selects either option.

	Projected ROI	Cost of Capital	Bonus Result
Do Nothing	11%	12%	No Bonus Awarded
Reduce Expenses	13%	12%	Bonus Awarded

Required: *Assuming managers are aware of the internal audit department auditing practices described on the previous page…*

How likely would a manager working for a company such as Pulliam Manufacturing ***reduce bad debt expense*** for the second half of FY13? *(check one)*

1	2	3	4	5	6	7	8	9	10
Very Unlikely									*Very Likely*

REAL EARNINGS MANAGEMENT

Manager's Options: To increase the division's budgeted annual ROI above the 12% cost of capital, the manager could cut quality control expenditures for the second half of FY13. This will reduce product costs. With these lower costs, the price of products can be reduced and sales should increase. However, sales returns in future years are likely to increase as sales of defective products are returned.

The table below shows the projected impact on FY13 ROI if the manager selects either option.

	Projected ROI	Cost of Capital	Bonus Result
Do Nothing	11%	12%	No Bonus Awarded
Cut Quality Control Expenditures	13%	12%	Bonus Awarded

REQUIRED: *Assuming managers are aware of the internal audit department auditing practices described on the previous page…*

How likely would a manager working for a company such as Pulliam Manufacturing ***cut quality control expenditures*** for the second half of FY13? *(check one)*

1	2	3	4	5	6	7	8	9	10
Very Unlikely									*Very Likely*

Post Experimental Questionnaire – Questions About the Case *(Manipulation Checks)*

How did Pulliam Manufacturing's internal audit department conduct assurance and consulting engagements? (CHECK ONE)

- ☐ The department has ***separate*** assurance and consulting functions.
- ☐ The department has ***combined*** assurance and consulting functions.

How often did Pulliam Manufacturing's internal audit department perform audits of divisions and report the results? (CHECK ONE)

- ☐ The internal audit department audited divisions ***continuously***.
- ☐ The internal audit department audited divisions ***every three years***.

Post Experimental Questionnaire – Questions About the Case

Do you consider the proposed reduction of (bad debt expense) [quality control expenditures] to be ethical?

- ☐ **Yes**
- ☐ **No**

Post Experimental Questionnaire – Organizational Identification *(Supplemental Analyses)*

If I worked for Pulliam Manufacturing, I would...	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
...take criticism of Pulliam Manufacturing personally.	❍	❍	❍	❍	❍	❍
...be interested in what others think about Pulliam Manufacturing.	❍	❍	❍	❍	❍	❍
...take compliments of Pulliam Manufacturing personally.	❍	❍	❍	❍	❍	❍

Post Experimental Questionnaire – Professional Skepticism *(Supplemental Analyses)*

Following are statements that people use to describe themselves. Please select the response that indicates how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I take my time when making decisions.	❍	❍	❍	❍	❍	❍
I tend to immediately accept what other people tell me.	❍	❍	❍	❍	❍	❍
My friends tell me that I usually question things that I see or hear.	❍	❍	❍	❍	❍	❍
I like to understand the reason for other people's behavior.	❍	❍	❍	❍	❍	❍
I think that learning is exciting.	❍	❍	❍	❍	❍	❍
I have confidence in myself.	❍	❍	❍	❍	❍	❍

INCENTIVE FOR PARTICIPATION – Presented on a separate screen at the conclusion of the study (external link provided) to maintain anonymity of responses.

Thank you for participating in this study. In exchange for your participation, you will be entered into a drawing and eligible to win one of five gift certificates from Amazon – four valued at $50, and one valued at $100. Your participation in the raffle is *OPTIONAL*. If you are interested in participating in this raffle, please enter your email address below. Your contact information will be kept in a separate file from your survey responses.

*****Email Address (used only to provide the incentive): _____**

Post Experimental Questionnaire – Demographic Information

Please indicate your gender

— Male — Female

Please select the range that includes your age

— 20-25 — 31-40 — 46-50 — over 50
— 26-30 — 41-45

Highest degree held:

— Associate's — Bachelor's — Master's — Doctorate/PhD

Undergraduate Degree:

— Accounting/Finance — Engineering — Liberal Arts (non-science)
— Other Business — Sciences

Certification(s) held:

— Certified Public Accountant (CPA)
— Project Management Professional (PMP)
— Certified Internal Auditor (CIA)
— Certified Fraud Examiner (CFE)
— Six Sigma (any level)
— Certified Info Systems Auditor (CISA)
— Certified Info Systems Security Prof (CISSP)
— Other Business Certification
— No Certification

Which of the following most closely relates to your current position in your department?

— Intern – Bachelor's Level — Senior Auditor — Director
— Intern – Master's Level — Audit Advisor/Supervisor — VP (other than CAE)
— Associate Auditor — Manager — Chief Audit Executive
— Staff Auditor — Senior Manager — Other

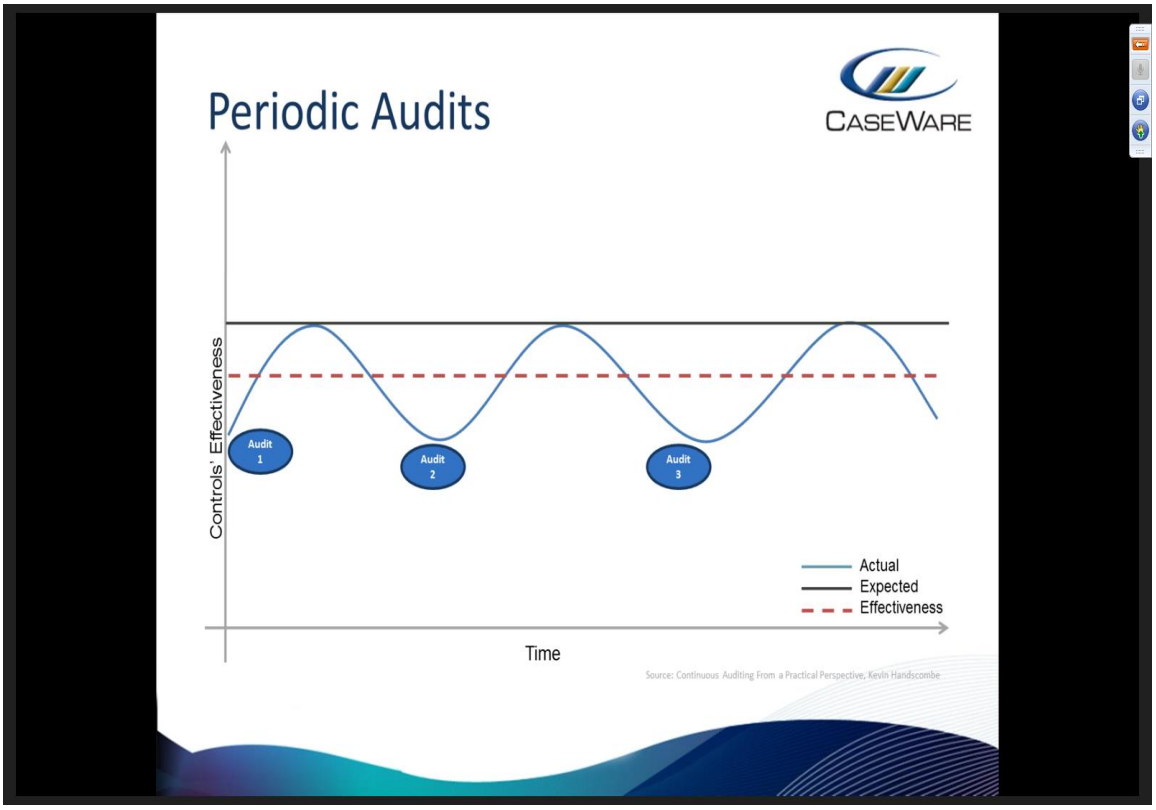
For how many years have you held you current position? _____

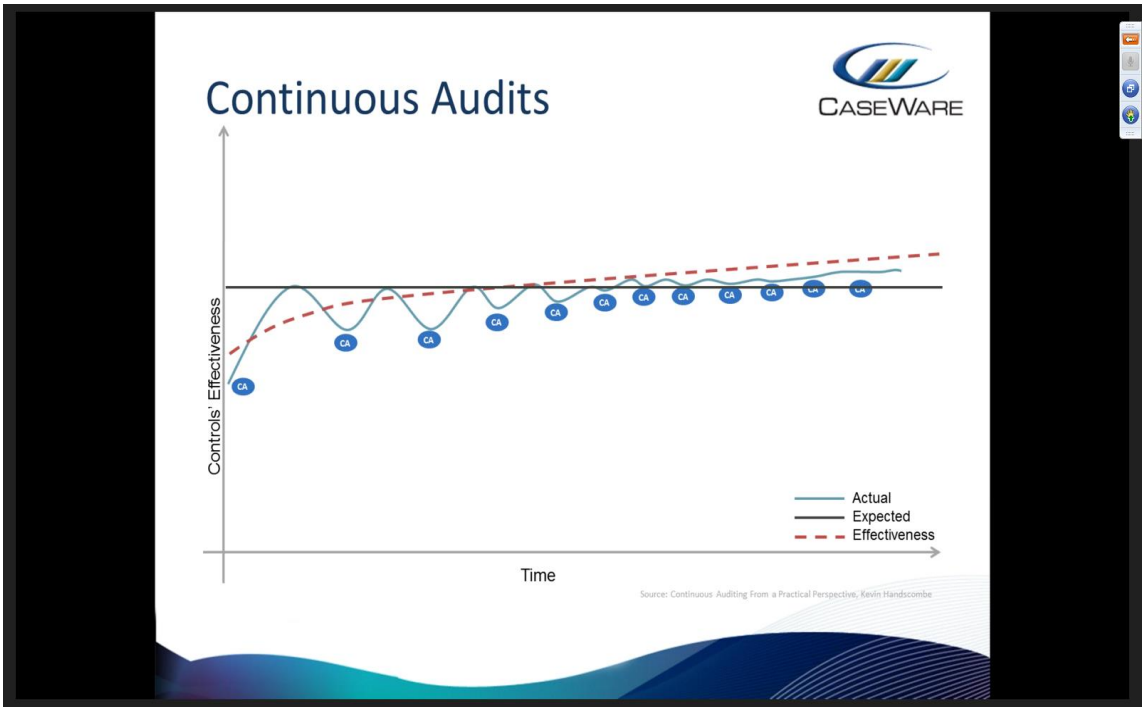
Total number years of business work experience (post-Bachelor's degree)? _____

Please check the industry in which your firm primarily conducts business:

— Mining/Oil/Gas
— Construction
— Transportation
— Manufacturing
— Retail
— Financial Services
— Health Care
— Technology
— Government
— Utilities
— Other Services
— Higher Education
— Other

APPENDIX 2: PERIODIC VS. CONTINUOUS AUDITING ILLUSTRATION

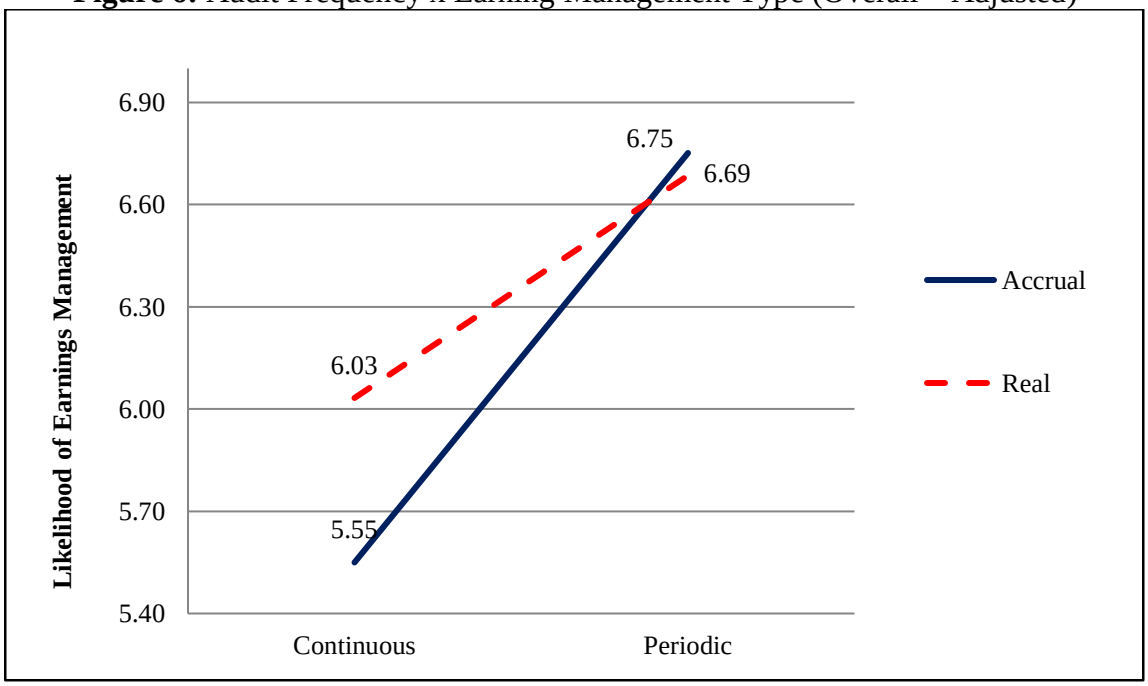

Periodic Audits
CASEWARE
Controls' Effectiveness
Audit 1
Audit 2
Audit 3
Actual
Expected
Effectiveness
Time
Source: Continuous Auditing From a Practical Perspective, Kevin Handscombe


Continuous Audits
CASEWARE
Controls' Effectiveness
CA
Actual
Expected
Effectiveness
Time
Source: Continuous Auditing From a Practical Perspective, Kevin Handscombe

APPENDIX 3: ADDITIONAL FIGURES AND TABLES

Likelihood of Earnings Management (Overall) – Ethics Covariate

Figure 6: Audit Frequency x Earning Management Type (Overall – Adjusted)



Participants assessed the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1 (very unlikely) to 10 (very likely). I manipulate audit frequency (continuous vs. periodic) and auditor independence (separate vs. combined assurance and consulting functions). Means are adjusted based on average response to whether earnings management is considered ethical at 1.88 (where 1 = Yes and 2 = No).

Figure 7: Independence x Earning Management Type (Overall – Adjusted)

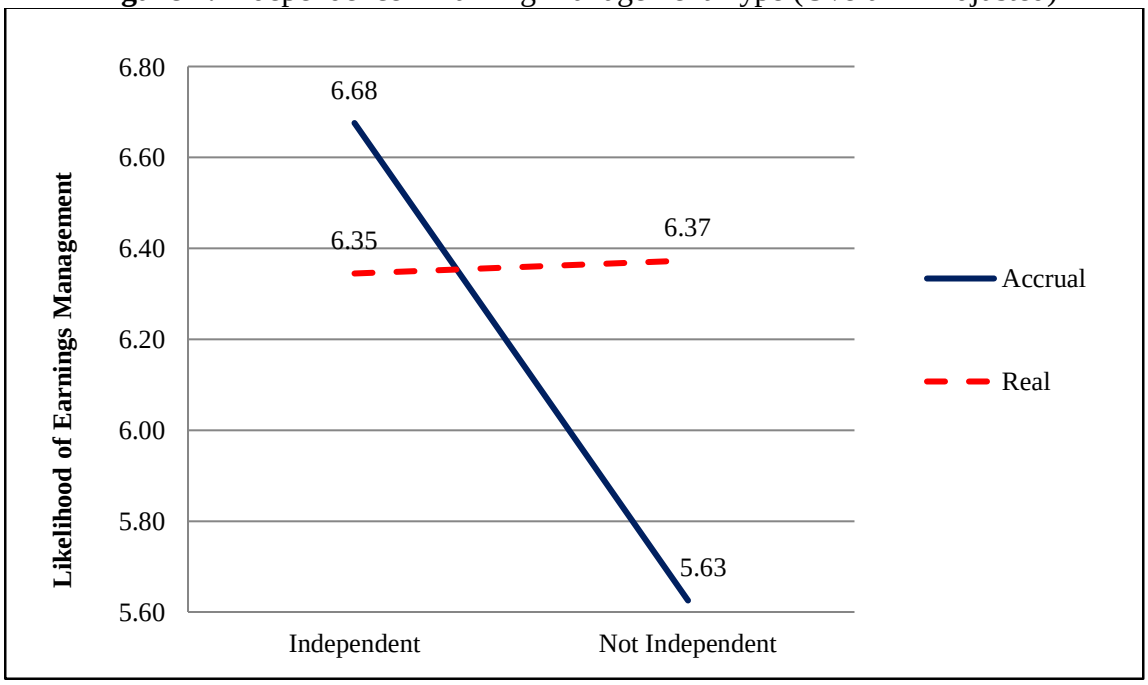
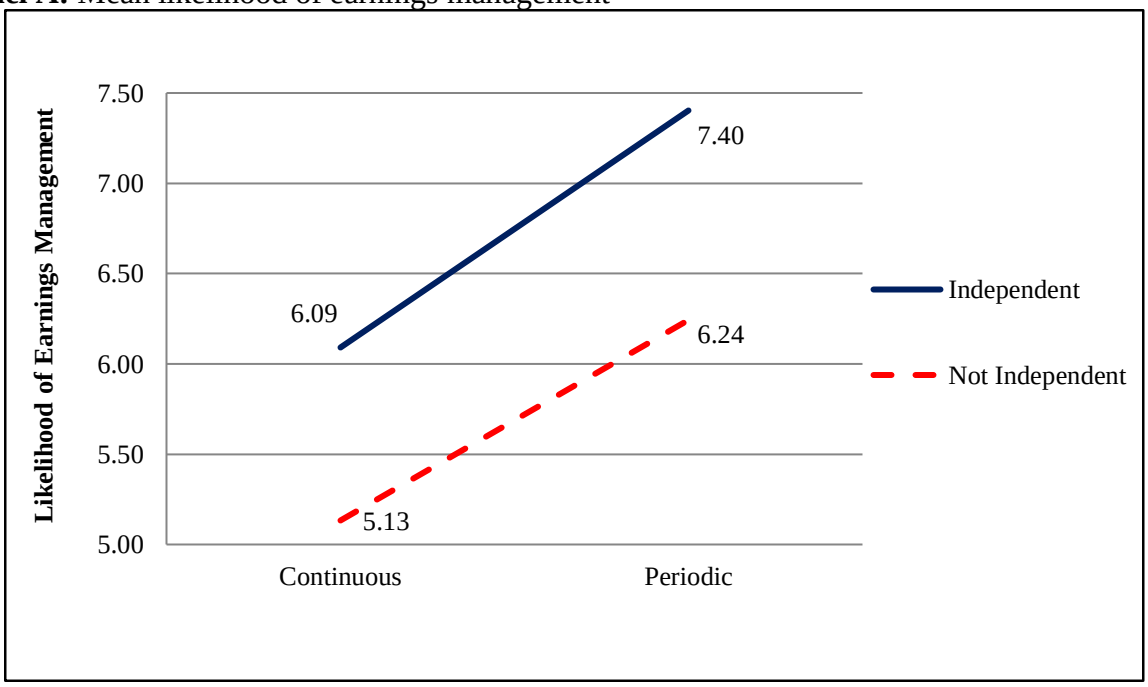


TABLE 7: Likelihood of Earnings Management (Accrual-Based) – Ethics Covariate

Panel A: Mean likelihood of earnings management



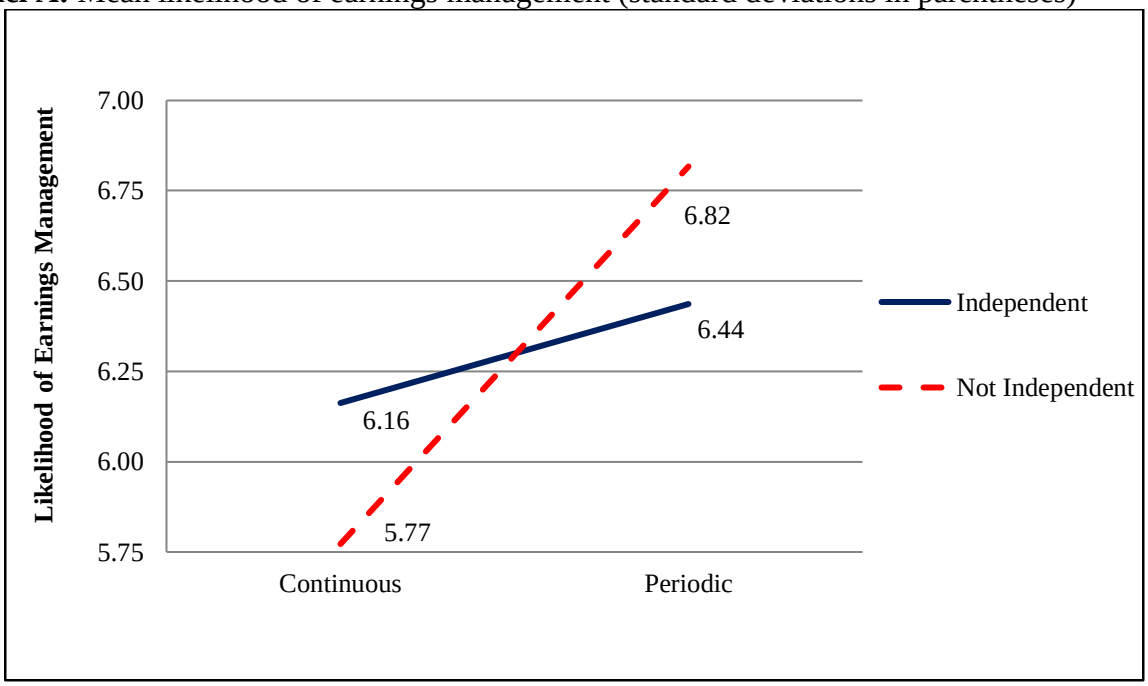
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	28.85	6.83	**.011**
Indep	1	22.14	5.24	**.025**
*EM_Ethical	1	9.59	2.27	.136
IAFreq X Indep	1	0.20	0.05	.828
Between-subjects error	74	312.39		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*EM_Ethical = Participants assessed whether they perceived earnings management to be ethical. Means are adjusted based on average response to whether earnings management is considered ethical at 1.88 (where 1 = Yes and 2 = No). This analysis only includes the 79 participants answering the question.

TABLE 8: Likelihood of Earnings Management (Real) – Ethics Covariate

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)



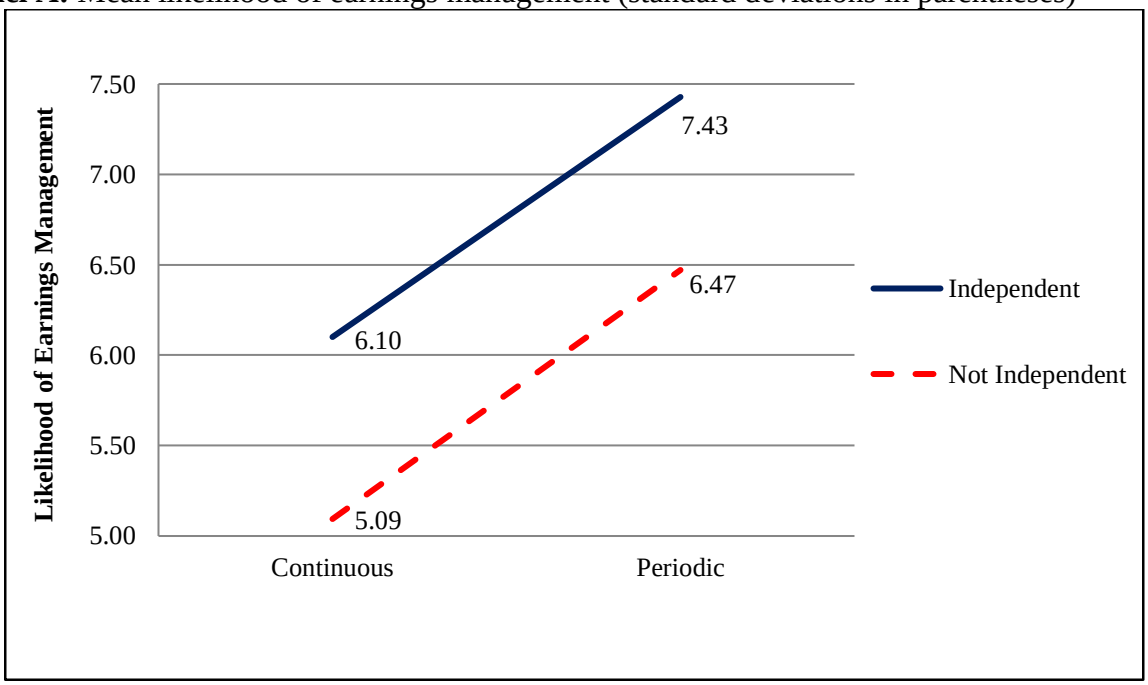
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	9.54	2.41	.124
Indep	1	0.00	0.00	.992
*EM_Ethical	1	21.03	5.31	*.024*
IAFreq X Indep	1	3.19	0.81	.372
Between-subjects error	84	332.61		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*EM_Ethical = Participants assessed whether they perceived earnings management to be ethical. Means are adjusted based on average response to whether earnings management is considered ethical at 1.88 (where 1 = Yes and 2 = No). This analysis only includes the 89 participants answering the question.

TABLE 10: Likelihood of Earnings Management (Accrual-Based) – Skepticism Covariate

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)



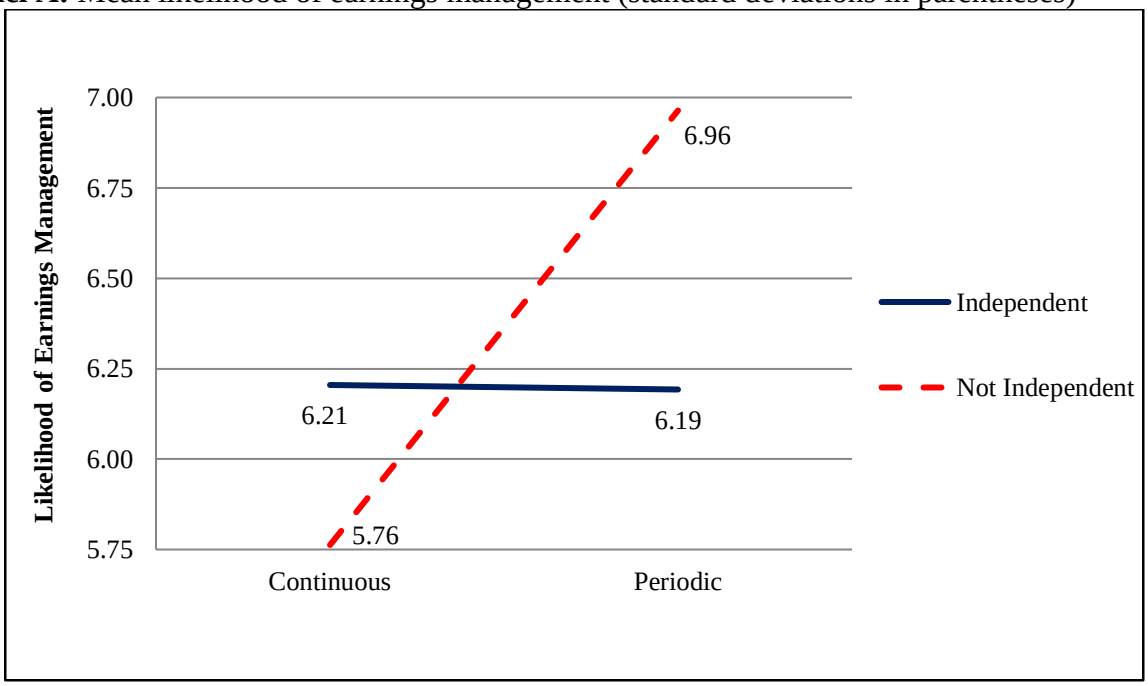
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	35.50	8.56	**.005**
Indep	1	18.59	4.48	**.038**
*Skeptic	1	0.13	0.03	.863
IAFreq X Indep	1	0.01	0.00	.955
Between-subjects error	73	302.84		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Skeptic = Participants answered a modified version of the Hurtt Scale (2010). Participants were divided into high and low skeptics based on a median split (29.00). This analysis only includes the 78 participants answering the questions.

TABLE 11: Likelihood of Earnings Management (Real) – Skepticism Covariate

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)



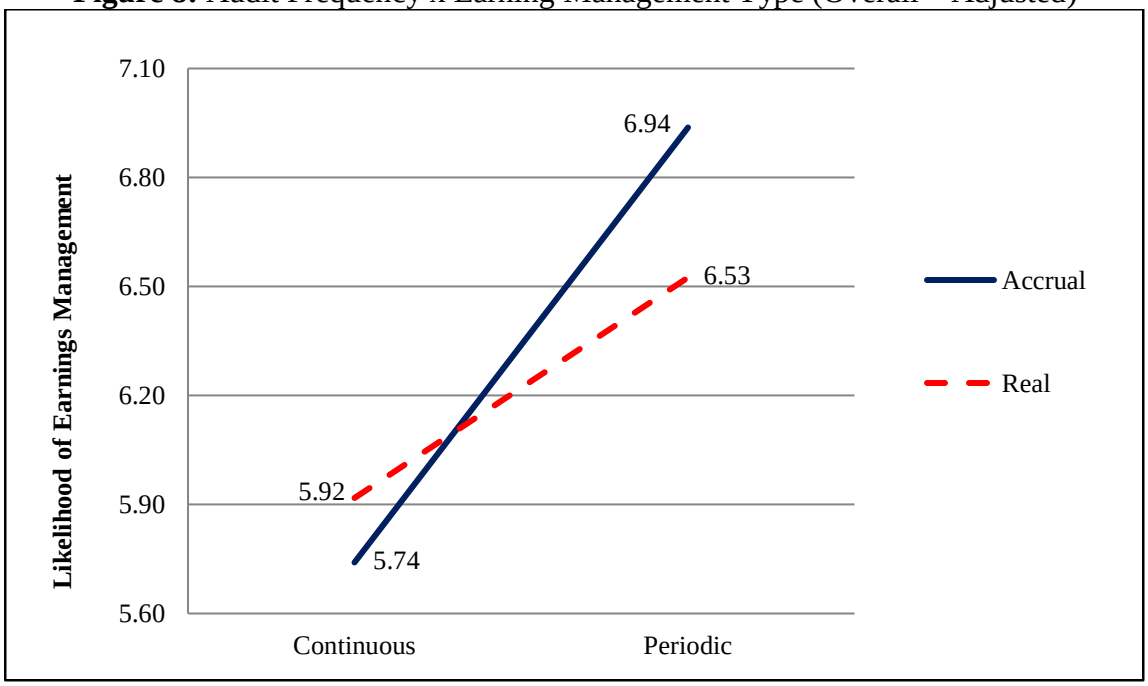
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	7.69	1.85	.178
Indep	1	0.58	0.14	.709
*Skeptic	1	0.51	0.12	.727
IAFreq X Indep	1	7.39	1.86	.176
Between-subjects error	83	345.59		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Skeptic = Participants answered a modified version of the Hurtt Scale (2010). Participants were divided into high and low skeptics based on a median split (29.00). This analysis only includes the 88 participants answering the questions.

Likelihood of Earnings Management (Overall) – Organizational Identification Covariate

Figure 8: Audit Frequency x Earning Management Type (Overall – Adjusted)



Participants assessed the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1 (very unlikely) to 10 (very likely). I manipulate audit frequency (continuous vs. periodic) and auditor independence (separate vs. combined assurance and consulting functions). Means are adjusted based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.

Figure 9: Independence x Earning Management Type (Overall – Adjusted)

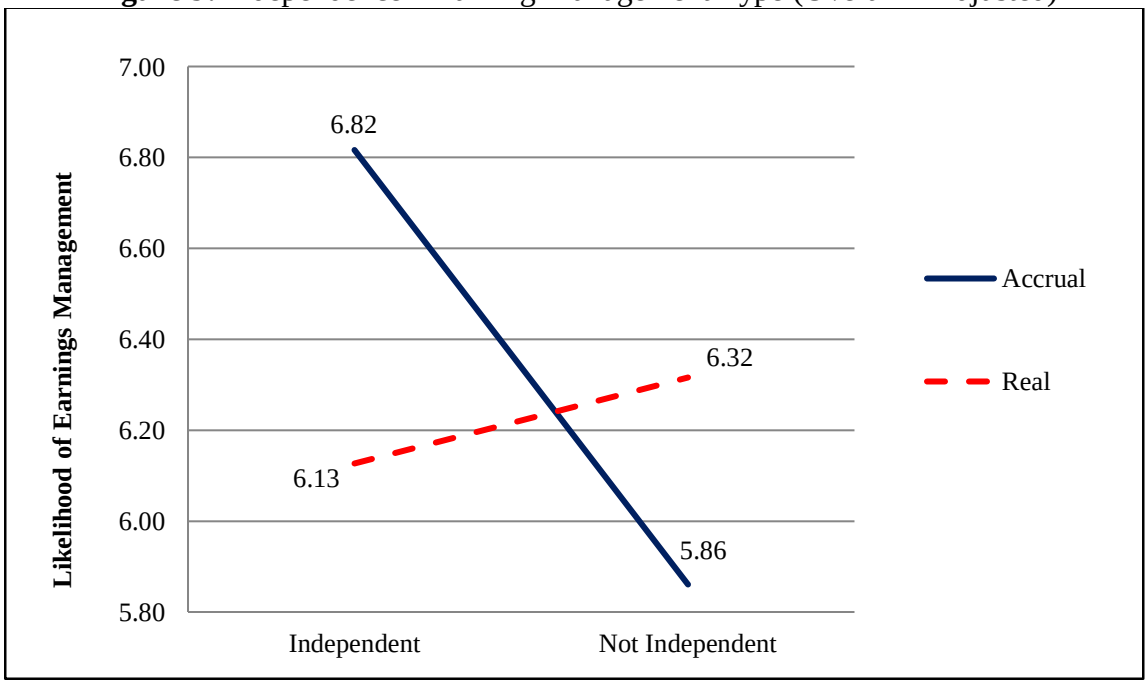
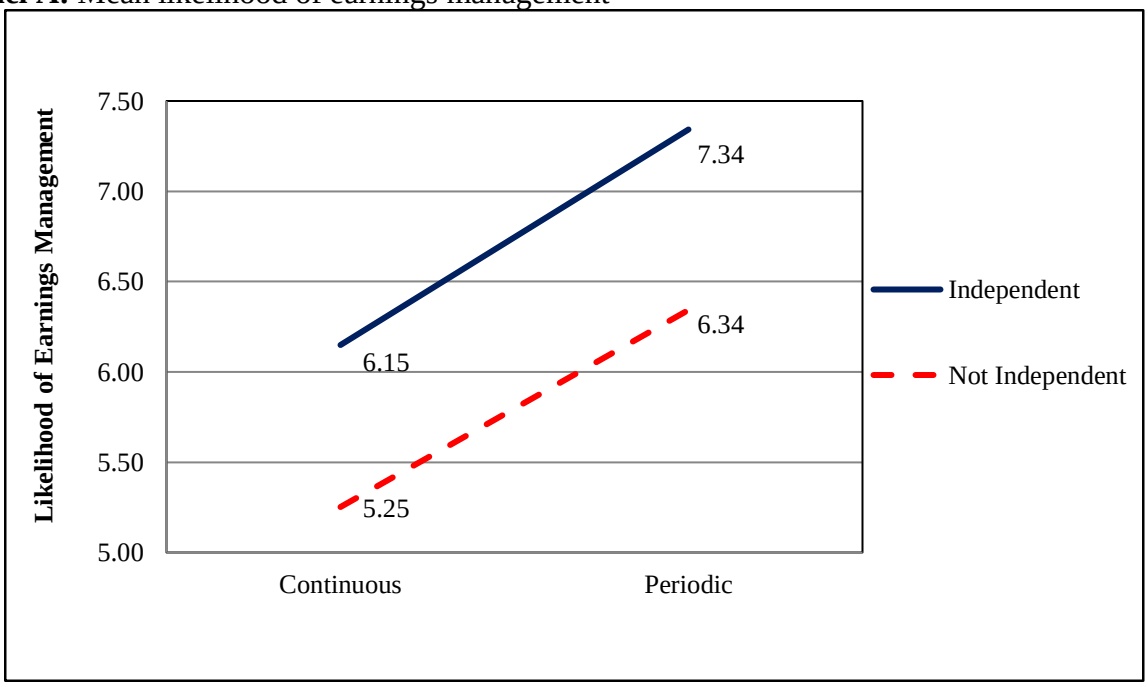


TABLE 13: Likelihood of Earnings Management (Accrual-Based) – Organizational Identification Covariate

Panel A: Mean likelihood of earnings management



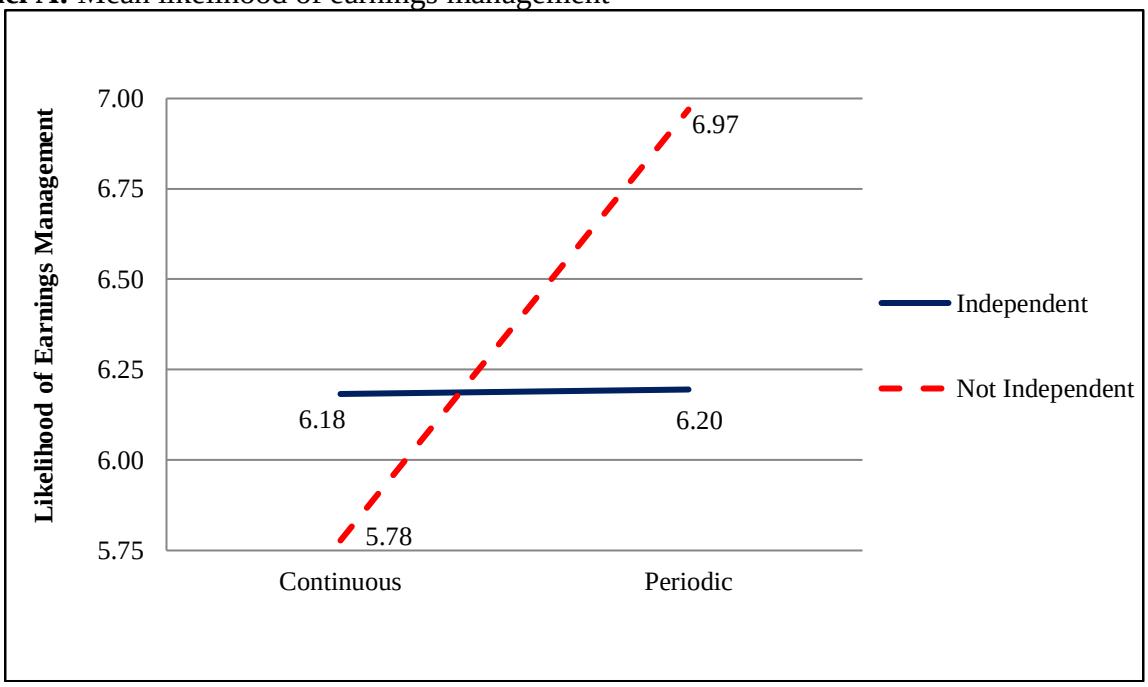
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	24.35	6.24	**.015**
Indep	1	17.54	4.49	**.037**
*Org_ID	1	17.99	4.61	*.035*
IAFreq X Indep	1	0.05	0.01	.907
Between-subjects error	73	284.98		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Org_ID = Means are adjusted based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.

TABLE 14: Likelihood of Earnings Management (Real) – Organizational Identification Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	7.88	1.93	.169
Indep	1	0.73	0.18	.673
*Org_ID	1	6.99	1.71	.195
IAFreq X Indep	1	7.58	1.86	.177
Between-subjects error	83	339.11		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Org_ID = Means are adjusted based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.

TABLE 15: Likelihood of Earnings Management (Overall) – Organizational Identification

Panel A: Mean likelihood of earnings management (standard deviations in parentheses)

	Continuous	**Periodic**	**Combined**
Low	5.44 (2.32) (n = 51)	6.42 (1.80) (n = 43)	5.93 (2.14) (n = 94)
High	6.32 (2.26) (n = 33)	7.12 (1.52) (n = 39)	6.72 (1.91) (n = 72)
Combined	5.88 (2.33) (n = 84)	6.77 (1.69) (n = 82)	6.32 (2.17) (N = 166)

Panel B: ANOVA Results (Audit Frequency x Independence – Organizational Identification)

	Df	**SS**	***F***	***p-value***
IAFreq	1	30.09	7.37	**.007**
Org_ID	1	23.69	5.80	**.017**
EM_Setting	1	1.07	0.26	.610
IAFreq X Org_ID	1	0.30	0.07	.786
IAFreq X EM_Setting	1	3.97	0.97	.326
Org_ID X EM_Setting	1	2.24	0.55	.460
IAFreq X Org_ID X EM_Setting	1	3.94	0.96	.328
Between-subjects error	158	645.29		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 0 (very unlikely) to 10 (very likely)'s mean allocation of resource units

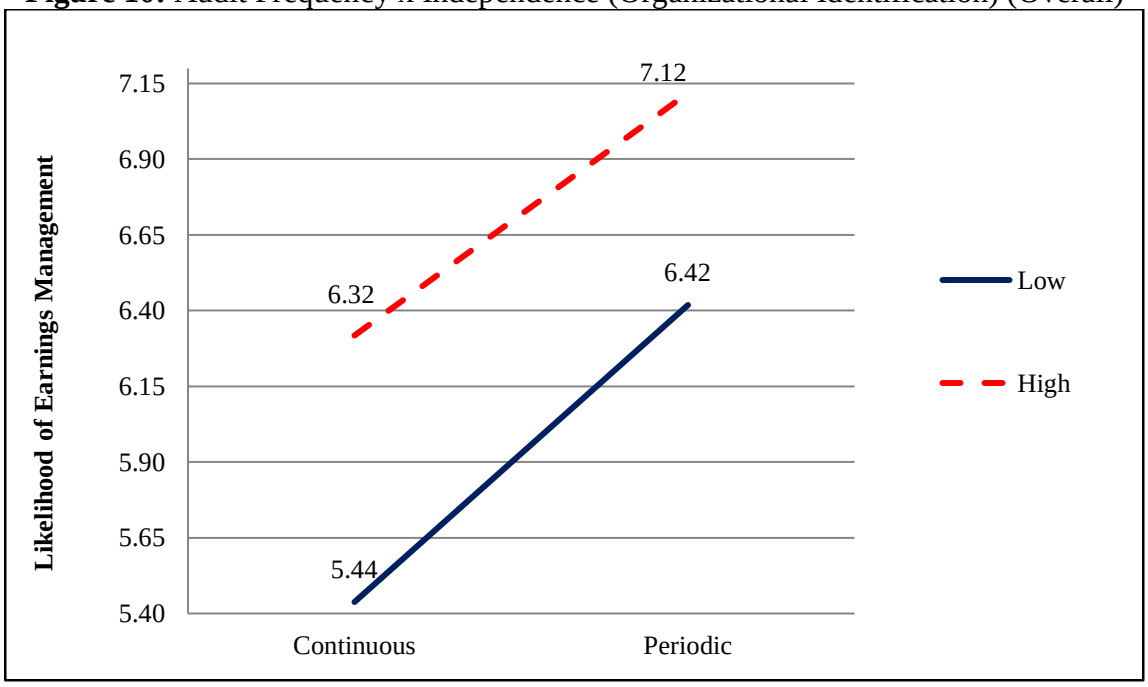
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.

EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.

Org_ID = Measured using Bamber and Iyer (2007) three-question scale, each question measured on a seven-point Likert-type scale with 1 being "Strongly Disagree" and 7 being "Strongly Agree". Participants are classified as either low or high Org_ID based on median score of 12.00. Low (High) Org_ID corresponds to the independent (not independent) classifications in the prior analyses. Analysis includes participants fully completing the scale.

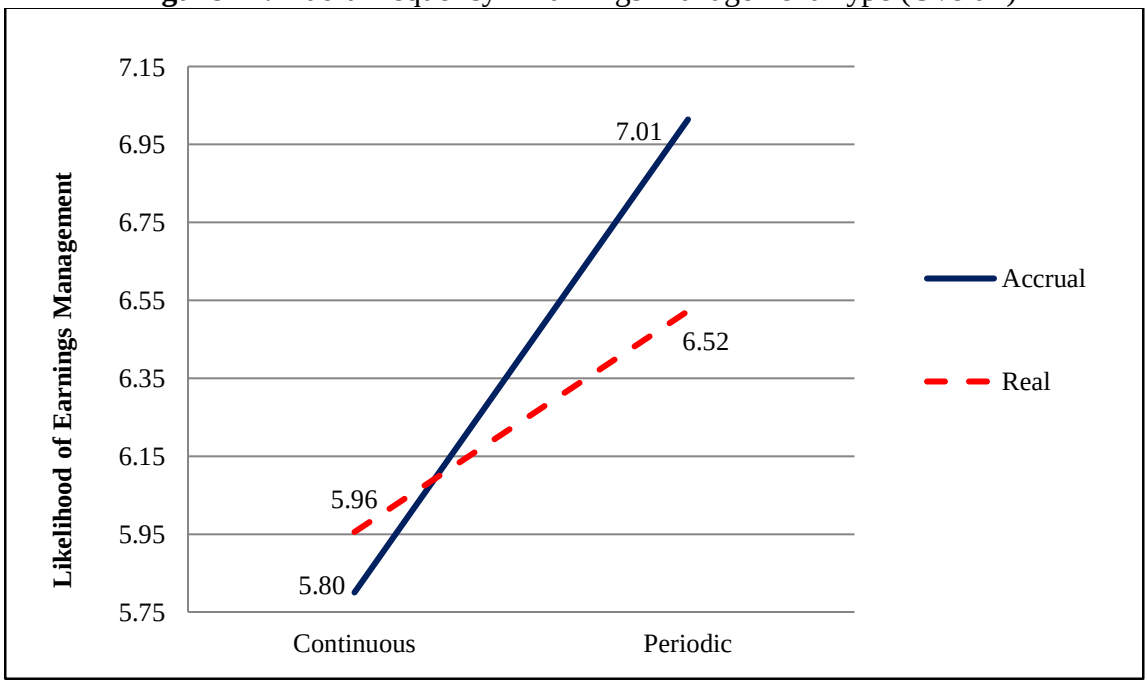
Likelihood of Earnings Management (Overall) – Organizational Identification

Figure 10: Audit Frequency x Independence (Organizational Identification) (Overall)



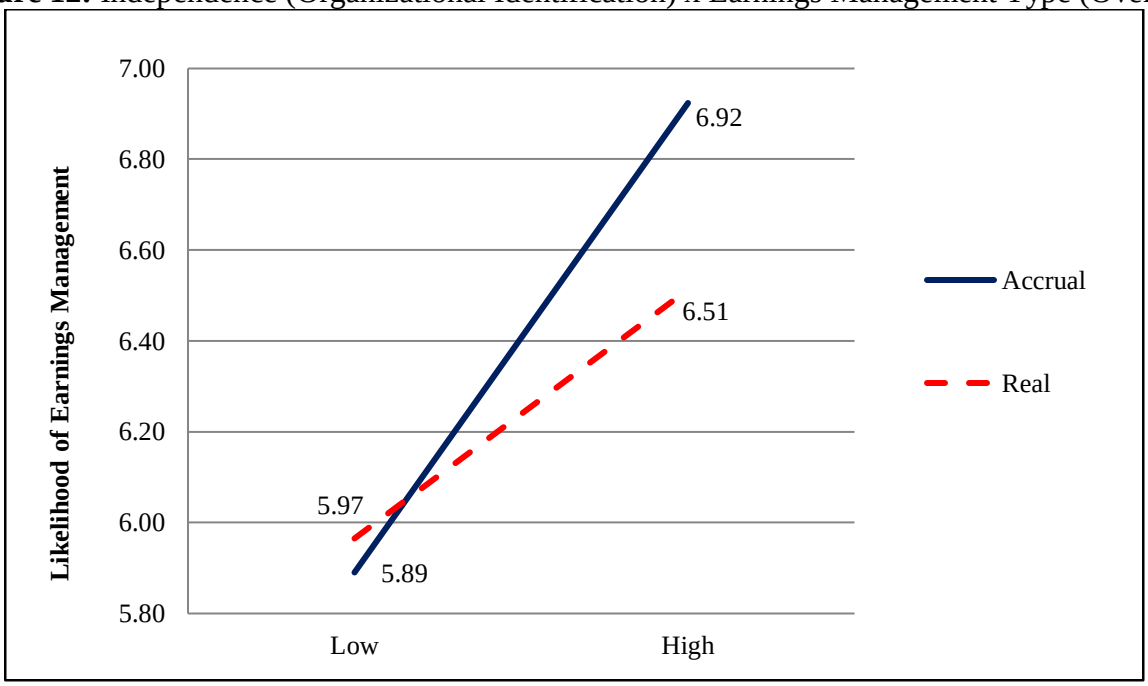
Participants assessed the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 0 (very unlikely) to 10 (very likely). I measure independence in this setting using the Bamber and Iyer (2007) Organization Identification Scale and divide participants into low and high organizational identification based on the median score of 12.00.

Figure 11: Audit Frequency x Earnings Management Type (Overall)



Likelihood of Earnings Management (Overall) – Organizational Identification

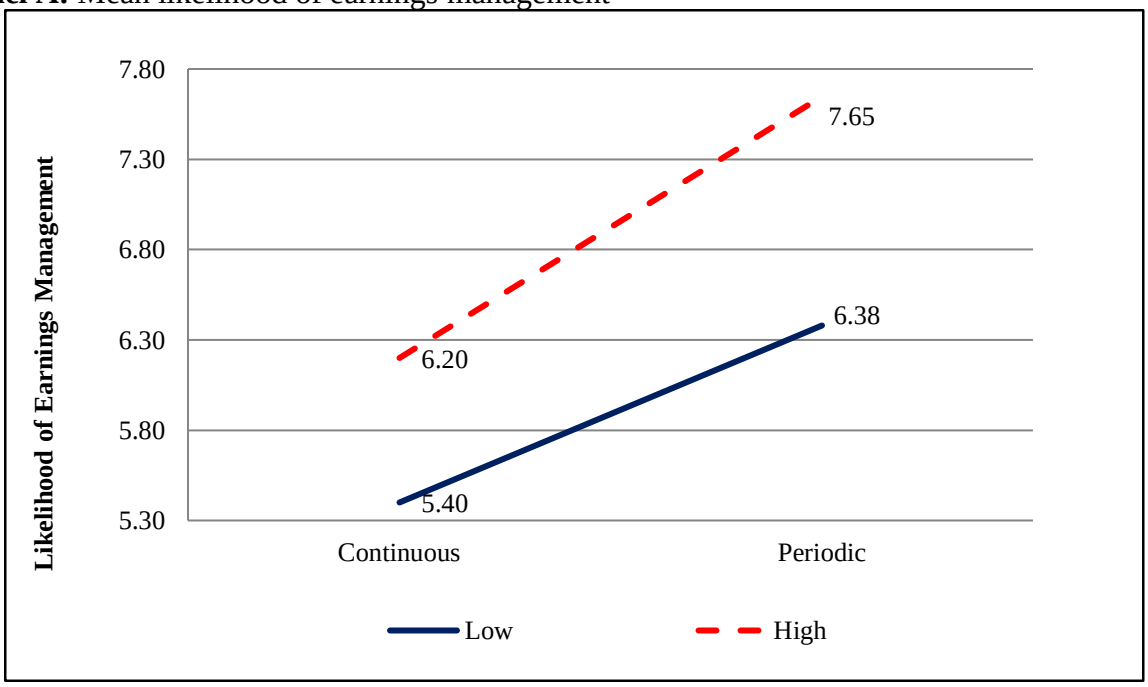
Figure 12: Independence (Organizational Identification) x Earnings Management Type (Overall)



Participants assessed the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 0 (very unlikely) to 10 (very likely). I measure independence in this setting using the Bamber and Iyer (2007) Organization Identification Scale and divide participants into low and high organizational identification based on the median score of 12.00.

TABLE 16: Likelihood of Earnings Management (Accrual-Based) – Organizational Identification

Panel A: Mean likelihood of earnings management



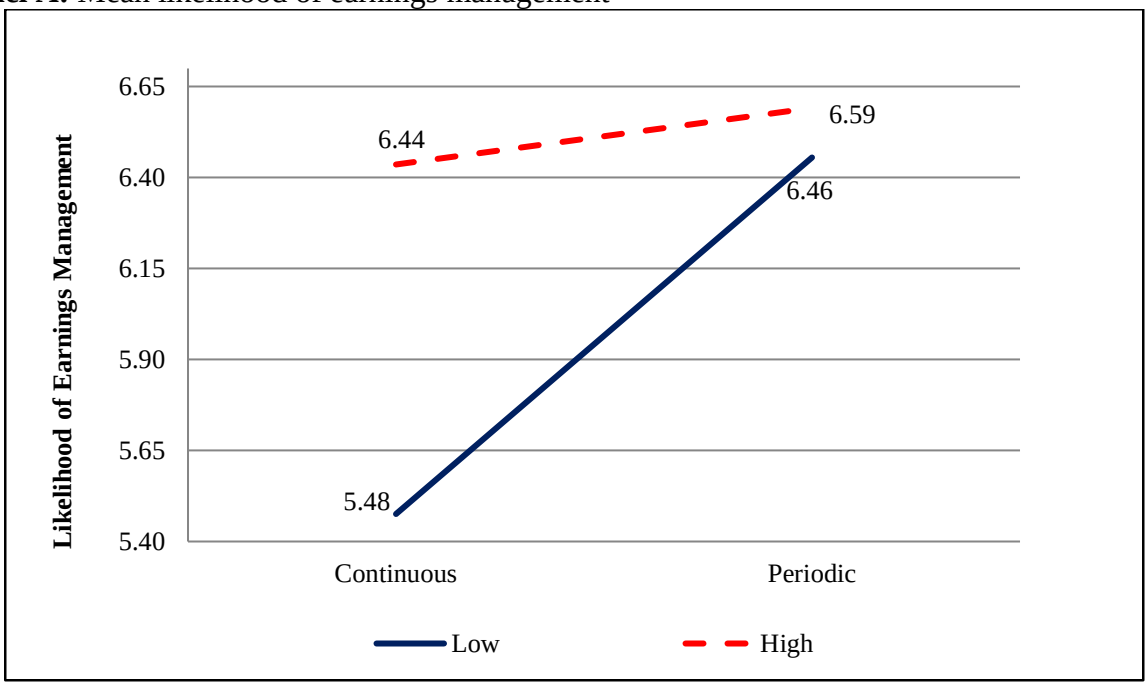
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	24.59	6.03	**.016**
Org_ID	1	17.80	4.37	**.040**
IAFreq X Org_ID	1	0.91	0.22	.639
Between-subjects error	74	301.64		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Org_ID = Means are adjusted based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.

TABLE 17: Likelihood of Earnings Management (Real) – Organizational Identification

Panel A: Mean likelihood of earnings management



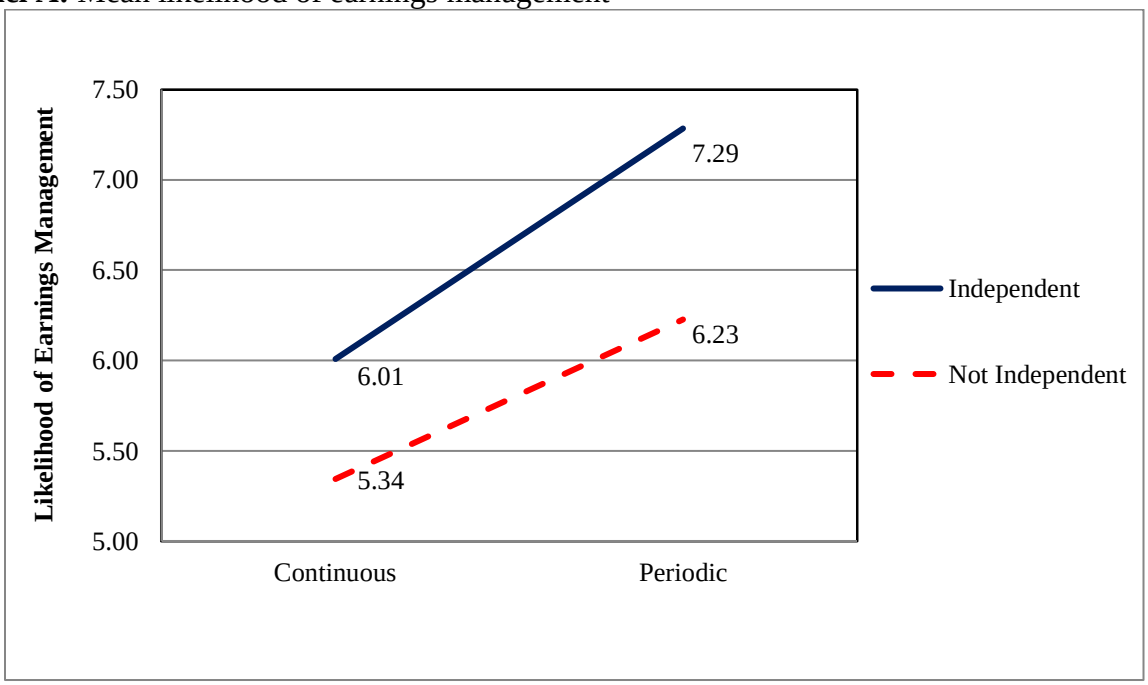
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	7.07	1.73	.192
Org_ID	1	6.59	1.61	.208
IAFreq X Org_ID	1	3.71	0.91	.343
Between-subjects error	84	343.66		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Org_ID = Means are adjusted based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.

TABLE 19: Likelihood of Earnings Management (Accrual-Based) – Gender Covariate

Panel A: Mean likelihood of earnings management



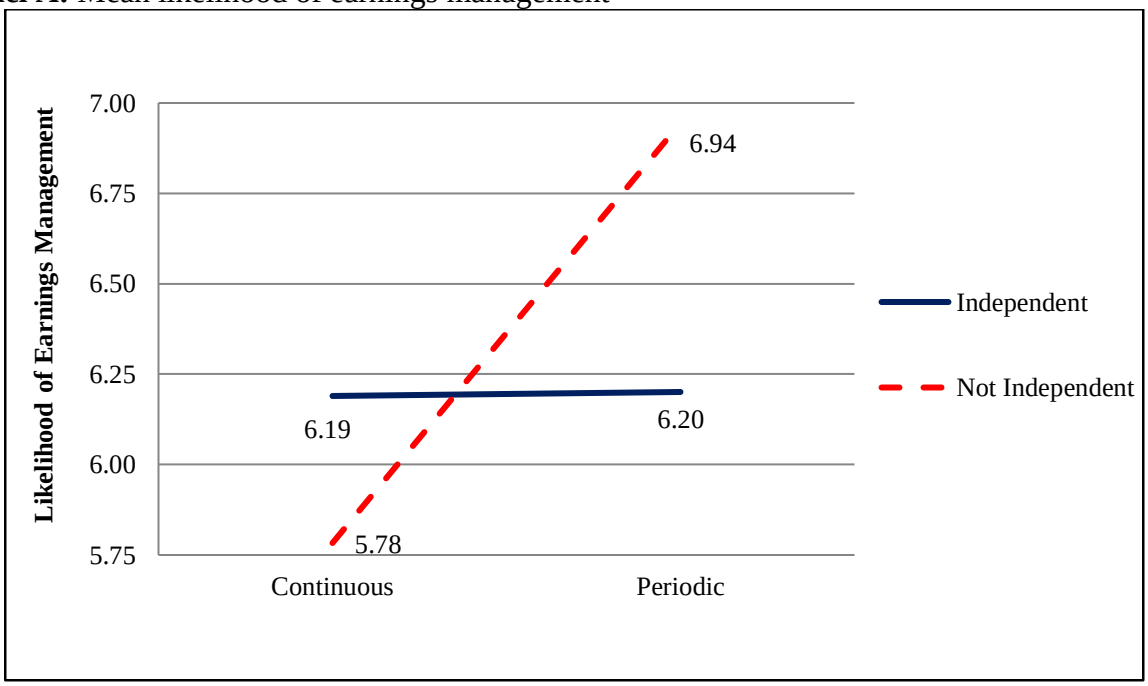
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	22.64		**.019**
Indep	1	14.24		**.060**
*Gender	1	32.68		*.005*
IAFreq X Indep	1	0.76		.661
Between-subjects error	74	289.30		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Gender = Male (1) vs. Female (2).

TABLE 20: Likelihood of Earnings Management (Real) – Gender Covariate

Panel A: Mean likelihood of earnings management



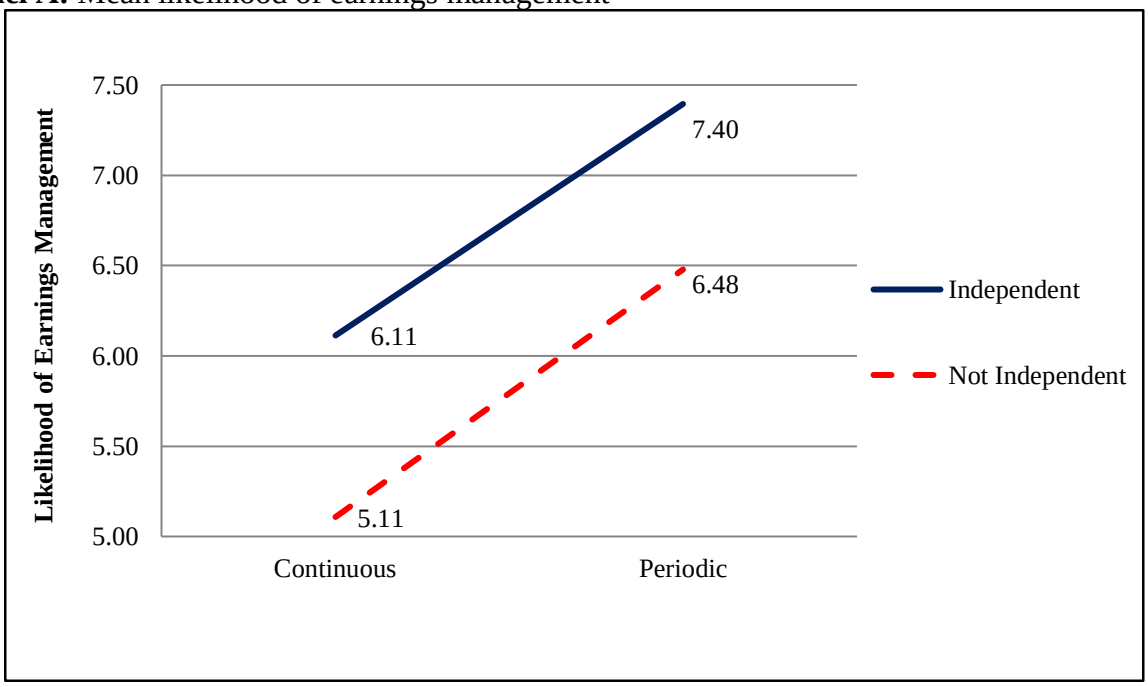
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	7.35	1.74	.191
Indep	1	0.61	0.14	.705
*Gender	1	0.00	0.00	.980
IAFreq X Indep	1	6.97	1.65	.202
Between-subjects error	82	346.09		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Gender = Male (1) vs. Female (2).

TABLE 22: Likelihood of Earnings Management (Accrual-Based) – Assurance Experience Covariate

Panel A: Mean likelihood of earnings management



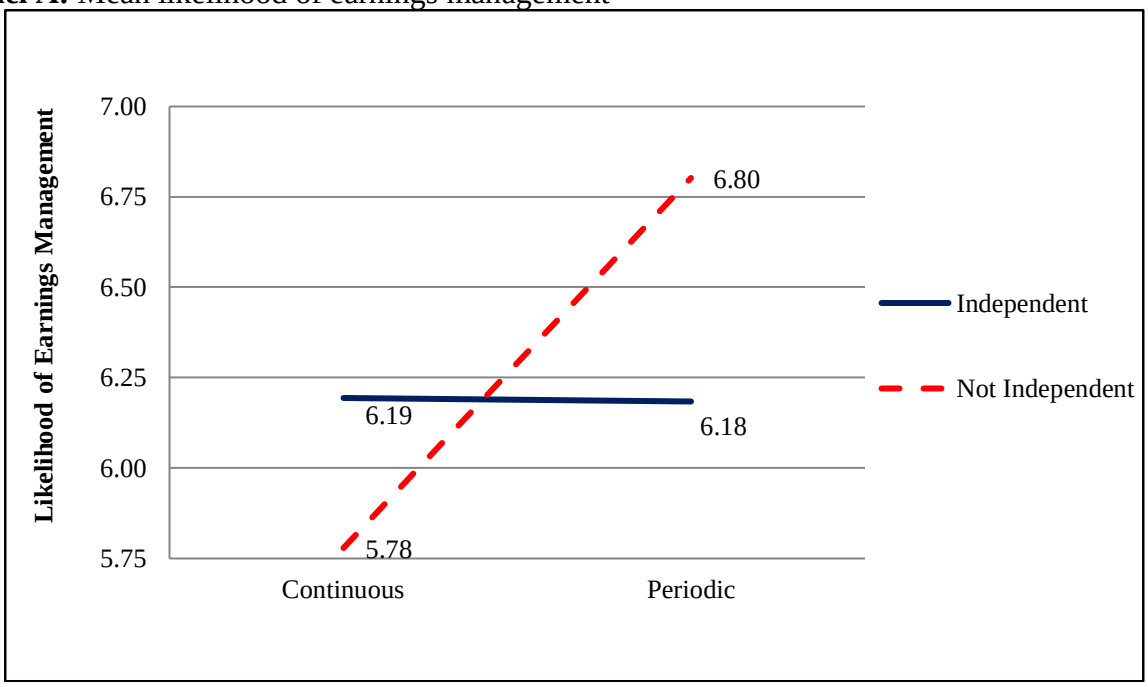
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	33.43	8.07	**.006**
Indep	1	17.92	4.32	**.041**
*AUD_EXP	1	0.38	0.09	.762
IAFreq X Indep	1	0.04	0.01	.923
Between-subjects error	73	302.59		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*AUD_EXP = Participants divided into low (high) assurance experience based on median of 12.50 years.

TABLE 23: Likelihood of Earnings Management (Real) – Assurance Experience Covariate

Panel A: Mean likelihood of earnings management



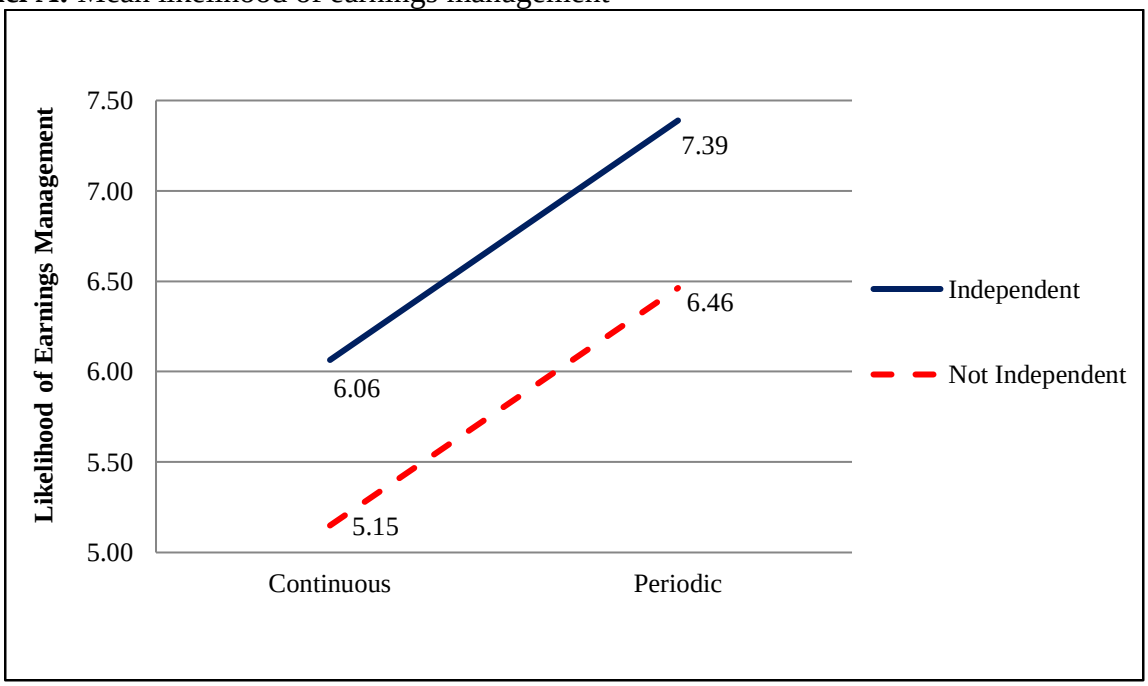
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	5.51	1.35	.249
Indep	1	0.22	0.05	.818
*AUD_EXP	1	0.43	0.11	.746
IAFreq X Indep	1	5.65	1.36	.247
Between-subjects error	82	335.83		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*AUD_EXP = Participants divided into low (high) assurance experience based on median of 12.50 years.

TABLE 25: Likelihood of Earnings Management (Accrual-Based) – Certification Covariate

Panel A: Mean likelihood of earnings management



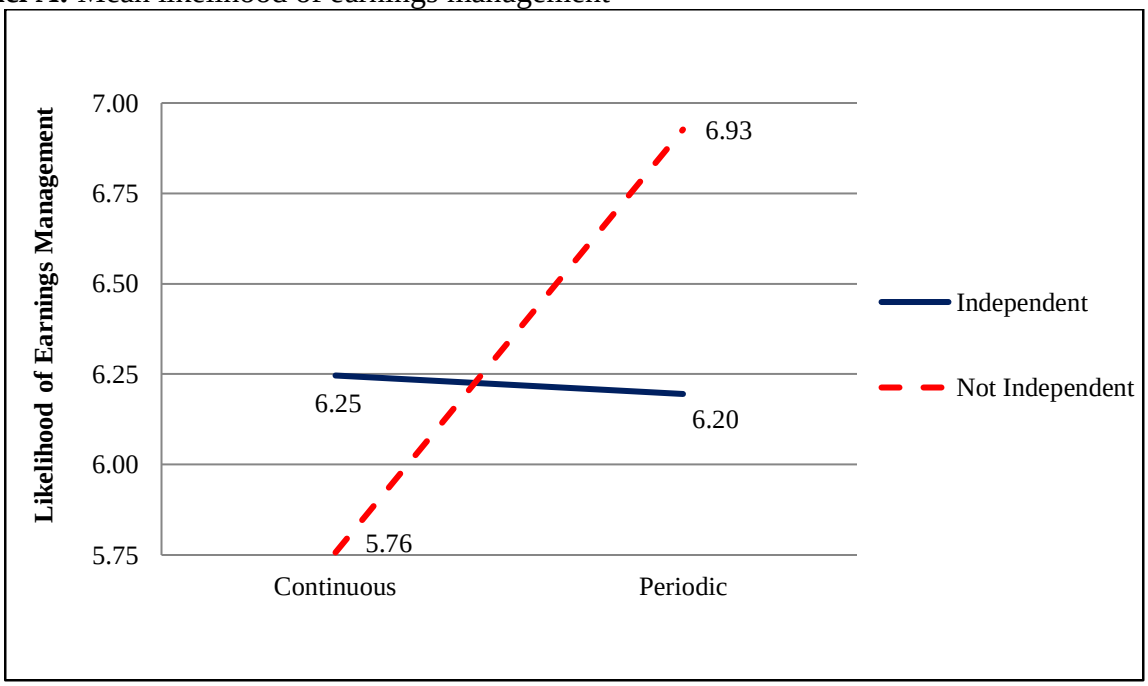
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	33.52	8.15	**.006**
Indep	1	16.07	3.91	**.052**
*Certification	1	6.51	1.58	.213
IAFreq X Indep	1	0.00	0.00	.992
Between-subjects error	72	296.17		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Certification = Dichotomous measure of whether participants report that they have (1) or do not have (0) a certification.

TABLE 26: Likelihood of Earnings Management (Real) – Certification Covariate

Panel A: Mean likelihood of earnings management



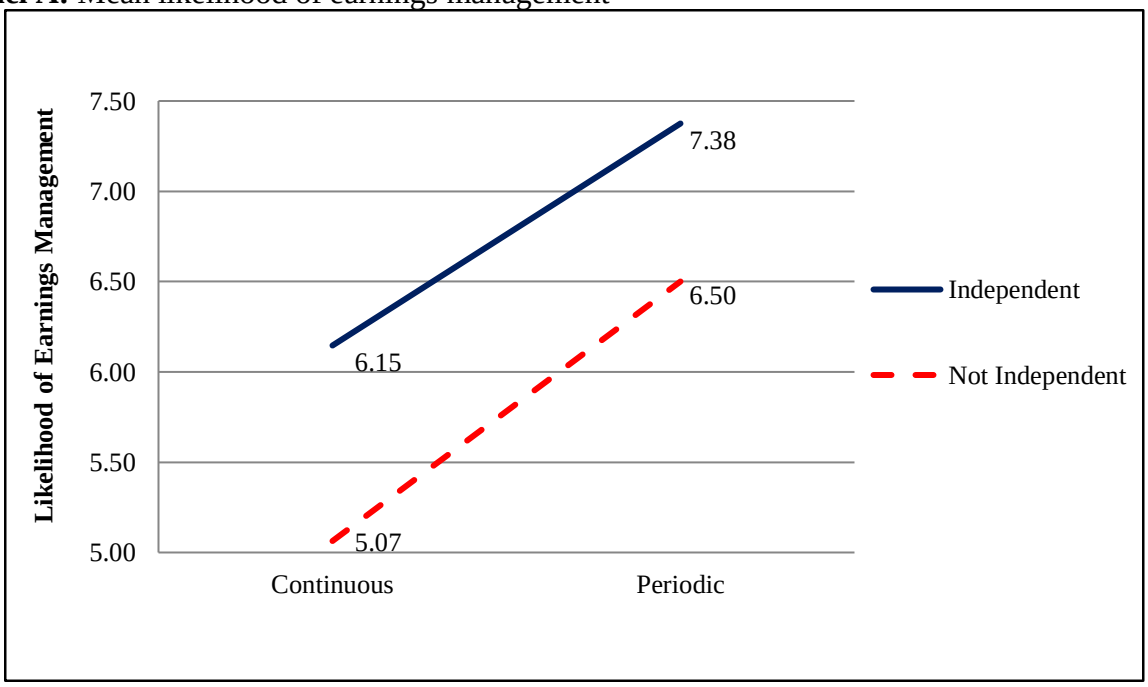
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	6.75	1.63	.206
Indep	1	0.31	0.08	.784
*Certification	1	2.17	0.52	.471
IAFreq X Indep	1	8.04	1.94	.167
Between-subjects error	83	343.93		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Certification = Dichotomous measure of whether participants report that they have (1) or do not have (0) a certification.

TABLE 28: Likelihood of Earnings Management (Accrual-Based) – External Audit Experience Covariate

Panel A: Mean likelihood of earnings management



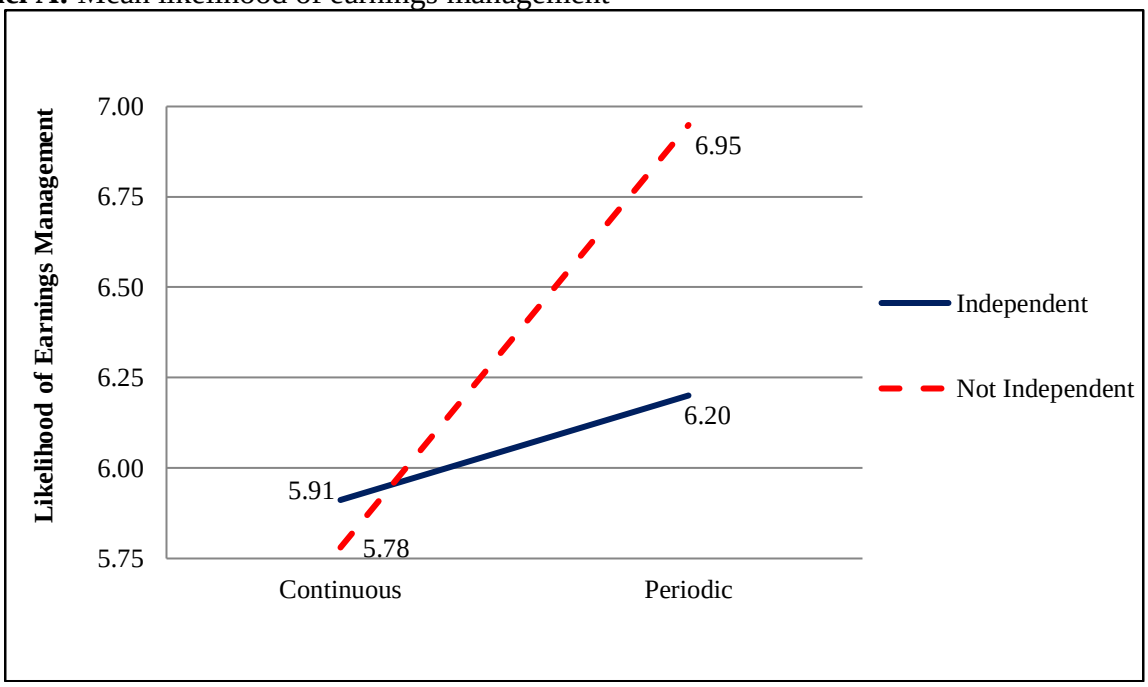
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	34.879	8.56	**.005**
Indep	1	18.840	4.62	**.035**
*EA_EXP	1	1.398	0.34	.560
IAFreq X Indep	1	0.19	0.05	.826
Between-subjects error	74	301.58		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in accrual-based earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*EA_EXP = Dichotomous measure of whether participants report that they have (1) or do not have (0) external audit experience (proxied by only a CPA license).

TABLE 29: Likelihood of Earnings Management (Real) – External Audit Experience Covariate

Panel A: Mean likelihood of earnings management



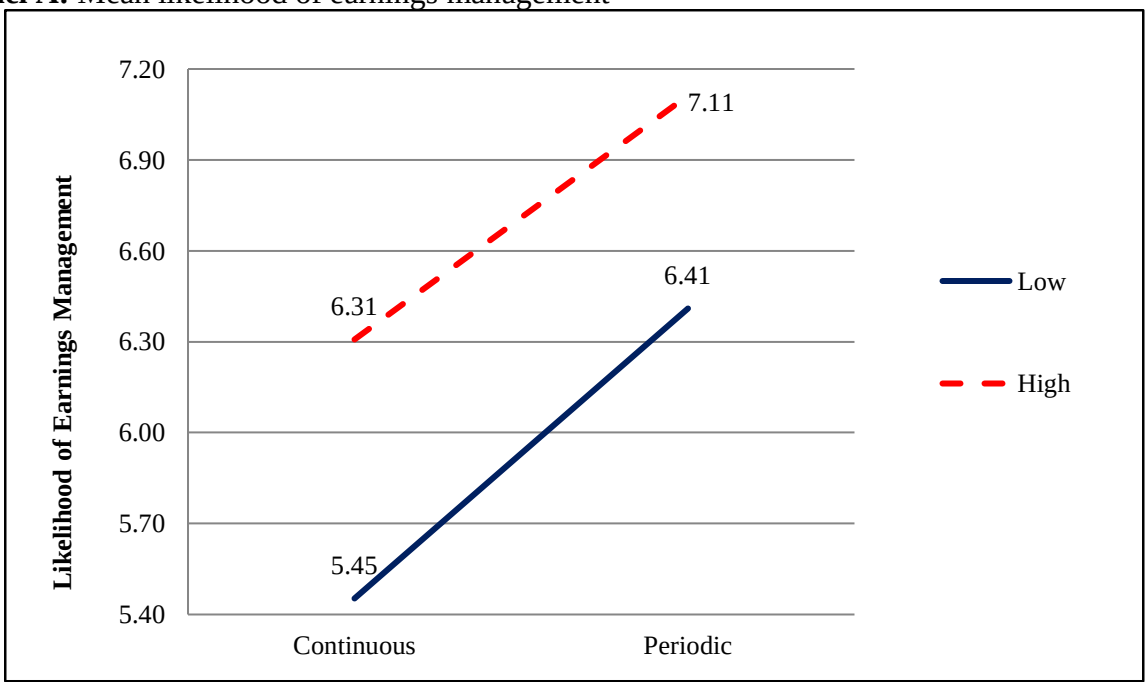
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	11.70	2.57	.113
Indep	1	2.09	0.46	.500
*EA_EXP	1	0.11	0.03	.875
IAFreq X Indep	1	4.25	0.93	.337
Between-subjects error	84	382.56		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*EA_EXP = Dichotomous measure of whether participants report that they have (1) or do not have (0) external audit experience (proxied by only a CPA license).

TABLE 30: Likelihood of Earnings Management (Overall) – Organizational Identification (with Independence Covariate)

Panel A: Mean likelihood of earnings management



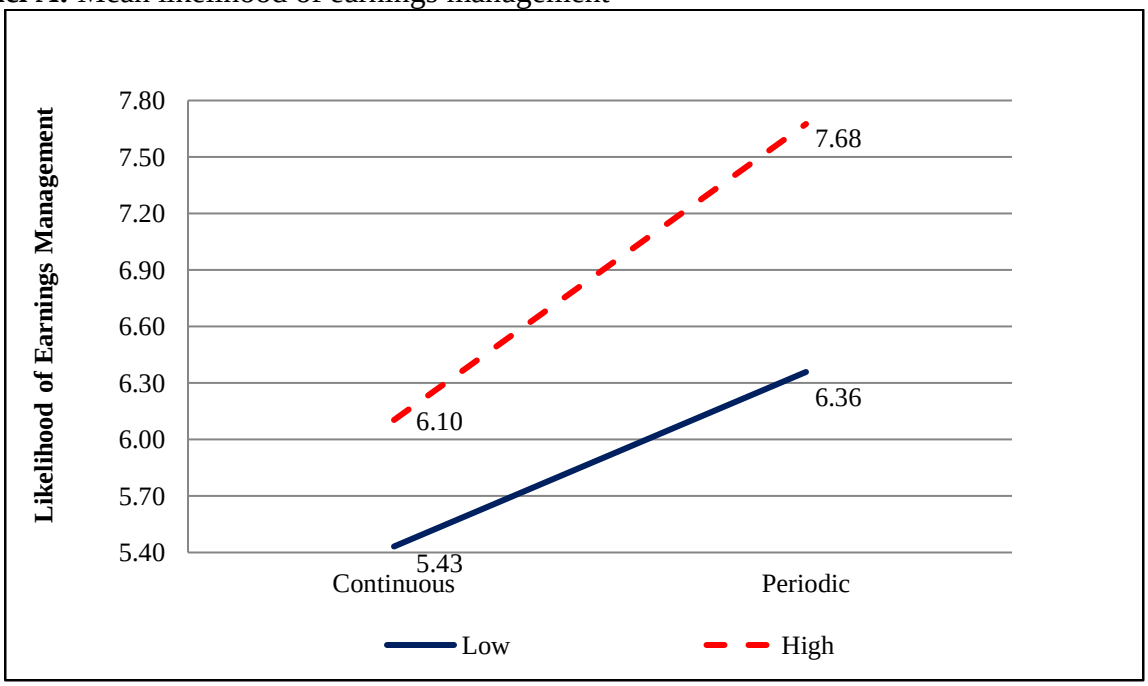
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	29.39	7.21	**.008**
Org_ID	1	22.97	5.64	**.019**
EM_Setting	1	1.10	0.27	.603
*Indep	1	5.59	1.37	*.243*
IAFreq X Org_ID	1	0.22	0.05	.817
IAFreq X EM_Setting	1	4.55	1.12	.292
Org_ID X EM_Setting	1	2.18	0.54	.465
IAFreq X Org_ID X EM_Setting	1	4.46	1.09	.297
Between-subjects error	157	639.71		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Org_ID = Dichotomous measure based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.
EM_Setting = Participants were randomly assigned to either the accrual-based or real earnings management setting.
*Indep = Controls for whether participants were in the separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.

TABLE 31: Likelihood of Earnings Management (Accrual-Based) – Organizational Identification (with Independence Covariate)

Panel A: Mean likelihood of earnings management



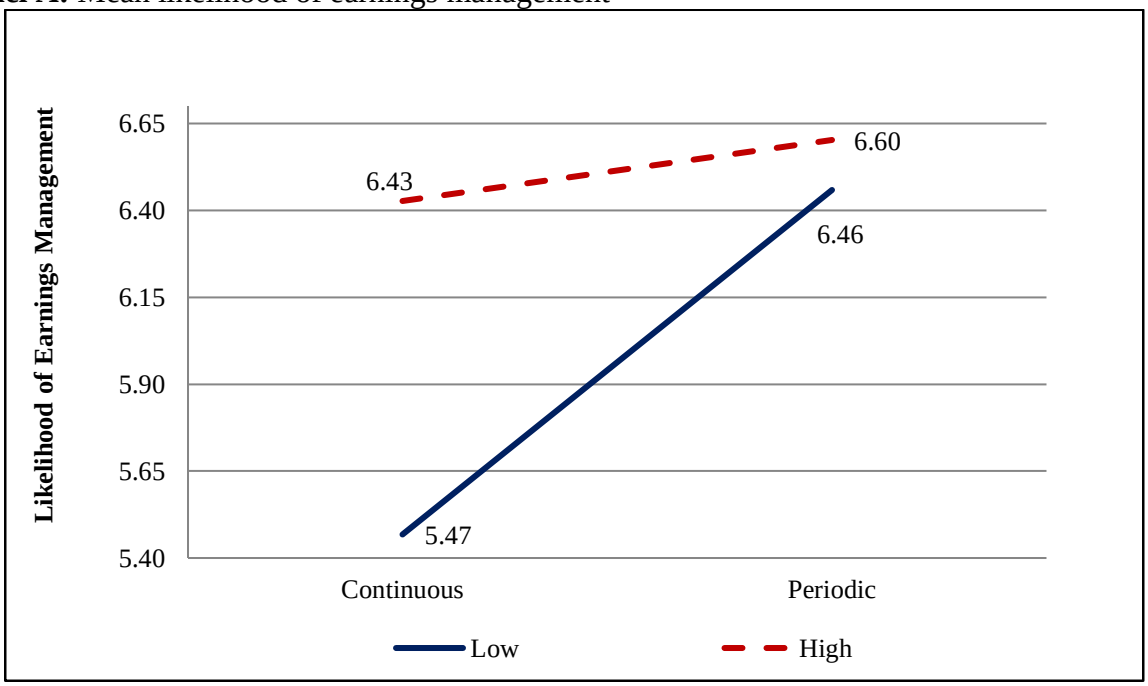
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	26.00	6.70	**.012**
Org_ID	1	16.46	4.24	**.043**
*Indep	1	18.34	4.73	*.033*
IAFreq X Indep	1	1.74	0.45	.506
Between-subjects error	73	283.30		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Org_ID = Dichotomous measure based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.
*Indep = Controls for whether participants were in the separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.

TABLE 32: Likelihood of Earnings Management (Real) – Organizational Identification (with Independence Covariate)

Panel A: Mean likelihood of earnings management



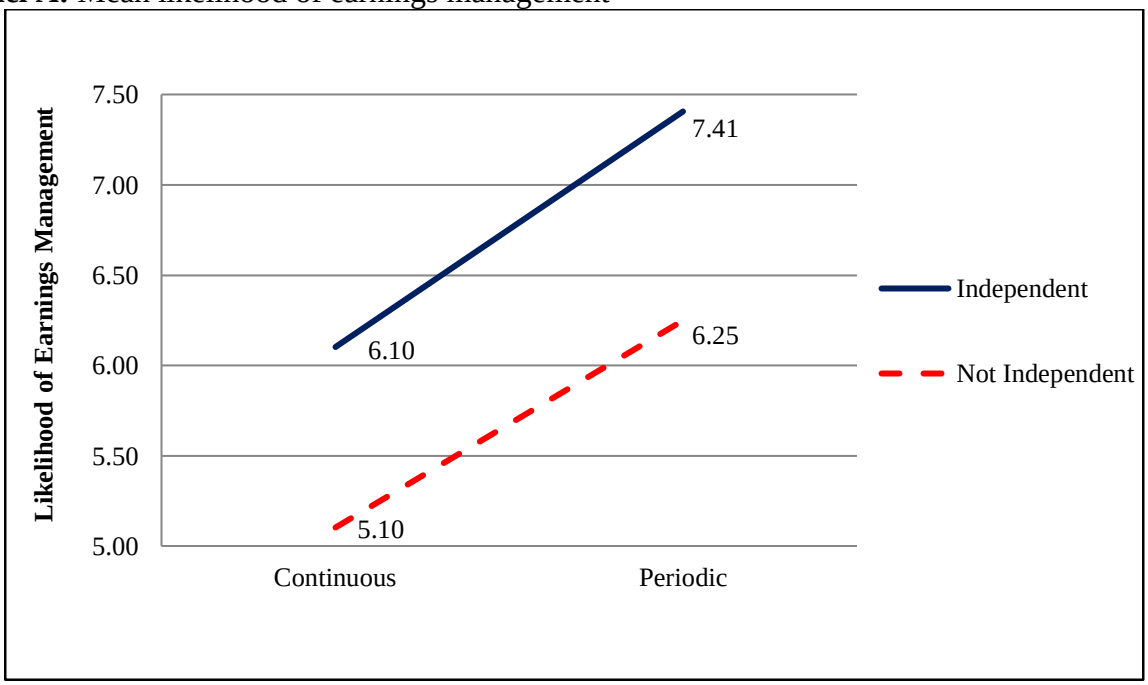
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	7.40	1.79	.185
Org_ID	1	6.68	1.62	.207
*Indep	1	0.62	0.15	.699
IAFreq X Org_ID	1	3.65	0.88	.350
Between-subjects error	83	343.04		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in real earnings management on a Likert-type scale from 1 (very unlikely) to 10 (very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Org_ID = Dichotomous measure based on average responses to a modified version of the Bamber and Iyer (2007) Organizational Identification (Org_ID) Scale and divided into low (high) Org_ID based on median score of 12.00.
*Indep = Controls for whether participants were in the separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.

TABLE 34: Likelihood of Earnings Management (Accrual-Based) – Industry Covariate

Panel A: Mean likelihood of earnings management



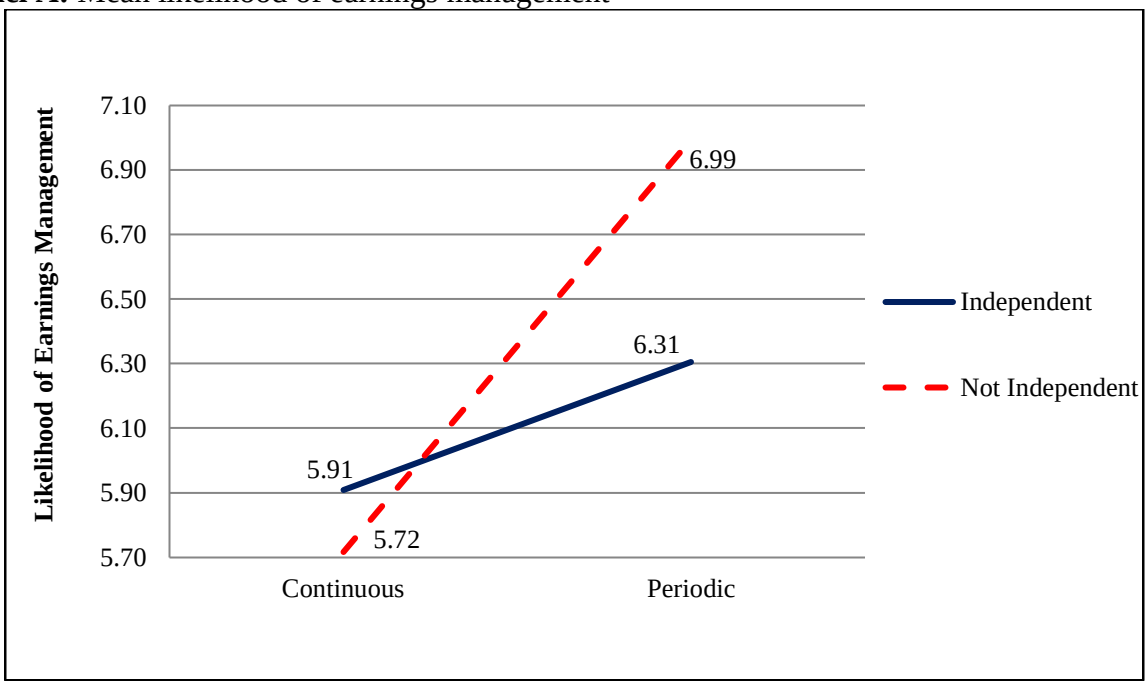
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	29.866	7.055	**.010**
Indep	1	23.269	5.497	**.022**
*Industry	1	.270	.064	.801
IAFreq X Indep	1	.122	.029	.866
Between-subjects error	76	321.730		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Industry = Dummy Code that represents the industry that most closely represents participants' employer.

TABLE 35: Likelihood of Earnings Management (Real) – Industry Covariate

Panel A: Mean likelihood of earnings management



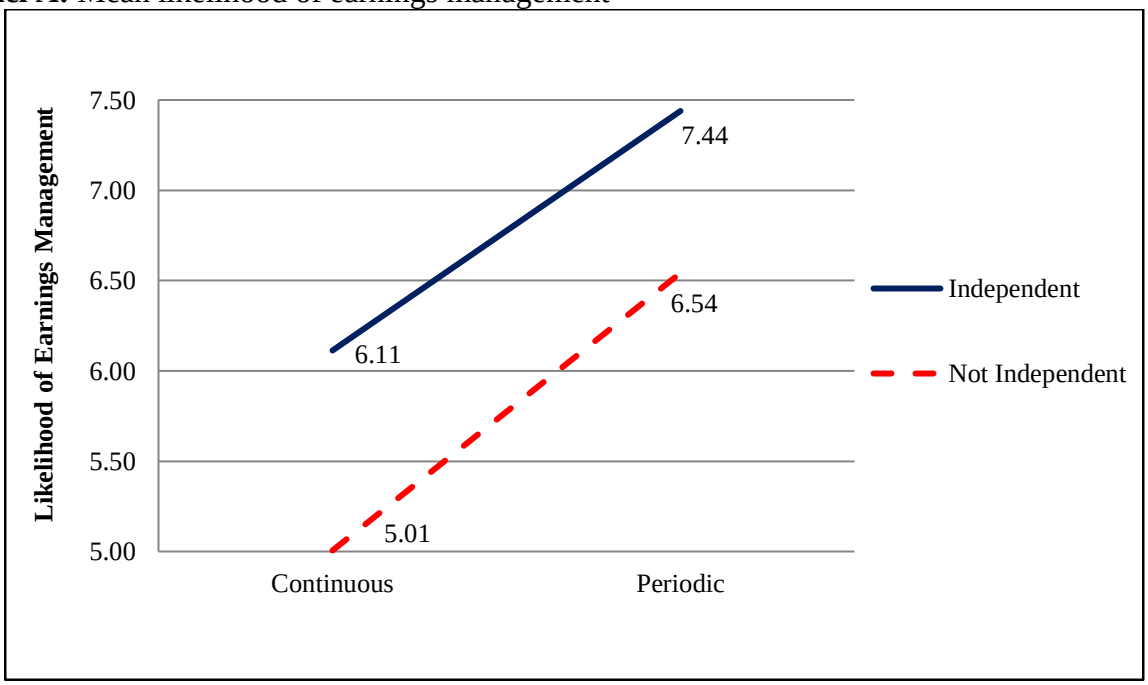
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	15.927	3.524	*.064*
Indep	1	1.407	.311	.578
*Industry	1	1.133	.251	.618
IAFreq X Indep	1	4.424	.979	.325
Between-subjects error	87	393.182		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Industry = Dummy Code that represents the industry that most closely represents participants' employer.

TABLE 37: Likelihood of Earnings Management (Accrual-Based) – Title Covariate

Panel A: Mean likelihood of earnings management



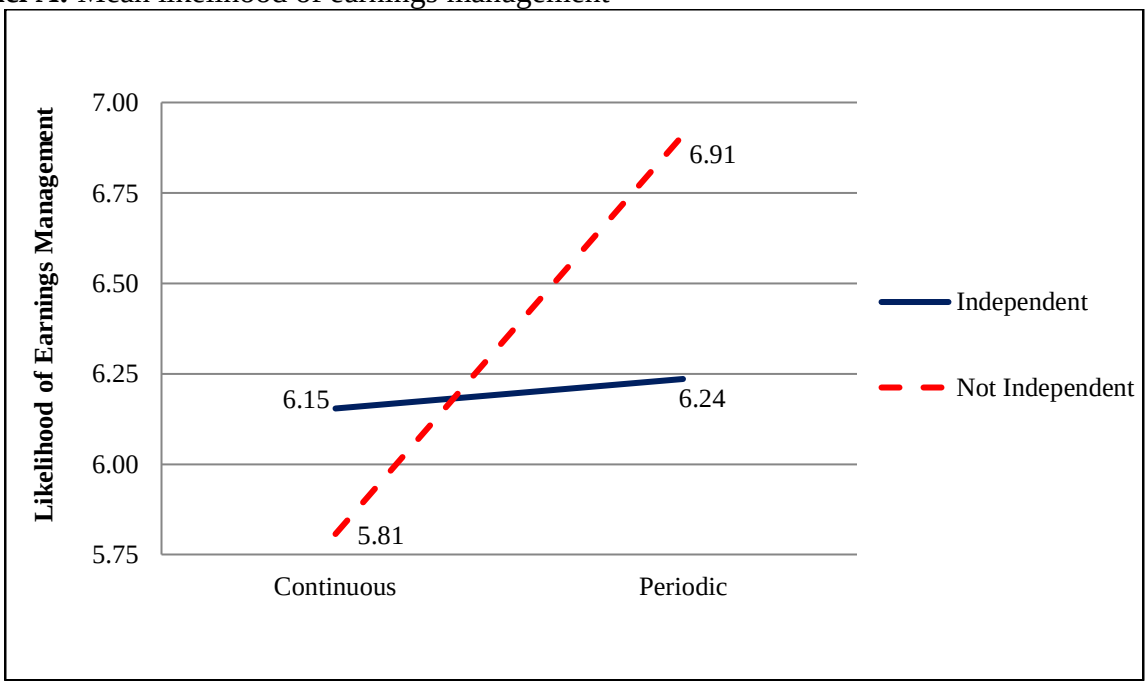
Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	**SS**	***F***	***p-value***
IAFreq	1	38.970	9.565	**.003**
Indep	1	19.549	4.798	**.032**
*Title	1	5.559	1.364	.247
IAFreq X Indep	1	.207	.051	.822
Between-subjects error	73	297.410		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Title = Dummy Code that represents the position currently held by each participant.

TABLE 38: Likelihood of Earnings Management (Real) – Title Covariate

Panel A: Mean likelihood of earnings management



Panel B: ANOVA Results (Audit Frequency x Independence)

	Df	SS	*F*	*p-value*
IAFreq	1	7.652	1.853	.177
Indep	1	.587	.142	.707
*Title	1	3.376	.818	.369
IAFreq X Indep	1	5.546	1.343	.250
Between-subjects error	83	342.723		

Dependent variable = Auditor's assessment of the likelihood a manager would engage in either accrual-based or real earnings management (based on random assignment) on a Likert-type scale from 1(very unlikely) to 10(very likely)
IAFreq = Manipulated between-subjects as continuous (daily) vs. periodic (every three years) internal audits.
Indep = Manipulated between-subjects as separate (independent) vs. combined (not independent) assurance and consulting roles within the internal audit function.
*Title = Dummy Code that represents the position currently held by each participant.

VITA

Dereck D. Barr, CPA (TN – Inactive), CIA joined the PhD program in the Patterson School of Accountancy in 2009. Prior to his doctoral studies, Dereck received both Bachelor and Master of Accountancy degrees from the University of Mississippi in 2002 and 2004, respectively. He then spent six years in internal audit positions at the FedEx World Headquarters following a brief stint with Vitro America; both companies are domiciled in Memphis, TN. His most significant auditing experience was spent leading complex entity audits for the international audit groups.

Dereck's primary teaching and research interests are in the field of auditing. He is most interested in factors that affect auditor (internal and external) judgments and the strategic interactions between auditors and managers. Currently, he is working on projects that individually examine the effect of continuous auditing on internal auditor judgments, how multi-account audit settings affect the auditor's ability to anticipate and respond to the manager's possible tendencies toward financial misreporting, and the effect of professional skepticism on auditor decision-making.

EDUCATION

E. H. Patterson School of Accountancy, The University of Mississippi
Doctor of Philosophy in Accountancy (Psychology minor), *May 2014*
Master of Accountancy, August 2004
Bachelor of Accountancy (Music minor), August 2002

ACADEMIC AND PROFESSIONAL EXPERIENCE

Research/Teaching Assistant, **University of Mississippi –** *August 2009 – May 2014*
Senior Internal Auditor, **Federal Express Corporation** – *January 2004 – August 2009*
Sarbanes Oxley Consultant, **Vitro America** – *October – December 2005*

PUBLICATION ACTIVITY

- The Impact of Contrasts on Auditors' Assessment of Fraud in a Multi-Account Setting (with Kendall Bowlin) – under review at *The Accounting Review*
- One Man's Journey: William L. Campfield's Contributions to the Accounting Profession, *New Accountant, Forthcoming*

WORKING PAPERS

- **Dissertation**: The Role of Independence in the Effectiveness of Continuous Auditing
- Factors that Affect Firms' Decisions to Correct Control Deficiencies Identified in PCAOB Inspections (with Kendall Bowlin and Robin Jackson)

WORK IN PROGRESS

- The Effect of Internal Audit Function Quality on Management's Use of Accrual-Based and Real Earnings Management (with Vicki Dickinson and Kendall Bowlin)
- Trait-influenced Behaviors and Risk-based Decision Making (with Brian Goodson)
- Auditing XBRL (with Kelly Williams)
- The Effect of Continuous Auditing on Jurors' Assessments of Auditor Independence

SCHOLARLY PRESENTATIONS

2014: The University of Mississippi; The University of Wisconsin – Madison; Rutgers, The State University of New Jersey
2013: AAA Annual Meeting (Anaheim, CA); Audit Section Midyear Meeting (New Orleans, LA); Accounting Doctoral Students Association (Anaheim, CA); AAA Diversity Section (Atlanta, GA); *AAA Rookie Recruiting & Research Camp (Miami, FL) – December 2013*
2012: AAA Annual Meeting (Washington, DC); Audit Section Midyear Meeting (Savannah, GA); Accounting Doctoral Students Association (Washington, DC); Accounting, Behavior, and Organizations Research Conference (Atlanta, GA)
2011: AAA Annual Meeting (Denver, CO); AAA Southeast Regional Meeting (Destin, FL)

OTHER CONFERENCE ACTIVITIES

- *AAA Annual Meeting – 2009 – 2013*
- *Auditing Section Midyear Meeting and Doctoral Consortium – 2012, 2013, 2014*
- *Accounting, Behavior, and Organizations Doctoral Consortium – 2010, 2012*
- *World Continuous Auditing Symposium – Rutgers Business School – 2011, 2012*
- *PhD Project Accounting Doctoral Students Association Annual Meeting – 2009 – 2013*
- *Southeast Regional Meeting – 2010*

COURSES TAUGHT *(AS INSTRUCTOR OF RECORD)*

Principles of Accounting I & II *(Fall 2010 – Spring 2013) – The University of Mississippi*

PEER REVIEW AND PROFESSIONAL SERVICE

Ad Hoc Reviewer

- Research in Accounting Regulation

Research Summary Writer

- AAA Audit Section Research Summary Database Project, 2011

Conference Paper Reviewer

- AAA Annual Meeting
- AAA Accounting, Behavior and Organizations Research Conference
- AAA Audit Section Mid-Year Meeting
- AAA Southeast Region Meeting

PROFESSIONAL AFFILIATIONS

- The Institute of Internal Auditors (Memphis Chapter)
- Tennessee Society of Certified Public Accountants (Memphis Chapter)
- American Institute of Certified Public Accountants
- Beta Alpha Psi
- Omicron Delta Kappa

FELLOWSHIPS, HONORS, & AWARDS

- AAA/Deloitte/J. Michael Cook Doctoral Consortium – *Lake Tahoe, CA, 2011*
- AICPA Minority Doctoral Fellow, *2010 – 2014*
- KPMG Doctoral Fellow, *2009 – 2014*
- University of Mississippi Graduate School Dissertation Fellowship, *2013; 2014*
- University of Mississippi Summer Research Fellowship, *2013*
- AAA Diversity Section Doctoral Travel Grant, *2013*

***"A challenge only becomes and obstacle when you bow to it."*– Ray Davis**